

# The 8th International Conference for Entrepreneurship, Innovation and Regional Development.

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Innovation and Regional Development.



ISBN 978-0-9932801-0-8  
ISSN 2411-5320

**The 8<sup>th</sup> International Conference for  
Entrepreneurship, Innovation and  
Regional Development**

**University of Sheffield**

**18<sup>th</sup> and 19<sup>th</sup> June 2015**

**Conference proceedings**

## **Acknowledgments**

The conference organisers would like to thank keynote speakers Professor Susan Marlow, Professor Aard Groen and Michael Kitson. We would also like to thank the track chairs for their hard work: Professor Alistair Anderson, Professor Sarah Jack, Dr Johan Gaddefors, Dr Rachel Doern, Dr Robert Wapshott, Dr Oliver Mallett, Dr Anastasios Karamanos, Professor Colin Williams, Dr Abel Polese, Dr Fumi Kitagawa and Shahid Rasul. Further thanks go to the reviewing teams and all of the participants in the conference.

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# The social and spatial enactment of entrepreneurship

## Creating New Ventures in Organisational Contexts: Emergence, Divergence and Acceptance

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This paper investigates the social process through which venture creation takes place in existing organisations by exploring aspects of sensemaking, relationships and experience in a longitudinal case study of a novel new venture within a multinational corporation. Prior studies in corporate entrepreneurship emphasise the cognitive development of the individual without considering wider context. In corporate ventures, context has a particularly important role on the entrepreneurial process. To support this investigation a new approach is developed through an integrated theoretical framework of organizational sensemaking and structuration theory to examine how shared interpretations and explanations of novel organisational forms emerge in tandem with stakeholders who may hold different perspectives. Building on Gartner et al 's (1992) and Taylor and Van Every 's (2000) concepts of organisational emergence, it is argued that an individual 's experience of organisational emergence takes place through critical events and event clustering as an element of the lived-experience of venture development in an ongoing processual-reality. As a result, ventures are seen to emerge from actors ' relationships in social contexts just as the creation of new ventures is explained to others by actors in social contexts, reciprocally shaping the emergent organisation through a politicised joint process. A novel corporate innovation project, Sigma, was identified within a multinational corporation and field research conducted over a 2 year period as the project went through its development as a potential new independent small firm. As part of this approach, the identification of critical events was facilitated through a series of unstructured critical incident technique interviews, during the two years of research, which allowed for the explanation of context, strategy and outcome over a 10 year period from his perspective. This was then further supported by wider contextualisation and triangulation through the analysis of interviews with multiple key stakeholder participants, field notes and 10 years of documentation at multiple geographic sites, mapped across time over the period of study. Results of the study illustrate how Sigma emerged as a novel new organisational form through a series of events in which individuals shaped the interpretations of what Sigma was, through reference to different contextual forms of norms, meaning and authority. While official published documents heralded the development of Sigma as a key innovation for the corporate firm and sustainable research project, analysis of participants explanations and associated data suggested that Sigma 's development was equivocal and its development never clear-cut. Results show how critical events illustrate wider institutional struggles through which Sigma was identified either as technical research project, innovative corporate product line or potential independent new venture. This combination of events, itself taking place during the merger of the parent organisation with another corporate firm, suggested that the emergence of Sigma was dependent on individual interpretations and practices through relationships, in their shifting socially-situated contexts. In this sense, Sigma was socially constructed through the participation and relationships of a range of

**individuals involved in its emergence. Through the analysis of Sigma as a novel contested organisational form, the developed conceptual framework provides insight into the processes through which individual and venture development reciprocally influence each other as part of an ongoing processual reality. It further illustrates how different relationship-contexts shape and influence the development of new business models, while simultaneously shaping individual social roles and organisational forms.**

## **Keywords**

Corporate venturing; context; process; sensemaking; structuration theory

## **1. Introduction**

This paper investigates the social processes through which internal corporate ventures emerge within multinational firms. Initially, the term internal corporate venturing (ICV) is defined as *the activities that result in the creation of organisational entities that initially reside within an existing organisational domain*. From this starting point, it is identified that an ICV's development is seen to be contingent upon the roles and relationships which individuals pursue within the corporate firm. As a result two related research questions are; what are the roles of individuals involved the venture development process? and; what is the role of wider social relationship-contexts in which venture development takes place?

Corporate venturing (CV) may be defined as the development of new business within corporate firms (Narayanan, Yang and Zahra, 2009, Sharma and Chrisman, 1999). During the past 45 years, multinational firms engagement in corporate venturing has occurred through a series of cycles similar to those observed in the venture capital industry (Gompers, 2002). Research has identified that CV has increasingly been utilised as one of a range of market-focused alternatives to innovation through internal corporate research and development (Gompers, 2002; Chesbrough, 2006). In addition to developing new options for innovation projects, it has been observed that some firms have begun to adopt alternatives to management approaches, such as using venture capital techniques for both internal and external ventures (Miles and Covin, 2002; Campbell et al, 2003; Chesbrough, 2006). Despite the developing interest in CV research (Zahra, 2005, Narayanan, Yang and Zahra, 2009) and the developments in CV practice amongst multinational corporations, as part of a wider focus on *open innovation* (Chesbrough, 2006) little attention has been paid to the conduct of individuals engaged in the development of ventures within the corporate context.

Focusing on corporate ventures is interesting as the instances of venture creation inside organisations is relatively lower than that of independent startups, suggesting that those which are initiated are unusual. Corporate venturing has been found to be increasingly popular amongst established companies, yet a number of issues have been identified which makes new venture creation in established firms difficult. As a result, focussing on CVs has the potential to both illuminate our understanding of venture processes in circumstances which make this unlikely. In addition the roles of individuals and context in which ventures are initiated would appear to be particularly predictable and influential in the venture development process, yet few studies have considered these issues as part of a process, creating a gap in our understanding.

## 2. Social processes in the Development of Internal Corporate Ventures

Early research into the development of internal corporate ventures (ICV) adopted a stage-based process view of ICV development (Burgelman, 1988, Venkataraman, MacMillan and McGrath, 1992). Both Burgelman (1983a) and Venkataraman et al (1992) explain the ICV development process as one involving venture development in a market and technical context, against which individuals support the legitimisation of ventures in an organisational context. This suggests that individuals operating at different levels within the organisation may be engaged in multiple processes in supporting the development of ICV's. This requires knowledge of the particular organisation, technologies and the external market while supporting the uncertain experience of venture development, or *rollercoastering* (Venkataraman et al, 1992).

### 2.1 Action and authority in corporate venturing relationships

In pursuing the development of ICV 's within organisational contexts, it has been suggested that venture managers are particularly reliant on the sanction of senior-level champions, who in turn are reliant on the decisions of top management (Kurakto, Ireland and Hornsby, 2004). Burgelman (1983b) argues that these forms of relationship are part of *induced strategic behaviour* within organisations where strategy is determined at the top of the organisation and is filtered down through managerial authority and support. Azulay et al (2002) conversely argue that top management support may not necessarily be interpreted as such by lower-level employees, and suggest that top management must attempt to convince middle management and employees of their sincerity.

Burgelman (1983a) and Venkataraman et al (1992) argue that ICV relationships may also be influenced by *autonomous strategic behaviour* within the organisation. From this perspective, venture development is initiated and driven by the venture team, headed by an operational manager. In this context the venture manager may need to act as product champion or *intrapreneur* themselves to force corporate acceptance of the project as a venture, with subsequent influence on corporate strategy (Burgelman, 1983a; Pinchot, 1985). Both Burgelman (1983a) and Venkataraman et al (1992) suggest that regardless of the way in which relationships develop, negotiation will take place within the organisation in relation to the development of internal ventures and how they are supported. This suggests that relationships may change over time as the venture develops and the corporate firm responds to this through altering and implementing strategy (Burgelman and Välikangas, 2005).

### 2.2 Social interaction, roles and learning in ICV's

Dougherty (1992) has argued that in order to make sense of the ambiguity of potential customers and needs for ventures, individuals involved in ICV development draw on their *interpretive schemes* (frames of reference). As individuals working within a corporate organisation, each person is a member of a corporate department. Staff within each department share similar activities and as a result develop a shared understanding of these activities, or *departmental thought-worlds* (Dougherty (1992). These shared understandings mean that each department may have implicitly agreed explanations of their activities

regarding the product development process, but conceptualise it in a different way from other departments (Dougherty, 1992).

In her later work, Dougherty (1995) suggests that thought-worlds are effectively institutionalised practices, formed by implicit rules and expected ways of behaving. Prasad (1993) suggests that within organisations there is a tendency for powerful social networks to develop based around managerial hierarchies and organisational structure, such as departments. From this perspective, there is a strong impetus within organisations to conform to the expectations of certain social groups, such as by being seen as a team-player (Prasad, 1993). Dougherty (1992) found that in her case study research, when an external small firm was acquired to support CV activities of a corporation, these external recruits appeared to lose their effectiveness once they were inducted into technical departments within the larger firm.

Dougherty (1992) argues that the dominance of departmental thought-worlds can be overcome through organisational routines, which create opportunities to challenge perceived wisdom through the action of individuals. Dougherty (1992) found that cross-departmental product teams, including an ICV, created an opportunity to develop new interpretive schemes, through interaction with individuals who utilise other institutionalised practices within the corporate firm. From an external perspective, Dougherty (1995) argues that interaction with customers provides insights which may challenge the very premises upon which departmentalised views have been formed, and that venture teams provide an opportunity to feed this back into the organisation. Venkataraman et al (1992) have similarly suggested that internal corporate venture managers may interpret technological solutions through identifying market needs as a sense-making process (Weick, 1975) whereby new options are developed rather than deferring to pre-determined solutions. Communication between venture managers of these solutions to middle managers leads to further sense-making, through which informal social contracts are developed with internal managers and external customers, supported by the venture's legitimacy through the reputation of the parent firm.

### **3. Sense-making, Enactment and Emergence in the ICV Development Process**

Fletcher (2006) notes that from a social constructionist perspective the focus of investigation into entrepreneurship is on how individual collective engagement in *sense-making* and *enactment* in developing new ventures, impact on the societal level through a process of structuration. In understanding social processes in ICV development, sense-making and enactment processes would seem to be particularly appropriate in understanding how ICV's develop through social interaction.

Brown, Stacey and Nandhakumar (2008) argue that sensemaking can be conceived as the process through which individuals enact the social world, as part of an ongoing negotiation with others. From this perspective, sensemaking may be seen as the process through which individuals come to construct their social world through interaction with others (Taylor and Van Every, 2000). Rae (2002) conceives of sensemaking as part of the individual entrepreneurial learning process, whereby individuals come to make sense of their experiences in the context of their social interactions with others. In a similar way, Weick (1995) notes that sensemaking does not begin in a void, but that instead individuals base

their sensemaking on their *beliefs*, which originate in the *structural frames* which exist at societal, organisational and community levels. Weick (1995) argues that at an individual level, sensemaking occurs through the interaction of individual belief and individual *action*, leading potentially to new structural frames through interaction with others.

Conceiving of sensemaking as an individual learning process suggests that sensemaking goes on within the mind of the individual. Fletcher (2006) emphasises that sensemaking is as much a relational process as it is an individual one. While individuals may personally attempt to make sense of their experience, it is only through previous or new interactions with others that new events are constructed. Both Rae (2002) and Fletcher (2006) note that the creation of a new business can be seen to develop through a sensemaking process on behalf of the entrepreneur. From this perspective, an entrepreneur's participation within a community and interaction with things around them allows them to develop an understanding of their social world and identify opportunities to create new business opportunities that a community may be receptive to (Rae, 2002; Fletcher, 2006). In this sense, sensemaking may be seen as the process through which an individual uses their interpretive frameworks of the social world to compare with the current situation faced, in order to decide on a suitable course of action. Subsequent action then influences the social context from which future sensemaking takes place through a process of *enactment*, leading to the social emergence of ventures (Gartner et al, 1992; Fletcher, 2006).

### **3.1 From Enactment to the Creation of Organisations**

In considering the importance of enactment and entrepreneurship, a key issue is the question of what is created. Gartner et al (1992) propose that this relates to the emergence of ventures as new organisational entities, while Brown et al (2008) and Weick et al (2005) note that a sensemaking perspective may view the creation of organisations as a continuous iterative process;

*'The answer is that sensemaking and organization constitute one another...The operative image of organization is one in which organization emerges through sensemaking...'* (Weick et al, 2005, p.410)

Van Every and Taylor (2000) and Weick (1995) argue that existing organisations are created in an ongoing series of interactions between individuals, but Katz and Gartner (1988) note that a focus on existing organisations does not explain how organisations come into being from a state of pre-organisation. Gartner et al (1992) argue that both new and existing firms emerge through an ongoing process of change. For new firms this may be from uncertainty to consistency, whereas for existing firms this may be from certainty towards increasingly diverse interpretations as different perspectives form amongst the individuals involved;

*'Change for an emerging organization is a movement towards more certain interpretations and more consistent cycles of interactions among individuals. Change for an existing organization is a movement towards equivocality, that is, away from singular interpretations for events and behaviors towards multiple meanings and a repertoire of actions.'* (Gartner et al, 1992, p.14)

Gartner et al (1992) argue that this emergent process may equally apply to corporate entrepreneurship as it is not limited to start-up ventures, but may apply in a variety of contexts;

*'[Seeing entrepreneurship as a] ...phenomenon that is focused on "emergence"... offers a way of connecting various entrepreneurship topics together. Topics such as corporate*

*entrepreneurship, the management of rapid growth and innovation, and the pursuit of opportunity, can be seen as permutations of the process of emergence.'* (p.3)

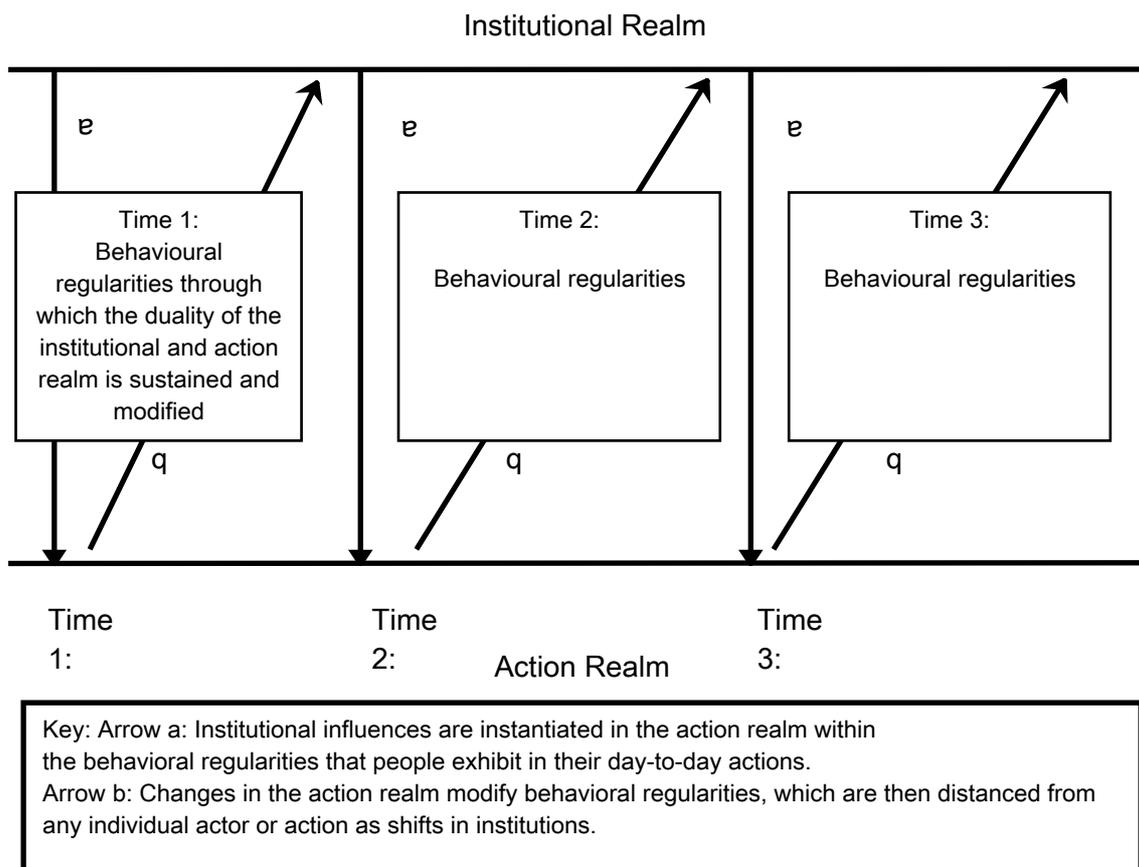
From this social emergence perspective, Gaddefors (2007) notes that it is possible to suggest that there is little difference between entrepreneurship and corporate entrepreneurship. Gaddefors (2007) argues that organisations are not actually created in a real sense, they are only ever socially constructed *images* of reality that are co-developed as part of the interpretive frames of individuals who encounter them. In this sense, Chia and King (1998) note that it is through the experience of *event-clustering*, leading to the identification of patterns and regularities and collective agreement, that the organisation is maintained or changed;

*'Conceived thus, social organizing becomes an interminable ontological project of reality-construction in which ongoing enactments and re-enactments, which take place in social life, inevitably mirror a particular collectivity's attempts to create and recreate its self-identity.'* (Chia and King, 1998: p. 476).

Similar to Chia and King (1998) and Gaddefors's (2007) proposals, Fletcher (2003) argues that rather than focusing on what aspects of entrepreneurship are *real* or *true*, a social constructionist approach to entrepreneurship research *'...would investigate the processes through which organisational emergence is socially constructed through language.'* (p.128). In this sense, Fletcher (2003) follows a sensemaking approach in suggesting that individuals draw on their linguistic resources in order to explain their organisational lives, and through which meaning is created in interaction with organisational stakeholders who may themselves draw upon different, diverse perspectives.

### **3.2 The social emergence of organisations over time**

Chia and King (1998) build on the concepts of sensemaking and enactment in organisational studies by emphasising that as organisations are an ongoing construction. In this sense the experience of an organisation, while appearing to be a fixed state, is in fact one bound by temporality and change in constant flux. This is similar to the emphasis placed on temporality within Giddens' structuration theory (Giddens, 1984; Stones, 2005) that has led researchers to focus on longitudinal studies in attempting to allow for the duality of agency and structure (Heracleous, 2006; Jarzabkowski, 2008). Jarzabkowski (2008) notes that while Giddens (1984) conceived of the duality of agency and structure as simultaneously reciprocal, it is also possible to see this process as one in which action and institution are seen to operate sequentially across periods of time (Figure 8.1). This conceptualisation is useful, when considered in relation to Stones' (2006) quadripartite framework, as it helps to illustrate both the ways in which institutions emerge over time and how agency is continuously informed by this shifting structure, while being simultaneously engaged in creating it. Jarzabkowski's (2008) model builds on Burgelman's (1988) model of the interplay of action and cognition in the development of corporate ventures, but Jarzabkowski (2008) notes that Burgelman's (1983a) conception of structure and strategy is confined to resource allocation within an institutional context which tends to dominate agency through inertia, such as an emphasis on stable authoritative hierarchy, while a structurationist perspective on action and institution over time can see organisational institutions as involving both constraint and change (Jarzabkowski, 2008);



**Figure 1** The Duality of Institutional and Action Realms over Time (Jarzabkowski, 2008)

Giddens (1984) proposes that individual actors are restricted by their physical limitations as entities in time and space, or *time-space distanciation*, which may be roughly summarised as an acceptance that we cannot all be in the same place at the same time; an agent cannot have perfect knowledge of the structures with which they operate in reciprocal causality as they are limited by their existence in a specific geographic location and by the impact of time on their personal projects, such as a human's need for sleep. As a result, Stones (2005) follows Giddens' (1984) argument that actors are limited both in their ability to perceive structure, through a lack of knowledge, and in their ability to act upon it through limited presence, which in part assists in addressing the criticisms levelled at structuration theory for conflating agency and structure (such as by Wilmott, 1986; Parker, 2000).

A focus on temporality and change, and the limitations of experience and the ability to conceptualise it, is shared by Chia and King (1998) who argue that the experience of organisation is conceived as a series of *events* experienced by individuals, which they draw upon when encountering new events. Chia and King (1998) equate this to a child's connect-the-dots picture, where the decision about where to draw the line to the number 9, can only be made on the basis of the existence of the numbers 0-8, and the decisions made in producing the picture to that point. From this perspective, Chia and King (1998) argue that organisations never have a fixed start or end point and that there is no moment at which they can be said to be real. Instead, individuals perceive them as real in the recollection of events through time that involved organising behaviour, which in turn influences their decisions in encountering new events.

Within entrepreneurship research, interest in the experience of entrepreneurs in developing

new ventures has similarly focused on the importance of events in experiencing the development of new ventures. Rae and Carswell (2000) have noted the importance of *learning episodes*, while Cope and Watts (2000) and Cope (2003) emphasised the importance of *organisational discontinuous events* in entrepreneurial learning, which Cope (2003) notes may be seen as relevant to a range of entrepreneurial contexts, including corporate entrepreneurship.

Cope and Watts (2000) note that the idea that new venture creation may be subject to unexpected, formative events is well-established in process-orientated models of new venture development, such as Scott and Bruce's (1987) description of the need for the owner-manager to develop from entrepreneur to professional manager. Similarly, Burgelman (1983a) and Venkataraman et al's (1992) process-models of corporate venturing echo that of Churchill and Lewis' (1983) venture growth model from existence to maturity. The model which would seem to be most similar to the concept of critical events is Greiner's (1972) crisis development model, whereby a venture's growth and sustainability is predicated on the ability for the owner-manager to overcome specific significant events. A focus on *critical events* may be argued to differ from the process-orientated view of new venture development in that it does not accept that crises may be predicted, or that organisations go through defined stages of existence (Chia and King, 1998). Instead, those focusing on critical events have tended to see them as an element of the unique *lived experience* of venture managers (Cope, 2003) in an ongoing processual-reality (Chia and King, 1998). The experience of, and reflection upon, these events are likely to influence the *interpretive frame of reference* through which individuals perceive their business practices and personal sense of identity (Cope, 2003).

Cope (2005) notes that while critical events may be unpredictable, they act as the basis upon which individuals will interpret new situations. In this sense, while new venture development may be seen as *discontinuous* (Deakins and Freel, 1998) and unpredictable, individuals enforce *continuity* on their experience by reflecting on the experience of critical events in the past as a basis for the interpretation of new situations (Chia and King, 1998). Cope (2005) concurs with Weick's (1995) sensemaking perspective in suggesting that this may mean that individuals choose to continue to act in a way which they see as correct, even in situations where this may not be in their own interest. Gartner et al (2003) argue that reflection and sensemaking are based on the actions that precede them, as an interpretive process through which action is explained and justified to others. While these perspectives are consistent with the concept of sensemaking as interpretation, Fletcher (2006) additionally notes that the explanations that individuals produce through language are themselves a form of action, as they actively engage in the construction of their social world. It is therefore through reflection on critical events and the explanation of these to others that organising occurs, as individuals construct the interpretive frames from which they draw in justifying their actions and future intentions.

Finally, it should be noted that while the development of the concept of critical events in the context of entrepreneurship has focused on individual learning (Morris, Kuratko, Schindehutte and Spivack, 2011), Cope (2005) notes that this is *situated learning* (Wenger, 1998) in that the critical events experienced by entrepreneurs tend to be related to social interactions with business stakeholders, such as customers and suppliers, and individuals of personal significance, such as family. In this sense, critical events may be drawn from social interaction in institutional contexts, just as they are in turn explained in social contexts in shaping these institutions.

## 4. The Sigma Case Study - Methodology

In order to support the empirical refinement of the conceptual framework an interpretive case study methodology was adopted. The identification of critical events in the case study was approached using Critical Incident Technique interviews with the venture manager and additional individuals identified as having a key role in the venture development decision process. Interviews were conducted over an eighteen month period and involved reflection by interviewees on activities over a seven-year period. This approach supported the explanation of context, strategy and outcome from the perspective of interviewees. In addition, field notes were taken during site visits which included attendance at meetings and site observations and local geographic maps. Documentation was also collected which related to the venture and wider organisational activities including organisational charts, in-house company magazines, press releases and corporate annual reports over a ten-year period. Together this supported the critical incident interviews through wider contextualisation and triangulation through the collection of interviews with multiple participants and the additional observation and documentary source, and acted as the basis from which a case was developed.

In order to investigate the primary and secondary research questions, a number of forms of analysis were conducted on the available field sources. During the field research activity, attention was paid both to collecting different individual explanations and perspectives of the project. This involved both searching widely for different sources of information on the key events which occurred in the development of the project, while also seeking to gain insight on perspectives on these key events. On occasions, information overlapped and the researchers role was to both ascertain what events were loosely agreed on, while also ascertaining how these were presented. Following the field research period, an interpretive analysis was undertaken of the CIT interviews, identifying key events and looking for individuals presentation of the situational context to these events, the personal strategies undertaken and the identified outcomes. This supported an analysis of individual roles and perceptions. By comparing these explanations to other sources, it became possible to separate consensus from divergence of opinion, and thus identify interpretive repertoires (Gilbert and Mulkay, 1984; Wetherall and Potter, 1988) from across the sources which were the shared explanations for the project which emerged over time.

Through the analysis of the Sigma case study, three explanations of the project emerged as alternative shared interpretive frames. The first explanation was of Sigma as a research project, through which the technical device was created, developed, produced and successfully tested the health industry, through collaboration between Alpha and the client for which Sigma was a vehicle for these relationships. The second explanation was of Sigma as a new corporate product line, through which the production line was established and attempts made to introduce corporate processes and financial expectations. The third explanation was of Sigma as a potential independent venture, through the expectations of participants and negotiations with venture capitalists. It was suggested that these alternative interpretive frames acted as ways of making sense of wider relationship contexts such as technology, legal and corporate issues. In addition, it was suggested that interpretive frames of reference were utilised in dealing with key events, which in turn generated interpretive frames as part of a sensemaking process. While different sources emphasised different explanations at different points in time, it was often the case that a single source would present multiple interpretations within the same source, sometimes emphasising one and downplaying the other, or comparing two as competing but equally compelling.

Wetherall and Potter (1988) outline interpretive repertoires as a form of discourse, but they are created out of individuals perceptions, priorities and actions (Gilbert and Mulkay, 1984). Similarly, it was noted that events and interpretations were not simply discussed, but arose as they were acted upon through relationships with others through participation in different evolving communities of practice (Wenger, 1998). This included enforcing the concept of

Sigma as a potential independent venture and avoiding adoption from the Health Division. Reinforcing activities included arguing with others about production and management expectations.

The interpretive frameworks, relationships and practices of the individuals involved with Sigma were mapped against the conceptual framework to illustrate the social processes which were identified through the analysis (represented in Figure 2).

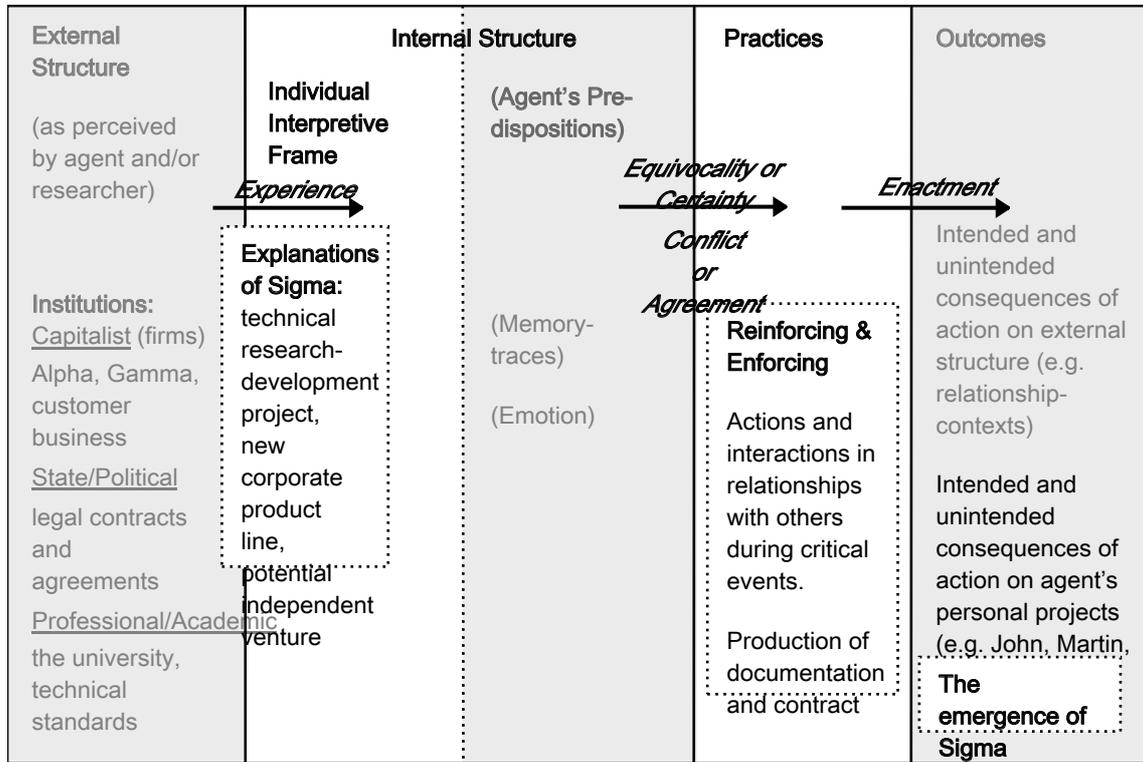
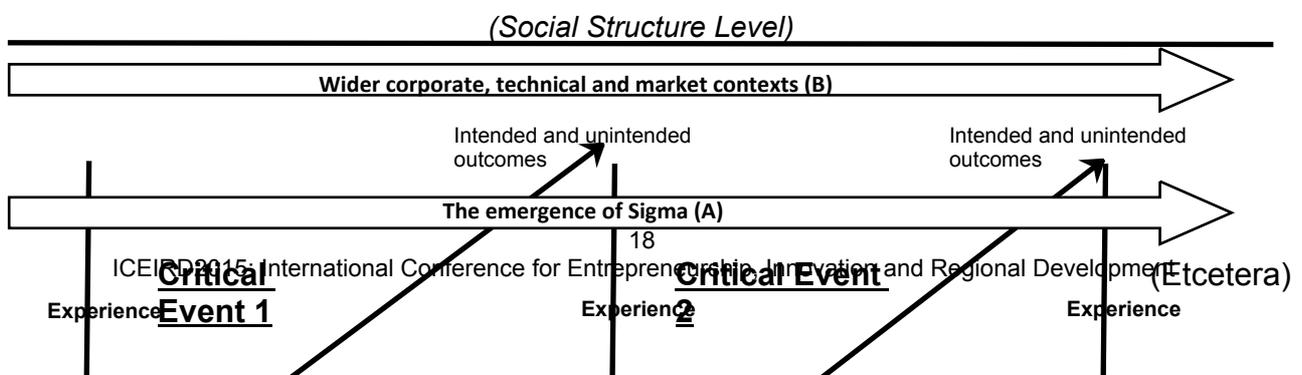


Figure 2 Making Sense of Sigma

It was noted that perceiving social processes in this way was useful in explaining a single event, but was less useful in illustrating the process of experience and enactment over time, in encountering equivocal critical events. In order to represent this process over time and how they appear to participants as a continuous stream of experience and enactment, the conceptual framework was integrated with Jarzabkowski's (2008) diachronic framework (represented in Figure 3).



### **Figure 3** Conceptualising the social emergence of Sigma

The refined conceptual framework was argued to explain how the social emergence of internal corporate ventures occurs over time through shared critical events, individual sensemaking and social actions through relationships. In applying this to the analysis of Sigma, it is noted that this framework may simplify the complex lived-experience of the individuals involved with the development of Sigma, but is presented as a useful analytical tool to explain these social processes.

## **5. Discussion - The Social Emergence of Sigma**

It was identified that the lead internal corporate venture manager, John, appeared to relate his initial involvement in Sigma with his previous experiences working for a small independent venture. His subsequent explanations were suggested to relate to the ventures sustainability, which was never guaranteed, through financial legitimacy and the commitment to develop the venture.

It was noted that John presented his experiences as one in which he developed the venture in the face of challenges through relationships with corporate staff and the client business. John presented himself as a loner, struggling to secure support of other manager while unable to share the situations he faced with venture staff. Where support became available, this was suggested to be due to shared interpretations of Sigma's potential for development, which encouraged John to strive to retain this support when it appeared to be threatened by structural changes in the corporate firm. The challenges that John experienced, were further complicated by the expectations of authoritative norms within the corporate firm. In this sense, John's attempts to develop the venture were affected by his lack of control in situations where he was subject to the decision-making processes of senior corporate staff. As Sigma developed, the ambiguity of manager perspectives and uncertainty of Sigma's development encouraged John to base his proposals for Sigma on his previous experience at an independent venture. The experience of conflict with various corporate staff members and apparent restrictions of opportunity with the current single client further encouraged him to attempt to enforce his interpretation of Sigma as a potential spin-out venture. This interpretation was supported by the enthusiasm of external venture capitalists for Sigma's potential as an independent venture and commitment to support the venture, in comparison to the continuing uncertainty of Sigma's potential as a corporate product line amongst corporate staff. Despite this decision, John and his advisors continued to recognise the

decision-making authority within the corporate firm in developing alternative scenarios for Sigma, although this was used as an opportunity to enforce the independent option.

It was noted that an unintended outcome of the development proposal to Alpha was the CEO's recognition of the potential of Sigma as an innovation which should remain in the corporate firm. This provided certainty for Sigma's development and led to the reframing of Sigma as a corporate innovation, with an acceptance of corporate approaches to innovation development and role definition. Despite this acceptance, John noted that the interpretation of Sigma as an independent venture was still likely to be relevant if circumstances changed again.

Overall, the analysis of critical events as they were explained by practitioners suggest that Sigma emerged through a series of events in which individuals attempted to shape the interpretations of what Sigma was through reference to different contextual forms of norms, meaning and authority. While official corporate press releases and internal corporate magazine articles suggested that the development of Sigma as a sustainable research project, analysis of participants explanations and associated data suggested that Sigma's development was equivocal and its development never clear-cut. This combination of events suggested that the emergence of Sigma was dependent on individual interpretations and practices through relationships in their socially-situated context. In this sense, Sigma was socially constructed through the participation and relationships of a range of individuals in its emergence.

In addition to the relevance of critical events as a way of explaining the development of Sigma as an internal corporate venture (RQ1), it was noted that these events also provided a way to understand how participants social roles developed in the context of Sigma's emergence (RQ2). It was noted that the roles of some individuals appeared to be related to the corporate firm and subsequently affected by corporate development and merger. It also appeared the emergence of Sigma and related critical events had an effect on those directly involved in its development. It was noted that John explained his activities both in a general manager role, in legitimising his activities in corporate context and as an entrepreneur, in legitimising his attempts to develop Sigma as a spin-out venture. At the end of the period under investigation, John suggested that he had accepted his role as a general manager, and surrendered his other alternative entrepreneurial role. In this sense he appeared to see himself as an almost-entrepreneur, though he suggested this still gave him the option to take on this role again if circumstances required it.

It was noted that overall, Sigma developed through a continuous process of emergence, though in equivocal circumstances as different interpretations competed of what Sigma was and what it could become. As a result, the critical events were suggested to be illustrative of a state of liminality, in which Sigma and the associated roles of the individuals involved existed in a state of ambiguity and in-between-ness, betwixt and between the different relationship-contexts through which the venture was shaped (RQ3). This liminality was suggested to be formed of the attempt by individuals to use and enact different interpretive frames of reference of Sigma in their own personal projects, leading to liminal roles for participants as they grappled with equivocal circumstances. It was noted that while Sigma developed into an accepted internal corporate innovation at the end of the period of analysis, this was not guaranteed to occur as other interpretations of appropriate development outcomes as a research project or independent venture were in use and may have been obtainable. In this sense Sigma emerged as an internal corporate venture through its social construction in the relationships which individuals pursued through roles, interpretive frames and socially-situated practices.

## 6. Conclusions

The research aim was achieved through answering three interrelated research questions. In

doing so, the thesis has set out to build on previous research by adopting a social constructionist perspective to understanding social processes in the development of internal corporate ventures; informed by the roles of individuals involved in the process, and the role of wider relationship-contexts. Strategic process and behaviourist perspectives (e.g. Burgelman, 1983b, 1988; Venkataraman et al, 1992; Kuratko et al, 2004) suggest that the development of internal corporate ventures influences change in corporate strategy, which subsequently influences venture development through a recursive, iterative process within corporate firms. In addition, further studies have made some reference to non-corporate wider influences in corporate venturing such as the adoption of external venture capitalist approaches (Miles and Covin, 2002; Chesbrough, 2006; Hill and Birkinshaw, 2008; Hill et al, 2009), the importance of market demand (Narayanan et al, 2009) and the impact of CV activity on technical standards in wider industries (Garud et al, 2002). By adopting a process-temporal social constructionist perspective this paper makes a contribution to knowledge in that it goes beyond previous frameworks of corporate venturing activity by explaining how the development of internal corporate ventures is influenced by not only corporate, but also market and technical relationship-contexts and how this development recursively impacts upon these relationship-contexts through the interactions between the individuals involved (RQ3). The final developed conceptual framework supports the analysis of the Sigma case study in illustrating how, in the specific context of Sigma's development, individual actions were influenced by both changing wider relationship-contexts and the emergence of Sigma. Studies adopting a social interactionist perspective in the CV literature explain that rather than being fixed entities, organisations emerge through individual interpretations and relationships (e.g. Dougherty, 1992, 1995; Dougherty and Heller, 1994; Whittle and Mueller, 2008). In addition the literature on organisational emergence in the context of independent ventures suggests that existing organisations exist in constant flux as part of an ongoing processual reality, while independent new ventures emerge through interactions with others who may have different perspectives (e.g. Gartner et al, 1992; Chia and King, 1998; Gaddefors, 2007). This project is novel in that it builds on these perspectives in relation to social processes in the development of internal corporate ventures. This contribution to knowledge includes an explanation of how internal corporate ventures emerge through ongoing interactions with others, experienced by practitioners through a series of critical events. This was illustrated through the Sigma case study, where it was found that different explanations were developed by participants of what Sigma was, while drawing on their experiences of developing the internal corporate venture as the basis of their future actions. Gartner et al (1992) argue that emergence for new independent ventures is a process through which different interpretations of the venture become unified, similar to Venkataraman et al's (1995) process of internal corporate venture legitimisation in the corporate context. The thesis has found that conversely, in the context of Sigma's development as an internal corporate venture, different explanations remained available, creating a liminal situation for the venture and equivocal experience for participants, in which what Sigma was remained contested and negotiated, with certain relationship-contexts of signification, domination and legitimation coming to the fore in defining the venture at certain points in time.

By integrating Weick (1995), Stones' (2005) and Jarzabkowski's (2008) models, this paper provides an integrated framework of social processes in the development of internal corporate ventures over time. This contribution to knowledge is novel in that previous studies have either limited their scope to specific processes, generalised and conflated roles and activities, or have not allowed for influences outside the corporate context. By contrast, the

developed conceptual framework outlines the social process through which internal corporate ventures emerge and the reciprocal influence of this emergence on wider relationship-contexts and individuals' social roles. This framework supports the contextually-specific analysis of the Sigma case study and illustrated that this particular internal corporate venture emerged through attempts to enact alternative potential explanations of what the venture was, creating equivocal experiences for participants as they grappled with Sigma's emergence and a sense of personal role liminality, influenced by changing wider relationship-contexts. This illustrated that development of Sigma into a new corporate product line was one of many potential outcomes available and as Sigma was socially constructed through the actions and interactions of those engaged in its development.

While this approach supported the development of the conceptual framework in answering the research aim and questions, a limitation of this approach was that the research findings were restricted to the events which occurred in a single internal corporate venture. In addition, the complex nature of the development of Sigma, the ten-year timescale over which this took place and the geographical displacement of participants across the UK and overseas, meant that the developed longitudinal case study was constrained by the researcher's ability to observe what took place, due to physical and time restrictions. In this sense, observations were limited by researcher access to the phenomena taking place, just as all social agent's knowledge of social phenomena is restricted by time and space (Giddens, 1984), but this complexity in itself illustrated some of the social processes taking place and was incorporated into the analysis.

### **6.1 Developing internal corporate ventures**

Internal corporate ventures may be developed in order to create a number of corporate, market and technical outcomes, such as new streams of income or the development of technical standards. These may be achieved to a lesser or greater extent through relationships with others and wider contextual changes. The intended outcomes of venture development activity may vary between those involved however and it may be important for participants to be aware of these different expectations and how one set of intentions may affect the success of the other. Equally, the successful attainment of one outcome may reduce the impact of the other as the developing venture is normalised in relation to particular relationship-contexts. Hence the business model which is presumed and agreed in developing the venture may have an impact on the outcome, but may also change through the experience of ICV development in changing wider relationship-contexts.

### **6.2 The future of corporate venturing**

While this project specifically focusses on social processes in the development of internal corporate ventures, the conclusions may also act as a starting point to develop understanding of other corporate venturing and open innovation approaches, as organisations increasingly seek to open up their processes in relationships with external partners.

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## **Entrepreneurship and Family as an Active Dimension of Context: the Co-creation of New Ventures**

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Context has shown to be central in understanding the entrepreneurial process in new venture creation as it provides opportunities and sets boundaries for individuals. It is often implied that context is something that the entrepreneur *relates to* and *acts upon*. However, context can also play an active role in the entrepreneurial process, by injecting opportunities and challenging individuals resulting in a co-creation process of a new company. This paper focuses on social context in general, and more specifically on the family dimension of context. As family embeddedness previously has been recognized as important in the venture creation process, the purpose of the paper is to investigate how entrepreneurship interacts with the family dimension of context. Two research questions are of specific importance: how family can engage in the entrepreneurial process, and how context can work as an active dimension. This is explored by using a longitudinal case study of a venture creation process in Sweden. The results contribute by showing how the nature of family forms an active context which is intertwined with the process as such. Family members participate in what can be interpreted as a co-creation process of a new company, where they collectively engage in opportunity creation, the decision to start the company and resource mobilization. Thus, the venture creation process becomes a social construction that takes place within and as a consequence of context. How active or passive the context is, will affect the entrepreneur's ability to maneuver the company and how much of a marionette that the entrepreneur will become. The implications of this paper add to our understanding of context at large, its dimensions and how they interplay with the entrepreneurial process. Through recognizing an active dimension of context it moves us even further away from the individual perspective on entrepreneurship; towards a socio-relational perspective and a focus on the entrepreneurial process and a contextual co-creation of new ventures.

## Keywords

Business creation, Role of family, Social constructionism, Social embeddedness, Start-ups.

## 1. Introduction

Context has shown to be central in understanding the entrepreneurial process in business creation [1]. In most definitions of context it is implied that context is something that the entrepreneur *relates to* and *acts upon*. Context has for example been described as external stimuli [2] and associated surroundings [3]. Welter [1, p165-7] gives a more thorough description (drawing on management literature) describing context as “circumstances, conditions, situations, or environments that are external to the respective phenomenon” and that context “simultaneously provides individuals with entrepreneurial opportunities and sets boundaries for their actions”. The argument in this paper is that context can be more than external stimuli and associated surroundings. In fact it can play a much more active role during the entrepreneurial process, being intertwined with and even actively lead the process as such. Therefore, in order to better understand context, its dimensions and how they interplay with the entrepreneurial process, we need to explore context as an active dimension.

Only a few contributions within entrepreneurship literature come close to discuss context as a more active dimension. For example, Welter [1] highlights that there are both top-down and bottom-up effects concerning context; i.e. entrepreneurship can be shaped by context but also impact context. She also brings up “the dark sides of context” and the risks in over-embeddedness where ties are being used for control. Other contributions within the literature on entrepreneurial teams propose that the entrepreneurial process is created by several co-entrepreneurs [4-8]. Lindgren and Packendorff [9] add to this with their social constructionist

perspective on entrepreneurship, where they argue that entrepreneurship is constructed in interaction with a social context. However, none of these contributions seem to recognize that there is an active dimension of context; they bring up the *interaction* with context and how the entrepreneurial process can *be shaped by* or *shape* context, but still seem to perceive context as foremost *external*.

Context is multi-faceted involving a historical, temporal, institutional, spatial and social dimension [1]. This paper focuses on social context in general, and more specifically on the family dimension of context. The reason for focusing on family in order to investigate how context can work as an active dimension is that it involves human beings which are naturally interactive. Family relationships are often believed to have strong social ties [10-12] building on mutual affection and consensus [13], and to have stronger connections than any other type of entrepreneurial team [14-15]. Family has been recognized as important in entrepreneurship, for example Anderson *et al.* [16] found that kin stood for one-quarter of the key entrepreneurial network ties in their Scottish sample of firms. Therefore, the family implies to be a good arena for studying an active dimension of context.

A case for studying entrepreneurship and the family as context was found in a Swedish case of new venture creation. The new venture was not formally owned or operated by family and therefore traditionally not defined as a family business [17], but it was created and managed by a sole business owner. Thus, family can be viewed as a part of context for the new venture. Contributions within this cross-section of entrepreneurship and family business research have so far received limited attention [14, 18-20]. Aldrich and Cliff [18] made a strong contribution by introducing the family embeddedness perspective in entrepreneurship as they discussed how roles and relationships of family members can influence new venture creation. Anderson *et al.* [16, p152] made another interesting contribution by investigating “the neglected middle ground between entrepreneurship and family business research”. Steier [20] also focus on this intersection of family influenced firms that are not typically described as family firms, and refers to his case as a *familial sub-narrative*. An additional example is Bird [14], who shows how family can influence entrepreneurial outcomes at different levels; the individual, firm, and regional level.

The purpose in this paper is to investigate how entrepreneurship interacts with the family dimension of context. Two research questions are found to be of specific interest; how family can engage in the entrepreneurial process in new venture creation and how, if so, context can work as an active dimension. By departing from a longitudinal case study of a new venture creation process, I will argue that the family dimension of context is more than a passive surrounding that provides opportunities and sets boundaries. Context can take a more active role in the entrepreneurial process, by injecting opportunities and challenging individuals resulting in a co-creation process of a new venture. The paper leans on theories of family embeddedness and follows a social constructionist perspective on entrepreneurship.

## 2. Theoretical framework

### 2.1 Family embeddedness

The concept family embeddedness was introduced by Aldrich and Cliff [18] who argued that the family and the business were intertwined. This perspective has its origin in Granovetter [11, 20] who proposed that entrepreneurs and their organizations are embedded in social context. Hence, embeddedness can be described as “the nature, depth, and extent of an

individual's ties into the environment " [21, p468]. These ties can be weak or strong depending on their character [11], where family relationships normally involve strong ties as they build on inseparable mutual bonds between individuals. Within the family embeddedness perspective family is viewed as an important part of the social context, as it brings opportunities and boundaries to the entrepreneurial process [1]. Families are strong social structures that can be involved in different ways in a venture, from being part of the organization as in family firm literature, to being more or less informally involved [16]. As Anderson *et al.* [16] found in a study of a Scottish sample, a great part of the social network ties were kin, and most of these ties were found outside the firm. As previously mentioned, this paper focus on ties *outside* the firm (i.e. not family firms), since it emphasize family as being *part of the context* for the new venture.

The family embeddedness perspective brings us away from the focus on the individual, i.e. entrepreneur, which often have been central in entrepreneurship research [23-24]. This individual perspective has been criticized for example by research on the co-creation of new ventures, and contributions following a social constructionist perspective, which argue that entrepreneurship is constructed through people 's interactions and therefore is a social phenomenon [9, 25]. As explained by Boje (1995) [cited by 20, p1100] "organizations cannot be registered as one story, but instead are a multiplicity, a plurality of stories and story interpretations in struggle with one another."

## 2.2 The venture creation process

Bird [14] brings up three important parts of the entrepreneurial process; venture creation, development and growth, and exit from entrepreneurship as an entrepreneur either decides to or is forced to leave his or her company. Thus, as we turn to the creation of a new venture, this is considered to be an important part of the entrepreneurial process [14, 24]. There are many different attempts to capture the main areas of the venture creation process [for example 18, 26-27]. Together they suggest that amongst the many different behaviors in new venture creation, the most central parts are creating or discovering an opportunity, deciding to start a company and mobilizing resources needed. These behaviors or actions are certainly not the only ones during a venture creation process, and listing them does not imply a sequential order [27], rather highlights some central activities as a new venture is created.

## 2.3 Opportunity creation and the decision to start a new venture

Opportunities are central in entrepreneurship theory [24, 28]. However, the discussion of *opportunity discovery* versus *opportunity creation* has developed into a topic. Some scholars claim that entrepreneurial opportunities are already out there waiting to be discovered, where others argue that opportunities are being created during the entrepreneurial process [29-30]. Alvarez and Barney [29] use the metaphor of a mountain explaining that we can see an opportunity as a case of mountain climbing (discovery view) or mountain building (creation view). In this paper I turn to the creation view, since it supports the idea that an opportunity is not discovered by an individual, rather co-created by individuals or groups (such as family) during the entrepreneurial process [9, 31].

Within family business literature the role of family members in creating or discovering entrepreneurial opportunities are well reported amongst those firms that are co-founded by kin. However, there are relatively few contributions focusing on how family members, who are not formally involved in the firm, engage in opportunity creation. One example is Aldrich and Cliff [18] who found that even external family members can influence opportunity emergence and recognition as well as the decision to create a venture. Another example is Anderson *et al.* [16] who refers to these firms as *Family-Business Jugglers* (following Birley *et al.* , 1999), and reports of a case where a family member engaged in what can be interpreted as opportunity creation (e.g. a father-in-law who conceive the original business

idea and convince the son-in-law to start the business). These findings are supported by Steier [20] who describes a case of a *familial sub-narrative*, where family informally takes part in recognizing an opportunity as well as in the decision to start a new venture.

## 2.4 Mobilizing resources

In order to start a new venture, there is a need for mobilizing resources such as human, physical, financial and social [32-33]. Social networks such as family can provide these resources and are therefore important for new ventures [32]. Starting with *human resources*, several contributions illustrate how family can be an important source for labor in new ventures [16, 20, 34], whether they are paid or unpaid [18, 34]. Family members also provide knowledge, expertise and emotional support [34], which can be of great importance in the venture creation process. Additionally, family members have showed to be important in a firm's strategic direction even though they are not formally a part of the organization [16, 20, 34]. According to Anderson *et al.* [16, p150] family can be a source of professional advice and work as "sounding boards" to "bounce ideas off". This is supported by Steier [20] who uses a case of a familial sub-narrative in order to illustrate how family members were involved in key decisions, interviewed possible employees for key positions, socialized with important investors as well as provided emotional support and advice. Blenkinsopp and Owens [34] also add to this by introducing the term 'spousal leadership', which refers to a spouse having an informally leading role. Anderson *et al.* [16] argue that the great benefits by using family are that service is often rapid and provided at low or even no cost.

*Physical resources* are another important group of resources for most new ventures. There are relative few contributions within family embeddedness literature that report on how physical resources can be linked through family members, where most of the existing contributions derive from studies of family business literature and often from agricultural businesses. For example Tengeh *et al.* [33] recognize that family is able to supply physical resources, but emphasizes that physical resources can be derived from *financial resources*. This also works the other way around through financial bootstrapping, which refers to finding solutions to resources using other means than direct financial capital [35]. Financial and physical resources are thereof closely linked. Family can serve as a source to financial capital [16]; either direct through a family member investing in the venture or indirect through connections to other individuals who are capable of giving financial support [18]. As Steier [20, p1104] concludes: "familial social capital can be translated to financial capital through networking and a mobilization of both strong and weak ties". Thus, family can provide important resources both direct and indirect through supplying contacts [20].

This brings us to the *social resources*, which are found in family members' networks. Social resources are different from human resources in that they focus on relationships between individuals or organizations, whereas human resources focus on individual attributes [36]. The social resources in family members' ties are important for gaining other types of resources [36] and in this, legitimacy has proven to be important [37]. Legitimacy can be described as "a social judgment of acceptance, appropriateness, and desirability" [37, p.414]. It enables organizations to gain cultural support, e.g. build supportive networks with key stakeholders [37], which is needed to access other resources such as information, access to markets and financial capital through investor relations [36]. Legitimacy is of critical importance for start-ups in order to survive and grow [37-38]. Yet, start-ups often suffer from a lack of legitimacy as a consequence of being new and un-known to the market [37, 39]. Together with the dependence on strangers this is considered to be a part of the liability of newness [40-43], which imposes a higher risk of failure for new ventures compared to established organizations. Few contributions in literature have reported on how family can serve as a source of legitimacy for a new venture, and thereby work as a link to overcome the liability of newness. Exceptions can be found in Anderson *et al.* [16] and Steier [20] who both describe cases where founders of new ventures draw on family members' business reputation to provide the credibility needed to achieve founding and other resources.

### 3. Method

This paper builds on a qualitative longitudinal case study of the creation of a new venture within the food service sector in Sweden. This case is used to illustrate how context can play an active role during the entrepreneurial process. As methodology, qualitative case studies give the opportunity to explore issues such as relationships and explain “how individuals construct and make sense of their world” [25, p24]. This paper follows a social constructionist perspective, meaning that we view our phenomenon as being constructed through people’s interactions rather than existing independently [25]. Thus, considering the venture creation process we see it as a social phenomenon constructed within a social context (focused on the family context).

The studied venture is called *Emily’s Dinner* and the gathering and analysis of data has followed an inductive approach. Empirical data from Emily’s Dinner has been collected through three face-to-face in-depth interviews with the business owner, with the intent to follow the entrepreneurial process. The purpose of doing qualitative research interviews was to gain descriptions of the interviewed person’s world in order to interpret the meaning of the studied phenomenon [following 44]. The first interview was very open and took place at a local exhibition in food, in October 2010, where I first met Emily and her mother. They were sharing stand trying to market their businesses in a joint effort. This was ten months after Emily’s Dinner was officially founded and it was still in its infancy. The following two interviews were conducted in November 2010 and May 2011. They lasted between 1 and 1.5 hours, and were semi-structured [44] in order to allow additional significant issues and themes to arise during data collection. Supplementing field notes were made to describe the interview-settings and the contexts of the interviews. These interviews were recorded and the recordings transcribed. Additional written material was gathered, such as the marketing plan for the company and material displayed on the company’s web page. Data analysis involved the use of Atlas.ti, a computer software for qualitative data analysis, where themes and codes were created, following the overall topic of *how entrepreneurship and family interact*. These themes and codes were used to guide the literature review, and vice versa. Hence, this was not a linear process, as part of the analysis was conducted simultaneously with data collection, allowing the research design and themes to evolve as the study proceeded [following 45].

Considering this paper, it builds on a single case and on the founder’s own experiences and descriptions of the context in which she appears. This being a social construct and interpretation of the founder’s perceived reality. The value in the method lies in the ability to achieve deep insight in the studied phenomenon in order to capture “the richness and diversity of context(s)” [1, p177].

### 4. Empirical results

#### 4.1 Background

Emily’s Dinner was started in December 2009 and is located in a city in the middle part of Sweden. The venture is owned and run by Emily and the business idea builds on providing menu-planned grocery bags (i.e. food products and recipes) to families and couples. Customers that subscribe for the service receives a home-delivered grocery bag once every other week, which contain dinner solutions for a certain number of days (most commonly 5 days). The gain for the customers is that they do not need to decide on and plan for dinner, nor go to the supermarket to lug home heavy shopping. All the customers have to do is to cook and prepare the food.

Emily belongs to a family where most of the adults are running their own businesses (see figure 1) and the norm is to be self-employed. She has lived and worked within four of these firms from now and then most of her life (her mother's, father's, uncle's and brother's businesses). As very young this is where she started her working career on the side of her studies. However, already at the age of 14 Emily decides to go her own way and seek work outside the family's businesses – as a café assistant, followed by a job at a pub as a marketing manager, and later on as a seller at a telephone company, where she eventually gets promoted to a manager. During this period, whenever Emily has been in-between jobs, she has shortly returned to her family's businesses which have functioned as a safety net. “However, working with the family is not the most fun. It was not that we were loggerheads in any way, but you still want to go your own way” (Emily, interview 2). So, when Emily eventually lost her manager position during a major reorganization at the telephone company, she found herself muddling through temporary jobs while trying to figure out her next step. Emily explains: “That is when we heard of this idea with a grocery bag” (Emily, interview 2). This idea is what later on leads to Emily's self-employment through the creation of Emily's Dinner.

#### *4.2 Family embeddedness*

Even though Emily is the sole owner of her company with no regular employees she constantly refers to the company as “we”. For example “We have just launched a new product...” and “We will do some changes next year ...” (Emily, interview 2). Having the family actively involved in the company has its pros and cons. This makes it difficult for Emily to relate to her own business, and especially relate to how it is profiled. As Emily explains it: “I have not really been able to identify myself with this company [Emily's Dinner] sort of. I have not felt that it's me. Therefore, it has been difficult to market it, as I have not been able to really stand for it” (Emily, interview 2). However, through discussing with her godmother and a friend they jointly come up with a logo and a profile that Emily feels is right for her. However, as Emily explains about this network of three, she again refers to it as we saying: “We have been sitting the last month scratching our heads and thinking ‘what should we do?’. Because we believe in the idea [...] and then we came up with it – we should re-profile us!” (Emily, interview 2). Thus, the family members who are included in Emily's we differs from time to time.

#### *4.3 Opportunity creation and the decision to start a new venture*

Emily explains that the idea originally came from her brother who owns a large carrier company, and who delivered these menu-planned grocery bags for a competitor. Somehow there was one grocery bag left over, which he brought to his mother. The mother and brother discussed and then jointly came up with the idea that this might be something for Emily to make a business out of. They phoned Emily, asked her to come over and proposed the idea. Emily says: “And then we sat down and discussed. I mean, we've waited a thousand years to find an idea that I should realize” (Emily, interview 2).

The idea came at the right time for Emily; she was looking for a new job and was unsure of what she wanted to do next. The decision was jointly taken together with her mother and brother. Emily explains: “We started to think about it and decided ourselves pretty soon ... this is what I am supposed to do!” (Emily, interview 2). The decision was largely based on the direction of the other businesses within the family and as Emily puts it: “I had so much help as you ever can get – already existing facilities, existing transportation, existing help with book keeping. [...] You cannot have what I have, a better start that is!” (Emily, interview 2).

#### *4.4 Mobilizing resources*

Emily's family supplied the most resource needed to start and develop her company. These resources can categorize as human, physical, financial and social.

Starting with the *human resources*, members of Emily's family provide labour for cheap or low costs. For example, Emily's mother has assisted her with bookkeeping and other paper work since she first started her business. The mother also engages in different marketing activities. For example, a couple of times she distributed flyers about Emily's Dinner to her own customers. She also engaged her own staff to distribute these flyers within the city and to create a logotype and home page for Emily's Dinner. Emily did not pay for any of these activities. Another family member that Emily sometimes involves as a source of labour is her younger cousin, who has contributed in some marketing activities at low cost.

Another human resource can be seen in the emotional support given by members of Emily's family. At the start-up face Emily's boyfriend encourages her, for example by evaluating and praising her first grocery bag. Family members also serve as a source of information of customers, trends and even competitors. For example, Emily's aunt is acquainted with one of her competitors, and Emily's brother sometimes makes deliveries for competing firms. In the start-up face her mother also served as a source of information concerning food regulations. Members of Emily's family additionally act as discussion partners reflecting on problems, strategic directions and giving advices. Emily actively seeks this interaction; for example she sets up a network together with her godmother and her friend, where they regularly meet for Tuesday lunch in order to support each other and 'talk business'. Even if her godmother is not genetically related, she is very much affiliated with the family. She is self-employed as the owner of a creative print shop and shares premises with Emily's father's company.

Most of the *physical resources* that were needed in order to start and run Emily's Dinner, were provided through the family's different businesses. Her mother provided the premises needed through her own company; with refrigerated storage rooms, packing space and office space. Her uncle's business, a wholesaler of fruits and vegetables, is located next door. From there Emily buys most of the food products. She explains that the reason for her to buy from her uncle's company is foremost that it is a "family company" and that she receives a good price. She continues saying "there is no reason for me to choose anyone else" and explains that the food products are of great quality, that it is next door and that she can cherry pick products for her customers (Emily, interview 2). Emily states that she would not swop supplier even if it was cheaper because "family always comes first" (Emily, interview 2). This is strengthened by the fact that Emily involves her aunt's bakery for supplying freshly baked bread, even though this comes at a higher price than competing alternatives. For delivering the grocery bags to the customers Emily uses one of her uncle's or mother's cars. This is done once a week and she does not pay for lending these cars; not even for fuel. As the company evolves the uncle allows Emily to put stickers on the cars with her logo on, in an attempt to assist Emily in the marketing of her company.

*Financial resources* are not supplied directly by Emily's family. However, through offering physical resources and asking for little or nothing in return family help by lowering her costs. This help is extended to Emily's private life. As Emily has a relatively low income at the start-up face she lives in a separate flat within her mother's house without paying any rent. To have an income, Emily eventually starts working extra within her brother's, uncle's and mother's different businesses. This was encouraged by her family. As Emily explains it: "Since the grocery bags have not pulled out my salary, we have realized that we cannot just go and hope that there will be enough customers. Therefore, I have to take on something else. [...] After all, you have to pay rent somehow" (Emily, interview 3). For these extra hours she bills the family's businesses and thereof receives revenue in her own company. "It becomes a good salary anyway and money comes in to the company" (Emily, interview 3).

The *social resources* supplied by family members are of different character. At the start-up face Emily's mother offered her own private network in the search for willing customers and the first customer that Emily had was connected through her mother. As Emily explains it: "For it was one of my mother's acquaintances who subscribed first and then it has spread to

friends of friends ” (Emily, interview 2) . Family also serve as a source of legitimacy. For example, Emily uses her aunt ’s branded products in her grocery bags to build credibility. As Emily explains it: “I have started to put bread in the grocery bags from my aunt ’s bakery [Brand name] from now and then. Her bread is gluten-free and more expensive than other bread, but really tasty, unbelievably tasty. It gives a genuine feeling to receive freshly baked bread in the grocery bag, which principally is almost warm when it arrives. And then I have her logo on the bread [ ...] it is local and well-known in [town] ” (Emily, interview 3) . Additionally, on the company web-page Emily links to the other firms within the family and presents them as business partners. As Emily explain it: “I say that I collaborate with [my mother’s company] which is a fairly well known company in [the city] with a long history and all that. And my uncle’s company is also fairly well known. It’s not too bad to ride a bit on their wave either, and on their brands !” (Emily, interview 2) . During a later interview Emily follows up on this reasoning as she explains her company ’s positioning and how she wants customer to perceive it: “I want them to think and know that it is affiliated to [the city], that it is local [...] and that we cooperate with [local] companies because we cherish entrepreneurs in [the city]” (Emily, interview 3) . Emily recognizes that if her company would grow the other family members ’ firms would profit. She specifically mentions her uncle ’s wholesale business, her aunt’s bakery and her brother’s carrier company as being able to benefit from her possible growth.

Below follows an illustration over how family members influence Emily’s Dinner (figure 1).

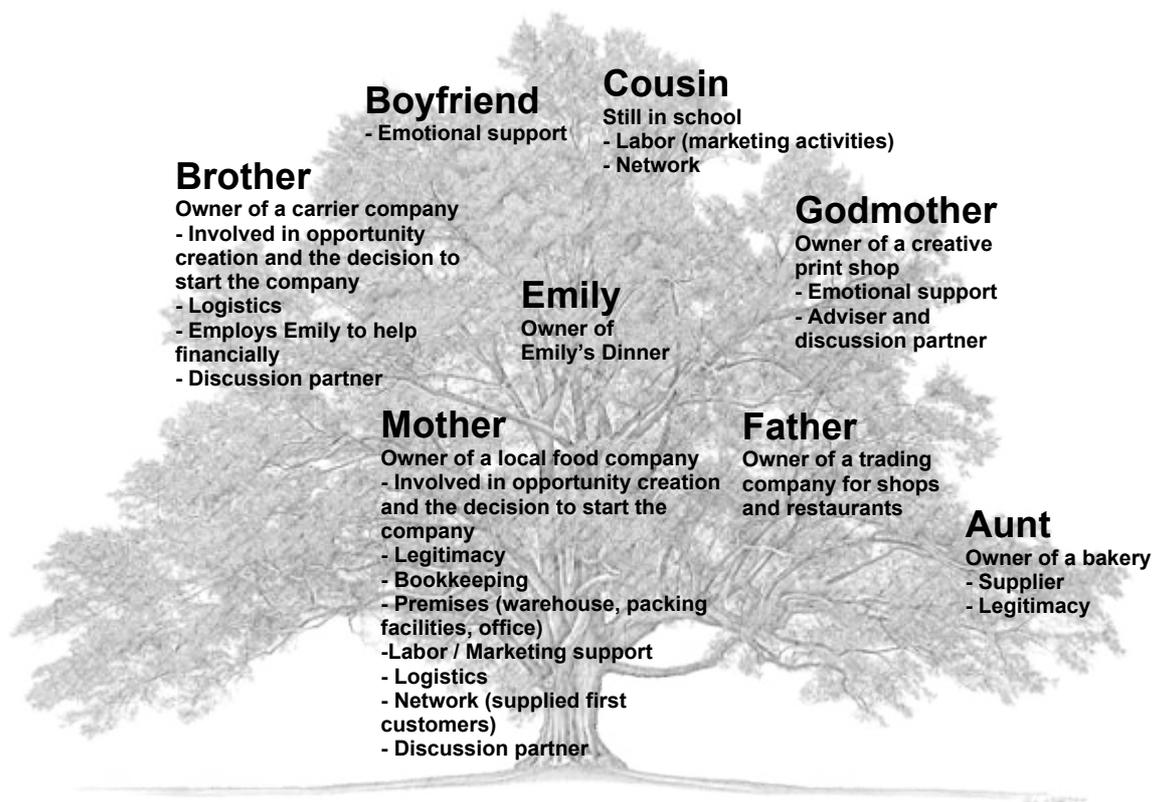


Figure 1: How family members influence Emily’s Dinner.

## 5. Discussion

### 5.1 How family engage in the venture creation process

Family is a part of the social context that the entrepreneur is embedded in [14, 16, 18, 20]. In

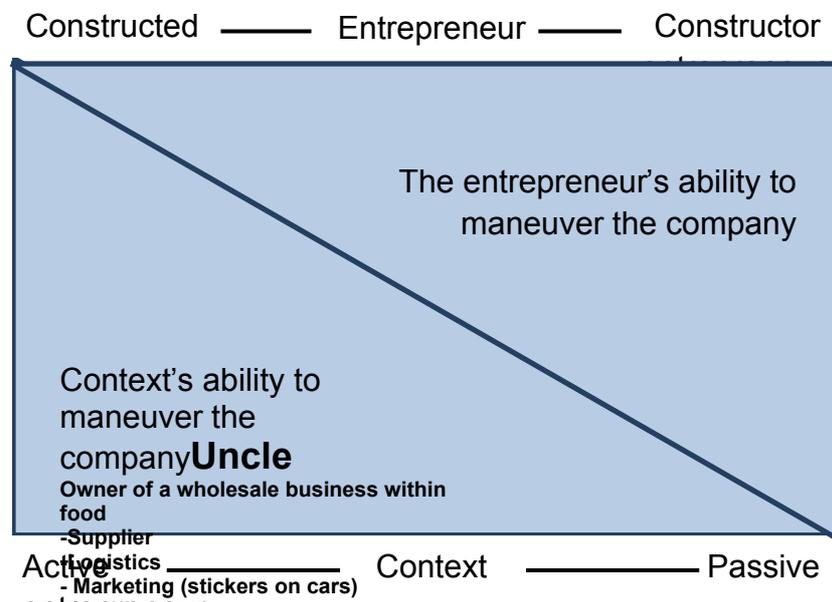
Emily's company her family actively engages throughout the venture creation process. The family comes together to create the business opportunity, which first was thought of and discussed by Emily's brother and mother. The decision to start the company is also jointly taken within the family context. Additionally, the family as a social unit mobilizes the needed resources to start and run the business. These resources are human, physical, financial and social at character. Among these the physical resources have been somewhat downplayed in previous literature of family embeddedness. Physical resources have been seen as something that is foremost derived from financial resources [33], which implies that the importance of the physical resources is slightly lost. However, the case of Emily's Dinner suggests that physical resources can be of vital importance for a new venture and in that serve as financial bootstrapping. The fact that the family holds these resources is what guides the actual decision to start Emily's Dinner. Financial bootstrapping also occurs through supporting Emily privately, for example lending her an apartment without asking for rent. She is encouraged to work extra within the family's different businesses to have an income in her company and thereby also privately. To sum up, the family engages throughout the venture creation process; in opportunity creation, the decision to start a company and resource mobilization. Thus, our findings support previous contributions on family embeddedness [14, 16, 18, 20], showing that family is an important part of the social context that the entrepreneur is embedded in. This embeddedness in family context works to overcome the liability of newness, which is derived from the dependence on strangers and the lack of legitimacy [40-43]. Thanks to present family structures and networks the new venture comes to depend on well-known family members instead of strangers, and draw on the cluster of family firms in order to gain legitimacy.

Emily's Dinner is to a large extent a business that is created and managed by family. However, it does not classify as a traditional family business in the sense that it is owned or operated by family [17]. Instead, drawing on the model proposed by Anderson *et al.* [16], it classifies to the group of Family Business Jugglers, being "the neglected middle ground between entrepreneurship and family business research". Just like Emily, many of the other family members are self-employed in businesses which they solely own and operate. These businesses are part of the same social network where they try to benefit and connect to each other professionally and personally. Emily constantly refers to her company as "we", and talks of the other businesses as "family businesses". Interestingly, who Emily includes in this we differs from time to time. However, it is apparent that she considers the business that she solely owns and operates to be more than just *hers*; being part of an entity – whether this is consciously or unconsciously. In this aspect I would like to suggest that previous definitions and typologies of family firms are expanded to include *family cluster firms*, being firms run by different family members which are embedded in each other's context, and even form each other's context, working as a social entity. Thus, we could differ between *family embeddedness* and *embedded families*, where the latter is viewed from the perspective of the family which is actively trying to embed in the venture. This discussion brings us to the next section and the active dimension of context.

## 5.2 The active dimension of context

From exploring the case of Emily's Dinner, context appears to be more than a passive surrounding that an entrepreneur relates to and acts upon. Moreover, context has an active dimension which interacts and sometimes even takes the lead in Emily's company. Emily's Dinner is a joint family effort and Emily at some occasions becomes more of a marionette, where the family is in control of the strings. Consequently, Emily's Dinner is not a solely managed company created by one single entrepreneur, rather a co-created venture where context, i.e. family, has played a major role in creating the opportunity, deciding to start a company and mobilizing resources. Thus, the venture creation process becomes a social construction within the family context. Entrepreneurship is here the process that takes place within and as a consequence of context. This paper thereby supports the view of the entrepreneurial process as a collective effort undertaken by several actors [9, 31].

Additionally, how active or passive the context is, will affect the entrepreneur's (in this case referring to the owner's) ability to maneuver the company and how much of a marionette that the entrepreneur will become (see figure 2). An active context that holds most of the strings gives less space for the entrepreneur's maneuvers and makes the entrepreneur more of a marionette; hence the venture is constructed by context. Conversely, a passive context gives plenty of space for the entrepreneur's maneuvers and leads to a more active entrepreneur, i.e. the entrepreneur is the constructor. In the latter scenario the context is something that the entrepreneur merely relates to and acts upon. Drawing on the metaphor of a marionette we can bring up the discussion of strong and weak ties [11] and how tied up the marionette really is; i.e. how much in control is the marionette by context? These ties can work both to the marionette's advantage and disadvantage. As recognized by Welter [1] family as context can both provide entrepreneurial opportunities and set boundaries. In the case of Emily's Dinner, family is foremost providing the opportunity. Without family Emily's Dinner would not exist. However, there are some boundaries, for example in the inability to use other suppliers than family. When extending this reasoning, we can consider what Welter [1] refers to as "the dark sides of context" and the over-embeddedness where ties are being used for control. This would implicate a constraint on the entrepreneur where she is unable to operate the company at her discretion. This is also recognized by Emily, who at some point does not feel comfortable with her business and finds it difficult to relate to her brand. From the individual's perspective this implies a hidden problem with social embeddedness when several actors actively participate in the venture creation process. An obvious solution is to move towards a less embeddedness, loosen up ties and maybe find alternative networks to embed in where context is not so active, or active but more favourable for the individual. However, this could be difficult for a social context with strong tie relationships such as family, and even more problematic for other dimensions of context, such as the ones brought up by Welter [1] - historical, temporal, institutional and spatial.



**Figure 2:** The entrepreneur's ability to maneuver the company.

Another thing to consider is that context is always present. No matter if it is passive or active it is still there and in each case it can be just as strong. What makes context active is when it actively interacts, follows and even steers the entrepreneur's moves and ability to maneuver the venture creation process, rather than being something that the entrepreneur relates to and acts upon. This becomes clearer when we focus on the family dimension of context, considering this being a social context which therefore naturally is able to *interact* through

human beings. However, theoretically I argue that this would apply to even other dimensions of context, meaning that most contexts have the ability to be more or less active. Following Welter [1] context involves a historical, temporal, institutional, spatial and social dimension. These dimensions all have some social component; hence they are connected to human beings and consequently have the ability to be active. For example within the institutional dimension, governments and their regulations can actively engage in certain industries. Here, corruption and its effects can serve as an example of just how active context can become. Other examples of contexts with the ability to actively maneuver an entrepreneur are religious communities, the mafia, politicians, customers, social networks and society at large. However, this reasoning becomes harder to apply to the historical, temporal and spatial dimension of context, not saying that it cannot be done.

## 6. Conclusions

The purpose in this paper was to investigate how entrepreneurship interacts with the family dimension of context. Two research questions were found to be of specific interest; how family can engage in the entrepreneurial process and how, if so, context can work as an active dimension. In this paper I have shown how family engages in the venture creation process; from creating opportunity and deciding to start a company to resource mobilization. Context has previously been described as something that the entrepreneur *relates to* and *acts upon*. In this paper we have shown that context can be more than external stimuli and associated surroundings. Context can also play an active role during the entrepreneurial process, being intertwined with and even actively lead the process as such. The implications made by emphasizing the active dimension of context add to our understanding of context at large, its dimensions and how they interplay with the entrepreneurial process. Through recognizing an active dimension of context it moves us even further away from the individual perspective on entrepreneurship; towards a socio-relational perspective and a focus on the entrepreneurial process and a contextual co-creation of new ventures. This gives a more unclear border between the individual and the context, when the venture creation process is understood as a social construction. This paper also adds to previous contributions of family embeddedness and the under-researched area between entrepreneurship and family business literature, emphasizing the role of family within firms that do not categorize as family firms.

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## **Fragility and Projectivity: How Higher Education Institutions (HEIs) Affect Future-Oriented Sensemaking of New Venture Ideas**

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***'We cannot step out of time or keep the future from becoming the past. We are radically temporal' [1]. Research examining the relationship between Higher Education Institutions (HEIs) and entrepreneurial regional development has provided rich insights [2]. By privileging spatial proximity, studies have examined the territorial impact of HEI's upon entrepreneurship (e.g., knowledge spillover; collocation; incubators, social networks etc.). As research into the spatial territoriality of entrepreneurship continues to grow, the influence of temporality is less well researched. This article seeks to contribute to growing interest in incorporating temporality into entrepreneurship theory development [3] by addressing the question of how the temporal affects HEIs impact upon the development of students' fragile and projective 'new venture ideas' [4]. The study draws upon the concept of future-oriented sensemaking to examine the micro-processes through which four cases of student venture ideas were developed. Using material gathered through a longitudinal study, a typology is developed to explain how future sensemaking exchanges unfold as participants' projected imagined future trajectories of possible entrepreneurial action and then engaged in transactions to convert their new venture ideas into plausible ventures. The article aims to contribute to debate about the entrepreneurial regional development by drawing attention to how HEIs have a vital role to play in developing students' temporal awareness [5]. Student enterprise is examined here as an opportunity to gain experience of 'inter-temporal coordination' [6]. The article concludes by considering the potential relevance of developing an entrepreneurial temporal imagination for policy designers seeking to enhance the impact of HEIs upon regional development.***

## Keywords

Future-oriented sensemaking, HEIs, New venture ideas, Temporality, Temporal imagination

## 1. Introduction

Research examining the relationship between Higher Education Institutions (HEIs) and entrepreneurial regional development has provided rich insights [2]. By privileging spatial proximity, studies have examined the territorial impact of HEI 's upon entrepreneurship (e.g., knowledge spillover; collocation; incubators, social networks). As research into the spatial territoriality of entrepreneurship continues to grow, the influence of temporality is less well researched. This article seeks to contribute to growing interest in incorporating temporality into entrepreneurship theory development [3] by addressing the question of *how the temporal affects HEIs impact upon the development of students ' fragile and projective 'new venture ideas' [4].*

Temporality, although veiled, is central to entrepreneurship theory development. In its original form of arbitrage [7] entrepreneurship is made possible by temporal duration which creates residual profit. Schumpeter 's theory of economic development is saturated with temporality due to the Darwinian metaphor of evolution. Schumpeterian heroic entrepreneurs can only create disequilibrium and cause 'swarms of imitators' [8] because of the exploitation of novelty and innovation. Kirznerian entrepreneurs too require the existence of a time lag between 'mutual ignorance' and 'mutual recognition' [9] for the discovery of opportunities and restoration of equilibrium to markets.

Knight's theory of risk and uncertainty requires temporal difference to make the distinction between 'genuine uncertainty' and 'calculable uncertainty'. Entrepreneurs being individuals willing to absorb higher levels of uncertainty in the pursuit of above average profit [10]. Hayek's theory of knowledge dispersion under market conditions also requires temporality to explain how entrepreneurs exploit asymmetries or 'fleeting moments' to their advantage [11]. Penrose's theory of firm growth uses temporality to explain how competitive advantage arises from 'pre-calculative images' and the application of entrepreneurial services in the pursuit of superior value from a resource base [12]. Shackle provides the most explicit reference to time in his thesis that entrepreneurship occurs when people project and act into 'time-to-come' [13]. This 'void' is a temporal context across which the 'business of the imagination' [13] and by definition, of entrepreneurship, unfolds.

### 1.1 Unveiling Temporality

Temporality has been unveiled in recent theory development. Haynie et al refine the RBV by explaining how future oriented projections are required to move from extant to future resource bases [14]. McMullen and Dimov explained the importance of incorporating temporal processes into entrepreneurship [3], whilst Korsgaard et al revised Kirzner 's theory suggesting that 'inter-temporal coordination' is the distinct feature of entrepreneurship [6]. Temporality is also central to other recent theoretical developments such as, effectuation theory [15], narrative disclosure [16] and 'transient advantage ' [17], which have also contributed to a growing recognition that temporality is central for entrepreneurship research. For temporality to be more closely integrated it is necessary to explain what time adds to explanations of the entrepreneurial process [6]. One response to this is to address the atemporality of 'popular' models of venture emergence and growth, such as, [18, 19]. Whilst these have high intuitive appeal [20], they do not explain how temporality interacts with the formation of entrepreneurial ideas, actions and events as they unfold. Temporality therefore, makes demands on the question of how entrepreneurial processes and context are interrelated [21]. The following section explains how this study incorporated temporality by

examining future-sensemaking exchanges during the creation of new venture ideas within the context of higher education.

## **1.2 Temporal Context and Entrepreneurial Imagination**

If entrepreneurship research is to incorporate temporality it is vital to recognize not all time is the same [5]. Instead, entrepreneurship researchers must account for the specificities of different temporal contexts [22] to show how time alters the entrepreneurial process [6]. This section explains why HEIs provide a relevant site for studying the temporal dynamics of entrepreneurship. It also puts forward a multi-level conceptualization of temporal dynamics, another key requirement if temporality is to be integrated in entrepreneurship theory development [6].

In the knowledge-based economy, HEI's are increasingly entangled in multiple temporalities. Some activities connect to distant future possibilities (e.g., basic science and blue sky research) with little immediate practical application. Other activities have more immediate relevance to a context of application (e.g., economic competitiveness via employment creation; initiatives relating to regional/city growth plans). There is however, a tension between short-term outcomes (e.g., employability, skills and knowledge transfer) and longer-term possibilities (e.g., learning, cultivating imagination). Whitehead stated that the role of the University should be to develop generalization and imagination as part of a broader human 'process of becoming' [23]. Rather than repeating the 'precision' stage of secondary education, universities should cultivate transformative, innovative, creative and future-oriented imagination. Whitehead's ideas have been related to entrepreneurship elsewhere so as to emphasize the challenge of developing imagination [24, 25]. HEI's are interesting temporal contexts because they work upon the 'temporal imagination' [5]. They provide a temporal context within which people may experiment with 'time to come' and the 'business of the imagination' [13]. In the realm of entrepreneurial universities, this is channeled through entrepreneurial activities including enterprise societies, business plan competitions, formal curricular, start-up incubators and commercialization activities. Collectively, these activities legitimize entrepreneurial actions and contribute to the presence of multiple temporalities within HEIs (e.g., the entrepreneurial imagination, scientific imagination, knowledge transfer partnerships, yearly recruitment cycles etc.).

Here we use Bluedorn and Standifer's concept of temporal imagination to explain how HEI's exert a potential influence over peoples' 'future temporal depth' [5]. This refers to the ability to project one's goals and actions along a continuum from near/present to a distant/future. The authors argue that developing temporal awareness is one of the key challenges for universities. Temporal awareness is still a relatively undefined concept, so the authors also drew from recent work in the area of neuro-biology and cognitive psychology where the concept of Episodic Future Thinking has been more fully developed. Episodic Future Thinking was developed from episodic memory and prospective memory (i.e., the ability to project how we might remember to engage in an action at a specific moment in the future). It is classified along with other future-oriented behaviours (e.g., planning, anticipation and simulation) and is defined as '*an ability to project the self forward in time to pre-experience an event*' [26] and as '*imagining or simulating a specific episode that might occur in one's personal future*' [27]. Episodic Future Thinking is a specific form of mental time travel or pre-experiencing that involves projection of one's self into a specific future moment. Atance and O'Neill stated that in episodic future thinking 'the imagination is not given free reign, but rather the projection is constrained.' [26]. For example, one can imagine a future holiday and project certain anticipated activities and events (e.g., skiing, swimming in the sea); the environmental conditions (sunny beach, snowy mountains etc.) and so forth. Where episodic future thinking differs is that the projection may also involve consideration of 'constraints' such as, spending money; limited time; the workload that needs completing before going on vacation or will be waiting upon return.

Relating this back to entrepreneurship, we surmise that creating and developing new venture

ideas within HEIs provides an opportunity to develop temporal awareness through imagination and episodic future thinking. Entrepreneurial activities provide scope for students to experiment with imagination and extend the horizon of their decisional possibilities [28]. The multi-temporal context of HEIs therefore provides the possibility to experience 'inter-temporal co-ordination' [6] through student enterprise.

### **1.3 Temporality and Future Sensemaking Exchanges**

Whilst debate persists regarding the nature of opportunity, there is some consensus that opportunities emerge from an initial idea which becomes enacted as an opportunity [29, 30, 31, 32]. This constructivist view highlights the temporal orientation of opportunities as potential entrepreneurs pursuing venture ideas are often driven by future opportunities that have yet to come into existence [6], which they attempt to make plausible to others in the present [33]. Sensemaking about venture ideas has thus, been described as prospective [34], "the conscious and intentional consideration of the probable future impact of certain actions, and especially non-actions" [35], on the meaning construction processes of people. Both the temporal orientation of opportunities as well as the temporal imagination of potential entrepreneurs has been under-represented in extant literature. Kirzner's work on describing the nature of entrepreneurship within a multi-time-period framework [36] provides a conceptual grounding for exploring the temporal dynamics of the entrepreneurial process [3]. In fact, Kirzner explicitly argues that, "the futurity that entrepreneurship must confront introduces the possibility that the entrepreneur may, by his own creative actions, in fact construct the future as he wishes it to be" [6]. Venture ideas [4] are therefore, fragile and unproven during the early moments of entrepreneurial conception and venture formation. Potential entrepreneurs make sense of fragility by projecting the imagined opportunities [37] to others in their socio-material context and deciding to act or not act upon the feedback received.

We draw on Emirbayer and Mische's conceptualization of projectivity, which encompasses "the imaginative generation by actors of possible future trajectories of action, in which received structures of thought and action may be creatively reconfigured in relation to actors' hopes, fears, and desires for the future" [38], and apply it to the entrepreneurship context. We define entrepreneurial projectivity as *the imaginative generation of possible future trajectories of action for entrepreneurial ventures*. We then add to this prospective sensemaking which we define as *transversal activities intended to create more plausible and less equivocal entrepreneurial venture ideas*. Together, the projective and plausible constitute future-oriented sensemaking. What this study examined is how potential entrepreneurs iteratively moved between the projective and prospective aspects of future-oriented sensemaking through 'inter-temporal coordination' [6]. This being an under-examined process through which imagined opportunities are realized through the duration of time [39].

The imagined opportunity however, is not the only thing that is projected during these early moments of entrepreneurial conception and venture formation. These early moments are also particularly critical for identity formation [40, 41, 33]. Potential entrepreneurs begin to construct an entrepreneurial identity individually, collectively (e.g., as a team) and as an organization by asking questions about "who they are, why they are qualified, what they want to do, and why they think they will succeed" [33]. We draw from social identity theory [42] and Lachmann's use of Weber [43]. Lachmann explained that institutions provide 'situation images' which are framed, at least in part, by institutionalized expectations and regularities. People draw upon institutionalized frames to bound and reduce uncertainty, but in doing so individual goals and plans become enmeshed in the plans and situation images of others. Higher Education is an institution capable of shaping the boundaries of what students imagine as new possibilities and as plausible goals. In Lachmann's terms, institutions provide a protective 'crust' within which actors orientate their projects and coordinate collective action. Far from stifling imagination, institutions provide a necessary regulative

temporal influence (e.g., historical continuity) through which people articulate their visions for alternative futures and balance these against achieving a 'sufficient accuracy' necessary to pursue their individual plans in line with collective action [44]. Lachmann's concept of 'situation images' is used to explain how individuals develop 'new venture ideas' and connect them to others through the temporal context of HEIs.

As well as providing frames, HEIs legitimize social identities. For example, a student seeking to develop a new venture idea within an incubator can be conceptualized as engaging in 'identity work' [42] within which they draw upon the social identity of 'student entrepreneur'. In undertaking identity work an individual may decide to incorporate elements of the social identity into their self-identity (who I am) and social performance (how I should act) [45]. By legitimizing entrepreneurship, HEIs provide time and space for students to allocate a portion of their identity work to experimenting with the social identities associated with the entrepreneur. Such activities are legitimized because of the reputation and symbolic value of universities as places of learning and knowledge creation. Universities are institutions capable of supplying frames or 'situation images' that enable mental time travel and draw students towards a specific type of social identification (e.g., becoming entrepreneurial).

In summary, this section has developed a framework for incorporating the temporal context of HEIs into the study of entrepreneurial activities. This is a response to the limited attention paid to temporality when compared to the territorial and spatial dynamics of HEIs on regional development. HEIs provide a suitable site to study how temporal context is interrelated with entrepreneurship. HEIs have the potential to stimulate entrepreneurial imagination and enable experiments with episodic future thinking and inter-temporal co-ordination. HEIs enable, bound and protect individuals' fragile new venture ideas. By engaging in entrepreneurial actions within an HEI, students develop a 'situation image' for their venture ideas and engage in social identification as they articulate and co-ordinate their ideas. The article now explains how future-sensemaking exchanges were studied as they unfolded through the micro-processes students used to project future trajectories of new venture ideas and engage in transversal activities to form these into plausible venture ideas.

## **2. Methodology - Gaining and Using Adjacency**

In framing this paper, we have argued that entrepreneurship is a process that unfolds in real time where potential entrepreneurs make sense of future opportunities that have yet to come into existence by stretching their temporal imagination between probable (prospective) and possible (projective) futures. Using a constructivist approach requires an epistemology that explores how future reality is understood and collectively built [46]. Accordingly, where the research question focuses on 'how' questions about a contemporary set of events, a qualitative approach is appropriate [47]. Our central research proposition focuses upon how potential entrepreneurs develop a temporal imagination and move between future sensemaking states (i.e. prospective and projective) within the context of HEIs. Thus, to explore potential entrepreneurs' future-oriented sensemaking about venture ideas, we draw upon a case study methodology. While findings from case study research cannot be generalized to populations, they inform theory and this constitutes analytical generalization [48], which is the aim of this study. This inductive exploratory research draws upon notions of sensemaking and sensegiving, theorizing that these concepts provide a much richer account of the entrepreneurial process by highlighting the iterative exchanges that occur.

We used a cohort of student entrepreneurs in a university incubator to explore the temporal practices and processes of future-oriented sensemaking. The case studies were constructed from real time and retrospective data [49], typically by interviewing the lead potential entrepreneur. Beginning in October 2012 until January 2013, we conducted face-to-face semi-structured interviews, at the incubator, with four potential entrepreneurs to establish a personal rapport with them. The second round of interviews was conducted between April and September 2013. We recorded and transcribed all interviews and made extensive handwritten notes. During the second round of interviews, we asked the interviewees to

review and sign off on a narrative of their accounts from the first interview to provide us with a comprehensive account of their actions. The duration of the interviews varied between forty-five and ninety minutes. All respondents consented to the use of the venture name in the study and as such, there was no need to anonymise cases. To reduce bias from recall and rationalization, we collected data from other sources such as, participant and non-participant observations and cognitive maps. These sources enabled us to triangulate our findings to build stronger interpretations [50].

We followed Eisenhardt's recommendations for multiple-case sampling which involved detailed, descriptive within-case narratives and interim cross-case summaries to identify underlying patterns and similarities across cases [51]. The four cases yielded rich empirical material [52, 51] and were diverse in terms of gender, the sector, educational background of the lead entrepreneur(s) and prior entrepreneurial experience [53].

We used the case replication method, in which cases serve as independent experiments that either confirm or contradict emerging insights [51]. In effect, the cases varied in terms of directionality. That is, whether the starting point was probable or possible future sensemaking states. We analyzed our data in three steps. In our first exploratory analysis, we adopted an "in vivo" approach and created category labels that closely followed the data using mainly descriptive and process coding methods [52, 54]. The second step involved the use of sub-coding the general category labels in accordance with the nine a priori codes to create themes, causal explanations, relationships among actors and theoretical constructs. These a priori codes were based on the research question and existing literature [51]. The third and final step was to establish a case background for each of the four potential entrepreneurs and then focus upon the experiences that influenced and shaped the development of their temporal imagination. This process was not linear but rather formed a "recursive, process-oriented, analytic procedure" [55], which resulted in an understanding of the key theoretical relationships.

### 3. Findings

Our data suggests that future-oriented sensemaking occurs when potential entrepreneurs stretch their temporal imagination either through transversal activities from what is probable (prospective future-oriented sensemaking i.e. likely to happen), towards what is possible (projective future-oriented sensemaking i.e. all the infinite possibilities that could occur), or by transversal activities from what is possible to the probable. The cases demonstrate that the starting point, either probable or possible future states is not as important as the duration and temporal depth. This is further emphasized in the one case out of the four which remained in a state of inertia. We illustrate the findings below.

#### ***3.1 Transversal from (near) probable to the (near) possible to the (distant) possible***

Our data indicates that some student entrepreneurs begin with modest venture ideas about future opportunities that have yet to come into existence. An example of this is the case of the Pocket Square. The narrative of the founding of Pocket Square illustrates that future-oriented sensemaking sometimes begins with prospective sensemaking. In this case, the founder was dissatisfied with existing pocket squares in the market and decided that with the help of his family he could make a much better pocket square.

*"I was going to the Henley regatta, so I was like I need a square. I couldn't find one so mum was like 'oh well we'll make one' because honestly the squares that we saw available were poor they didn't match any fabrics we needed, they were too high a price for what they were so my mum said okay we can go make one that will look better than that"* (TPSC, INT1: P12).

Choosing to make a pocket square can be seen as a likely probable event that is within the

scope of the potential entrepreneur's temporal imagination given his prior knowledge, experience and support network. Upon making a pocket square for this particular event, the founder realized that with the continued help of his family he could start making more pocket squares not just for personal use but for friends, colleagues and the public (consumers). This led to the formation of the Pocket Square Company – a retail shop selling luxury pocket squares. However, after a few sales, the founder began to stretch his temporal imagination towards other possibilities for his venture idea. This projective future-oriented sensemaking led to the decision to create another venture that catered to other fashion needs.

*“The business the pocket square company which you’ve obviously heard of... that’s the very first one the second business is launching in March its being done now. They both relate to one another but obviously pocket square is so concise it needed to expand outwards so I’ve started a new business it’s called Augustus & Burke and it’s a fashion brand providing ties, cuff links, socks ....” (TPSC, INT1:P3).*

The prospective future-oriented sensemaking about the venture idea relied on cues noticed and extracted from the environment about imprecisely-defined market needs and, un-or-under-utilized resources or capabilities [9]. As a result, the opportunity arising from this venture idea can be typically described as a ‘discovery opportunity’ [56] realized with the lapse of time. As the potential entrepreneur engaged in transversal activities, he moved along a continuum of future-oriented sensemaking towards the possible or projective sensemaking. In his account of this experience he describes finding additional future opportunities; in this case, the creation of a second business venture represented further corrections of prior errors in the market [11, 57].

The realization of these future opportunities also exposed gaps in the founder's knowledge regarding specific manufacturing processes. He also describes in his account how he *“never realized how many different ways you can manufacture a tie and the amount of fabric required just to make four ties”*. This new learning brought about by further projective future-oriented sensemaking enabled the entrepreneur to travel even further along the continuum of future-oriented sensemaking into the realm of distant possible future states of projective sensemaking when compared to the initial, prospective idea.

### **3.2 Transversal from the (distant) possible to the (near) probable**

The data suggests that other potential entrepreneurs begin with venture ideas that stretched way-out towards a distant future that had yet to come into existence. An example is the case of Neehoy. The narrative around the venture idea illustrates that future-oriented sensemaking can also begin with projective sensemaking. In this case, the founders were brainstorming ideas about how to improve existing recycling services as they were dissatisfied with current solutions in the market.

*“we were bouncing ideas about and I don’t know our viewpoints aligned on few certain things and given the solutions that are out there at the moment they’re quite technically limited in what they afford consumers so we thought can we do something better and our original idea was to start a social enterprise” (Neehoy, INT1: P3)*

Choosing to start a social enterprise can be seen as a possible rather than a probable event that is within the scope of the potential entrepreneur's temporal imagination given their lack of experience in this domain. The founders soon realized that it was more difficult to attract funding for their ideas when presented as a social good. This resulted in a revision of the initial idea towards building a recycling app for mobile phones. This involved attending entrepreneurship competitions and presenting the idea as a profitable business venture backed by the founders' existing knowledge and experience in computer science and lean management. Thus, the founders of Neehoy moved from projective to prospective sensemaking in order to make their venture ideas more plausible to others.

*“We first applied to a couple of social enterprise funds....charities or non-profit thinking there is clearly some mileage in approaching social funds rather than pure commerce so we*

*applied for a couple but we didn't get very much feedback I think possibly because our ideas were still embryonic but I say primarily because of the amount of competition hundreds applying for the same funds so put it on the back burner after not getting that funding saw the advert for entrepreneurship maybe work better as a business could offer equity to people help design it as a business for social good....revenue generation is dependent on the social good anyway so it didn't seem like we compromised the values of the idea we tried it ...fortunately we won."*

### **3.3 Transversal from the (distant) possible to the (distant) possible**

Up to this point, our case findings have illustrated transversal activities *between* future sensemaking states. However, one of the cases in our study illustrated transversal activities *within* a future sensemaking state. In the case of Escape Pods, noticing a problem with the lack of accommodation in airports specifically on the 'airside' of the airport became the impetus for future-oriented sensemaking about venture ideas that could resolve this problem. The idea that emerged involved constructing sleeping 'pods' at transit hubs in airports.

*"... so the problem was lack of I'd say accommodation within airports and this is the important part it's within airports so then I'm going to put specifically airside and that's the big difference alright because there exists other sides. The idea itself is like four years old now based on Japanese capsule hotels... I saw them and I got excited about the potential for micro accommodation (Escape Pods, INT1:P1, 4).*

Choosing to construct sleeping 'pods' or capsules can be seen as a distant possible event (projective sensemaking) that was initially conceived as being achievable within the potential entrepreneur's temporal imagination. However, upon embarking on this event, the potential entrepreneur realized that the cost and complexity of such a venture was beyond his financial and social capital. In this case, the potential entrepreneur engaged in some prospective sensemaking regarding what was actually attainable given his resources. However, this prospective sensemaking was not sufficient to enable him to decide on a plausible course of action to continue with the venture idea and this eventually led to stagnation of the venture idea.

*"I was thinking I would develop the pods and sell to industry so that was it at this stage so then realized that as a business idea this would not work because these guys train stations, airports and everything don't want to manage something like this. It's not within their remit, not within the scope of their business so that is when it swapped over to me actually making a hotel. Airports became the most lucrative option based on traffic potential – potential customers. People fly to Heathrow to get to everywhere ...so going to be based at Heathrow and we are looking at roughly 300,000 within the next two years otherwise it will become unfeasible as other people will do it. I know that it's a good idea I'm just scared somebody's going to do it before I get there. I'm just not sure about when it can be done" (Escape Pods, INT1:P2, 3).*

### **3.4 Inertia**

Our case findings also illustrate the lack of transversal activities. An example of this is the case of the e-Book. Future-oriented sensemaking involved noticing problems people had with losing weight permanently and healthily and the proposed solution of writing a weight-loss e-book. Choosing to write an e-book can be seen as a probable event (prospective sensemaking) that is within a near/present scope of the entrepreneur's temporal imagination. However, the potential entrepreneur did not want to share the idea with others in her social network.

*"It's proving quite a challenge actually ... I think I'm worried it might not do too well. I'm also worried I mean I kind of want to see it first and then tell people rather than have the pressure*

*of expectation from other persons... people are wondering why I'm staying up late and so on but I haven't told any of my friends." (W Loss e-book, INT1:P6).*

The student entrepreneur did not engage in transversal activities and the idea proved too fragile to survive. An inability to stretch the temporal imagination through exchanges with others meant the development of the venture idea was hindered and the e-book did not progress beyond this initial idea to write a weight loss e-book.

## **4. Discussion**

This section discusses how the above cases were analyzed further to develop an explanation of how the temporal context of an HEI was interacting with the future sensemaking activities of student entrepreneurs. The conceptual framework developed earlier in the paper suggested that HEI's provide an interesting context comprised of multiple-temporalities. Students can access these different timescapes to engage their temporal imaginations. Entrepreneurial activities provide one such opportunity as the cases above demonstrate. The cases illustrate the variation that unfolds through future-oriented sensemaking. The following discussion links together two findings: first, that student entrepreneurs account for different depths of temporal imagination [5] and second, that they undertake different transversal activities to undertake 'inter-temporal co-ordination' [6].

### **4.1 Temporal Depth**

In terms of temporal depth the cases illustrate how students set varying depths to their imagined opportunities. The HEI context is significant here because it does not impose a hard duration upon the new venture ideas (e.g., a return on investment by X years). This provides scope for students to select reasonably near/present or distant/future depths for their new venture ideas. In the above cases, Escape Pods and Neehoj both started with new ventures ideas aimed at a distant/future compared to E-books and Pocket Square that were ranged in a more near/present temporal depth. This variation suggests that future sensemaking can be directed projectively, towards the possible as well as prospectively, towards the probable. Student entrepreneurs' accounts demonstrate differences in the 'starting' positions and direction of their future sensemaking. As the cases demonstrate, the depth of temporal imagination is influenced by various factors including: family involvement; cost; complexity and relationship to current skills/knowledge base.

As the intention here was not to analyze the relative significance of these influences, little can be said other than future-oriented sensemaking is affected by a number of external factors that exert 'temporal pressures'. What can be stated is that entrepreneurial activities enable students to cultivate their temporal imagination. Selecting different future-oriented sensemaking modes (e.g., prospective/projective) turns Shackle's 'time to come' from a flat, open and endless timescape into a striated, lived timescape. The business of the imagination through which new venture ideas emerge, develop or disintegrate is striated through sensemaking exchanges. Variation in temporal depth can therefore be brought into theory development to explain how temporal pressures exert influence and prompt variable future-oriented sense making. By enacting future-oriented sensemaking exchanges, whether prospective or projective, students were able to move their new venture idea, which leads to the second finding: variation in the direction and velocity of transversal activities.

### **4.2 Transversal Activities**

The cases each demonstrate a different type of movement between the probable-possible continuum. These directions of travel are summarized as inertial; low and high velocity. Pocket square is an example of a high velocity transversal movement as the student entrepreneur, having pursued an initial venture idea, discovered future possibilities for

diversifying and creating a new business. Here, future-oriented sensemaking was initially prospective, as it was quite probable that the student could encourage his mother to create the prototype design. However, he then increased the velocity of his new venture idea by using projective sensemaking. This resulted in him realizing the limits of the opportunity and therefore, projecting once more towards a possible future (e.g., a new brand offer a wider range of men's clothing accessories). Neehoj also provide a high velocity transversal movement albeit in a different direction. Their future-oriented sensemaking began as a projection towards a possible future venture in an area they lacked experience (e.g., creating a blended revenue social venture). Through prospective sensemaking, they transverse to a position closer to being probable due to their technical skills and understanding of how pure profit companies create and capture value. In both cases, the velocity is crucial as the founders undertook extensive future-oriented sensemaking to move their ideas forward.

EscapePods was created as a highly projective, imagined opportunity and the founder soon encountered challenges relating to the cost, complexity and limited experience of the sector (e.g., hotels in transport hubs). He did engage in prospective sensemaking, albeit over a three year period and crucially, this did not help move his idea forward. Instead, by his own admission, the idea moved somewhat but not fast or far enough. By his own admission, he continued to believe there was an opportunity but it was one that he could not move towards a more probable outcome (e.g., an exploitable venture). In this instance, the transversal movement is labeled as *low velocity*.

E-Book is categorized as the third possibility – *inertia*. Having initially conceived of the idea, there was little additional sensemaking enactment so no further transversal activities occurred. Instead, the new venture idea remained in its original form and was not developed further. These interpretations suggest that the selection and use of future-oriented sensemaking affected the direction and duration of transversal activities. Selecting prospective or projective sensemaking enabled the student entrepreneurs to move their new venture ideas but this was further influenced by the velocity or duration of time taken to enact their ideas. The direction of transversal activities is less important here than illustrating how the use of different future-oriented sensemaking (prospective/projective) influences how entrepreneurs enacted 'inter-temporal co-ordination'. The variation in accounts of sensemaking reinforces the findings relating to temporal imagination because it shows how time is not a passive context within which entrepreneurial activities unfold. Rather, there are qualities about the interrelationship between temporal imagination (depth) and transversal activities (range) that can be surfaced by examining future-oriented sensemaking. Temporality is never inert but capable of exerting pressures upon the depth of imagination and the range of transversal activities undertaken when developing a new venture idea.

*Figure 1* below illustrates the cases by plotting them along two continua. The first continuum, temporal imagination, links a near/present to a distant/future. The second connects transversal activities to future-oriented sensemaking according to projective sensemaking oriented towards the possible and prospective sensemaking oriented towards the probable. Accounts of future-oriented sensemaking were then plotted according to velocity (high/low); direction of movement and Plausible Positions (PP).

### **4.3 Plausible Positions (PP)**

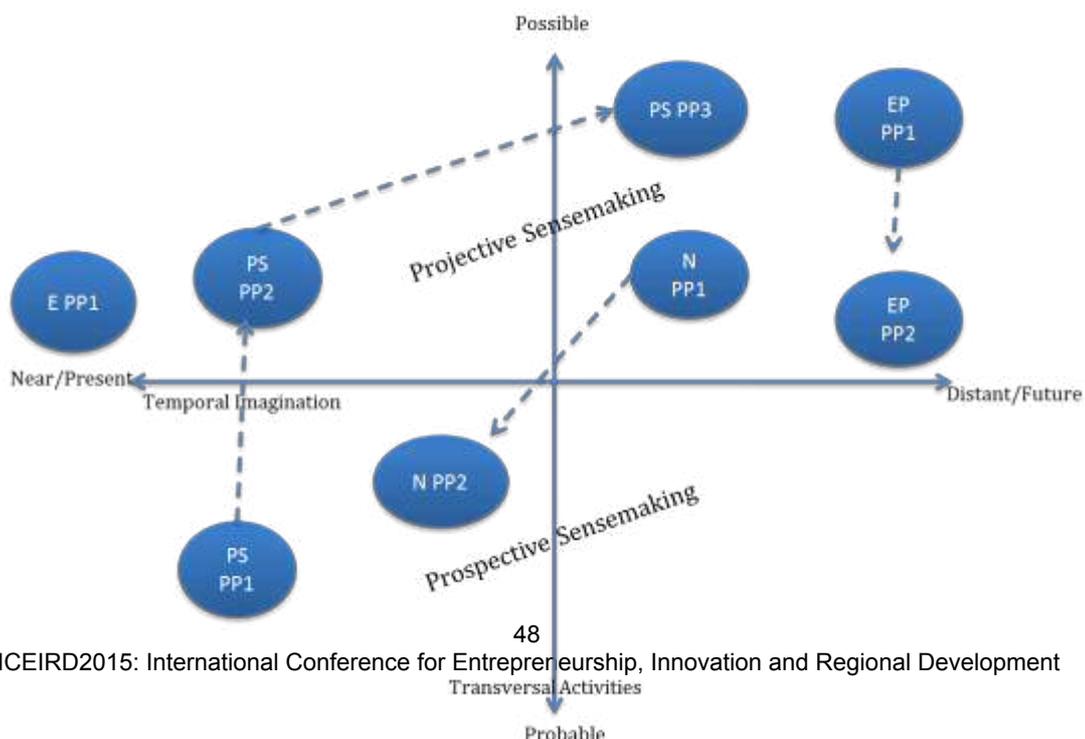
Plausibility refers to the subjective evaluation of the constraints that may affect a new venture idea. It provides an initial starting point (PP1), which may or may not (EBooks) be subject to movement (e.g., PP2, PP3) depending upon the transversal activities and temporal imagination. The continua link ideal-types which are not expected to exist in reality. The aim is to illustrate how plausible positions emerge as student entrepreneurs engage their temporal imaginations and enact projective and prospective sensemaking. The aim is not to claim it is possible to accurately plot new venture ideas but more to illustrate how temporality can be traced by following the emergence and development of venture ideas as they are subject to temporal pressures and worked upon through future-oriented

sensemaking. In this diagram, venture ideas may be moved up or down the projective (possible) and prospective (probable) continuum whilst also travelling along the temporal depth (near/far) continuum.

Plausible positions are temporary and open to revision through sensemaking transversal activities. Some venture ideas may therefore, be accelerated through high velocity; others move some distance but at a lower velocity whereas some ideas are trapped by inertia. Where there is significant scope for further research is understanding how temporality and plausible positions are linked. Here, the concept of episodic future thinking is potentially useful because it introduces the importance of constraints upon imagination. What the cases in this study illustrate is how temporal context affects how and when new venture ideas are articulated. Various factors (e.g., complexity, cost, family) exert pressures that trigger future-oriented sensemaking exchanges. Through these exchanges plausible positions are established as well as are subject to revision and indeed entropy. A key question arising from the study is therefore, which factors exert temporal pressures and how does this affect the development of new venture ideas?

#### 4.4 Social Identification

As expected, HEIs provide a valuable context to study temporal influences on entrepreneurship. HEI's, especially with student entrepreneurship, provided a 'crust' that Lachmann ascribed to institutions [43]. This serves to protect the fragility of ideas at least for a period of time until the student entrepreneur begins to interact with others in the search for resources to further their venture ambitions. It is clear from the cases that HEI's also provide an opportunity for students to engage in social identification. For Pocket Square and Neehoj, there was a far more involved identification with roles and activities one may associate with entrepreneurial actions (e.g., pitching for investment, securing resources, selling, and diversification). Both cases 'crossed the line' as the student's allotted a portion of their social identity and in turn their self-identity with the role of entrepreneur. This commitment to these venture ideas displayed to self and others (e.g., family and fellow students) was absent in the E-books and EscapePods. This suggests that the degree of social identification with entrepreneurship is a further factor influencing the velocity of new venture idea development and the future-oriented sensemaking transversal activities. It also suggests that by legitimating social identification with the entrepreneur, HEIs provide scope for students to increase their temporal awareness [5]. From an initial plausible position (PP1), the extent to which an individual or team is willing to invest more in social identification with the role of entrepreneur further influences the direction and speed with which new venture ideas develop.



**Figure 1:** Future-oriented Sensemaking States

**Key**

PP = Plausible Positions.

EP = EscapePods; E=Ebook; N=Neehoy; PS=PocketSquare

## 5. Conclusions

This article has examined the question of how the temporal qualities of context affect the development of new venture ideas. It studied these effects by focusing on a specific context – universities, which are comprised of multi-temporalities that exert influence through framing (institutionalized) situation images and social identification. To investigate how temporal context affected new venture ideas, we examined future-oriented sensemaking exchanges. The key finding from observations and interviewing is that as student entrepreneurs utilize future-oriented sensemaking, so their accounts suggest varied influences on their temporal imagination. Examining the influence of depth or temporal imagination suggests that new venture ideas are plotted along a continuum from near/present to far/distant. This is further mediated by transversal activities, or projective and prospective sensemaking that help to fix the plausible position of a new venture idea between probable and possible. The initial plausible position may then be shifted through future-oriented sensemaking, re-imagining the depth of the idea.

The study has confirmed that HEI's are key institutions for cultivating imagination and protecting fragile venture ideas. By providing a safe space to experiment with becoming entrepreneurial (i.e., undertaking social identification), students can gain experience of undertaking 'inter-temporal co-ordination' [6]. This underlies the value of HEIs as capable of encouraging students 'temporal awareness' [5]. This could have practical relevance for those involved in student enterprise and more broadly university-based entrepreneurship (e.g., HE spin-outs, incubators). If HEIs are to have more prominent roles in regional economic development, then interventions are required to generate and develop new venture ideas. This paper has suggested that temporal factors influence the direction and development of student venture ideas. Knowing this and being able to plot venture ideas could potentially help students and advisors (e.g., mentors, tutors, incubator managers etc.) locate where a plausible position for the idea is and what type of future-oriented sensemaking activity might be required. For example, an idea that is projected towards a distant/future may benefit from more prospective sensemaking. Conversely, a student with a promising new venture idea that is trading and highly probable may benefit from being stretched to engage in projective sensemaking.

Adding temporality helps to account for variation in how new venture ideas develop and which directions they follow. Understanding how temporality fixes plausibility raises further questions about the perception of constraints and uncertainty [41] as people engage in 'inter-temporal co-ordination' [6]. Future research could examine how Episodic Future Thinking is enacted through setting temporal imagination and using projective and prospective sensemaking. This could provide valuable insights into how temporality influences the choices and options involved in entrepreneurship and how people and organizations make strategic choices by connecting possible-probable; present-future and plausible positions.

## **5.1 Limitations and Future Research**

The paper is 'limited' by focusing on four cases of student entrepreneurs from a single HEI. They were a relatively homogenous group but this was useful to show variation in the effects of temporality. There are many ways the research design could be expanded for instance, by examining how experienced entrepreneurs set the depth for new venture ideas and what sensemaking preferences and transversal activities they engage in. Examining the depth of temporal imagination could provide, for example, additional understanding in areas where considerable future change is required. New technological inventions and ventures aimed at social innovation are two sub-domains where examining the relationship between temporal imagination and transversal activities could provide additional insights for theory development.

A further possibility is to study the micro-processes through which future-oriented sensemaking is enacted. Closer analysis of the language utilized to explain transversal activities during the development of new venture ideas could be one possibility. Incorporating the temporal effects of context could further our understanding of the connection between entrepreneurship and narrative, rhetoric and discourse. Discerning the direction of movements and cues from accounts of future-oriented sensemaking could potentially provide valuable insights for both theory and practice. For example, it may be possible to discern patterns. Consider an entrepreneur or organization that rejects ideas that are oriented towards a distant/possible future. Here, interventions may be designed to stretch the imagination so as to experiment with new venture ideas that challenge over-reliance upon the present/probable. Conversely, new venture ideas that tend to be consistently oriented towards a possible/future may benefit from interventions using prospective sensemaking to encourage a different mode of thinking and action. In both examples, research could examine how plausible positions for new venture ideas are initially fixed and what patterns subsequently further or hinder development.

As a final (highly projective) thought, there is the possibility of connecting how temporality and future oriented sensemaking of new venture ideas links to performance. One may imagine, free of constraints, studies examining whether specific future-oriented sensemaking activities are related positively to the development of venture ideas whether in their original plausible position or modified form.

Overall, the aim of this paper was to examine how HEI 's exert temporal influences over entrepreneurship. This was primarily because spatial territoriality tends to be privileged over temporality. The study aims to contribute to the debate about how HEI 's influence regional development by explaining how HEIs affect both the depth (e.g., temporal imagination) and range (e.g., transversal activities) of student entrepreneurs ' future-oriented sensemaking. A key finding is that 'time-to-come' is subject to temporal pressures, and the 'business of the imagination' is subject to future-oriented sensemaking exchanges that seek to ameliorate the influence of temporal pressures. This study has shown that temporality is not monolithic but a vital influence upon the emergence and development of new venture ideas. Further studies may work with the concepts used here to develop explanations of how time, context and new venture ideas are interrelated as entrepreneurs plot their ideas along a continuum of present/future; engage in projective and prospective sensemaking and establish and re-work plausible positions. As the quote from Polkinghorne suggests, we cannot escape time and the human condition is 'radically temporal' [1]. Entrepreneurship theory development and the practical contribution of HEI 's to regional economic development may therefore, both be better served by seeking to incorporate temporality and explain its influence upon the emergence and development of new venture ideas.

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# **Interwoven processes: gendered rural entrepreneurship**

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**This study explores entrepreneurship and gender in rural settings. It investigates the conceptual links between entrepreneurship research and rural research when it comes to doing gender. The guiding research question is: how is rural entrepreneurship processes gendered? The conceptual discussion will be illustrated with a case on people enacting entrepreneurship in a Swedish municipality, here named Easton, which demonstrates how rurality and entrepreneurship is interwoven when it comes to gender aspects. The empirics from Easton were gathered during a two months period with an ethnographic approach consisting of interviews, shadowing and active involvement in meetings.**

**Gender can be understood as a social construction formed in historical, geographical and discursive constructions. It is our everyday interactions that cast what is perceived as the differences between feminine and masculine. Gender is thus a social process; we reproduce, and to some extent challenge, gender with all our actions. Entrepreneurship is viewed as the process in which people use resources to emerge new opportunities. Rural settings can culturally be defined as social locations, including place and space that provide meaning to people. In connecting rurality and entrepreneurship, rural entrepreneurship is when the rural is crucial in shaping the entrepreneurship.**

**The conceptual links indicate that entrepreneurship and the rural are masculine gender constructions but where rurality appears to be changing towards a lower degree of masculinity. Thus gendered rural entrepreneurship may then be characterised by a double structure, where both the gendered entrepreneurship and the gendered rurality interweave to shape the context for emerging opportunities. Furthermore, the interweaving in rural entrepreneurship could lead to a reshaping of the masculine entrepreneurship because of the changing gendered rurality.**

## **Keywords**

Conceptualization, Context, Ethnography, Rural development, Social construction

## **Introduction and method**

This study aims to explore entrepreneurship and gender in rural settings, and it sets out to investigate and discuss the conceptual links between entrepreneurship and rurality when it

comes to doing gender. The guiding research question is: how are rural entrepreneurship processes gendered? The conceptual links are illustrated and discussed around a case on women and men enacting entrepreneurship in the Swedish municipality of Easton.

As concluded by Berg [1 p. 259]: "... when studying entrepreneurs one is studying gendered individuals in gendered places". Thus, with a socio-relational perspective gender, place and entrepreneurship are all interwoven. To understand the complex context of entrepreneurship it is important to study in what and how the phenomena is situated [2]. From a feminist research standpoint socio-economic processes, such as entrepreneurship, are interesting from equality and justice aspects. Furthermore, more research on gender and entrepreneurship [e.g. 3] and gender and rurality [e.g. 4] has been asked for.

The municipality of Easton in the middle of Sweden is characterized by a traditionally male industry. Glancing at Easton could lead us to believe that the town is symbolized by raising the people's prince, a well-known art garden and a well-established plastic manufacturing industry. But as with most first glimpses the illusion is deceptive. Easton has raised a royal, the garden attracts a lot of tourists and the manufacturing industry has, at least in the past, been a big part of the identity of Easton. But Easton also has a rich voluntary association life, many small businesses and plenty of local incentives which make Easton now more than in many years a dynamic society full of interactions and local identity. At the same time Easton experiences a decline in population because of its aging population even if the immigration is higher than the emigration. In 2013 Easton had 5785 registered citizens [6] and 401 registered businesses [5] which means Easton still have a higher frequency of businesses per citizen than the surrounding area.

The illustrative empirics from Easton were gathered with an ethnographic approach. The study extended over a period of three months, and included interviews, participation in formal and informal meetings, and shadowing [7,8]. The number of people involved in the study was approximately 30 and the number of researching occasions was 18. The ethnographic approach constructs a situation that avoids the risk of the empirical statements presented being anecdotal, political, and primarily an outcome of the way questions are asked, as could be the case in studies reporting on one or two rounds of interviews in an organization [9]. The environment created in this type of study makes it possible for the researcher to act reflexively, continuously comparing and evaluating the statements made in the organization. The data was analyzed using a constant comparative [10] and an analytical induction [11] approach where themes of gender, entrepreneurship and rurality was explored.

The study indicates entrepreneurship and rurality to be masculine constructions and where rurality seems to be in a state of change when it comes to gender constructions.

Entrepreneurship and rurality are interwoven in the rural entrepreneurship process which is thus characterized by a double gendered structure. The illustrative case shows how the interwoven structures shape and is shaped by context. The contribution of the study is a framework for further understanding how gendered entrepreneurship interacts with gendered rurality. The study also adds to the growing literature that problematizes the lack of context in entrepreneurship research, by developing the interweaving of gender and rural entrepreneurship. Furthermore, the study highlights the need for future research to take into account multiple contexts that shape and are shaped by entrepreneurship.

The text is structured as follows: first, the three concepts of gender, entrepreneurship and rurality are laid out. Second, the concepts are combined and discussed. Throughout the text Easton is brought up as an illustrative case. Lastly, the conclusions of the study are laid out.

## **Gender as a social construction**

Gender can be understood as interactions embedded in our everyday life to cast what is perceived as the differences between feminine/masculine and translated to women/men [12]. Hence, gender is something that is enacted and "done" with our actions, a social process. At the same time as it to some extent are people doing gender, West & Zimmerman [12] argue

that gender is sprung from social situations. This view implies, as Butler [13] notes, that gender is seen as an effect of, and not a cause for, actions. West & Zimmerman [12] do however emphasize that gender is an outcome of the social situations that gender in itself legitimizes. Hence, gender is constantly produced and reproduced through symbols, interactions and behavior.

The approach to gender, organizations and entrepreneurship as well as rurality taken in this study is what Calás et al. [3] labels poststructuralist feminist theory. A poststructuralist perspective critiques the stability of masculinity and femininity. Analytical categories, such as entrepreneurship, gender and rurality, are seen as subjective and hence constructed through language, history, culture and politics. With the poststructuralist feminist perspective, gender is not done in one universal way; instead it is a flexible and various phenomena.

Acker [14] provides a framework for theorizing about gender and organizations. The framework consists of five dimensions which together interact to create a system of gendering. The five dimensions are separation, symbols, interactions, identity and gendered logic. The interactions between people include all the patterns that enact the division between the dominant masculine and the obedience of femininity. The gendered identity as a personal construct is produced through the processes of gender, where the division, symbols and interactions conspire to produce a consciousness of the dimensions and thus gendering the person.

The separation of gender occurs in the organization, the family and the state when it comes to for example division of labor, allowed behavior, locations and power [14]. The structure of the division varies a great deal but recurring is the male dominance. An example from Easton of a challenge of the constructed gender division is the growing number of women acquiring hunting license. In Easton, as in Sweden as a whole, hunting is coded as something masculine. At the same time gender divisions is reproduced since the growing number of women who hunt is not reflected in the hunting teams because of institutional inertia over who holds the right to hunt a certain area. The women are bound to not hunt at all or join in on a man's (and in some rare cases a woman's) hunting permit to be able to hunt.

Symbols are constructions of images which explain, express and reinforce the separation [14]. The symbols are for example expressed through language, ideology and culture. Gender symbols have been challenged in Easton since the old mill was transformed into a garden with art, culture scenes and events. The area has made a shift from being a traditional masculine working place to a modern cultural arena, more viewed as feminine. The view of Easton both from the outside and from the inside could also have started to change with the shift of activities in the area.

Finally, gendered logic is the process where phenomena that seem genderless in fact are framed within gender structures [14]. The process exists in both family and relationships, but the gendered logic is also fundamental in the underlying relations of for example complex organizations. The organizational way of doing things can be perceived to be gender neutral since organization theories have their basis in this logic.

## **Entrepreneurship as a masculine phenomena**

Entrepreneurship is viewed as a process where attention is given to evolving interests and efforts of people as well as being situated in time and place [15–17]. Using a process-view, Jack & Anderson [18] and Korsgaard & Anderson [19], emphasize the context when people use resources to emerge opportunities. Entrepreneurship cannot be understood as an isolated event: it is interwoven and it interacts with different structures of context, such as gender and rurality [18,20]. Furthermore, in addition to the facilitation and constraint of local structure on enacting entrepreneurship, the embedded nature of people implies that the actions they take will impact society, reproduce and recreate context [2]. This implies a causality that runs both ways, making it impossible to separate the context shaping people

versus the people shaping the context, and thus, the people and the context can only be analyzed when considered together. In Easton a context dependent entrepreneurship is seen in a variety of forms and shapes. An example is the newly started business that uses designs originating from the 1800s Easton to produce new fabrics for table cloths and other fabric related products. Marie, who started the business, was contacted by the local history society because they wanted someone to start market the design. Without the local history society thinking of Marie as a person who would handle these fabrics with respect, this business would never have happened. And without the history of Easton the designs would not be a reality. Marie's business is an outcome of the context and when she markets the old designs she is changing the view of historical Easton as something worth doing business over.

Even though the context and embeddedness have been emphasized, theories of entrepreneurship are largely both ruralless and genderless, neglecting the effect these contexts have on entrepreneurship. The concept of entrepreneurship is generally seen as a phenomena that is both genderless and gender-neutral [21]. At the same time the gender neutral approach is only evident in theory, in practice most research is done on men as entrepreneurs. When the theories of entrepreneurship is considered to be genderless but in fact casted within a male domain a big part, the female, of the entrepreneurship community is neglected [21]. At the same time as entrepreneurship is considered to be genderless; both organization creation [e.g. 22] and entrepreneurship [e.g. 23] is perceived as masculine, constructed within a masculine framework with male connotations. This leads to a mismatch of not taking into account a gender aspect with the entrepreneurship theories that are laid out today.

The focus in the research on gender and entrepreneurship have to a large part been on the differences between women entrepreneurs and men entrepreneurs and have thereof made comparisons between women and men [21,23–25]. Doing research on the differences between men and women are leading to a recreation of the women, as well as the businesses owned by women being secondary, or at best complementary to men and men's business [23]. Women are often portrayed as having a shortcoming or a problem, which is explained as the reason for women not being as entrepreneurial as men. This is evident even in much of the research that focuses on the structural gender issues [23]. In Easton the shortcoming of the women enacting entrepreneurship is seen in that some of the women are a part of a female entrepreneurship network run by the local business owner association. Within the network the women are trained in business related things such as first appearance, social media and accounting. Furthermore there is a large focus on the social aspects of the group. Easton does not have a male entrepreneurship network but does consist of other network for specific areas of business such as the trade association where both women and men take part.

Ogbor [26] argues that the “need” to explain the differences between women entrepreneurs and men entrepreneurs is rooted in the debate within the entrepreneurship research field around what entrepreneurship is and more explicitly who an entrepreneur is. How we define and talk about entrepreneurship and entrepreneurs legitimizes the boundaries in which it is researched and practiced [26,27]. As Gartner [27] laid out, the often used so called trait approach to what entrepreneurship is makes an entrepreneur a fixed phenomenon consisting of specific characteristics attached to a person who were destined to be an entrepreneur. Ahl [28], and many before and after her, points out that these universal entrepreneurial traits are male constructed and thus gendered, making entrepreneurship and entrepreneurs a male domain.

The proposed opposite to the trait approach is the behavioral approach to entrepreneurship, where entrepreneurship is viewed as a contextual process [27]. As Gartner states: “When we view entrepreneurship from a behavioral perspective we do not artificially separate dancer from dance, we do not attempt to fashion a reassuring simplicity ” [27 p. 64]. The behavioral approach to entrepreneurship is a little less gendered (with emphasize on little) since it does

not view the person with specific traits as the main analytical focus or driver in the entrepreneurial process.

The entrepreneurship discourse has, much like a large part of the western society sustained traditional binaries with two sections; male and female [26]. In the binary system the male-oriented view and definition of the reality is upheld as the only legitimate view of the society. The system cheers for masculine concepts such as control, rivalry, rationality and domination. The binary system, that results in a discourse on the women entrepreneur, becomes a self-fulfilling prophecy which reproduces the notion that women entrepreneurs is the other [21]. In Easton the female entrepreneurship network can also be analyzed in regard to the “othering” of women who enact entrepreneurship. When the women are categorized in a special other group than the one that the men are a part of they are fulfilling the notion that the women indeed are different from the men entrepreneurs. The gender constructions of entrepreneurship are thus reproduced as something masculine.

Bruni et al. [21] argue that the discourse on women entrepreneurs underlines the gendering of entrepreneurship as well as the doing of gender in society as a whole. Moving focus from women and entrepreneurship to gender and entrepreneurship, Bruni et al. [30] shows that the process of doing gender and the process of doing entrepreneurship are intertwined. The gender aspects affect how entrepreneurship is enacted and the entrepreneurship process affect how gender is reproduced and challenged.

## **Rurality as a changing gender phenomena**

What is place? Cresswell [31] argue for that place is a process in which people engage in place-making activities as to make some meaning of a space. Agnew [32] proposes three important aspects of place as a meaningful location: location, locale and sense of place. Location is the physical presence of a place. In rurality the location can be seen as a contrasting to urban where rural is seen as small; smaller than the urban when it comes to population, market(s) and supply [33]. From the location aspect Easton municipality is a geographically defined location in the middle of Sweden, close to more populated areas in the state.

The locale dimension of the framework by Agnew [32] is the material setting where social interactions take place, the roads, houses and demographics. In rurality the material setting is based on the physical natural resources used from the landscape. Kalantaridis & Bika [33] argues for land use and large open spaces for a guiding definition of the rural. From the locale dimension Easton municipality consists of forest, some arable land, two mountains, a couple of lakes and three major rivers. Within the municipality there is a main town called Easton and the four smaller villages. The four villages is an important part of Easton, which is emphasized especially by the ones not living in the main town.

The aspect sense of place put forward by Agnew [32] is the relationship the place has to people which leads to the creation and consumption of meaning. Sense of place is the subjective and emotional connection people have to the place. In this sense, rurality is the relationships and social practices happening in the location [34]. From the sense of place aspect Easton municipality consists of roughly 6000 people that interacts with each other in for example the school, at the local café, at the exercise trails and in the numerous of voluntary associations. The four villages have their places for interactions which contribute to the overall relationships between people.

Cresswell [31] put forward the notion that the different dimensions of place cannot alone be the thing that constructs the place. Instead, place can be seen as something that brings these aspects together and in some sense also have a role in creating the dimensions. During the same lines Korsgaard et al. [34] argues for that social practices are influenced by physical location as well as physical location is influenced by social practices. Hence, an intertwining of physical and social processes occur leaving rurality to be a place interpreted as all its physical and social aspects.

Rurality, as a historical place of agriculture, has both been interpreted as feminine for its association to reproduction, fertility and sexuality and as masculine for objectification and domination [35]. Saugeres [35] conclude however that man mastering the landscape is closely related to man dominating woman. Thus, gender differences are produced and reproduced around a structure of double opposition.

Saugeres [35] show how men are seen as having a natural connection to nature and the landscape. The natural connection is upheld by mastering and dominating landscape and it is crucial for the men to feel a part of the landscape. In contrast women are defined by their lack of the connection to the landscape that the men have. This discourse of the naturally connected man and the secondary connected woman is what Saugeres [35] believe legitimize the masculine mastering of the landscape as well as the mastering over women. In mastering, dominating and identifying with the landscape as well as taking a stand from women and nature the masculine identity is produced within agriculture. Saugeres [35] also note a change with the discourses: the male domination over the landscape is not coexistent with modern agriculture. The discourse is built on a utopic; an ideal world from the past.

The dominant discourse in the research of agriculture and gender is the one of the family farm [4]. The discourse of the family farm is persistence to the changing gender roles and still place women as the farmer's wife and men as the farmer. There is however, a rise of two other discourses that challenge the discourse of the family farm as the principal discourse; masculinization and detraditionalisation & diversity [4]. The discourse of masculinization characterizes by men having a subject position that strengthens men's identity as farmers. The position is simultaneously active as the process of women leaving rural areas, which interprets the men as non-modern and unprivileged. The subject position is not necessarily a positive experience for men, meanwhile the women, leaving rurality, are seen as independent and modern.

In Easton the women are also the ones that move out of the rural and into the urban. The shift is parallel with the process of women seeking higher education and thus moving to where higher education is provided. An explanation for the women seeking higher education and not the men is the lack of work for uneducated women in Easton. The men on the other hand are often handpicked to the local manufacturing industry after they finish high school.

The discourse on detraditionalisation and diversity is in line with the postmodern perspective of variation and instability [4]. Women and men move away from objecting themselves as farmer's wife and farmer, and are instead described as actively constructing their own identities.

Historically rurality as a place for agriculture has been constructed from a masculine perspective. The masculine construction could however be changing as pointed out by both Saugeres [35] and Brandth [4]. Rural areas are not only a place for agriculture anymore and the communities around the farms, the location, locale and sense of place is changing with the farms. When rurality becomes more urban, as opposed to the very rural farm, the progressive thoughts of gender equality influence the place. Hence the masculine constructions that could have started to shiver within farming are also seen shivering in rural communities because of the influence from the urban.

On the bases that rurality experience a changing in the masculine construction and place is something that provides meaning to people, the meanings rurality produces could also be changing. When Berg [1] then argues that place is crucial in understanding entrepreneurship, it leads to a gendered rural entrepreneurship process that could be masculine constructed but that might be in a process of change. A change towards less coded as a masculine phenomenon. Different places lead to different gendered entrepreneurship processes [1] which is linked to that different places provide different meaning [31]. Hence the rural entrepreneurship process is gendered in one way in Easton and in another way in another municipality.

## **Rural entrepreneurship as a masculine phenomena**

Korsgaard et al. [34] define rural entrepreneurship as when the rural context is crucial for shaping the entrepreneurship; when the social, economic and spatial context are combined, hence including both space and place both in social and physical dimension. Korsgaard et al. [34] also make a notion of the importance of time; rural entrepreneurship is when the past, present and future of the entrepreneurship is closely linked to the rural context.

Based on place and space Korsgaard et al. [34] propose two ideal types of entrepreneurship taking place in rural settings; entrepreneurship in the rural and rural entrepreneurship.

Entrepreneurship in the rural is when the rural context is simply a location for the entrepreneurship; using the physical dimension of rurality to a higher extent than the social. The entrepreneurship process is driven for profit and does not take into account the development of the rural area surrounding the process. The process is poorly embedded in the local community since there is a limited engagement with its surroundings. Rural entrepreneurship is on the other hand when the two dimensions come together; the social and physical location is crucial for the entrepreneurship process [34]. The rural entrepreneurship process is embedded into the local community and uses it for resources as well as the local community uses the process for development and value-creation.

In Easton, the entrepreneurship in the rural is highly present. There is a tradition of masculine small-scale industries that for example makes plastic component. These businesses are linked to the ideal type of entrepreneurship in rural settings; the businesses could be located anywhere else. Easton is used as a branding in some of the businesses. These are traditionally male industries, when looking at the feminine businesses such as the local personal assistance business the same structure occurs; the business could be placed anywhere.

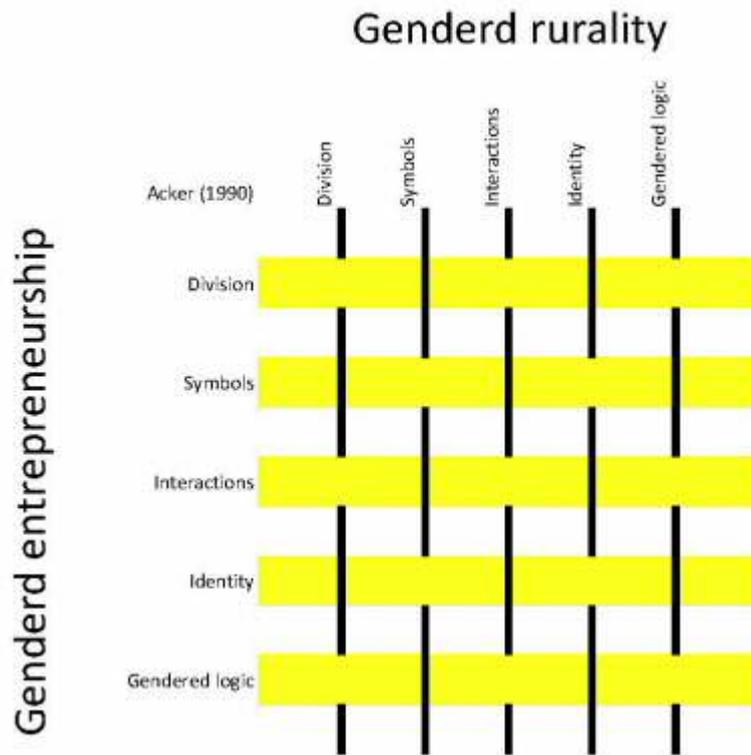
When instead looking at the rural entrepreneurship, we find both businesses and entrepreneurial processes that fit into the ideal type of rural entrepreneurship. The newly started business that produces products from bees, Easton bee, that's run by Clara, is one of these businesses. Clara not only uses the Easton name on her labels and uses the natural resources of the Easton landscape; she also has the beehives in and outside if friends and families gardens. These factors make it hard for Clara to run her business in another place; she is dependent upon the rural Easton in her entrepreneurship

From a gender perspective Pettersson [36] showed that both the entrepreneurship in rural settings and rural entrepreneurship is constructed masculine. The men are seen as superior and the women become invisible in the entrepreneurship discourse. Later on Pettersson & Heldt Cassel [37] showed that women's rural entrepreneurship on farms sometimes leads to a change of the gendering of farm places; gender is reshaped. The interpretation of the farm places shift from masculine to feminine. An example brought up by Pettersson & Heldt Cassel [37] is when machine halls are turned into a place for organizing events. On the other hand there is also a redoing of gender, not necessarily reinforcement though, when female farm spaces, such as housing and kitchens, are turned into accommodation and food production facilities [37].

## **Towards a double gender structure framework**

From the reviewed literature, I propose the concluding link that rural entrepreneurship may be characterized by a double gender structure, where gendered entrepreneurship and gendered rurality are interwoven to shape the context for creating opportunities in rural settings. Seeing rural entrepreneurship as a gendered construct is a development of the notion that organizational phenomena, and places, are gender neutral. When both rurality and entrepreneurship are gendered and the phenomena are combined as in rural

entrepreneurship it may result in a double gender structure. The phenomena can be combined since they both are affected in equal ways by gender structures and that they both influence the entrepreneurial process in rural settings. The double gender structure is more active in the process for a gender status quo than if only one of the structures would be active. The gender structures of entrepreneurship and rurality are interwoven like a fabric with threads; the phenomena work side by side as well as in and out of each other to shape the context for creating opportunities in rural settings. See figure 1 for an illustrative example of the interweaving between gendered entrepreneurship and rurality.



**Figure 1:** The interweaving of entrepreneurship and rurality when it comes to doing gender.

The framework put forward by Acker [14] could make up an example of the threads in the interwoven fabrics. The gendered threads of for example masculine constructed symbols of entrepreneurship are interwoven with the dimensions for gender and rurality. The interweaving leads to, just as a fabric, to stability for the dimensions when they cooperate within the fabric. In the double gender structure entrepreneurship and rurality cooperates to uphold stability within the system of gendering.

In Easton the cooperation between the threads could be illustrated with the story of Linda who owns and runs, among other things, a trucking business with her cousin Rick. The business has a wide range of products and services within the construction and transportation sector. Linda and Rick own trucks that delivers all kinds of goods over a large part of Sweden and a number of local quarries from which they sell different gravels to large national road building corporations and to people who want gravel for their own yard. Linda is the only woman at her job but does not reflect upon it that often. It is not unusual that customers come in to the office and asks Linda “where’s the manager?” insinuating Rick, or in fact not Linda, to be the manager. After Linda explains that it ’s her and Rick who runs the business and the person still won’t talk to Linda about the errand she usually gets fed up and tries telling the person that she actually is the manager and can take care of the errand. In Linda’s story the perceptions about what roles Linda and Rick are to have in the business is linked to the gendered entrepreneurship and the gendered rurality; Linda is not seen as the entrepreneur and especially not as the entrepreneur who have a business within the male

coded construction sector.

The double gender structure is challenged in theory with the gender structures in rurality in some aspects seem to be changing. In figure 1 rurality is illustrated with thinner threads showing how the gender structure of rurality seems to become less binary than it have been historically. When the rurality is less coded as masculine the double gender structure is less active in the work for stability. On the other end, the double gender structure is reproduced in theory with the entrepreneurship theory being context-free. Going back to the metaphor of an interwoven fabric the gender threads of rurality begins to loosen up, becomes thinner and thus starting to make the fabric less fixed. The fabric would then consist of stronger gender threads of entrepreneurship and weaker threads of rurality, leaving the fabric a bit skew from the weaker threads but still somewhat solid because of the stronger entrepreneurship threads still keeping the fabric together. With the fabric metaphor, one could argue that if the gender structures in rurality are changing the whole stability of the fabric is challenged and thus challenging entrepreneurship in itself. The rural entrepreneurship process in itself could then be challenging the masculine norm of what entrepreneurship is. Gendered rural context is thus shaping entrepreneurship.

Context and entrepreneurship have a two-way relationship; the context can shape entrepreneurship and the context can be shaped by entrepreneurship [2]. At the same time as the context can lead to entrepreneurship, the entrepreneurship can influence the context. The shaping can consist of either reproducing the context or challenging it. Linking the argument to gender context, the gender structures can be a platform for more entrepreneurship; a way to overcome the constraints of the gender structures by for example starting a business in a sector which goes against the traditional gender perceptions. Starting this business leads to a challenging of the context; entrepreneurship has reshaped the context.

An example of when the double gender structure is challenged in Easton is the story of Clara's bee business. Clara challenges the rural perception of the masculine farmer when she, as a woman, uses the natural resources to produce bee products. At the same time she also challenges the gendered entrepreneurship by turning the activity into a business and trying to make a living out of the products. In a similar way Linda, the owner of the trucking business, challenges the double gender structure by running a business in a rural masculine sector. Both Clara and Linda, and many others in Easton, are challenging the masculine construction of rural entrepreneurship. At the same time Clara and Linda are, in for example the female entrepreneurship network, reproducing the notion of the dominant masculine rural entrepreneurship. Thus, the double gender structure shape, and are shaped by, the rural entrepreneurship process.

## Conclusions

The main finding from the study is that rural entrepreneurship processes may be characterized by a double gender structure. This is due to that entrepreneurship and rurality is gendered constructions where the structures interweave to shape the context for creating opportunities. Furthermore, gender has a two-way relationship with entrepreneurship and rurality; gender both shape and are shaped by rural entrepreneurship. At the same time, rurality as a context also shape and are shaped by entrepreneurship making the phenomena interwoven and dependent upon each other. With rurality possibly changing from a static masculine phenomenon it could leave the rural entrepreneurship in a state of flux making it more possible for masculine entrepreneurship to be reshaped.

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## **Not just numbers – firm growth as a contextualized process**

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**The purpose of this study is to explore how firm growth interplays with context. Both research and practice relating to firm growth has come to focus extensively on quantitative indicators such as number of jobs, turnover and sales figures. This study does however approach the phenomenon from another angle. Considering firm growth as a social undertaking, the discourse of firm growth is analyzed. Empirical material is gathered from an in-depth longitudinal case study of a firm in combination with semi structured interviews with relevant stakeholders in the sector. The constant comparative method guides the analysis and the material is coded using the NVivo software. The discourse analytical concept of interpretive repertoires is used to identify and critically discuss how people make sense of the phenomenon of firm growth, resulting in the identification of three interpretive repertoires; the output of growth, referring to firm growth as an economic activity measurable through output-based indicators, the process of growth, providing a process oriented discourse, and the dark side of growth used to express firm growth in negative terms. These repertoires are in turn discussed in relation to their interplay with context. Our study shows that all three repertoires are tightly interwoven with contextual factors, a finding which opens up for reframing the phenomenon of firm growth as a collective and interactional process inseparable from its context. These findings provide incentives to question the dominating output oriented repertoire and the extent to which it impacts research and policy. To complement this view on firm growth, the results from this study suggest that a more processual and contextually anchored approach may be a successful way forward in understanding the intriguing phenomenon of firm growth.**

### **Keywords**

Context, Firm growth, Interpretive repertoires, Linguistic turn, Process

## **1. Introduction**

Firm growth has received considerable attention from researchers, practitioners, and policymakers over the years, yet it has rarely been discussed in relation to its context. With a few exceptions [e.g. 1, 2] firm growth studies are dominated by an interest in quantitative measurements of growth often lacking any discussion on the role of context. Despite great attempts this decontextualized focus has not resulted in any well-established generalizations on causes and effects of firm growth [3], rather “... it is still true today that knowledge about what facilitates and hinders growth is scattered and limited ” [3, p39]. With a desire to break

the locked position this study turns to the recent discussions on context within the entrepreneurship field.

Context is becoming recognized as an active player in the shaping of entrepreneurship [e.g. 4-6]. Distinguishing between omnibus and discrete contexts [6], the latter referring to context as a variable, the notion of omnibus context suggest that it is seen as a lens impossible to reduce to a variable. Taking an omnibus position on context, Korsgaard and Anderson [1] argue that increases in profit or sales give a superficial picture ignoring the dynamics and actual means of growth. Focusing on the social processes underlying firm growth they further suggest that growth is created in interaction between the firm and its context. The purpose of our study is to continue in this vein and to explore the interplay between firm growth and context.

Firm growth is in this study considered as a social undertaking, enabling a social constructionist view on the phenomenon. A discursive psychological approach, and more specifically the concept of interpretive repertoires, forms the theoretical and methodological framework and focus lies on understanding how context interplays in the (social) construction of firm growth. Empirical material is gathered from an in-depth longitudinal case study of a firm in combination with semi structured interviews with relevant stakeholders in the sector. The constant comparative method guides the analysis and the material is coded using the NVivo software.

Three interpretive repertoires are identified and discussed; *the output of growth*, referring to firm growth as an economic activity measurable through output-based indicators, *the process of growth*, providing a process oriented discourse, and *the dark side of growth* used to express firm growth in negative terms. At first sight the repertoires, especially *the output of growth* repertoire, seem to have a minimal interplay with context. However, after scratching the surface of the data, a new level of information is revealed and it becomes evident that the repertoires are created in interplay with context. Our study shows that all three repertoires are tightly interwoven with contextual factors, a finding which opens up for reframing the phenomenon of firm growth as a collective and interactional process inseparable from its context. This study thereby provides incentives to question the dominance and impact of decontextualized firm growth research and policy, and instead promotes a processual and contextually anchored approach.

In the next section, we elaborate our theoretical points of departure by examining the literature on firm growth, the linguistic turn and more specifically the concept of interpretive repertoires. Thereafter, we present the method, including data description, collection and analysis. Next we provide our findings which are then discussed and concluded upon in the final section.

## **2. Firm growth – a research field in transition**

The firm growth phenomenon has resulted in an ever-growing knowledge base characterized by a plethora of theories, models, and metaphors [e.g. 2, 7-9]. Orser et al. [10] distinguish between four types of firm growth studies namely; biological models of growth, growth and decision making, social psychology, and integrative (multi-disciplinary) studies. More recently, Tunberg [11] identify three different approaches to studying firm growth; an output, a process, and a context approach. Further, a range of literature reviews have been conducted focusing on specific dimensions of firm growth such as new venture growth [12], knowledge and learning related to growth [13, 14], growth in small firms [8] and measurement constructs in growth [9].

Research on firm growth has been, and is still today, primarily based on quantitative studies [2]. Growth is in these studies seen as a 'change in amount' and defined as a measurable entity, e.g. as number of employees or yearly turnover [15], making statistical methods suitable as analytical tools. Conducting a meta-theoretical analysis of firm growth research

Grant and Perren [16] conclude that despite various perspectives on firm growth the research field is characterized by a functionalist mindset, a mindset prevalent also in more recent studies [17]. This positivist approach to firm growth is valuable and has brought many useful insights. There are however concerns with this methodological homogeneity.

Voices are raised that it is (and has long been) time “for a broadening of perspectives in order to generate new theories and understanding in small business research” [17, p379]. More qualitative studies were asked for already back in 1999 by e.g. Carter [18] who studied diversification as growth strategy in rural firms. More recently, McKelvie and Wiklund [19, p280] suggest that more “in-depth longitudinal case studies of different types of growth processes would be particularly valuable in order to further develop growth process theory” and Leitch et al. [2, p258] state that “knowledge production requires inclusivity and pluralism in research perspectives and approaches” and continue by arguing that “entrepreneurial and business growth represents a rich, kaleidoscopic tapestry, the understanding and appreciation of which is a multi-disciplinary enterprise necessitating the adoption of both positivist and non-positivist approaches as well as the employment of multiple methods”. In an attempt to answer to this request of a more heterogenic approach to methodology in studying firm growth, this study rests on a social constructionistic foundation which opens up for a perspective, and a set of methods, hitherto rarely used in firm growth studies.

### 3. A linguistic turn

Several scholars have turned to social constructionism in order to enhance their understanding of entrepreneurial phenomena [e.g. 20-27]. Doing so, each individual is considered subjectively creating her or his own understanding of concepts such as entrepreneurship and firm growth. This understanding is constructed and constantly re-constructed, e.g. by policy makers, practitioners, and scientists, creating more or less stable versions of reality. Considering firm growth as a social undertaking the interaction processes is where knowledge production should be focused [27]. Attention therefore needs to be on the unfolding entrepreneurial processes framed in “how” and “why” type of research questions aiming at creating understanding [27] rather than establishing relations. Naturally, this focus makes it relevant to apply inductive and qualitative methodologies, as is done by a range of entrepreneurship scholars [e.g. 1, 5, 25, 28].

Social constructionism has its roots in both social psychology and sociology [22] and is thoroughly discussed in the seminal piece “The social construction of reality” by Berger and Luckmann [29]. The concept provide answers to fundamental issues within social science research by explicitly declaring a position with regards to both our relation to reality (ontology) and our understanding of knowledge (epistemology). Further, social constructionism is closely related to the so called linguistic turn emphasizing the role of language, suggesting that “the way that language is structured ... determines the way that experience and consciousness are structured” [30, p35]. Further, in social constructionism each individual is assumed to have her or his own understanding of reality, an understanding which is constructed in the relation between the individual and the context. According to Burr [30] the world is constructed by people talking to each other, hence explanations to reality construction “are to be found neither in the individual psyche nor in social structures, but in the interactive processes that take place routinely between people” [30, p7-8]. It is upon this perspective on reality that we build our arguments and seek to explore how firm growth interplays with context.

With a desire to “gain a better understanding of social life and social interaction from ... [the] study of social text” [31, p7] Potter and Wetherell discussed the concept of discourse analysis in conjunction with the theoretical perspective of social psychology. Their work draws on various lines of thought such as conversation analysis, post-structuralism, linguistic philosophy, and sociology of scientific knowledge [32], and aimed at rejuvenating socio-psychological research by introducing speech-act-theory, ethnomethodology, and semiotics

[31]. This seminal piece later led to the development of discursive psychology and the concept of interpretive repertoires.

#### 4. Interpretative repertoires

Interpretive repertoires (I.R.) refer to patterns within discourses and have been defined as “clusters of terms organized around a central metaphor, often used with grammatical regularity.” [32, p74]. In the piece from 1987 Potter and Wetherell [31] define I.R. as “recurrently used systems of terms for characterizing and evaluating actions, events, or other phenomena” [p149] adding that “often a repertoire will be organized around specific metaphors and figures of speech ” [p149]. As discussed by Potter and Wetherell [31] the development of I.R. is influenced by social representation theory but the two rests on different foundations. Firstly, I.R. does not depend on the assumption that repertoires should have a one-to-one relationship with a specific social group. This relaxes the often problematic need to identify the boundaries of social groups and suggests that repertoires rather are available for different social groups to draw upon. Secondly, there is no need for consensus in the use of an I.R. Actors may draw on different I.R. in different contexts and at different occasions, “people go through life faced with an ever-changing kaleidoscope of situations, they will [therefore] need to draw upon very different repertoires to suit the needs at hand ” [31, p156]. Thirdly, it does not have any connection with speculative cognitive psychology; rather it is concerned with language use only. These differences between I.R. and social representation theory highlights some of the strengths with I.R. and they all boil down to the fact that, as expressed by Potter and Wetherell [31, p146], I.R. “has been developed in analytic practice”.

Identifying different patterns in text and talk and labeling them I.R. is however not interesting per se. Rather, Potter and Wetherell [31, p149] suggests that “it is ... not sufficient for analysis to simply identify these different forms of language in the abstract. We need to know, first, the uses and functions of different repertoires, and second, the problems thrown up by their existence” implying a need to ensure that the actors actually act as if there were differences between identified repertoires.

Naturally, I.R. is often associated with rhetorical analysis of different kinds. By analyzing how different arguments are built up and portrayed in relation to the topic studied different repertoires can be identified, as in work by Wetherell and Potter [33] where an analysis of the arguments in relation to the Maori culture lead to the identification of two different I.R.

Drawing on Alvesson and Karreman 's [34] model of core dimensions in discourse studies, I.R. is situated rather centrally. This position within the discipline of discourse analysis is the foundation for some of the main strengths of I.R., but also makes it targetable for critique from other strands drawing differently on these core dimensions. I.R. relate to both the, by Alvesson and Karreman [34] coined terms, “d” and “D” discourses. In “d” discourse “language use is ... understood in relationship to the specific process and social context in which discourse is produced”, while “D” discourse is seen “as a rather universal, if historically situated, set of vocabularies, standing loosely coupled to, referring to or constituting a particular phenomenon” [34, p1133]. I.R. are action oriented and aimed at exploring what social action do, or perform. Applying I.R. one can study what Discourses, with “D”, do to people but also what people do with discourses, with “d”, and how this interlinks. This ability to link the “d” and “D” discourses may be argued one of the main strengths of I.R. since it brings the two worlds, micro and marco, together. This is rather different from some of the other strands within discourse analysis, like the Foucauldian analysis and what has become known as Conversation analysis.

The Foucauldian analysis rests on an ideological platform where power is a central element and focuses exclusively on the “D” discourses. I.R. do not deal explicitly with power and power relations and hence does not provide the same kind of “D” analysis as Foucauldian analysts has specialized on, even though it does relate to “D” and thereby touches upon

some of the same issues as Foucauldian analysts would find interest in. Representing the other extreme, conversation analysis focus on the “d” discourse and is used to analyze text in more detail than within I.R. aiming to minimize the influence of the researcher. There has been an ongoing debate among proponents for conversation analysis and I.R. where Schegloff [35] set out to criticize I.R. and propagate the advantages with C.A. This critique was met by one of the founders of I.R.; Margaret Wetherell [36]. Schegloff advocated the reliance on technical analysis in conversation analysis. The text is suggested to be the only data allowed to influence the result, and the text should be analyzed in great detailed. Wetherell, on the other hand, argued that there needs to be a scholarly analysis as well in order to answer the question “why this utterance here?” [36, p388], defending the researchers importance in identifying pervasive repertoires in the text.

The challenges inherent in I.R. have been successfully dealt with in a range of studies; e.g. Gilbert and Mulkey [37] and Wetherell and Potter [33]. These two pieces have become influential in terms of establishing I.R. within the discipline of discourse analysis. Gilbert and Mulkey [37] analyzed how scientists accounted for their actions and beliefs. Two contrasting repertoires were identified; the empiricist, and the contingent, illuminating an asymmetry in how the scientists accounted for true beliefs and error. The study by Wetherell and Potter [33] focus on racist discourse in New Zealand. Two I.R.; Culture-as-heritage, and Culture-as-therapy, were identified indicating that culture was constituted differently depending on which repertoires the actors drew upon. In addition to these studies, I.R. has been used in a wide range of social science research such as e.g., marketing- [e.g. 38], and entrepreneurship studies [e.g. 39].

Applying the concept of I.R. in this study, general patterns are identified within the data set and specific extracts are used to illustrate the findings.

## 5. Method

### 5.1 Data collection and description

Empirical material is gathered from an in-depth longitudinal case study of a firm in combination with semi structured interviews with relevant stakeholders in the sector. The case study is based on a 30 month period during which the researcher visited the firm regularly resulting in more than 10 hours of tape recording from conversations mainly with the owner/manager, but also with white collars in charge of production, finance, and certifications (table 1). All conversations between the interviewer and interviewees have been of an unstructured interview type focusing on the development of the firm. In addition, numerous observations have been made both in the processing plant and in the office. As a complement, secondary material, both internal such as advertisements, the firm’s blog, and yearly reports, and external such as newspaper articles, have been gathered.

**Table 1.** List of interviewees within the in-depth case study.

<b>Name</b> (fictive)	<b>Position</b>
Anna	Founder and CEO
Sam	Senior employee/Unit head
Martin	Senior employee/Unit head
Stina	Senior employee/Controller
Karin	Consultant

In order to preserve their anonymity, the names of the interviewees are fictive.

The case firm, called Orange Inc. (all names are pseudonyms to protect the anonymity of the firm and the people included in the research), is a farm and processing plant located in the south of Sweden. Orange Inc. is owned and managed by a woman who inherited the firm from her parents about 30 years ago. Over the years the firm has been involved in a range of activities but main focus has always been on growing, processing, and selling vegetables. The firm currently employs about 50 people of which the large majority works in the processing plant. Since the current owner/manager took over the firm it has grown from 28 employees in 1997 to 45 in 2012 and a turnover of approximately 26 msek in 1997 to approximately 111 msek 15 years later (table 2).

**Table 2.** A selection of financial indicators in Orange Inc. 1997–2012.

	1997	2000	2003	2006	2009	2012
<b>Turnover*</b>	26 911	35 313	63 608	103 025	120 575	110 968
<b>Profit*</b>	-77	3 098	895	3 537	-3 280	-3 933
<b>Equity ratio</b>	8,3%	17,8%	11,5%	20,4%	21,8%	14,2%
<b>Employees**</b>	28	31	46	55	50	45

\* Numbers in thousand sek. \*\* Number of employees.

Out of the currently 45 employees about a handful are white collars each with an office in the office building attached to the processing plant. Due to downsizing the last few years some of the rooms are empty. In the corridor between the rooms a bar table serves as a combined waiting area for visitors and meeting point for coffee, which is collected from the cafeteria in the processing plant. It rests an informal atmosphere in the office and the coworkers and the manager seem to have plenty of informal meetings and chats whenever they find it convenient. Every Tuesday they do however have management meeting, and once every second month the board meets. These meetings take place in the only meeting room in the office. All interviews and the focus group conversation part of this study took place, at least partly, in this meeting room. The informal character among the white collars made it possible to observe several occasions of strategy discussions and decision meetings.

In addition to the longitudinal case study, empirical material is gathered through semi-structured interviews with stakeholders outside the case study firm but active in the same sector and region (table 3). Interviews were conducted both with managers and founders of other firms and with employees at the municipalities in which the firms in question are located. The municipality employees interviewed work with developing the local industry which is conducted through a range of different activities.

**Table 3.** List of interviewees not part of in the in-depth case study.

<b>Name (fictive)</b>	<b>Type of organization</b>	<b>Position</b>
Lotta	Municipality	Responsible for developing the local industry
Sten	Municipality	Responsible for developing the local industry
Marie & Lars	Firm	Founders

Johan	Firm	CEO
Jan	Firm	Founder and CEO
Axel	Firm	CEO

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In order to preserve their anonymity, the names of the interviews are fictive.

The interviews were conducted in Swedish and translated into English. This study relies on similar assumptions as Edley and Wetherell [40] use, namely that the utterances by the interviewees are both occasioned and “revealing of the collectively shared discursive constructions... which make up the social context ” and which “is negotiated in private and public arenas” [40, p442].

## 5.2 Data analysis

The data was analyzed employing an inductive approach. All interviews and conversations were tape recorded and transcribed. Then, as is suggested by Eisenhardt [41], the material was sifted through discarding irrelevant information and lifting out what seemed important. Like studies with similar data analysis approach [e.g. 42,43] this process was guided by the question “What is really going on here?” Put more formally, the constant comparative method was applied [44-46] and repertoires emerged through an iterative reading of the material. Rather than a strict grounded theory approach, this focus on the constant comparative element has been accepted and used successfully in a range of studies [e.g. 42,43,47]. This technique enables analysis of large bodies of qualitative data and still allows for a theoretically informed point of departure. At a first stage the data was searched for any patterns. Next, the patterns were refined into distinguishable repertoires by associating them with clarifying descriptions. This work was done using the coding software tool N-Vivo.

## 6. Discussion and evidence

Within the data set analyzed in this study three different repertoires were identified, namely; *the output of growth* , *the process of growth* , and *the dark side of growth* (table 4). In the following sections each of the repertoires are presented, supported by quotes from the data, and discussed, in particular in relation to contextual issues.

**Table 4.** Overview of repertoires

Repertoires	Main terms	Focus
The output of growth	Volume Money	The quantitative output of firm growth.
The process of growth	Branding Financing Networking Organizing	The process of firm growth – how firm growth unfolds.
The dark side of growth	Obligation Boring	Firm growth as an undesirable but inescapable part of running a firm.

### 6.1 *The output of growth*

Within this repertoire, firm growth is portrayed as an economic activity measurable through output-based indicators. Typical such measures are number of employees, turnover, and production or sales figures. Most of the interviews were started off by the interviewee giving a short presentation of the firm. Within these presentations quantitative output measures were common and the interviewees often referred to the development of the firm in terms of output measures. During the interviews *the output of growth* repertoire was used at several occasions. When discussing strategies and vision this repertoire was often applied. Especially Johan and Axel relied on this repertoire to describe the firm which interestingly coincides with the fact that both of them, and only them within the data set, are not founders or owners of the firms which they manage. Instead they are both managers that have been appointed to their position. Asking specifically about firm growth also other interviewees did however lean on this repertoire and described the growth in terms of output, such as production figures and measures of volume:

“... every time she [the consultant] says more kilos, more kilos. I mean, that is growth to me...” (Anna, interview 1)

As this extract indicates, the interviewee associates firm growth with quantifiable and measureable indicators such as production figures. This type of measurement is common in current firm growth research [15], but has been criticized since they deal with how much a firm grows rather than the more fundamental question of how a firm grows [19]. The interviewee does hence answer the question of “what is firm growth to you?” by referring to how much the firm is growing.

At first glance this repertoire seems to reflect the approach applied in a multitude of research papers; a decontextualized and output oriented view on the growth phenomenon. Firm growth is referred to and defined by quantitative and easily available and comparable indicators. However, digging deeper into the data and listening more carefully to the words uttered by the interviewees, an activity promoted by the methodological framework applied in this study, it becomes evident that there are more to the repertoire than just numbers. Let us use the extract above as illustration. Defining growth in production numbers, Anna is referring to the consultant. Hence, a person skilled in the art of firm development is part of shaping this repertoire. A similar reflection is applicable to the cases of Johan and Axel. These two men both have formal business administration degrees which means they are also trained (by academics) in how to run a firm. This more in-depth analysis of the repertoire in play thereby illuminates the interplay between firm growth and context.

### 6.2 *The process of growth*

When *the process of growth* repertoire is in play firm growth is constructed differently. Within this repertoire, firm growth is directed towards a process oriented view on the phenomenon. Firm growth is associated with certain activities which provide a platform for growth to unfold. Main terms within this repertoire are verbs such as; branding, financing, networking, and organizing. Operating under this repertoire the interviewees let go of the quantitative measures of growth and instead discussed chains of activities leading to growth. Some of these activities seemed to be carefully planned while others seemed to have happened more unconsciously.

In the data, firm growth is often associated with branding activities of different kinds. In the in-depth case study, a neighbor to the husband of the interviewee proved to be a skilled branding consultant willing to engage in a drastic rebranding process which strengthened the

brand of the firm to such an extent that it became a driving force in the growth process: *“We built the firm brand so strong that it was always better than our products. I could almost not manufacture products in the same pace as the demand increased”* (Anna, interview 1).

The connection to the local area is in other cases extremely important to the branding of the firm. In two cases the local area is inseparable from the brand and in one of these the area is even part of the name of the firm. In these cases the branding activities becomes both an enabling and constraining force in growing the firm. The local ties provide branding benefits increasing sales volumes and revenues, but also constrain the growth due to challenges in attracting and maintaining a competent work force and in extending production.

The process of attracting funding is another activity building this repertoire. The firm in the in-depth case study managed to attract a large bank loan at an early stage, enabling the firm to grow. The process of attracting these funds was however far from straight forward: *“I asked but none of the banks dared to lend us money. Then, at last, we went to the bank located in the same building as our accountant and they said: let ’s do this together! And they gave me six millions”* (Anna, interview 1). In other cases the type of financing changed when the ownership changed. Going from a small scale family owned firm to being part of a large industry group changed the channels for funding new activities in the firm and hence had an influence on the process of growth.

The term networking is also a central part of *the process of growth* repertoire. Over and over again the interviewees mention the process of finding and using valuable network connections as a main component in the growth of the firm: *“So my father went to the US and managed to get into a baby-carrot factory. The people over there tried, and we were friends with a guy there who had a really big factory. Then he [the father] didn ’t stop talking about it, it ’s often like that, my father is the source of many of my developments ”* (Anna, interview 1).

In addition to instances when the processes of branding, financing, and networking were discussed, people made use of this process oriented repertoire when talking about the organizing of the firm. These organizing activities did in turn seem to have had large impact in growing the firm. The CEO and founder in the in-depth case study explained that: *“I became a member of Rotary and at a dinner there I sat next to a retired CEO. He was 70 years old and said ‘I will help you ’ and after that he came visiting once a month chairing a fake board meeting with invitation, agenda and everything. We did it all”* (Anna, interview 1).

In the same vein, the organizing of staff was discussed in terms of a dynamic process oriented play. Key staff changed employer causing great distress for the firm hampering its ability to grow, both directly and indirectly. Directly by causing the firm to lose key competence, and indirectly by causing a mental distress among the management and the rest of the staff: *“they recruited Sarah. She wanted a new job but still, that a customer takes it from a supplier. And at the same time they took four key people from the production. You know, people who have taken courses, who know how to stamp labels and all that ”* (Anna, interview 4). In other cases the situation is the opposite; a minimal turnover of staff. This is to a certain extent associated with the geographical location of the firm. A small base of potential employees makes it difficult to find both blue and white collar employees, both necessary to realize growth aspirations.

### 6.3 The dark side of growth

As the labelling of this repertoire indicates, it reflects the down sides of firm growth. Rather than focusing on growth as something positive and desirable this repertoire is constructed by a negative attitude to the phenomenon. Leaning on this repertoire interviewees refer to firm growth as an obligation, something inevitable and boring: *“ [sigh] Growth is about trying to get the budget to match [browsing through the papers]. Growth is absolutely necessary in order to divide the overhead costs. For each year you invest, you know a transformer, environmental investment, those things that has to be done but that don ’t give a penny. You*

*have to have growth and that is boring* ” (Anna, interview 1). With a sigh, the interviewee points at the numbers in a table outlining sales figures and explain what firm growth is to her; something crucial and boring, a must in order to manage the overhead costs. Firm growth is in the same case referred to something difficult and troublesome. Also in the other cases firm growth is from time to time discussed in these kinds of terms. At a number of occasions interviewees paint the picture of growth as an inevitable step in running the firm. The growth is in these cases partly due to the firm reaching a certain threshold where the firm either has to grow, or to downsize. This dilemma is caused by the demand of economies of scale in manufacturing and the risk of being acquisitioned by a bigger player. It is however also due to the fact that if you reach a certain production volume you tend to sell to segments which expect a specific number of products regardless of for example season.

A high demand for the firm ’s products or services is another reason for involuntary growth. As is previously described several of the cases experience challenges caused partly by a strong brand: sales exceeds the production capacity. The firm is then forced to grow in order to fulfill the customers ’ expectations. It here becomes evident that it is other contextual factors than formal business training and social networks which seem to influence the repertoire. Here it is other forces in play such as the market design and the logic of a manufacturing firm.

## 7. Conclusion

The purpose of this study is to explore the interplay between firm growth and context. We argue that context plays an important part in the construction of firm growth, but one that is rarely studied in detail. Often context is, if at all, treated as merely a background factor, the *ceteris paribus* of the economists. The social constructionist view on firm growth taken in this study enables a different approach. Considering firm growth a social construction alternative methodologies become available creating new paths towards an increased understanding of firm growth. In this study we apply a discursive psychological approach, and more specifically the concept of interpretive repertoires, to explore how context interplays with firm growth.

The findings in this study suggest there are different repertoires in play with regards to firm growth, showing that firm growth is constructed in more than one way. *The growth as output* repertoire constructs a quantitative and outcome oriented approach to developing the firm. *The growth as process* repertoire on the other hand creates a mode of processual thinking. The final repertoire identified in this study; *the dark side of growth* , reflects a negative approach to the phenomenon constructing a counter position to the many positive connotations the phenomenon carries with it. These repertoires are not easily separated in time and space. Rather, they are intertwined in a complex web. A person may hence draw upon various repertoires in the same conversation suggesting diverging practices may be in play simultaneously.

Depending on the methodological design on the study, different layers of the repertoires become visible. At a more superficial level none of the repertoires are connected to the context, but if one scratches the surface or lets the interviewee elaborate on a topic it becomes evident that the context always has a part to play in firm growth. The type of context does however differ depending on the repertoire. Within *the growth as output* repertoire formal business training seem to be an influential contextual factor. Turning to the process oriented repertoire the data provides evidence of influential forces tied to the firm through social networks, both personal and professional. The third and final repertoire, *the dark side of growth* , seems to be linked to more macro-level contexts such as the market design with certain types of customers and competitors. Hence, context interplays with firm growth in different ways depending on which repertoire is in play and firm growth is constructed differently depending on how the balance between simultaneous repertoires plays out.

Despite our firm belief in the contribution of this study it has its limitations. The data is gathered from case studies which limits the possibility generalize. Rather than generalization however, the aim is to explore a familiar phenomenon from a new angle. The analysis is a subjective interpretation of the material, and even though great care was taken to support every step we are aware that others may reach different conclusions. We do however believe that we have raised some interesting points on the conceptualizing of firm growth. It is also worth emphasizing that in this study we primarily focus on the first half of the dynamic firm growth – context relationship, i.e. how context shapes firm growth. The second part, how firm growth shapes context does however also need to be studied in order to get a more complete picture of the interplay.

To conclude, our study shows that all three repertoires are tightly interwoven with contextual factors, a finding which opens up for reframing the phenomenon of firm growth as a collective and interactional process inseparable from its context. This study thereby provides incentives to question the dominance and impact on decontextualized firm growth research and policy, and instead promotes a processual and contextually anchored approach.

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**The effects of effectuation and entrepreneurial bricolage on distances in space and product domain**

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In recent research about the interplay between the entrepreneur and his context a lot of attention has been given to environments characterized by uncertainty and resource constraint. Research has shown that the entrepreneur simultaneously applies causal, effectual and bricolage logics in his pursuit to develop novel products. Despite this advancement, less is understood about how the application of these logics in context characterized by both uncertainty and resource constraints motivates the entrepreneur to operate internationally and also the distance between the products scope and the country 's available resources and division of labor. This study explores these relationships to advance theory by using multiple case studies and found that: the simultaneous application of effectual, causation and bricolages principles; the strong evidence of the preference for the effectual heuristics of the use of networks (of stakeholders) and co-creation with stakeholders; the strong evidence of the preference for the causal principles of goal-orientation, acquisition of resources through arm 's length contractual assignments and development of competitor 's analysis; the strong evidence of the preference for the bricolage principles of using existing resources in a new way and giving ownership in the product/ company; the dominant use of the causation logics positively influences the geographical distance between the entrepreneur and the spatial context in which he operates (i.e. spatial distance); the dominant use of the effectual logics negatively influences the distance between the scale and scope of the developed product, and the country 's division of labor and resources (i.e. product distance). Furthermore, these relationships are influenced by the distance between the entrepreneur 's technical expertise and the technical domain of the product (i.e. technical distance).

## Keywords

Bricolage, Effectuation, Internationalization Entrepreneur

## 1. Introduction

In recent research about the interplay between the entrepreneur and his context a lot of attention has been given to environments characterized by uncertainty and resource constraint. In the search for 'what makes an entrepreneur' (1) a shift can be viewed from personality approaches to cognitive (behavioral) approaches (Mauer, 2015; Sarasvathy, Ramesh, & Forster, 2015) because personality trait-based research failed to produce adequate empirical support (4). Two theoretical perspectives that have gained prominence in recent works are the effectuation theory (Sarasvathy, 2001) that concerns decision logics under uncertainty and the bricolage theory (6,7) that relates to resourcefulness. The central notions of these approaches are that an entrepreneur selects among a set of heuristics when making decisions in uncertain and penurious environments.

A main contribution of the effectuation literature on the process of decision-making in uncertain contexts is the understanding that the entrepreneur shifts between predictive and non-predictive logics as the situation changes (Hindle & Senderovitz, 2010; Martina et al., 2014) and the entrepreneur considers its resource position (Reymen, Andries, Berends, Mauer, Stephan, and van Burg, forthcoming). Main contributions of the bricolage literature on how an entrepreneur exploits opportunities in penurious environments are that 'beauty lies in the eyes of the beholder' as resources are valued differently by entrepreneurs due to their idiosyncrasy (Penrose 1950 in Praag, 1999); selective bricolage (and not parallel) leads to venture growth (6); and it increases performance of young firms but it is negatively moderated by higher levels of firm change and higher levels of innovativeness (12).

Despite these advancements in our understanding of how an entrepreneur makes decisions in uncertain and penurious environments, less is understood about the application of the

effectual and bricolage logics and the internationalization of the *'born global'*, and this is a fruitful area for future research. Cavusgil & Knight (2015) and Zahra (2004) calls for more attention to the entrepreneur as the unit of analysis and the application of cognition in internationalizing entrepreneurship (IE). Cross-disciplinary research can provide novel insights that increase our understanding of a phenomenon (Cavusgil & Knight, 2015; Zander, McDougall-Covin, & Rose, 2015). A few effectuation researchers have responded to this call. As an example Sarasvathy, Kumar, York, & Bhagavatula (2014) applied effectuation to gaps found in the IE literature concerning cross-border uncertainty, limited resources, and network dynamics. Another example is Harms & Schiele (2012). They empirically studied 65 gazelles and concluded that the experienced entrepreneurs predominantly used effectuation while uncertainty did not systematically influence the internationalization. Desa (2012) has made an attempt to apply the bricolage theory to the social international entrepreneurship literature by studying how bricolage is used to offset unfavorable institutions.

Despite these efforts, to our knowledge this is the first attempt to apply effectuation and bricolage integrated to study the *'born global'* phenomenon. This combination is suitable as the *'born global'* is mostly evident in small economies (13,19) and these firms are characterized by lack of resources (14,20). In this study the effectuation and the bricolage theories are used to explore how the interplay between uncertain and penurious environments and the application of these heuristics *'push'* the internationalization of entrepreneurial firms. It also studies how the application of these heuristics influence the distance between the entrepreneur's products scope and the country's available resources and division of labor. Researching these issues are crucial in further advancing our understanding of *'what makes an entrepreneur'*.

In the next section an overview of the effectuation (Sarasvathy, 2001) and bricolage (6,7) theories is presented. Subsequently the IE literature is selectively reviewed. This is followed by the methods section where these relationships are studied through a multiple case study (Eisenhardt & Graebner, 2007; Yin, 2009) containing 7 cases. After presenting the results theory elaboration takes place. In this research we argue that in uncertain and penurious environments the dominant use of the goal-orientation positively influences the geographical distance between the entrepreneur and the spatial context in which he operates (i.e. spatial distance); dominant application of means-orientation negatively influences the distance between the product scale and scope, and the country's division of labor and resources (i.e. product distance); the distance between the entrepreneur's technical expertise and the technical domain of the product (i.e. technical distance) negatively influences the spatial distance; and the technical distance positively influences the product distance. Subsequently the results are discussed and this paper concludes with the limitations of the study.

## 2. Literature review

### 2.1 Personality traits vs cognition

In the scholarly effort to understand *'what makes an entrepreneur'* a distinction can be observed between the personality traits and the cognition approaches (23). The trait approach focuses mostly on personality traits of individuals such as the risk propensity, self efficacy and locus of control. For the reason that the trait-based research failed to produce adequate empirical support (4) a shift took place to use cognition to understand differences between those that take on entrepreneurial endeavors and those that do not. The cognitive approach focuses on how individuals gather information and use rules to assimilate and process this information.

Initial explanations of the cognitive process that entrepreneurs undertake indicated that the decision to exploit an opportunity revolves around a rational process and risk-return analysis such as the Reduce, Quantify, Plug (RQP) rationality (24). It assumes that individuals are

rational human beings. However, research has shown that due to insufficient information and time, and limited cognitive ability, humans show bounded rationality (25). Entrepreneurs are not more risky than non-entrepreneurs but evaluate opportunities differently (26,27). Under uncertain circumstances entrepreneurs use heuristics to assimilate and make sense of fragmented information to make fast decisions (4). Heuristics are simplifying strategies used to make decisions in situations of complexity and uncertainty (4) and in the entrepreneurial setting can be classified into selection, procedure, temporal, priority, and exit heuristics (Eisenhardt, 2013).

## **2.2 Effectuation**

A cognitive approach positioned in the entrepreneurship discipline that centers around the use of heuristics is the effectuation theory (Sarasvathy, 2001) (see Mauer (2015) and Sarasvathy et al., (2015) for recent reviews of the effectuation literature). Effectuation posits that an entrepreneur uses the control rationality for decision-making under uncertainty. Instead of trying to turn uncertainty into risks as would be the case for the RQP logic, the entrepreneur engages in controlling an unpredictable future by embracing the uncertainty and contingencies (Sarasvathy, 2001; Sarasvathy, 2008) since “there may be no optimal entrepreneurial process, allowing for many equally effective approaches” (Shane, 2012, p14). This decision is influenced by the entrepreneur’s personality traits and is most applicable to expert entrepreneurs (Read & Sarasvathy, 2005; Sarasvathy, Dew, Read, & Wiltbank, 2007).

Entrepreneurs that use the effectual logic make use of four heuristics in their decision-making (Sarasvathy, 2008) : 1. affordable loss, 2. means-orientation, 3. pre-committed stakeholders, and 4. leveraging of contingencies. These are contrasted against the logics used in classical risk management perspectives which are: 1. predictive return, 2. goal-orientation, 3. competitive analysis, and 4. hedging against contingencies. The affordable loss is what an entrepreneur believes he can afford and he is willing to lose in opportunity exploitation (33). This is a preferred choice because the information of the down-side of the exploitation of an opportunity is easy accessible and controlling what one loses is easier than what one can gain. This is in contrast with the classical risk management concept of predictive return that puts forward that the decision to investment is based on the expected return, thus the upside of an entrepreneurial opportunity.

Means-orientation refers to the starting point where an entrepreneur evaluates who he is, what he knows, and whom he knows (Sarasvathy & Dew, 2005). Through this introspection an entrepreneur evaluates his possible outcomes (e.g. products, ideas, endeavors, goals) that are possible with his personal identity. This is in contrast with the concept of goal-orientation where an entrepreneur first selects among a desired effect that leads towards finding the right means to realize this effect.

In the process of an entrepreneur to convert his means into an identified desire he engages his social network to approach whom he knows to partner. These stakeholders will self select to become pre-committed part of the entrepreneurial team and will constrain themselves non-negotiable towards their future (Sarasvathy & Dew, 2003). The pre-committed stakeholders is in contrast with the concept of dealing with potential partners through competitive analysis.

Last but not least, when an entrepreneur cannot assess the uncertainty, he will ‘be open’ to exploit any possible future alternative presented (31). Thus instead of hedging against unexpected contingencies (i.e. a logic according to the classical risk management philosophy), an entrepreneur that uses the effectual logic will embrace contingencies and incorporate these into their innovation process.

These four heuristics that collectively form effectuation does not have to be simultaneously present for in order constitute an effectual process and neither the application of these heuristics exclude causation (Hindle & Senderovitz, 2010). However, effectual decision-

making is likely to be more prominent in uncertain contexts (Reymen et al., forthcoming) and an entrepreneurs drifts towards causation during the opportunity exploitation process (9). In this process the entrepreneur engages its environment through an interdependent relationship (36). Through this co-shaping relationship the realities of the entrepreneur is shaped while the entrepreneur shapes the reality of its environment.

### **2.3 Bricolage**

It is also well understood that resources are important for exploiting opportunities and an entrepreneur is often faced with resource limitation (see MacMaster, Archer, & Hirth (2015) for a review of the bricolage literature). The entrepreneurial bricolage theory (6,7) addresses the entrepreneurial cognition in penurious environments that “presents new challenges, whether opportunities or problems, without providing new resources” (Baker & Nelson, 2005, p.26). When an entrepreneur is faced with these environments, he engages in bricolage to ‘stretch’ the available resources towards new uses; it is “creating something from nothing” (Baker & Nelson, 2005, p.4). An entrepreneur is able to do this because each entrepreneur has a unique relationship with his resource environment, and thus different entrepreneurs will create different uses of the resources, and same resources might be viewed differently by entrepreneurs.

The accepted definition of bricolage is “making do by applying combinations of the resources at hand to new problems and opportunities” (Baker & Nelson, 2005, p.6). Making do refers to the active attitude of an entrepreneur to create something from nothing, use discarded and unwanted resources for new purposes, and use untapped resources that other organizations failed to recognize (38). It is also the refusal to accept the limitations imposed by the resources according to ‘collective wisdom’ or routines that have been universally accepted (Steffens et al., 2010, p.6). Resources refer to both the resources that the entrepreneur has at hand and also includes resources that are available for free or very cheaply.

Scholars have observed several areas in which bricolage has been applied by entrepreneurs; physical, labor, and skills inputs, customer/markets, and to institutional and regulatory environment. An entrepreneur either applies bricolage to all areas, what is also called parallel bricolage, and selective bricolage is when an entrepreneur applies bricolage to only one or a few areas. Parallel bricolage can cause a variety of dysfunctional outcomes, including lack of growth (6) and low quality products and services (12), due to high costs and inefficiencies created by excessive experimentation (39).

### **2.4 Effectuation and bricolage**

The effectuation and bricolage perspectives posit that an entrepreneur start from whom he is and exercises introspection (MacMaster et al., 2015; Sarasvathy, 2001) and draw on very similar concepts and indication for behavior, though both focus on different aspects of the entrepreneurial process (40). Furthermore, uncertainty is also a driver of the use of bricolage (41). These provide a fruitful ground for theory integration (42) as both perspective use similar accounts to explain different phenomena, namely uncertainty and resource constraints. Further efforts to integrate effectuation and bricolage are Archer, Baker, & Mauer (2009) and Hindle & Senderovitz (2010).

Hindle & Senderovitz (2010) empirically tested their integrative framework through an analysis of Terry Allen’s narrative account of 22 ventures he started or joined, and they concluded that principles of bricolage and effectuation (including causation) are not mutually exclusive. These authors also juxtaposed effectuation and bricolage and observed that a major difference between these concepts is the goal-orientation. Effectuation is placed in a goal ambiguity context while bricolage has a teleological account (8): similar to causation. The remainder of this study builds upon this distinction.

## **2.5 Internationalizing entrepreneurship**

How do entrepreneurial firms go global? This question is at the heart of internationalizing entrepreneurship (IE) (for an extended review of the literature see Cavusgil & Knight (2015), Terjesen (2015) and Zander et al. (2015) ). At first the internationalization process was described as slow and gradual (e.g. the Uppsala- model: (44). A major criticism is that these models fail to explain the 'born global' phenomena (13) that are mostly evident in small economies (13,19). Instead on of a graduation internationalization process, the 'born global' show early and rapid internationalization (15).

The 'born global' has received considerable attention in IE research. Several definitions exists but can be segregated between those that focus mostly on the sales expansion to international markets through e.g. export (e.g. Cavusgil & Knight, 2015) and those that also include the sourcing of products internationally and thus participate in the globalization of products (e.g. McDougall & Oviatt, 2000) . This latter definition is also associated with the concept of international new ventures (INV) (see Coviello, McDougall, & Oviatt (2011) for a chronological overview of the definitions of 'born global' and INV).

As with other entrepreneurial firms, 'born global' also experience uncertainty and resource constraints that stems from liability of newness, size and foreignness (14). The credibility of the 'born global' is in question and the resource limitation raises doubt about the ability to cope with challenges in the internationalization process. According to Zander et al., (2015) "a solid understanding of born globals and their dynamics requires in-depth insights into the entrepreneur's logic and reasoning " (p. 29) and the effectuation and bricolage theories are pathways to acquire this understanding.

## **3. Methods**

### **3.1 Research Strategy**

In order to achieve the goal of this study the work of Eisenhardt (1989) '*Building theories of case study research*' and the research strategies using multiple case studies (22) were applied. Yin (2009) argues that case studies are adequate to research 'how' questions and a contemporary life phenomenon where the researcher does not have control over the events that will take place, and the unit of study is a real life and contemporary phenomenon.

Data was collected on the small Caribbean island of Curaçao precisely plagued by resource limitations (48) and small economy that induce 'born global'. Curaçao has an open economy that relies primarily on three sectors. The three sectors are offshore financial services, trade, and transport, storage & communication (see table 1).

A multiple case study can address the problems for data collection on small islands. Collecting data through in-depth interviews can help overcome the lack or shortage of data. Having multiple sources (including a mix of primary, secondary and tertiary sources) can overcome the challenges of participants being unwilling to provide data due trade secrets. In addition, having multiple sources facilitates triangulation and can minimize the effect of deliberate misrepresentation or response and recall biases.

### **3.2 Selecting case participants**

The methods for selecting cases were criteria and snowball sampling for the reason that "the purpose of the research is to develop theory, not to test it, and so theoretical (not random or stratified) sampling is appropriate" (Eisenhardt & Graebner, 2007, p.27 ). The criteria will aid in selecting only entrepreneurs that are of interest to this study and increase the credibility

and transferability of the data to be collected.

In total we have 7 cases (see table 2 for short case descriptions). We approached the ICT community in Curaçao to identify the local ICT firms and entrepreneurs that fit the sampling criteria. We first established contact with a co-founder and afterwards relied on snowball sampling to develop the case study with interviews from additional co-founders and/or early employees. To provide additional cross-case variation that is useful for theory building we included variations in terms of success, size of founding team and expertise, and the stage of the entrepreneurial development.

Table 3 provides an overview of the case characteristics. The data was collected through primarily interviews and archival documents. With the participants an initial personal interview was conducted with several rounds of informal questioning for further clarification of the interview answers, and this done through email communication. The interviews lasted between 45 minutes and 1.5 hours. We have used pseudonyms to maintain confidentiality of our cases and in addition signed non-disclose and non-compete agreements with the interviewees.

### **3.3 Themes for data collection**

We use the conceptualization for empirical indicators of effectuation and causation developed by (Reymen et al., forthcoming) . These authors relied on Chandler, DeTienne, McKelvie, & Mumford (2011) , Fisher (2012) and Read, Song, & Smit (2009) to develop 30-item measurement of effectuation and causation (see table 4). These measurements were supplemented with themes that emerged during our coding of the data. To measure bricolage we use inspiration from Baker & Nelson (2005) to develop a 11-item measurement (see table 5). These measurements were supplemented with themes that emerged during our coding of the data.

### **3.4 Analysis**

We coded the data based on the themes in the previous section. The analysis consisted of a pattern-matching approach (22). Patterns were matched with the themes across cases. We made a distinction between lightly, medium and strongly forming patterns. These were determined based on the count of the indicator across cases with 2 counts coded as lightly forming patterns, 3 counts as medium forming patterns and 4 or more counts as strongly forming patterns. The levels indicate the existence of the themes across cases and do not represent the frequency of the respective theme within a case. The stronger the pattern the more cases use this heuristic.

Following the suggestions of Eisenhardt (1989) throughout the analysis the constructs of this study were refined (i.e. the definitions of the constructs) and evidence from the case studies were build to support the constructs.

## **4. Results**

### **4.1 Descriptive results**

The research produced interesting results (see table 6 for an overview of the application of the heuristics through the cases). In general the indicators related the causation scored higher compared to the effectuation indicators and the bricolage heuristics received medium support. This means that entrepreneurs operating in uncertain and penurious environments generally apply both effectuation and causation but do lean more towards causal logic. This

result is supported by Hindle & Senderovitz (2010) that showed the application of effectual heuristics does not exclude causation.

Among the effectual heuristics the affordable loss and means-orientation consistently scored very low among the cases while the only effectual indicator that received high score is leveraging contingencies. Among the causation logic the predictive return, goals-orientation and competitive analysis scored high. Exemplary statements from our cases are:

"From there we said let us look at what has a potential. Meaning we choose a few products. Next what we needed to do is for each of those products make a business case and do a research, a small marketing to see how many people would be interested in this" (BudgetCo, 2015).

"You did not ask anything concerning my vision, where I see the product going or where I expect or am trying to go" (PaymentCo, 2015).

"The first project was a pre-financing ... they signed the formal contract and subsequently I went to a bank ... and so I received my pre-financing" (SecurityCo, 2015).

In the development of the PostCo the founder informed that he sets a personal goal and afterwards a business goal (in this case it was to set up his company and launch the product on the European market and afterwards other countries (PostCo, 2014).

All cases scored convincible on the goal-orientation indicating a strong inclination to start the entrepreneurial process with a pre-determined goal. These ranged from *'a clear course of action'*, *'research to define opportunities, requirements and needs'*, to *'action taken on a clearly defined course of action'*, and *'long-term vision'*. A few examples from our cases are:

"I started to look on their [Chamber of Commerce] website on what the requirements in Curacao were in comparison with those in Holland. And afterwards I just took the necessary steps" (PaymentCo, 2015).

Based on his idea he did a research to find out the features of the digital post notification and what resources where necessary (PostCo, 2014).

"Our vision is very long-term" (MusicCo, 2014).

In terms of bricolage the results are split. Both making do and resources at hand were modestly visible in the cases. In two cases making do was central in the product development endeavors. The founder of PostCo (2015) needed a sensor for his prototype. However, he did not have the necessary funds to acquire this sensor. To overcome this limitation the founder used scrap resources remaining from another project. Thus he repurposed those resources to address a new problem of post notification. Making do is also evident in the SecurityCo:

"I was going to take a product, it was a storage area network (SAN) that is a box specifically made to store images of digital security cameras. Because the price was much better compared with other similar products that are used for offices, thus companies, I thought what about I take this product and repurpose it to use for these companies, offices, their network for administration and internal systems" (SecurityCo, 2015).

As illustrated above, SecurityCo set out to use an existing SAN that is used in the security

industry to address the problem of high prices for digital storage systems. In this case as well the repurposing of a resource (i.e. the SAN) for was crucial for the product development.

## 4.2 Emerged patterns

Several patterns emerged through our cross-case pattern matching analysis (see tables 7 and 8). Strong patterns that emerged in the effectuation are *'making use of own knowledge, resources, or network of stakeholders'* (means-orientation) and *'co-creation with stakeholders'* (pre-committed stakeholders). Despite the relatively low score for the means-orientation this heuristic is visible in the majority (i.e. 6 of 7) of the cases. For example participants expressed that:

"Since I have been working on mobile payments since 2003, but in another format such as SMS and MMS, I thought let us try to do this. So we came to a different set up" (BudgetCo, 2015).

"I am actually a graphic designer which is nowadays more and more apps and websites and so actually it falls a little under this. I do not do development and so forth. So no programming and stuff but design" (GameCo, 2015).

Other patterns that emerged that indicated consistent use of causation logics are all three empirical indicators of goal-orientation. This does not come as a surprise as goal-orientation is well represented in all cases.

In the competitive analysis also strong patterns have emerged namely *'acquires resources through arm's length contractual assignments'* and *'develops a competitor's analysis'*. As with goal-orientation, these patterns are not a surprise as competitive analysis is well represented in all cases. Examples of statements are:

"Then I acquired someone else to do that [develop a product prototype]. We started. We even signed a non-disclose agreement and gave him an assignment of what we wanted so he could give us a tender" (BudgetCo, 2015).

"My first step was simply to create awareness [through seminars] that this technology exist...and for you to receive signals from the market if there is demand for it, yes or no" (SecurityCo, 2015).

Two strong patterns that emerged from the bricolage are *'uses an existing resource in a new way'* (i.e. making do), and *'gives ownership in the product/company'* (i.e. resources at hand). Examples statements are:

"I made an administration module and this I am using also for the product" (PaymentCo, 2015).

"I took [the automated transaction processing system] and repurposed this for the trust sector" (Transaction, 2014).

"From outset I told them that if we are going to work on this I do not have the money to pay them but eventually we will partner. Everyone will receive shares. We put different things on paper to guarantee that the moment this becomes something they are also guaranteed that they will benefit and receive from the revenue stream" (BudgetCo, 2015).

"Another way [we stretched our budget] was that [the CTO] and [the head of design] weren 't getting paid anymore, but they became shareholders" (MusicCo).

## 4.3 Discussion

Our descriptive results show that for all heuristics for effectuation (including the causation logic) and bricolage patterns emerged indicating that the entrepreneurs relied both on effectual, causal and bricolage logics in making decisions in uncertain and penurious environments. This confirms prior research. Through a qualitative analysis of five small firms

Berends, Jelinek, Reymen, & Stultiëns (2014) found that both effectual and causal logic were used in the innovation process. Our findings are also corroborated by Hindle & Senderovitz (2010) that empirically showed bipolar use of effectual and causation through narrative accounts.

There is evident use of the effectual principle of means-orientation. Though the use of means-orientation is very low by individual entrepreneurs, it is consistently applied throughout the cases. This means that the entrepreneurs are not frequently means-oriented but do retain this 'tool' in their toolbox to make use of this 'tool' as the situation deems necessary. Our explanation for this result is that small communities with scarce resources are often typified by informal social structures and nepotism<sup>1</sup>. In this setting networks (of stakeholders) and close ties are necessary to function as gateways for resource (including knowledge) acquisition. Thus entrepreneurs operating in uncertain and penurious environments use their networks (and of stakeholders) to acquire resources and anticipate new opportunities (52). There is a great rich research tradition in the importance of networks for survival of entrepreneurs as these are used to link with the external environment (Billström, Politis, & Gabrielsson, 2014). In our view the entrepreneurs in this study form networks to acquire and anticipate new opportunities. If the entrepreneur does not belong to a network the probability of acquiring resources and opportunities is severely decreased.

The use of networks (and of stakeholders) also explains the strong emerged pattern of pre-committed stakeholders: specifically co-creation. Entrepreneurs organize their resources and capabilities to respond and/or anticipate new opportunities (52). This is a co-creation process that takes place in the effectual network (Sarasvathy & Dew, 2003).

The strong visibility of goal-orientation among the cases is according to our intuition. The size of the country plays a pivotal role in establishing the range of local resources on the market including the variety of products. Small islands typically can sustain a small product range due to diseconomies of scale. Consequently entrepreneurs exhibit high levels of goal-orientation. Vast research goes into defining opportunities as these are created and the requirements and needs to successfully exploit these opportunities. Clear course of action is defined and entrepreneurs take action based on these. Furthermore, the high preference for goal-orientation is supported by the low visibility of the use of affordable loss heuristic. These entrepreneurs make vast use of budget and profit & lost forecast to estimate funds necessary. They actively engage in raising external funds. This is supported in the literature. As an example, a study by Manigart and Struyf (1997) among Belgium high-tech startups revealed that most startups finance themselves or acquire capital from banks. In case an entrepreneur borrows capital from a financial institution the entrepreneur must present a financial forecast and banks exercise control on the strategic direction of the borrower. Thus the entrepreneurs are pressured to apply goal-orientation as they progress through the entrepreneurial process.

Our results also show that competitive analysis was strongly represented throughout the cases. The entrepreneurs acquired resources through arm's length contracts and are actively engage in developing competitor's analysis. This result is also partially explained by the pressure applied by financial institutions on these entrepreneurs to use a causally linear process of entrepreneurship. In the process to acquire funds from banks entrepreneurs must submit a business plan. A critical and required component of the business plan is a competitor's analysis that argues the position of the entrepreneur against of the established incumbent firms. Banks hold the entrepreneur accountable for execution of the plans leave little room open for deviation.

In addition the coercion exercised by financial institutions, there is a more subtle influence of the smallness of islands on the use of arm's length contracts: namely the problem of limited numbers. In small societies there are often limited competing products on the market (and resulting in monopolistic economies) and also limited resources (48) to be distributed among those entitled. At an equal distribution of the resources among those entitled, none of the

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<sup>1</sup> Nepotism is used synonymously with cronyism

entitled will receive resources at a threshold for them to 'survive'. This creates a mechanism where the entitled will compete to receive a greater share of the resources to guarantee their 'survival'. An analogy to illustrate this mechanism is a famous game played by children and adults alike; the musical chairs. There is a group of individuals dancing in circles around chairs to often an upbeat music. Once the music stops everyone needs to find and sit on a chair and it is not allowed to share seats. There is always scarcity in the chairs resulting in one, two or more individuals without a seat when the music is stopped. A method to guarantee survival among scarcity is to use arm's length contracts. In these contracts the guarantee acquisition of a resource is arranged either it being monetary funds or tangible resources, and are evident in entrepreneurial processes in small communities.

Turning our attention to bricolage, a strong pattern emerged on the use of existing resources in a new way. This pattern is expected as these entrepreneurs operate in the knowledge-based industry (i.e. Information & Communication Technology). Knowledge is a resource that is not depleted when used but can be shared and repurposed for different uses. There is also an evident use of providing company and product ownership as a tactic to acquire resources at hand. This is a useful mode to receive stakeholder commitment that is necessary for acquisition of resources and reaching a desired level of attentiveness to new opportunities.

## **5. Theory building**

### **5.1 *Effectuation, bricolage and IE***

Through our selective reviews of the effectuation, bricolage and IE literature we have seen that the '*born global*' are confronted with uncertainty and resource scarcity which are the areas of application of the effectuation and bricolage. Context matters: "the process by which internationalization occurs depend on the firm's home context" (Zander et al., 2015: p.31). In light of this, how does the interplay between uncertain and penurious environments and the application of these heuristics '*push*' the internationalization of entrepreneurial firms? We posit that the application of predominantly goal-orientation '*pushes*' the entrepreneur to go international. Furthermore, the predominantly use of means-orientation will lead to exploitation of an opportunity close to the island's division of labor and available resources.

As discussed earlier, the point of departure is that product diversity is limited in small economies. The small market has a deterministic effect on what products can be introduced and not. Due to this limitation an entrepreneur operating in this environment rarely functions without a pre-determined goal but has a clear vision for the product he would like to introduce into the market. This logic is sufficiently supported through our case results. The results show that all cases score medium to high for the goal-orientation heuristic and it emerged as a strong cross-case pattern.

### **5.2 *The spatial distance***

The entrepreneur starts a transformational process where he exercises introspection and evaluates who he is, what he knows and whom he knows as put forward in the effectuation literature. However, contrary to the effectuation is that this entrepreneur does not act with goal ambiguity but has a vision of a desired end product and consequently is mostly concerned with resource acquisition to realize his goals. Because the entrepreneur operates in a penurious environment, it is highly possible that the specific resources the entrepreneur desires to exploit his vision are not available. Research shows that there is a limitation concerning resource endowments, variety of skilled labor in small markets (48). This is also evident from our study results. When asked which constraints were confronted in the development of their products, all cases indicated to deal with some sort of constraint such

as financial, human and time. Example statements are:

"Money resources also play a role. For that we decided to write business cases and business plan and see if we can find funds for that"... "Define those things that we see as essential" (BudgetCo, 2015).

"In the first instance I also looked for a developer in Curacao [among my friends] but then there was none for iPad and iOS development. There was no one in Curacao who could. In 2010 we already started thus that was not there." (GameCo, 2015).

"Time is also e resource. And because you have to do everything; you are the managing director, you are the head of sales, marketing, and when you acquire a project and you have to implement, you are the project manager. Thus when you are in the field and implementing a project, you cannot do marketing and sales as well. And so other things such as administration is not done" (SecurityCo, 2015).

Thus the entrepreneurs experienced several resource constraints beyond human capital. Information, prior knowledge, physical, human and financial resources are all types of resource constraints (MacMaster et al., 2015).

Due to the scarcity in the required resources to exploit an opportunity the entrepreneur will approach foreign stakeholders to assist in his entrepreneurial pursuit and as a result turns into a *'born global'*. Thus penurious environments and the application of goal-orientation will *'push'* an entrepreneur to cross borders and thus increases the geographic distance between the entrepreneur and his spatial context.

Table 2 shows the internationalization position of each case. It can be viewed that besides PostCo, which is not operational, all cases have an international presence. These are mostly in Europe (i.e. The Netherlands and Tunisia), Asia (i.e. India and Indonesia), and North and South America. Due to resource constraints faced in the geography where the entrepreneur is operational, the entrepreneur internationalizes. Exemplary accounts from the cases are:

"I have already contacts with a company in India. I have already done some developments with them. We made a very simple version of Slapp for me to gain experience in that area" (BudgetCo, 2015).

"I looked for people who could develop it because as I said, I do not write much code. Then I saw in a magazine WIRED. It was an advertisement for the company. They are in America ... Then I approached them" (GameCo, 2015).

"For the first project people for the US had to come" (SecurityCo).

One might argue that an experienced entrepreneur in this situation will apply a means-orientation and evaluate the possible outcomes with the means he has at his disposal. However, like indicated through the results of this study the entrepreneurs only selectively used means-orientation, in particular their networks (and of their stakeholders) to reach a desired level of attentiveness to new resources and opportunities.

### **5.3 The product distance**

What will happen with an entrepreneur that excessively applies the means-orientation in uncertain and penurious environments? Taking into account the assumption that small economies create resource constraint environments and increase the difficulty for an entrepreneur to acquire the right resources (i.e. resources he considers to be appropriate to exploit his vision), we observe that dominant application of goal-orientation can severely enlarge the distance between the product scale and scope, and the country's division of labor and resources.

In the application of effectuation the division of labor and the available resources will act as a determinant on the type of opportunity that will be exploited. Thus using a predominant the

means-orientation can lead an entrepreneur into a path-dependent trajectory where his means are close to the country's available resources. A country's division of labor and an individual's social network creates information asymmetries. Hence, the social structure in which an entrepreneur is embedded influences who the entrepreneur knows and ultimately the resources that can be acquired. As Baker, Gedajlovic, & Lubatkin (2005) put forward, entrepreneurs in developing and emerging economies will develop products that are "quite local in scale and scope" (p. 499) and thus close to the resources that are available in that market.

Considering this if an entrepreneur wishes to pursue an innovative opportunity that has a large distance from the country's main industries, the use of goal-oriented logic is necessary to acquire the resources necessary to exploit this opportunity. By venturing out of the entrepreneur's personal identity and social network the entrepreneur escapes the path-dependent trajectory and is able to acquire a right resource fit.

This logic is evident from our case results. Analyzing the products developed throughout the cases (see table 3), all of these products have large distances between the product's scope and scale and the country's division of labor and resources. These products are IT-products and services while the major industries in Curaçao are offshore financial services, trade, and transport, storage & communication (see table 1).

In cases of large distances between the product scale and scope and the country's division of labor, one will expect resource limitations in especially human resources. This is also evident from in cases. Exemplary accounts from the cases are:

"Another one [resource constraint] is finding the right people to do the work of programming" (BudgetCo, 2015).

"Development skills were more difficult, not in the sense of finding the skills, but rather in the sense of having the funds to be able to pay the people who have the skills" (MusicCo, 2014).

"The software engineers. That has always been a constraint. Always during the 14 years. It is because the education, experience and knowledge required" (TransactionCo, 2015).

As it evident throughout the cases, human resource limitations were confronted by the participants as the product distance were large and as result human capital were difficult to acquire through the entrepreneur's social network.

An interesting observation is that the case of SecurityCo has the closest proximity between the product (i.e. storage area network/ mobile security trailer) and the country's division of labor (i.e. transport, storage & communication). According to the founder, there is no human resource limitation. "Locally there are a lot available. For some specialism there are, sometimes a bit scare... but you do find the people. They are there" (SecurityCo, 2015). This supports our statement that means-orientation is associated with a reduced distance between the product scale and scope and the country's division of labor. Explaining how the founder sources the human capital he informed "I already knew them. I knew their work and I told them to come help me in certain projects" (SecurityCo, 2015).

#### **5.4 The technical distance**

The spatial and the product distances are influenced by the distance between the entrepreneur's technical expertise and the technical domain of the product (i.e. the technical distance). As discussed in previous section, a country's division of labor and an entrepreneur's social network creates information asymmetries (55). The social structure in which an entrepreneur is embedded influences who the entrepreneur knows and ultimately the resources that can be acquired through this network. A social network consists mainly of formed friendships and acquaintances during university education and firm-related work experience. Both of these settings are characterized by high concentration of similar technical expertise. Thus the fit between the acquired resources and the vision of the

entrepreneur is highly dependent on his technical expertise. The larger the distance between an entrepreneur's technical expertise and the technical domain of the product, the lower the possibilities are the entrepreneur can source the right resources through his social network.

How does the technical expertise of an entrepreneur influence the spatial distance? We showed how penurious environments and the application of goal-orientation will increase the spatial distance. Our results show that this relationship is mediated by the technical distance. The lower the distance between these the higher changes that the entrepreneur can source the required resources despite operating in a penurious environment and thus the necessity to internationalize is decreased.

Two cases that the founders did not have the technical expertise are GameCo and MusicCo. In both of these cases the entrepreneur's were only able to work with international partners. It is also interesting to indicate that these partners were sourced through goal-orientation. Example statements are:

"I looked for people who could develop it because as I said, I do not write much code. Then I saw in a magazine WIRED. It was an advertisement for the company. They are in America ... Then I approached them (GameCo, 2015)

"You have your goals... We knew exactly what we wanted to achieve" (MusicCo, 2014).

How does the technical distance influence the product distance? We argued that a country's division of labor and an individual's social network creates information asymmetries. Consequently, the social structure in which an entrepreneur is embedded influences who the entrepreneur knows and ultimately the resources that can be acquired and thus influences the product distance. If an entrepreneur's has a good fit between his technical expertise and the technical domain of the product, the entrepreneur will still be able to identify the adequate resources although operating in a penurious environment. This results in a decreased product distance.

## 6. Conclusion and Limitation

Through this study we embarked on a journey to apply effectuation and bricolage theories integrated to generate more understanding of how the interplay between uncertain and penurious environments and the application of these heuristics 'push' the internationalization of entrepreneurial firms. Through our multiple case study consisting of 7 cases in the small Caribbean island of Curaçao. We see the commencement of theory development that shows that in uncertain and penurious environments the dominant use of the goal-orientation positively influences the geographical distance between the entrepreneur and the spatial context in which he operates; dominant application of means-orientation negatively influences the distance between the product scale and scope, and the country's division of labor and resources; the distance between the entrepreneur's technical expertise and the technical domain of the product negatively influences the geographical distance between the entrepreneur and the spatial context in which he operates; and the distance between the entrepreneur's technical expertise and the technical domain of the product positively influences the distance between product scale and scope, and a country's division of labor and resources.

This study has several limitations. The data is not coded by independent coders and thus is subjective to researcher's bias. Furthermore, it is not excluded that an entrepreneur who applies the means-orientation heuristic will not embark on an internationalization path. This can especially through his personal network as networks are found to be beneficial to these early internationalizing firms as these because these act as vehicles to acquire needed resources and knowledge (13). In addition, our emerging theory cannot be generalized to other sectors either other countries.

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## Appendices

**Table 1: overview characteristics Curaçao**

	<b>Curacao</b>	<b>Source</b>
<b>Language</b>	Papiamento/ Dutch	
<b>Ethnic Groups</b>	Afro-Caribbean	
<b>History</b>	Slave trade/ Dutch rule	
<b>Government</b>	Parliamentary Democracy	
<b>Area</b>	444 km <sup>2</sup>	CBS
<b>Population</b>	142,180 (estimation end 2010)	CBS
<b>Currency</b>	Naf (1 USD =1.82 Naf)	CBCS
<b>Main Industries</b>	1. Financial Services 2. Trade 3. Transport, storage & communication	CBS
<b>GDP (2009)</b>	2,823.4 *	CBS
<b>GDP sectors (2009)</b>		
<b>Hotels &amp; Restaurants</b>	82.9 *	CBS
<b>Transport, storage &amp; communication</b>	239.1 *	CBS
<b>Finance &amp; Business Services</b>	539.5 *	CBS
<b>Imports Goods (2009)</b>	1253.8 *	CBS
<b>Exports Goods (2009)</b>	114.3 *	CBS

\* mln, currency USD

CBS = Central Bureau for Statistics

CBCS = Central Bank of Curacao and St. Martin

**Table 2: case descriptions**

*BudgetCo:* The idea for a mobile platform that helps users to make more informed decisions in terms of purchases to manage their budgets came to the founder of BudgetCo in 2012. After developing an initial concept of the idea the founder approached 3 close friends to be part of the founding team and the product concept expanded to also include mobile payments. In 2014 the group came to the conclusion that a large investment was required to make the mobile app a reality. The group decided to venture with another project with the aspiration to raise the capital required.

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*GameCo:* With the introduction of the iPad in 2010 the creator of GameGo started the development of this iPad game. With support of outsourced iOS developers the game was launched in the Apple's Appstore in 2011. Despite being launched on the market, the GameGo did not meet the expectations of the creator and is not successful. For this reason the creator started working in 2011 with a different outsourced software developer with the intention to relaunch.

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*MusicCo:* In February 2012 two friends co-founded the online music streaming service. The beta of MusicCo was launched on the October 1, 2013. The launch did not proceed without any challenges mainly due to challenges of finding software developers. In its 2 years of existence MusicCo has collected over 20 thousand songs in its database. The future plans of MusicCo are to open the platform to public, index their content in the Google search engine and also introduce a mobile version of the service.

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*PaymentCo:* the idea for a new mobile and online payment solution came to the founder of PaymentCo in 2008 but it was not till 2012 that he started with the design and development of the product. The product is mainly designed by only the founder and he uses one person to test for bugs. A patent has been applied for and granted, and at the moment the founder is pitching his product to banks with the hope to go live in 2015. The vision is to make position this product as the main online and mobile payment solution in the world.

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*PostCo:* In 2007 PostCo was developed from a personal experience in a post office. It is a system that sends notification via SMS to mobile phones or emails to inboxes of users. A working prototype was developed and a patent has been granted. However, the product was not further developed since 2009, neither introduced in the market, for the reason that a postal multinational introduced a competing product on the market.

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*SecurityCo:* The founder of SecurityCo started in 2009 by a happy mistake. As he was repurposing the use of storage area networks as data storage for large companies such as banks and casinos, he was overwhelmed with the request for these systems for security purposes. In 2010 he completed his first major project for security. However, mainly due failing to create a sustainable competitive advantage SecurityCo was leapfrogged by its competitors. As of 2015 SecurityCo is developing new products with its international partners.

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*TransactionCo:* In 2000 TransactionCo was funded as a consultant's bureau for the banking industry. With their experience in this industry, the two co-founders pitched a new automated transaction processing system that became the flagship product of TransactionCo. During the years they have grown the company to include mostly international clients; they have added additional features and functionalities; and have released two additional automated transaction processing system for other sectors.

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**Table 3:** case characteristics

Company	Industry	Business Model	Founders' Experience	Management	Support	Stage	Year	# of Cases	# of Interviews
GameCo	Entertainment	Free game	Moderate: one founder with 7 years venture experience (2nd venture)	Design	Development in US and Europe Sales worldwide	entrepreneurial stage	2010-2015	2	12
MusicCo	Entertainment	Online music streaming service for only Dutch Caribbean music	Low: two co-founders, one still in university and the other graduated 2 years before, both with 1 venture experience	International business, strategic management and innovation	Development in the Netherlands and Tunisia Sales worldwide	Startup	2012-2014	8	31
PaymentCo	Technology	Online and mobile payment solution	Moderate: one founder with several years of venture experience (2nd venture)	IT/ICT	Testing in the Netherlands	Seed	2015	3	1
PostCo	Communications	SMS notification of delivery to PC/Son	Moderate: one founder with several years of venture experience (2nd venture)	IT	N/A	Seed	2007-2009	3	2
SecurityCo	Consulting of security services	Storage Area Network/ Mobile security/tracker	Low: one founder with only a few years of venture experience (1st venture)	IT/ICT, general management	US-based supplies Support implementation from US	Early growth	2008-2014	2	4

**Table 4:** empirical indicators effectuation and causation

<b>Effectuation</b>	<b>Empirical indicator</b>
<b>Affordable loss</b>	<p>Finding unused resources in local environment (including subsidies).</p> <p>Investing limited, small amounts of personal/company money, time and effort.</p> <p>Willingness to make sacrifices.</p> <p><i>The initial product idea is seen as interesting and feasible.</i></p> <p><i>Investment requirements are seen as uncertain and there is a desire to minimize this uncertainty.</i></p> <p><i>Investment is seen as a first necessity to create an opportunity to start the development of a product.</i></p>
<b>Means-orientation</b>	<p>Makes use of own knowledge, resources, or network of stakeholders.</p> <p>Identifies opportunities based on network of stakeholders.</p> <p>Has an undefined desired idea.</p> <p><i>Does not focus on future 'problems' but deals with them in near-present.</i></p>
<b>Pre-committed stakeholders</b>	<p>Reaching trust-based flexible stakeholder agreements and commitments.</p> <p>Co-create with stakeholders.</p> <p>Approaches potential client with a prototype early in the development process.</p>
<b>Leveraging contingencies</b>	<p>Open to act upon ideas/ requests that will change the product/ company/ add an additional product.</p> <p>Does not develop concept in detail but leaves room for unexpected events.</p> <p>Open to change strategy based on unexpected events.</p>
<b>Causation</b>	<b>Empirical indicator</b>
<b>Expected returns</b>	<p>Makes financial forecasts of required funds.</p> <p><i>Makes forecasts on expected market return.</i></p> <p><i>Expects a return on competence/ personal satisfaction.</i></p> <p><i>Active attempt to raise external funds (e.g. capital investors).</i></p>
<b>Goal-orientation</b>	<p>Takes action on a clearly defined course of action (i.e. goal).</p> <p>Defines a clear course of action (i.e. goal).</p> <p><i>Does research to define opportunities, requirements and needs.</i></p>

	<i>Has a long term vision.</i>
<b>Competitive analysis</b>	<p>Acquires resources through arm's length contractual assignments.</p> <p>Makes use of property rights protection.</p> <p>Develops a competitor's analysis.</p> <p>Does systematic research.</p>
<b>Hedging against contingencies</b>	<p>Carefully interacting with environment for secrecy reasons (feel threatened by unexpected events, therefore work in isolation as much as possible).</p> <p>Not open to act upon requests that will change the company.</p> <p>Stops a project due to unforeseen events.</p>

**Italics are self developed**

**Table 5:** empirical indicators bricolage

<b>Bricolage</b>	<b>Empirical indicator</b>
<b>Making do</b>	<p>Uses an existing resource in a new way.</p> <p>Uses untapped/ unwanted resources to create something new.</p> <p>Active attempt to raise external funds (e.g. capital investors).</p>
<b>Resources at hand</b>	<p>Gives ownership in the product/ company.</p> <p>Licenses a resource instead of buying.</p> <p>Compensates with non monetary resources (e.g. be part of a disruptive innovation).</p> <p>Compensates with other (employment) opportunities.</p> <p>Executes parts of the tasks himself.</p> <p>Makes use of barter deals.</p> <p>Makes use of royalty deals.</p> <p>Asks for a favor.</p>

**Table 6:** overview application of heuristics

<b>Company Name</b>	<i>BudgetCo</i>	<i>GameCo</i>	<i>MusicCo</i>	<i>PaymentCo</i>	<i>PostCo</i>	<i>SecurityCo</i>	<i>TransactionCo</i>
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<b>Affordable loss</b>	Low	Low	Low	Low/medium	Low	Low	Low
<b>Predictive return</b>	Medium/high	Medium/high	Medium/high	High	N/A	Medium/high	High
<b>Means-orientation</b>	Medium	Low	Low	Low	Low	Low	Low
<b>Goals-orientation</b>	Medium/high	Medium	High	High	Medium	High	High
<b>Pre-committed stakeholders</b>	Low/Medium	Low	Low	Medium/high	N/A	Low	Low
<b>Competitive Analysis</b>	High	Medium/high	High	Medium	High	High	High
<b>Leveraging of contingencies</b>	Medium	Medium	High	High	N/A	High	High
<b>Hedging against contingencies</b>	Medium	Low	N/A	Low	High	N/A	Low
<b>Making do</b>	N/A	Low	N/A	Low	Medium/high	Medium/high	High
<b>Resource at hand</b>	Medium	Low	High	N/A	Medium	Low	Low

N/A = not identified

**Table 7:** cross-case emerging patterns effectuation

<b>Effectuation</b>	<b>Empirical indicator</b>	<b>Scale of emergence</b>	<b>Applicable Cases</b>
<b>Affordable loss</b>	Investment requirements are seen as uncertain and there is a desire to minimize this uncertainty.	Light	GameCo, MusicCo
	Investment is seen as a first necessity to create an opportunity to start the development of a product.	Medium	BudgeCo, PaymentCo, SecurityCo
<b>Means-orientation</b>	Makes use of own knowledge, resources, or network of stakeholders.	Strong	BudgetCo, GameCo, MusicCo, PaymentCo, PostCo, SecurityCo
	Identifies opportunities based on network of stakeholders.	Light	PaymentCo, TransactionCo
<b>Pre-committed stakeholders</b>	Co-create with stakeholders.	Strong	BudgetCo, GameCo, MusicCo, PaymentCo, SecurityCo, TransactionCo

	Approaches potential client with a prototype early in the development process.	Medium	BudgetCo, PaymentCo, TransactionCo
<b>Leveraging contingencies</b>	Open to act upon ideas/ requests that will change the product/ company/ add an additional product.	Medium	BudgetCo, GameCo, MusicCo
<b>Causation</b>	<b>Empirical indicator</b>	<b>Scale of emergence</b>	<b>Applicable Cases</b>
<b>Expected returns</b>	Makes financial forecasts of required funds.	Medium	BudgetCo, MusicCo, TransactionCo
	Makes forecasts on expected market return.	Light	BudgetCo, SecurityCo
	Active attempt to raise external funds (e.g. capital investors).	Medium	MusicCo, PaymentCo, SecurityCo
<b>Goal-orientation</b>	Takes action on a clearly defined course of action (i.e. goal).	Strong	BudgetCo, GameCo, MusicCo, PaymentCo, SecurityCo
	Defines a clear course of action (i.e. goal).	Strong	BudgetCo, MusicCo, PaymentCo, PostCo, SecurityCo, TransactionCo
	Does research to define opportunities, requirements and needs.	Strong	BudgetCo, MusicCo, PaymentCo, PostCo, SecurityCo
<b>Competitive analysis</b>	Acquires resources through arm's length contractual assignments.	Strong	BudgetCo, GameCo, MusicCo, PostCo, SecurityCo
	Makes use of property rights protection.	Medium	BudgetCo, PaymentCo, PostCo
	Develops a competitor's analysis.	Strong	BudgetCo, MusicCo, SecurityCo, TransactionCo
	Does systematic research.	Light	PaymentCo, TransactionCo
<b>Hedging against contingencies</b>	Carefully interacting with environment for secrecy reasons (feel threatened by unexpected events, therefore work in isolation as much as possible).	Light	PaymentCo, PostCo
	Stops a project due to unforeseen events.	Light	BudgetCo, PostCo

**Table 8:** cross-case emerging patterns bricolage

<b>Bricolage</b>	<b>Empirical indicator</b>	<b>Scale of emergence</b>	<b>Applicable Cases</b>
<b>Making do</b>	Uses an existing resource in a new way.	Strong	GameCo, PaymentCo, SecurityCo, TransactionCo
	Uses untapped/ unwanted resources to create something new.	Light	PostCo, SecurityCo
<b>Resources at hand</b>	Gives ownership in the product/ company.	Strong	BudgetCo, GameCo, MusicCo, TransactionCo
	Compensates with other (employment) opportunities.	Light	MusicCo, SecurityCo
	Makes use of barter deals.	Light	MusicCo, PostCo

## The Influence of Functional and Relational Proximities on

# Business Angel Investments

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**Business angels are a vital source of capital for innovative startup firms. However, even of those startups that have the potential to fulfill angel investors' expected return on investment, most are rejected during the angel's investment decision process. Information asymmetry, risk and distrust in the relationship between the investor and the entrepreneur result in investment barriers. The concept of proximity has been proposed as a suitable conceptual foundation to understand how the relationship between angel and entrepreneur might hinder or benefit the investment decision. Particularly, researchers distinguish between functional (geographical) and relational dimensions of proximity. The purpose of this paper is to examine the influence of proximity on business angel investments. We do this based on data from 226 investment situations gathered in fall 2014 from 56 business angels and 87 entrepreneurs in Sweden and analyzed using a state-of-the-art Structural Equation Modelling technique. We find that the investment decision is partially determined by the functional proximity of investor and entrepreneur, when observed in isolation. Our results furthermore support conceptual studies in the field of business angels that have hypothesized a mediating effect of relational proximity in this relationship. Based on the empirical analysis in this study, we find this effect to be fully mediating.**

## **JEL codes:**

D81, M13, M21, O16, R12

## **Keywords**

Business angels, equation modeling, functional proximity, investment decision, mediation, relational proximity, structural,

## **1. The Role of Proximity in Economic Interaction**

The role of proximity in economic interaction has been a subject of study in the social sciences with increasing interest in the past years [83]. Particularly, the role of geographical proximity has been widely debated in the academic literature [e.g. 1–5]. While the academic thinking on the intersection of geography and economic activity dates back to at least the late 19<sup>th</sup> century and the seminal works of Marshall on principles behind industrial agglomerations [6], the recent upswing in the scholarly interest has been fuelled by on the one hand the movement towards globalized economy, where distance is considered to be a factor of diminishing importance, and on the other hand the increased appreciation for the social aspects of economic interaction [7,8], which on the contrary emphasizes the importance of geographical proximity. Also in practice, we have seen a rapid development of for instance virtual communities, electronic platforms for trade and match-making and online learning solutions, which indicates that individuals and organizations in fact manage to interact rather successfully and productively with others over geographical boundaries. Taken together, this

suggests that the role of geographical proximity in economic interaction is indeed a relevant topic for both theory and practice, while the mechanisms behind this relationship are far from well-understood.

A rather interesting theoretical development has occurred within the field of innovation studies, where researchers have suggested that we can evolve our understanding of how proximity plays in individuals' and organizations' decisions to interact, if we dig deeper into the notion of proximity itself. Specifically, researchers increasingly call for abandoning a plain, overly simplistic perception of proximity merely as physical space, and adopting a more complex, thorough understanding of proximity as incorporating both functional (geographical) and relational dimensions [2,8,9]. The latter has been described in the literature as proximity in terms of social ties, knowledge base similarities, organizational affinity and adherence to same standards and rules of behavior [2]. In this paper, we draw upon this functional-relational proximity framework to study business angel investments. Studying business angel activity from the perspective of proximity is a way of contextualizing investment activity in the spaces that it (simultaneously) operates in [10]. Similarly to the literature on embeddedness [11], we place the investment interaction in different contextual spaces, here the geographical and the relational, and seek to understand how this context plays in the investment decision.

## 2. Start-ups and access to finance

The economic and societal importance of young innovative growth-oriented ventures, or *start-ups* [12], has been widely acknowledged in the scholarly and policy debate. Even though researchers do disagree on how (and whether) the total effect can be measured, the contribution of start-ups to the economy can be identified on several levels. At the firm level, new firms have shown to be more likely to grow and create new jobs than established firms. At the regional level, dynamic entrepreneurial population, expressed as high level of entries and exits of firms, seems to positively impact the regional growth. On the industry level, young innovative ventures, especially knowledge-based ones, are believed to contribute to renewal and technological development [see 13 for a comprehensive literature review].

Given this, finding ways to promote entrepreneurial activity has become a major policy objective in many countries, and specifically we have seen an increased interest in facilitating access to venture finance [12]. While being a rather minor obstacle for the SME sector as a whole, inadequate access to finance has been found to significantly hinder start-ups and early growth businesses, especially those that are technology-based [14–17]. Lack of tangible assets, high risk and information asymmetry are some of the reasons for why this type of firms experience difficulties in attracting external finance.

In this paper, we have chosen to focus on a specific, arguably one of the most significant, sources of venture finance – business angels, i.e. private individuals that invest their own money directly in young unquoted ventures that they don't have a family connection to.

As argued by Avdeitchikova and Landström [18], business angels are important for several reasons. Particularly, they:

- provide at least as much financial capital to firms as formal venture capital investors and finance manifold more ventures,
- primarily provide small amounts of finance in early stages of firms' development, which better matches financial needs of start-ups,
- positively contribute to ventures' ability to attract more financing, by giving positive signals to other investors and the market and reducing some of the informational asymmetry for other financiers, and
- increase the "quality" of firms through value-adding activities, such as advising, coaching and providing access to investor's network.

Business angels also seem to exhibit a rather interesting geographical pattern in their investments; from what initially has been described as inherently local activity [e.g. 16,17], they seem to increasingly be overcoming geographical boundaries. Recent studies indicate an increase in long-distance investing (defined as investing outside comfortable driving distance from home), but also an increase in cross-border investing [21]. This however can vary significantly between countries and regions. Taken together, this means that we may need a new way of thinking to understand the geography of business angel investments.

The questions we ask in this paper are:

- *How does proximity influence the investment decision in business angel investments? and*
- *What does the interplay between the functional and relational dimensions of proximity look like in the investment decision?*

By answering these questions, we aim to contribute to an increased understanding of the role of proximity in business angel investments, and by that, the locational patterns of venture financing. We do this based on data from 226 investment situations gathered in fall 2014 from 56 business angels and 87 entrepreneurs in Sweden and analyzed using a state-of-the-art Structural Equation Modeling technique. The functional-relational proximity framework has to our best knowledge not been empirically tested before in the business angel research setting. Moreover, researchers have been calling for more primary studies to enrich the empirical basis of the business angel research field [22].

This paper is structured as follows. First, we review existing studies on actors' decision-making in business angel investments, including the role of the geographical dimension. Second, we present the theoretical framework of functional vs. relational proximity. Further, we present the methodology of the study followed by the results and discussion and conclusions sections. We finalize by discussing some possible implications for knowledge and for practice.

### 3. Literature Review

#### 3.1 Business angel investment decision-making

Previous studies have produced an extensive list of varied processes and decision-making criteria business angels use in their investment decisions [23–29]. A general finding is that there is no universal strategy or checklist of criteria used in the assessment process, and that the degree of sophistication in the evaluation procedure varies widely, from what can be described as simple assessment techniques to rigorous due diligence processes that touch upon numerous measures [26]. Helle [30] suggests that the key decision-making considerations of the investors nevertheless fall into four categories: the people, the business opportunity, market potential and investment requirements (see **Figure 1**).

People	Business Opportunity	Market Potential	Investment Format
	<ul style="list-style-type: none"> <li>• Customers</li> <li>• Idea and business model</li> <li>• Timing and opportunity</li> <li>• Size of the business</li> </ul>	<ul style="list-style-type: none"> <li>• Existing technology</li> <li>• Macroeconomic situation</li> <li>• Industry and competition</li> <li>• Regulations</li> </ul>	<ul style="list-style-type: none"> <li>• Value</li> <li>• Structure</li> <li>• Portfolio fit</li> <li>• Exit</li> </ul>

**Figure 1: Grouped investment criteria [based on 30]**

In this paper, we focus on the *people* dimension of business angels' decision-making and specifically the relation between the investor and the entrepreneur(s). In the context of business angel investing, the people dimension is arguably the one that most significantly affects the investment decision, and previous research has repeatedly found that business angels, having less resources to do a rigorous due diligence and to legally enforce contracts, tend to compensate by putting more focus on the relational aspects [31,32]. We are however aware of that by focusing on the people dimension, we are only touching upon one aspect of the decision-making process.

### Proximity in business angel investments

When it comes to understanding the role that distance plays in business angel investments, the literature has provided a somewhat inconsistent picture. Studies have looked at both how important business angels consider geographical proximity and how actual investments are distributed. While in the first case, geographical proximity is often found relatively unimportant as an investment criterion, studies observing the actual geographic investment patterns find a clear link between geographical closeness and increased investment activity [10,33].

In the later years, however, this pattern may have shifted. Studies in the 1980s and 1990s usually found that between 60% and 75% of investments were made within comfortable driving distance from investor's home or workplace [e.g. 16,17]. Later studies, however, find a lower propensity to invest locally, in some cases under 50% [e.g. 31,32]. While some of this difference might well be due to different national contexts and definitional and methodological discrepancies, it may also be an indication that something is changing with regards to proximity in business angel investments.

### **3.2 *Entrepreneurs' financing decision-making***

The literature on entrepreneurial finance traditionally treats entrepreneurs as agents and investors as principals in the investment situation, implying that the business angel is exposed to certain risks when making an investment and that he or she will seek to control that risk [e.g. 32]. Such a division, however, does not capture the exposure of entrepreneur when attracting external finance, particularly equity finance. In fact, while a business angel is exposed to risks and uncertainties, particularly the risk of failure of the venture and behavioral uncertainty of the entrepreneur; he or she has a possibility to differentiate his or her investment portfolio, thereby handling their overall risk exposure. Prior research [e.g. 33,34] has found that business angels on average allocate 5 to 20% of their assets to investments in unquoted ventures, hold portfolios of 4-5 ventures, and complement their business angel investments with investments in publicly traded stocks, real estate, art, etc. Thus, the potential consequences of a failure of an investment for an average business angel are rather limited.

The entrepreneur, on the other hand, is normally already highly committed to the venture with personal funds, time, reputation, etc. By bringing in an external investor, he or she might increase the exposure even further. Specifically in case of external equity investments, the entrepreneur has to share sensitive information about the venture that can be misused by the other party, give away decision-making power and stand a risk of potentially costly conflicts [39]. Therefore, we argue that it is important to remember the entrepreneur in the discussion of investment decision-making; firstly because the potential risk exposure of the entrepreneur makes the relationship between the entrepreneur and the investor of high relevance, and secondly because an investment that takes place implies that a positive decision has been made by the financier *and* the entrepreneur. The dataset that the empirical analysis in the paper is based on captures therefore both business angels' and entrepreneurs' investment decisions.

### 3.3 Approaches to understanding business angel-entrepreneur relationship

A number of studies within business angel research have looked at the individual relationship between the business angels and startup founders, and particularly what mechanisms facilitate exchange of information, knowledge transfer, and risk mitigation, and how those in turn might influence the deal [26,40–43]. The theoretical approaches that have been applied to understand this relationship can be summarized in four categories: social capital/network, human capital, organizational and geographical approaches.

Below is a summary of the key theoretical approaches and previous studies on business angels that offer different perspectives on the impact of the relationship on a funding decision (Table 1). This short excerpt is the result of a systematic literature review of the business angel field through the lens of applied theoretical frameworks.

Table 1 Business angel research of the angel-entrepreneur relationship

Approach	Main findings
Social capital/network	Social embeddedness between the business angel and the entrepreneur, and their ability to build a long-term trusting relationship, is central for an investment to take place [31,44–46].
Human capital	Shared experiences, from a general life background, specific context knowledge or prior entrepreneurial experience, enable information exchange and set a common understanding between the investor and entrepreneur [45,47–49].
Organizational	Being associated with a professional organizational setting, or being connected through a context such as an association, incubator or even event, strengthens credibility in the relationship at it implies sharing the same reference space and knowledge [41,50–52].
Geographical	Geographical proximity is a significant factor in business angel investing, although the literature is inconclusive about the degree of this significance and whether geographical proximity is a compensatory or a non-compensatory factor [19,33,53–56].

From this brief review we can conclude that several aspects seem to be important when one tries to understand business angel investments and that it is most likely a combination of them that best explains investment decisions in business angel investments. We can also observe that the research is inconclusive about the role of geographical proximity in the investment decision and the empirical evidence is partially contradictory. In attempt to reconcile this, we adopt the *functional-relational* proximity framework suggested by Moodysson and Jonsson [9] based on earlier works by Torre and Gilly [8] and Boschma [2]. This approach is to a large degree based on the theoretical development outlined above; what sets it apart however is that it synthesizes the explanatory variables along these dimensions to a number of *relational proximities* that exist alongside with the geographical proximity and affect both the need for geographical proximity and the probability of interaction. This approach thus puts the geographical and the non-geographical aspects of proximity into the same model. The next section outlines this theoretical framework and the hypotheses that guide the empirical analysis.

## 4. Functional-relational proximity framework

### 4.1 Dimensions of Proximity

#### Functional proximity

In its most basic definition, geographical proximity is the physical distance between two actors [57]. However, physical distance does not necessarily capture distance as it is perceived by the actors. The effort that it takes to interact seems to be more important than mere physical distance [9]. Thus, we adopt the functional definition of proximity and add dimensions of time and cost of travel and communication to the mere physical distance.

#### Relational proximity

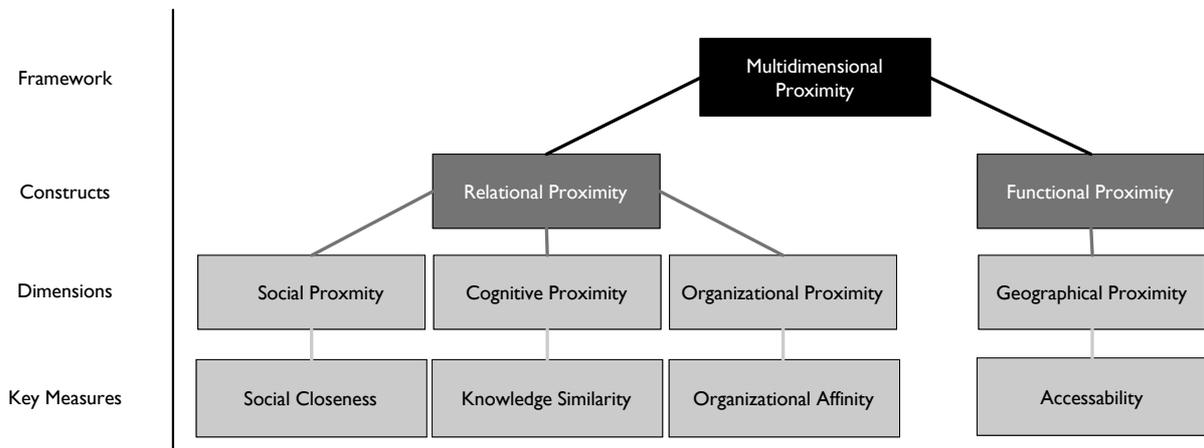
Relational proximity refers to the non-tangible dimensions of proximity that in this case encompass cognitive, social and organizational dimensions, as suggested by Boschma [2]<sup>2</sup>.

- *Cognitive* proximity is concerned with the similarities in the way actors perceive, interpret and evaluate the world [58,59]. Actors are cognitively proximate when they share a similar educational or professional background and thus have a similar frame of reference, which makes it easier for them to establish and retain relationships and carry out advanced communications [9].
- The concept of *social* proximity stems from the research in social embeddedness [7] and describes level of relationship between individuals in terms of trust based on friendship, kinship and experience [2,58]. If the level of trust in the relationship is high, individuals will be more likely to put themselves in a potentially vulnerable position, share sensitive information, etc. [46].
- *Organizational* proximity can in this context be described as actors belonging to same (broadly defined) organization and thereby having similar frames of references as well as adhering to same standards and norms of behavior [9]. Individuals that belong to the same organizations are arguably more likely to engage in interactions, can carry out more advanced communication and can to a higher degree rely on their counterpart.

Moodysson and Jonsson [9] make a strong argument for grouping the “non-tangible” dimensions of proximity under one umbrella, *relational proximity*. Firstly, there is a certain conceptual overlap between the dimensions, which makes it difficult to completely separate them in the empirical analysis. Secondly, as authors explain, the antecedents of these proximity dimensions are, at least partly, the same, which means that these different dimensions in practice often co-exist. We follow this recommendation and use the constructs of functional and relational proximity in our model. The functional proximity encompasses only one dimension, geographical proximity; thus, these terms are used interchangeably and encompass distance, time and cost variables. This is illustrated in **Figure 2** below.

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<sup>2</sup> We have not included institutional proximity in the framework because this dimension is primarily relevant in multi-national studies, as cross-border transactions often display significant differences in formal as well as informal institutional norms ([2]). Since our study is based on a national survey, institutional influences are expected to be minimal.



**Figure 2** Dimensions of proximity and associated measures

## 4.2 Hypotheses

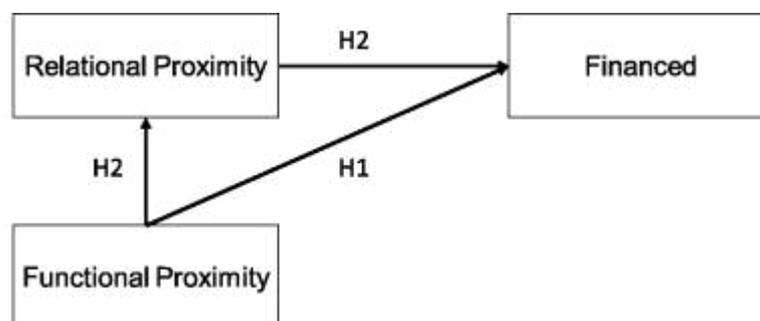
Specifically in the context of business angel investing, based on the discussion earlier in this paper, we would expect that functional proximity has both a direct and indirect positive influence on the probability of investment. The *direct* effect would be due to the fact that local interaction normally comes at a lower cost than interaction over distance, at least in situations where face-to-face contact between parties is required. Further, being geographically proximate to the potential investment object, individuals can easier come across certain information that otherwise would not have been available to the, like subtle signs of others' trustworthiness, competence and goodwill [10]. We hypothesize therefore:

*H1: Functional proximity is significantly and positively related to the likelihood of positive investment decision in business angel investments when observed in isolation.*

The indirect effect would be due to the ability of geography to facilitate other proximity dimensions; individuals who reside close to each other are more likely to interact, engage in similar types of activities and share common norms and understandings [2]. Thus, we would expect that relational proximity partially mediates the relationship between functional proximity and probability of investment. We hypothesize therefore:

*H2: Relational proximity partially mediates the relationship between functional proximity and the investment decision in business angel investments.*

The hypotheses can be illustrated as following (**Figure 3**):



**Figure 3: Hypothesized proximity relationship of the financing decision**

## 5. Methodology

### 5.1 Sample and Procedure

The study was performed by utilizing a qualitative pre-study to assess and adapt our proposed proximity items, as well as a survey research design to test our derived framework in an empirical setting. The pre-study was conducted with 12 participants with equally distributed groups of (a) Experts on the field of informal venture capital and business angels (b) Active business angels and (c) Founding entrepreneurs of startups. The interviews were semi-structured and focused on identifying factors of proximity the interviewees perceived in the interaction between business angels and founders.

The survey was administrated electronically and data was obtained from 56 business angels and 87 entrepreneurs in Sweden (a response rate of approximately 40%). The respondents have in total provided data on 111 “taken” and 115 “not taken” investments. The details of this are summarized in the table below (see **Error! Reference source not found.**).

**Table 2** Distribution of survey responses

	Business Angels	Entrepreneurs	Total
Total responses	78	119	197
Share of total population (in %)	13 - 19.5	.47 - 5.61	.76 - 7.81
Estimated response rate (in %)	32.54	47.98	40.26
Eligible for further analysis	56	87	143
Investment taken	56	55	111
Investment not taken	53	62	115
Total Investment opportunities	109	117	226

The sample collection of previous research in the business angel field has been criticized as researchers often employed convenience samples that do not necessarily reflect the overall business angel market [10]. As random samples are however difficult to obtain and often impractical, researchers have suggested a variety of sampling methods and recommended to combine those to minimize the resulting sampling bias [37,60,61]. We follow those research suggestions and join several distribution methods, as well as samples from business angels and entrepreneurs to obtain a minimally biased sample from the Swedish business angel investment market. We employed a clustering survey distribution, in which individuals were contacted both directly and through intermediary organizations, such as associations, incubators, and business angel networks [62,63].

### 5.2 Questionnaire Design and Measures

The general structure of our survey was adapted from Shane and Cable [64], who divided their sample of formal venture capitalists and business angels into two randomly selected groups: one group was asked to think of the most recent seed-stage investment that they

made, the other about the most recent seed-stage investment they evaluated, but did not make.

Initially, respondents were asked to identify themselves as either private investors, entrepreneurs, or none (ending the survey). We chose the identification as private investor instead of the term business angel, as the latter is subject to ambiguity, if not thoroughly defined [65]. Both business angels and entrepreneurs were in turn presented with a similar set of questions measuring proximities in relation to a specific investment opportunity. One submitted respondent survey could thus include datasets of one actual investment, one investment opportunity evaluated but not invested, or both. Additionally, both parties answered questions to qualify for the eligibility for our sample.

The items for measuring dimensions of proximity were adopted from previous literature in the social sciences field and our pre-study interviews. The spatial measures distance, time and cost were measured by adapting the scale of Aguilera [66] with the categorical items ultra-local, local, regional, and national. The social tie dimension was measured by three categorical items of previously either knowing the other party directly, through contacts or not at all [64,67]. The remaining measures of educational, professional, entrepreneurial, organization, membership, cooperation and social closeness were measured using a 6-point Likert scale. Finally, all respondents were asked to provide answers regarding their gender, age and working place (city) that were recorded as control variables. The measured items with their literature origin can be found in *Appendix A*.

### **5.3 Data Analysis and Methods**

In a first step our resulting data set was restructured and tested on assumptions underlying the further analysis (see section 5.4). Second, confirmatory factor analysis (CFA) was conducted to aggregate our observed variables to constructs that resemble the proposed proximity constructs of our framework. Lastly, we constructed structural models based on the causal relationships proposed by proximity theory, using the Maximum Likelihood Estimation SEM approach. We developed two structural SEM models to determine the mediation effect of relational proximity on the relationship between functional proximity and the likelihood of investments.

SEM, which is a “multivariate technique combining aspects of factor analysis and multiple regression that enables the researcher to simultaneously examine a series of interrelated dependence relationships among the measured variables and latent constructs (variables) as well as between several latent constructs” [68], is an appropriate analysis method in our research case for several reasons. The framework of this thesis, based on the proximity theory, includes multiple dependent relationships as well as latent constructs [68]. Thus, both required concepts can be included in a holistic model rather than taking a two-method approach of a separate CFA and multiple regression. Moreover, SEM is superior to the latter approach in that it accounts for the measurement error of the observed data, and thus should model the observed relationships more accurately [68]. Our analysis includes the examination of a mediation relationship, for which SEM has been proposed as advantageous to classical mediation determination using regression analysis [69]. The utilized software for our analysis is the programming language R and therein the SEM package lavaan [70,71].

### **5.4 Sample Size, Reliability and Normality Assumptions**

An often discussed limitation of SEM is its relatively large required sample size to return stable results [68,72]. Hair [68] recommends sample sizes based on the constructs used in the model and communalities (squared standardized construct loadings). The in the following section developed model contains only two constructs, and shows average item communalities of high to moderate ( $> 0.5$ ). The recommended minimum sample size of 150 observations is unambiguously exceeded with 225 complete observations [68].

The model was tested for overall reliability and construct reliability with Cronbach's alpha [73,74]. All items and constructs, as well as overall reliability exceed the proposed cutoff criteria of 0.7 [68,75] (see **Table 3**). Moreover, since our sample consists of two heterogeneous groups, business angels and entrepreneurs, we tested for reliability differences in and between those groups. To compare the two groups we test for the Null-hypothesis that both groups are equally reliable [74,76]. The Null-hypothesis can be retained with a p-value of 0.215 (significance level  $p = 0.05$ ), and thus both groups will be pooled in the future analysis.

**Table 3** Cronbach's Alpha for total sample, business angels and entrepreneurs

<b>N = 225</b>	<b>Total</b>	<b>Business Angel</b>	<b>Entrepreneur</b>
1. Financed	.77	.80	.74
<b><u>Relational</u></b>	<b>.71</b>	<b>.72</b>	<b>.72</b>
2. Educational	.75	.79	.72
3. Professional	.74	.79	.70
4. Entrepreneurial	.75	.78	.72
5. Closeness	.74	.77	.71
7. Organization	.74	.77	.70
8. Membership	.74	.78	.70
9. Cooperation	.74	.78	.71
<b><u>Functional</u></b>	<b>.94</b>	<b>.93</b>	<b>.96</b>
10. Distance	.73	.77	.70
11. Time	.73	.77	.70
12. Cost	.72	.76	.70
<b>Total</b>	<b>.76</b>	<b>.79</b>	<b>.73</b>

The SEM assumes normally distributed data [68]. By testing for univariate normality of each item we retain all items except for organization, which exceeds both skewness and kurtosis cut-off criteria [77] (see **Table 4**). In Mardia's test for multivariate kurtosis we find a standardized z-value for kurtosis is 2.80, which approaches but does not exceed the proposed threshold of 3.00 [78]. It can therefore be concluded that the collected dataset approximately fulfills the conditions of both univariate and multivariate normality.

**Table 4** Univariate normality analysis (with Z-Values = Skewness | Kurtosis / Standard Error)

<b>N = 225</b>	<b>Mean</b>	<b>Std. Deviation</b>	<b>Skewness</b>	<b>Skewness Z-Value</b>	<b>Kurtosis</b>	<b>Kurtosis Z- Value</b>
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Financed	1.49	0.50	0.04	0.11	-2.01	-3.11
Education	2.99	1.63	0.27	0.84	-1.17	-1.81
Entrepreneurial	3.38	1.63	0.03	0.09	-1.26	-1.96
Professional	3.21	1.59	0.18	0.54	-1.16	-1.80
Cost	1.53	0.91	1.47	4.53	0.82	1.27
Distance	2.09	1.05	0.68	2.09	-0.72	-1.12
Time	1.92	0.98	0.78	2.40	-0.46	-0.71
Cooperation	2.22	1.63	1.03	3.17	-0.33	-0.51
Membership	2.40	1.63	0.73	2.24	-0.91	-1.41
Organization	1.62	1.27	2.03	6.26	2.93	4.54
Closeness	1.55	1.77	0.62	1.92	-1.00	-1.55

## 6. Results

As the combination of proximity dimensions in the relational construct is not unequivocally agreed upon, we first tested different structural model designs to determine the relational construct with the best fit. When observing overall model fits and  $X^2$ , we find that including social and cognitive proximity, but disregarding the organizational dimension results in the best fit in all measured models (see **Table 5**). Thus, the following analysis of the measurement and structural model will be based on the dimensional combination of variation 3 (social, cognitive and geographical dimension).

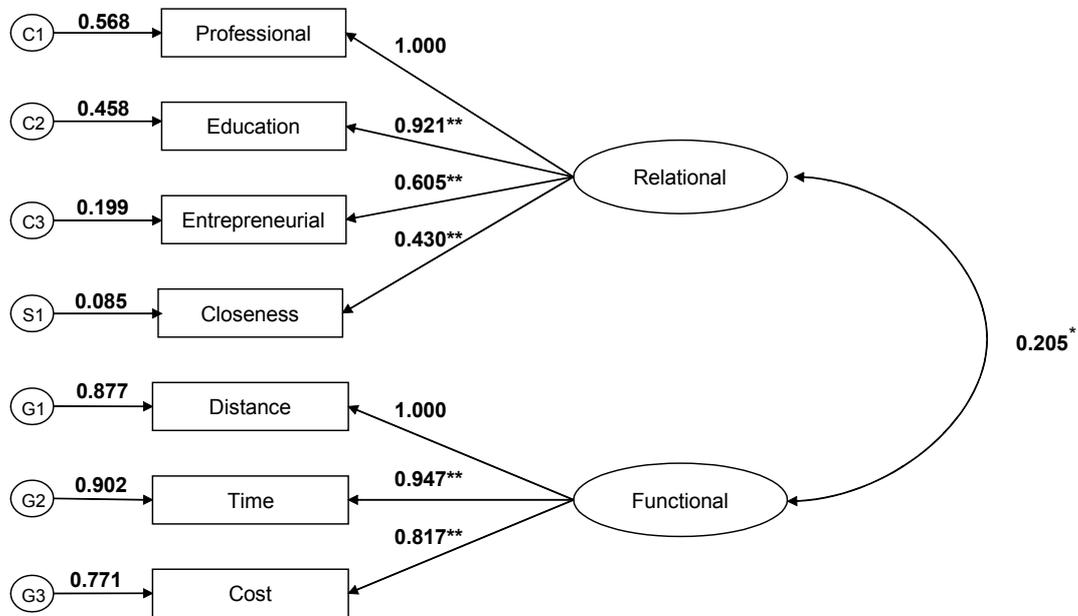
**Table 5: Model selection with different relational proximity combinations**

Model	Proximity Dimensions	Path	Factor Loadings	Significance	$X^2$	Fit
1	Cognitive	PR $\square$ R	1.000		0.002	CFI = 0.969
		ED $\square$ R	0.932	$p < 0.01$		TLI = 0.955
		EN $\square$ R	0.624	$p < 0.01$		RMSEA = 0.067
	Organizational	ME $\square$ R	0.572	$p < 0.01$		SRMR = 0.059
		CO $\square$ R	0.536	$p < 0.01$		
	Geographical	DI $\square$ F	1.000			
		TI $\square$ F	0.947	$p < 0.01$		
CO $\square$ F		0.817	$p < 0.01$			
2	Social	CL $\square$ R	0.663	$p < 0.01$	0.015	CFI= 0.982

	Organizational	ME □ R	1.000			TLI = 0.969
		CO □ R	0.650	p < 0.01		RMSEA = 0.069
	Geographical	DI □ F	1.000			SRMR = 0.047
		TI □ F	0.946	p < 0.01		
		CO □ F	0.817	p < 0.01		
3	Cognitive	PR □ R	1.000		0.039	CFI = 0.985
		ED □ R	0.904	p < 0.01		TLI = 0.976
		EN □ R	0.616	p < 0.01		RMSEA = 0.054
	Social	CL □ R	0.452	p < 0.01		SRMR = 0.049
	Geographical	DI □ F	1.000			
		TI □ F	0.947	p < 0.01		
		CO □ F	0.817	p < 0.01		
4	Cognitive	PR □ R	0.994	p < 0.01	0.000	CFI = 0.939
		ED □ R	1.000			TLI = 0.917
		EN □ R	0.705	p < 0.01		RMSEA = 0.085
	Social	CL □ R	0.728	p < 0.01		SRMR = 0.064
	Organizational	ME □ R	0.780	p < 0.01		
		CO □ R	0.679	p < 0.01		
	Geographical	DI □ F	1.000			
		TI □ F	0.947	p < 0.01		
		CO □ F	0.817	p < 0.01		

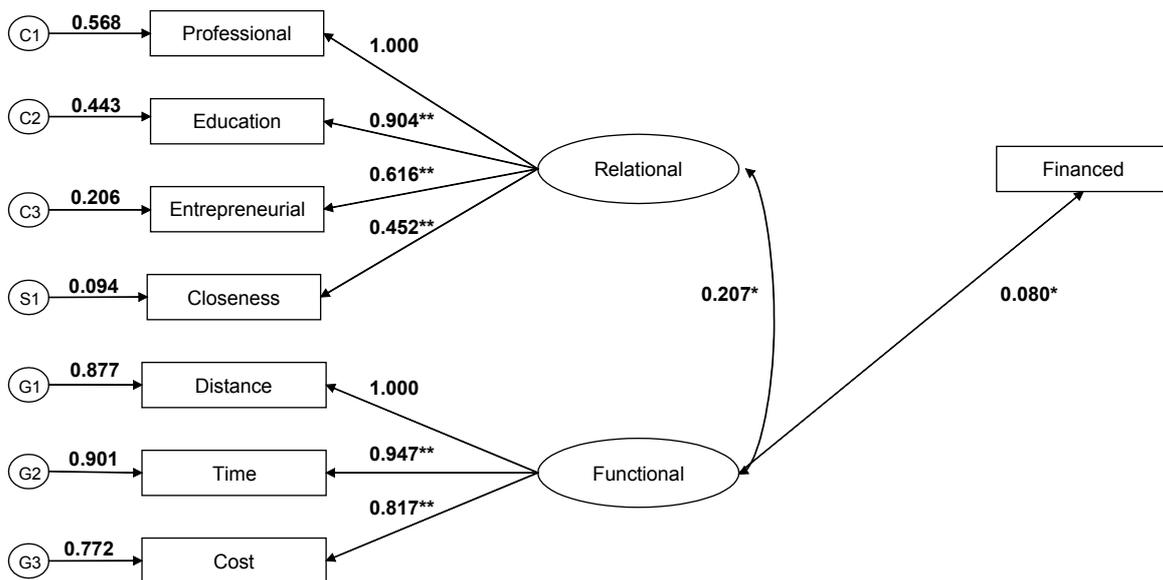
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The resulting path diagram of the measurement model 3 is shown below (see **Figure 4**). The factor loadings are all above the recommended threshold of 0.5, with the exception of the social closeness dimension [68]. This factor loading is however significant at  $p < 0.01$ , approaches the threshold and will therefore be retained. The lower value can likely be explained by the combination of the social and cognitive dimension into one construct. The measurement model was additionally tested for indiscriminant validity by combining all 7 indicators into one construct [68]. The resulting model fit is in all regards inferior to that of the two-construct model and indiscriminant validity is therefore assumed.



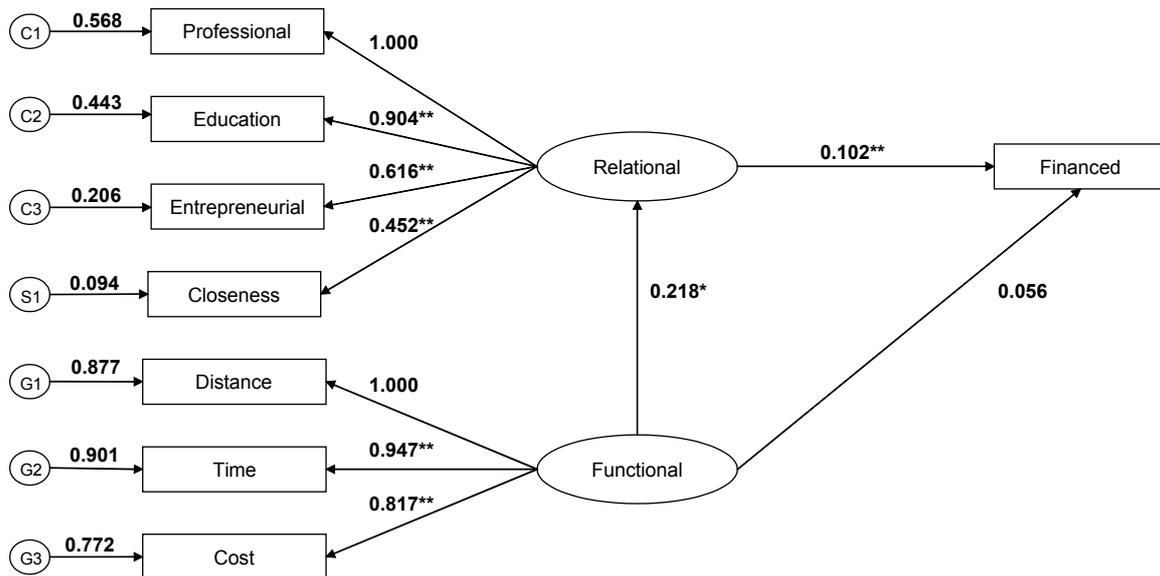
**Figure 4** The confirmatory factor analysis (\*\* =  $p < 0.01$ ; \* =  $p < 0.05$ )

To test our first hypothesis, we construct a structural model that includes the two constructs of relational as well as functional proximity, defined by their indicators, and the financing decision outcome as dependent measured variable (see **Figure 5**). Functional proximity is defined as the only determinant of the financing decision. A significant influence of functional proximity on the financing decision can be observed, if no involvement of relational proximity is assumed. Thus, *Hypothesis 1* can be retained, as functional proximity has a significant positive influence on the financing decision.



**Figure 5** Path diagram of the direct effect of functional proximity (\*\* =  $p < 0.01$ ; \* =  $p < 0.05$ )

The second structural model now considers the mediating relationship suggested in our conceptual framework (see **Figure 6**). The causal relationship between functional proximity and the financing decision becomes insignificant, while a causal link between functional and relational proximity, as well as relational proximity and the financing decision can be observed. These results imply a fully mediating effect of relational proximity with regards to the relationship between functional proximity and the financing decision. When accounting for the mediation relationship in the SEM model we receive significant results for both the indirect (0.022), as well as total effect (0.079) of the mediation. We therefore reject our *Hypothesis 2* in favor of a full mediating effect of relational proximity.



**Figure 6** Path diagram of the structural mediation model (\*\* =  $p < 0.01$ ; \* =  $p < 0.05$ )

## 7. Discussion and Implications

In this paper, we have set out to examine the influence of proximity on investment decision in business angel investments. We have used Moodysson and Jonssons [9] functional-relational framework as a point of departure and hypothesized that functional proximity would be significantly and positively related to the likelihood of positive investment decision when observed in isolation and that this relationship would be partially mediated by relational proximity. We studied this based on data from 226 investment situations gathered in fall 2014 from 56 business angels and 87 entrepreneurs in Sweden.

Our results indicate a confirmation of prior research in business angel's geographical investment patterns [33,54,65]. The investment decision in our model is partially determined by the functional proximity of investor and entrepreneur, when observed in isolation. The effect is significant but of low strength, which can be expected as the investment decision is a complex outcome with many different determinants not considered in our model [30,79,80]. Our results furthermore support conceptual studies in the field of business angels that have hypothesized a mediating relationship of relational factors in the investment decision process [10,33,53]. Contrary to previous research, we find this relationship to be fully mediating. This means that the initial influence of functional proximity on the investment decision can be fully explained by relational factors that mediate it.

How can we understand and interpret these findings? Particularly – *is geography irrelevant in*

*business angel investing?* Based on the outcomes of this study, our best answer to this question is – geographical proximity is relevant as far as it facilitates other proximity dimensions. While the direct influence of geographical proximity is very moderate, and disappears altogether when the relational proximity is introduced, it is a strong predictor of relational proximity. When these proximity dimensions co-exist, geography matters in business angel investing. Similarly, we argue that in cases when relational proximity in entrepreneur-investor relationship is developed and sustained over distance, geography can potentially become unimportant in the investment decision.

Thus, while scholars and practitioners naturally are interested in the issue of *whether* geographical proximity matters in business angel investing, a better research question would perhaps be *when* geographical proximity matters and *for whom* it matters in the context of business angel investing. This is in line with prior studies that have repeatedly found that business angels is a heterogeneous group that exhibit a variety of characteristics, attitudes and behaviors, that also can change over time, with experience and in different contexts (e.g. [34]).

### 7.1 Suggestions for further research

Some possible ways to develop knowledge on the *situational* role and the *interaction* of relational and functional proximities is to consider possible drivers of locality of business angel investments. For instance:

- The nature of *knowledge* that is required to recognize and evaluate the investment opportunity. Depending on whether an investment requires local knowledge that has a strong tacit dimension and is better made sense of and applied in the local context [e.g. 78] or knowledge about a certain industry or technology that can be codified thereby easier transferable [9], the role of geographical proximity may be different. Therefore, future studies of the role of proximity in business angel investments may benefit from integrating the framework of different knowledge-bases [82,83] developed in the field of economic geography and used to explain for instance localization patterns of innovation collaborations.
- The investors' *motivations* and *financial commitment*. Literature on business angel decision making largely assumes that business angels are rational economic actors who make financial decisions in face of uncertainty and risk (and sometimes also defines business angels as primarily economic actors, [e.g. 31]). Yet, we see a broadening of types of investors and investment behaviors (such as "micro investors" and "crowd-investors"), and thus need to pay more attention to the variety of potential investment motivations contexts and characteristics, and how they can affect the roles and importance of proximity dimensions [84]. For instance, Avdeitchikova [10] when comparing business angel investments to "micro investments" found that in smaller investments, investments that involved no or little post-investment involvement and in investments motivated by other criteria than financial, geographical proximity was both less prevalent and considered less important. Therefore, the question of *what we mean when we talk about business angels* is very important, since a considerable heterogeneity can be expected along different proximity dimension.

Further, the entrepreneur side of the relationship is perhaps the most poorly understood one. Here, we have argued that entrepreneurs are exposed to considerable risks and uncertainties when attracting external finance and therefore may seek to mitigate those. While the empirical analysis shows that entrepreneurs' behavior in terms of relying on functional and relational proximities is not significantly different from business angels', the nature of the potential risks and uncertainties may well be different, especially when they are related to the proximity aspect. Thus, the relationship between entrepreneurs' decision-making in business angel investing and proximity needs to be explored.

Better understanding when and for whom different proximity dimensions are important would also allow developing policy instruments and tools that better address the needs of certain types of investors and entrepreneurs. For instance, when developing digital match-making platforms, what may work for crowd-investing, where investors often are motivated by other factors than financial returns, invest little money and have very limited decision-making power (and involvement ambitions) in the venture that they invest in [84], is likely not the same that will work for business angels that invest considerable amounts of money, expect financial returns and often get actively involved in the strategic leadership of the venture [65].

## 7.2 Limitations

Our research and its results need to be considered with several limitations. First, our developed framework has thus far not been empirically applied to the field of business angels. Past empirical studies of the proximity framework in other fields vary significantly in their context, utilized proximity dimensions, constructs and results [85], which makes a comparison and analogical use impractical. Our employed survey scales have shown to be reliable in our context, but require further confirmation in future studies. Further, we have not applied a specific definition of business angels and allowed individuals to a certain degree self-select for participation in the study, which is, while not uncommon, still methodologically problematic, as it reduces comparability with other studies [65].

In addition to the mentioned methodological limitations, the scope of our study limits its generalizability. The survey was only carried out in Sweden and can therefore not consider functional or relational considerations in a cross-border setting. Moreover, business angel markets in their characteristics depend on national contexts, and thus our results could be limited to the Swedish market [86–88].

## 8. Conclusion

The purpose of this paper was to examine the influence of functional and relational proximity on business angel investments. Based on Swedish data from 226 investment situations and using Structural Equation Modelling, we find that the investment decision is partially determined by the functional proximity of investor and entrepreneur, when observed in isolation. This effect is however fully mediated by relational proximity, consisting of social and cognitive dimensions.

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## Appendix

Type	Dimension	Function	Previous theoretical measure*	Pre-study finding of measures	Variables measured in survey
Functional proximity	Geographical	Physical distance	-Time -Distance -Cost	-Time between offices -Time between meeting points -Transport distance -Convenience of location -Cost of travelling	<b>[Geographical]</b>  <b>[Distance]</b> - Physical distance between offices <b>[Time]</b> - Travelling time between offices <b>[Cost]</b> - Approximate cost of travelling between offices
Relational proximity	Cognitive	Knowledge and experience	-Type of education -Level of education -Type of role -Industry experience -Entrepreneurial level	-Type of education -Length of education -Non-professional experience -Position/role -Type of job -Type of skills -Entrepreneurial experience	<b>[Cognitive]</b>  <b>[Educational]</b> - Similar types of educational background <b>[Professional]</b> - Similar type work experience from either job position or industry <b>[Entrepreneurial]</b> - Similar entrepreneurial experience
	Social	Connectedness	-No ties -Indirect ties -Direct ties	-Previous contact -Acquaintanceship -Friends -Family or relatives -Strength in relationship	<b>[Social]</b>  <b>[Ties]</b> : - No connection, connection through mutual connections or direct personal connection <b>[Closeness]</b> - Strength in relationship

Organizational	Solidarity, credibility, culture- and value understanding	-Belonged to same organization -Affinity from previous organizational branch cooperation or partnership	-Affinity from events -Affinity from associations, societies or clubs -Affinity from similar or same companies	<b>[Organizational]</b> <b>[Organization]</b> – Affinity from working together in the same company <b>[Membership]</b> – Affinity from a mutual connection through network or association <b>[Cooperation]</b> – Affinity from cooperation through events or similar activity
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## The significance of place for cultural entrepreneurship

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This paper explores the notion of ‘becoming’ a cultural entrepreneur in a relational context, in a major UK city. As Stevenson notes, the cultural industries are intrinsically linked to the city: ‘[its] urban landscape, economy, ways of life and aesthetic sensibility’ (2003, p.138). By experimenting in the city, cultural entrepreneurs re-invent themselves and the structures in which they are immersed. Alternative activities are created collectively, alongside formal policies and sometimes despite institutional structures. By connecting academic disciplines of cultural policy studies and entrepreneurship studies, this paper seeks to reveal new insights based on empirical research. The qualitative study draws on Chell and Karataş-Özkan’s (2011) interpretation of Bourdieu’s theoretical model (habitus, field and capital) to reveal a messy environment in which cultural entrepreneurs negotiate their identities through formal and informal structures. The approach encourages individuals to construct their own story within this dynamic context, a space they shape as well as being shaped by it. A micro approach addresses the need to understand the specificity of diverse enterprising activities with implications for enterprise and cultural policies.

**Keywords:** Cultural Entrepreneurship, Cultural Industries, Cultural Policy

### Introduction

In this paper, I explore cultural entrepreneurship within the context of a major UK city, an environment with specific structures and people who together shape a creative milieu. I argue that social enactment of entrepreneurship takes place in the space between dominant structures and the agentic actions of cultural entrepreneurs. The paper addresses the significance of place in providing a milieu, a relational space, as a backdrop to the entrepreneurial activities of individuals working in the cultural and media industries. Place, in this case Birmingham, includes structures in the form of local policies, institutions, key people and resources. I offer a snapshot of key priorities in Birmingham and how these relate to the cultural entrepreneur’s ability to shape their working environment. My research suggests that cultural entrepreneurs are aware of Birmingham’s cultural and enterprise policies, and many are engaged in either constructing discussions with policymakers or delivering policy objectives through collaborations and by addressing key priorities in their projects. Indeed, I find some parallels between the policy aspirations of the city and the independent actions of cultural entrepreneurs. The idea of an ‘enterprise culture’ appears to have been assimilated into everyday activities, although on closer inspection, social and personal values are at least as important as commercial goals.

Yet, there is also resistance to structural frameworks and evidence that cultural entrepreneurs are capable of agentic actions by individuals and collectives. Cultural

entrepreneurs are pragmatic and the alternative models they create, on the surface, collude with policies focused on economic development and place-making. However, they also demonstrate a range of motivations such as seeking to support each other by sharing information and nurturing local talent with a distinctively 'Brummie' attitude. I argue that this space can be fertile ground for 'becoming' a cultural entrepreneur; a restlessness associated with the temporary nature of formal and informal support structures. The language of enterprise in recent cultural policies does not seem to be questioned by cultural workers, but entrepreneurial modes of work represent diverse motivations and although they are often ambitious, cultural entrepreneurs rarely focus on commercial success alone.

For the purposes of this paper, cultural entrepreneurs are *The Independents* (Leadbeater and Oakley, 1999); individuals working in the cultural and media industries who are self-employed, freelancers and owners of micro-enterprises or who have a portfolio career..

## Context and critique of cultural entrepreneurship

This study focuses on New Labour's period in office, post 1997, and the first few years of the Conservative and Liberal Democrat coalition in 2010. A period of time when New Labour identifies the cultural industries as key to economic and social development. At a local level, this translates into an important role for the cultural sector in the regeneration and growth of regional cities such as Birmingham. Of importance to this research is the notion that cultural entrepreneurship is a contested subject, dominated by polarised positions characterised as either a celebration of entrepreneurial modes of work, or a critical perspective concerned with the concept of 'good and bad work' (Hesmondhalgh and Baker, 2011, p.2). Critical scholars in particular have exposed evidence of precariousness, gender inequalities, self-exploitation, and high levels of stress associated with the insecurities of cultural work (Gill, 2002, Gill and Pratt, 2008; Lee, 2011; McRobbie, 1999; 2002a, 2002b; Oakley, 2014). In this context, cultural policies which have embraced entrepreneurship are viewed as evidence of neo-liberal capitalism at play, demonstrating little understanding of the challenges faced by cultural workers (Ellmeier, 2003; Forkert, 2013; McRobbie, 2002b;). Furthermore, scholars question the exaggerated claims for the economic importance of the sector (Heartfield, 2005) and the expectation that the cultural industries could deliver unrealistic economic goals such as the culture-led approach to regeneration (Stevenson, 2003, McGuigan, 2004). As Oakley (2011) argues:

The belief in the inherently democratic nature of small business ownership and the liberating power of entrepreneurship, meant not only that the public paid little attention to the sometimes exploitative conditions of creative labour markets, but when it did so, the policy responses proposed were inadequate for the scale of the problem. (Oakley, 2011, p.287)

While this important critique has drawn attention to significant issues of inequality and social justice, the disciplines of cultural and media studies have paid relatively little attention to the nature of the cultural workers' experience of entrepreneurship within a city context. There is a lack of empirical research into cultural entrepreneurship based on the worker's lived experience and set within specific social contexts, with a few notable exceptions (see: Banks, 2007; Chell and Karataş-Özkan, 2010; Steyaert and Hjorth, 2006). Indeed, the term 'cultural entrepreneurship' is rarely used other than in relation to development work, which takes a broad view of culture, for instance, the work of the Global Centre for Cultural Entrepreneurship which encourages innovation and entrepreneurship in local communities with a focus on social objectives. Combining the idea of the 'cultural' with the 'social' is common, as exemplified by Anheier and Raj Isar's definition:

Cultural Entrepreneurs are cultural change agents and resourceful visionaries who organize cultural, financial, social and human capital, to generate revenue from a cultural activity. Their innovative solutions result in economically sustainable cultural enterprises that enhance livelihoods and create cultural value and wealth for both creative producers and consumers of cultural services and products. (Anheier and Raj Isar, 2008, p.96)

The lack of academic work which explicitly makes use of terms such as cultural entrepreneurs and cultural entrepreneurship does not necessarily reflect a lack of research into the subject, but indicates an issue with terminology. Researching ‘creative industries entrepreneurship’ reveals a range of articles predominantly from entrepreneurship and business disciplines, while cultural studies and cultural policy studies tend to avoid the terms ‘enterprise’ or ‘entrepreneur’ altogether. As I have stated, an aspect of this research is to bridge different scholarly disciplines, taking note of critical cultural labour debates but connecting these to regional development and entrepreneurship studies. I argue that to ‘unmask’ the cultural entrepreneur, we need to explore the context in which he or she works: the place, the networks and relationships from the perspective of the individual workers’ experience of entrepreneurship.

In seeking to contest dominant views my study asks, is entrepreneurship always about competitiveness, and the type of individualisation associated with neo-liberal politics of the Reagan and Thatcher period? How do cultural entrepreneurs navigate complex cultural and enterprise policies at a local level? What is the nature of entrepreneurship as it is experienced by cultural workers based in a city such as Birmingham?

## Methodology

To investigate the cultural entrepreneur’s lived experience I adapt Bourdieu’s conceptual framework and explore the milieu for cultural entrepreneurship. Bourdieu’s ‘space of possibles’ (1993, p.179) is a space in which cultural producers have a common system of references or a common framework, more or less understood by all actors within that milieu. For this study, I focus on Birmingham, UK, and I draw on relevant grey literature associated with national and local policies, along with interviews with a small sample of cultural entrepreneurs and relevant websites, blogs and social media content. Following Chell and Karataş-Özkan’s (2010) interpretation of Bourdieu’s theoretical model, I aim to present an overview of contextual elements for this study.

**Table 1:** Bourdieu’s conceptual framework, initially adapted from Chell and Karataş-Özkan and reworked for this study (2010, p.87).

<b>Bourdieu’s Conceptual tools</b>	<b>Interpretation to this research project</b>
Micro-individual level Dispositions, capital, position-taking	Cultural entrepreneurs’ biographies, capitals, dispositions, and entrepreneurial motivations.
Meso-relational level Bourdieu’s ‘habitus’	Cultural industries community in Birmingham.  Individuals operating within a network of cultural entrepreneurs.  Clients, mentors, suppliers, Arts Council of England officers, Business Link officers, regional creative and cultural industry officers. Socially acceptable ways of undertaking cultural work in Birmingham’s cultural milieu.
Macro-contextual level Bourdieu’s ‘field’	A post-Thatcher enterprise culture.  National and regional cultural policy discourses. Institutions such as Arts Council England and Higher Education. Birmingham City Council and their policies. Media images of entrepreneurs. Accepted, positive attitude toward

	entrepreneurship within western world and stereotypes such as that of the entrepreneur and bohemian artist.
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I define the meso-relational level as being predominantly concerned with Birmingham's cultural and enterprise policies, including key players and organisations. The macro level is the broader discourse of enterprise, developed under New Labour, with the aim of achieving competitive advantages through regeneration programmes and creative economy policies (Jessop, 2013). Together, national and local policies form part of the structures contributing to Birmingham's creative milieu, along with the lived experience and agency of individual cultural entrepreneurs.

My methodology includes interviews with a sample of fourteen cultural entrepreneurs working across art, design, media and performance in a variety of different roles including those involved directly in the creative process such as artists and those in more administrative tasks such as project managers or film producers. Several individuals in my sample undertake freelance work, yet in the main, they are engaged in developing micro-enterprises.

For the interviews, a semi-structured approach has been used with a focus on autobiographical and narrative approaches to elicit the interviewees' experience, self-expression and the process of individualization (Steedman, 1999). This method is deemed to be particularly appropriate for this research as it encourages the notion of self-discovery and attempts to give voice to the interviewee. This type of research emphasises interpretation rather than manipulation of data. It can appear to be 'messy' and does not offer universal meanings, but the flexibility of the approach responds well to unanticipated findings (Bazeley, 2013, p.27-28). The findings are more likely to reveal contradictions and ambiguities based on an attempt to contest dominant positions on the subject.

The paper is divided into two sections: firstly the macro and meso level context defined by city council policies and organisations such as Birmingham Business Link. This is not a comprehensive review of all regional policies and activities but a snapshot of policy documents and activities, indicative of Birmingham's cultural milieu as it relates to cultural entrepreneurship. And secondly, alternative activities illustrating how individuals experience cultural entrepreneurship in Birmingham, through collective endeavours. My interviewees play a part in articulating or contesting policies, thus creating the specificity of Birmingham's cultural milieu. This is presented as a range of interventions, small independent projects or events which reveal how cultural entrepreneurs negotiate structures, demonstrating personal and collective agency within a spatial environment.

**New Labour policies: culture-led regeneration**

Like many cities impacted by New Labour policies, Birmingham's regeneration was influenced by a 'creative city' discourse adopted by consultants and influential think-tanks (see Landry, 2000 and Florida, 2004). The key ideas of the time, explored the economic, social and cultural potential of the cultural sector as part of establishing a city's competitive advantage. Attempts to use culture as a means of creating distinction are highly criticised due to their tendency to gentrify parts of a city by increasing the market value of cheap redeveloped spaces (Zukin, 1995). In the UK, critics of New Labour's policies suggest that culture-led regeneration is often associated with grand claims such as presenting a solution to economic and social problems (see Cox and O'Brien, 2012; Hesmondhalgh and Pratt, 2005, Oakley, 2004 ; McGuigan, 2004 ). Furthermore, many have questioned the weak evidence base for public investment in culture as part of urban regeneration, often linked to large scale activities such as the City of Culture programme (Stevenson et al., 2010).

Yet, the dynamic relationships between cultural workers, institutions and the importance of personal attachment to place contribute to Birmingham's distinctive milieu (Chapain and Comunian, 2010). Places are not merely sites of cultural production but they are meaningful

areas where people live, work and develop social relationships even in economically depleted communities (Johnstone and Lionais, 2004). Drawing on Hudson, Johnstone and Lionais (2004) differentiate between 'space' and 'place' suggesting that 'space' is often viewed through the lens of capital production focused on financial reward. In contrast, 'places' can be viewed as locations for communities in which rich and complex social relations take place regardless of the economic prosperity of the area. This becomes important for communities in which, as Scott (2012) discusses, individuals operate 'social capital' and the exchange of favours or skills based on social capital, enables cultural entrepreneurs to establish themselves. Within a specific locality, cultural entrepreneurs have to negotiate their position in relation to their peers, with agencies and 'intermediaries' in this relatively experimental environment (O'Connor and Gu, 2010).

In Birmingham, the city's image is perceived as being culturally vibrant and forms part of the overall strategic plan, linking cultural workers to the 'creative city' agenda. During New Labour's period in office, Birmingham policies were a combination of city and regional policies, driven by Advantage West Midlands (AWM), the regional development agency established by New Labour in 1997 but subsequently closed in 2012. AWM was keen to push the idea of clustering as part of an economic development strategy for the region (Chapain and Comunian, 2010). AWM created three clusters relevant to the cultural industries: firstly, the Digital Media cluster which included areas such as film, video, TV, interactive and communication technologies; secondly, the High Value Added Consumer Products Cluster (HVACPC) which eventually became known as the Interiors and Lifestyle cluster; and the Music Industry cluster. The original idea of clusters, as defined by Porter, suggests a geographical concentration of firms and in Birmingham, small clusters can be found in the Jewellery Quarter and in Eastside/Digbeth (Chapain and Comunian, 2010, p.720).

The creation of cultural or creative quarters such as The Jewellery Quarter and Eastside/Digbeth became important as a means of identifying Birmingham's cultural practitioners, and connecting them to regeneration agendas. Newly developed spaces and places in which cultural workers meet, became popular in Birmingham, as demonstrated by the Custard Factory and its surrounding area, Eastside/Digbeth. The aesthetic qualities of a place is not insignificant for cultural workers, acting as a catalyst and stimulating individual artistic production (Drake, 2003). On the surface, cultural entrepreneurs happily mingled in local independent cafés and established their enterprises, very much in the Florida (2004) bohemian style of city regeneration. Yet, one of my interviewees interprets this phenomena cynically, presenting his perspective by stating:

...when we were based at the Custard Factory it seemed like everyone was treating it like some bohemian ghetto hangout, like sit around the Med bar, and we were like they obviously don't have enough paid work. We were always like, well I suppose that northern industrial mind-set, like you just get on and do stuff. [Laughs] (Jack, 2011)

Jack may be unique in his response to the 'bohemian ghetto' that is the Custard Factory but he does indicate that cultural entrepreneurs do not belong to a homogenous community with a collective 'bohemian' identity. Policies associated with the 'creative city' agenda have an important impact but they are not universally endorsed.

## **Enterprise policies and the cultural industries sector in Birmingham**

Birmingham's policy priorities were set out when Birmingham City Council published *Birmingham – Creative City: Analysis of Creative Industries in the City of Birmingham* (BOP Consulting, 2010). To understand the significance of the sector, I refer to BOP Consulting's report which, at the time of the research, identified the so-called creative industries as accounting for around 20,000 jobs (not all jobs were within cultural industry firms), and creative businesses made up 10% of the city's total firms (BOP Consulting, 2010). According to BOP Consulting, the number of creative businesses of 1-10 employees grew in the period

between 2003-2007 by 24.9% demonstrating that most of the growth in the sector was from micro businesses (BOP Consulting, 2010, p.21). Furthermore, micro businesses in Birmingham's cultural industries had the largest share of employment: in 2007 that was 6,320 in total, 34% of all employment within cultural industry businesses. The report breaks down the microbusinesses still further into four main categories: Audio Visual, Books and Press, Performance and Visual Arts & Design, the latter being the largest sector followed closely by Audio Visual. Of the cultural entrepreneurs I interviewed, the majority were from within those two categories, Visual Arts & Design and Audio Visual; sectors which played an important role in Birmingham's cultural regeneration.

Of significance to cultural entrepreneurs are strategic investments in programmes such as incubation, business development and networking across the sector as well as showcasing and engaging with talent. As O'Connor and Gu (2010) indicate, these aspirations are received with varying degrees of appreciation given the breadth of needs and subsectors in the cultural industries.

For its 2004-2010 strategic plan, AWM identified enterprise as a key component of a strategy to develop a diverse and dynamic business base. The cluster approach developed by AWM is an important ingredient in understanding the funding priorities for the region and Birmingham as its major metropolis. Working with key partners and agencies such as City Councils, Arts Council West Midlands and the Learning and Skills Council, and with cultural entrepreneurs, AWM influenced many aspects of policy.

## **Programmes for micro-cultural entrepreneurs**

An important element of Birmingham's policy priorities has been the various programmes and projects working directly with cultural entrepreneurs, helping them to establish their enterprise through start-up funds and ongoing support. These included The Prince's Trust, The Arrow Fund, Arts Council England, various Birmingham City Council initiatives and more recently UnLtd, who focus on social enterprises, many of which are also cultural enterprises. Some of the most significant support for the sector came through Birmingham Chamber of Commerce and Business Link, through its Creative City programme, which established a sector specific, creative industries division for Birmingham (and later for the West Midlands as a whole). Under the leadership of its charismatic managing director, Chloe, this became one of the most influential cultural industry agencies in the city.

Chloe was well-networked, collaborating with key figures from AWM, Birmingham City Council, Arts Council England and relevant national bodies, in a role similar to O'Connor and Gu's 'intermediaries' (2010) in Manchester. This scenario enabled a brokering approach between policymakers and the individual cultural entrepreneurs. Several of the cultural entrepreneurs I interview name Chloe, unprompted, as part of the discussion about their work. Jack describes how 'You know, you are always going to bump into [Chloe] at some place or other' (2011).

Working within this complex mesh of policies and agencies, Chloe is probably one of the few people able to speak both the language of policymakers and of individual practitioners, connecting policy aspirations with actions directly impacting on cultural entrepreneurs. My observations are that, at best, this achieves a real understanding of the specifics of cultural entrepreneurship and avoids the overly generic approach of non-sector specific agencies. However, a critical perspective might suggest that there is an over-reliance on one agency, or indeed, one individual, in a powerful position of influence. Close relationships between individuals create the potential for nepotism or a lack of professional transparency. It is important to note that policies are delivered in the context of social relations, framed by a wider discourse as well as by personal interactions at a local level.

A formal documentation of Birmingham's cultural milieu, is the booklet entitled: *Creative, Cultural and Digital Industries guide* (Parrish, 2008) commissioned by Chloe and her team.

Offering both advice to budding cultural entrepreneurs and highlighting success stories from the area, the publication represents key players in, and the discourse of Birmingham's cultural industries. In his introduction to the *Creative, Cultural and Digital Industries guide*, Parrish includes a quote by Richard Branson making a clear reference to the popular concept of the entrepreneur (2008). The free publication will have been both an opportunity to celebrate the successes of the highlighted organisations as well as educating and informing others of the available support. It is a celebration of Birmingham's talent and an opportunity to articulate key attributes both for aspiring cultural workers and for agencies wanting to work with cultural entrepreneurs. The individual cultural organisations selected are presented as 'best practice' and the language to describe cultural entrepreneurship articulates specific dominant ideas, blending economic success with cultural distinctiveness. In other words, this can be interpreted as part of the space where dominant voices establish the terms of engagement. At the very least, it contributes to the expectation that cultural workers should be entrepreneurial, flexible, and commercially-orientated while maintaining their creativity.

## Birmingham and cultural entrepreneurs

Birmingham based cultural entrepreneurs engage with policy makers such as Chloe yet they are not pawns in a policy maker's game. I find individuals involved in a variety of activities and to some extent, reclaiming the agenda for Birmingham and its community of cultural workers. Below, I explore this through a range of activities which illustrate differing success in terms of their sustainability. Despite the ad hoc nature of these projects, their common characteristic is an attempt to articulate a version of cultural entrepreneurship specific to Birmingham. The city plays a role in framing cultural entrepreneurship, bestowing it's very specific characteristics to create a unique cultural milieu to which Birmingham's cultural entrepreneurs contribute.

Local policy can seem distant from individuals carving out a career in the cultural industries and too often they either don't know of policies, they are too busy trying to earn a living, or policies don't match individual expectations. Pragmatically, cultural entrepreneurs align themselves with differing policy agendas or rhetoric which suits them at the time. The relationship between institutions, their policies and priorities is not always in sync with the aspirations of cultural entrepreneurs; it is dynamic and complex. Often activities are reliant on just one or two motivated cultural entrepreneurs although they operate within a relational milieu, rather than in a vacuum. The activities I describe represent attempts by cultural entrepreneurs to be pro-active and intervene by initiating their own projects and networks, in parallel to the formal support referred to earlier.

In the UK, Birmingham is known as the 'second city' and this is often expressed as lack of identity in comparison with cities such as Manchester, possibly due to its proximity to London. A reaction to this is Jon Bounds' blog *Birminghamitsnotshit* which since 2002 has presented the 'real' Birmingham to counteract Birmingham's negative image ([birminghamitsnotshit.com](http://birminghamitsnotshit.com), no date). This is important because it situates Birmingham's cultural entrepreneurs within a national debate; an opportunity to reclaim Birmingham's image. As Banks (2007) finds, this is not unique to Birmingham, as Mancunian cultural entrepreneurs also express an allegiance to their city. Often this is perceived in relation to *not* being London, known as the hub of cultural activities and geographically close to Birmingham. What binds cultural entrepreneurs together are the personal interactions, more easily possible within a geographical space which is relatively intimate, and a milieu in which cultural entrepreneurs can become a relatively close-knit community. The tone of blogs such as *Birminghamitsnotshit* offers an alternative voice, distancing Birmingham cultural workers from conventional and formal structures. This enables a playfulness with identity through a collective and discursive process, reflecting on Birmingham's brand and the cultural entrepreneur's contribution through their individual and collective endeavours.

The result can lead to cultural entrepreneurs trusting each other and sharing similar aspirations. Some cultural entrepreneurs in this study describe Birmingham as a 'blank canvas' offering the opportunity to be shaped by local actors. I explore this by focusing on a few projects or activities which relate to the cultural entrepreneurs I interview and because they appear to be some of the most significant initiatives in Birmingham. The projects include: Centrepiece, Creative Republic and Created in Birmingham. Each project functions independently, but they do share some common features in terms of their aspiration and impact on cultural entrepreneurs in Birmingham. All of the projects have had some public funding or support from sponsors, but they each attempt to be sustainable either through membership or due to the commitment of the cultural entrepreneurs who run them.

## Centrepiece

Centrepiece was formed in 1997 and is a project showcasing and selling the work of Jewellery Quarter-based jewellery designers (Centrepiece, no date). The main focus is for designers to come together to sell work locally to a high end market at Birmingham International Convention Centre over the Christmas period. Most of the local jewellery designers sell internationally, but in 1997 Birmingham had no gallery or contemporary jewellery shop for them to sell locally. Collaborating to sell work enables the designers to support each other and to consolidate their network, although they tend to already know each other, often sharing studios in the Jewellery Quarter. As Pollard (2007) finds in her research of financial networks, the geographical nature of these networks is an important feature of the Jewellery Quarter's designer-maker community.

Centrepiece had some public funding and support through EU funds, AWM and Birmingham City University (BCU) but is mostly supported by its members. For a few years, Centrepiece became involved with Brilliantly Birmingham, a jewellery festival set up by Birmingham City Council in 1999. Jackie explains the tensions with the City Council:

There was a bit of contention there a little bit. As a project and as a festival, it was a good thing but, it was questioning what are they trying to do. What actually is the objective, are they trying to promote Birmingham as a place for people to visit or are they trying to promote what's in Birmingham ... It kind of seemed as though, actually, there were no new opportunities as a result of that festival. And you know, it was a fantastic festival to have but they just took a bit of credit for the fact that we were on their list anyway ... And then you would do it, and you'd have to fill in 100 forms which they didn't tell you about at the time. They want to know everything about your finances of your business, just because you've done that event. And they want to put that in as their success but actually, they didn't make that any good. (Jackie, 2012)

Jackie's response articulates her frustration with processes (such as 100s of forms) and the lack of real understanding of the sector, as mentioned by O'Connor and Gu (2010). There is a disconnect between the policymaker's image of Birmingham and the support cultural entrepreneurs anticipate from their city council. Pollard (2007) finds evidence that policymakers embrace the design-maker community as offering the creativity necessary for Jewellery manufacturing, for long term economic development. Furthermore, it was anticipated that designer-makers would improve the area and potentially attract commercial enterprises. Yet, as Hugues (2012) states, the motivations and hopes of designer-makers are often very different from those of Birmingham policy makers.

...it would be foolish to place economic hopes for renewal directly on those whose work accords with the craftswomen's imperative that art and artisanship is more than money (Hugues, 2012, p.157)

On the surface, Centrepiece and Birmingham City Council collaborated, but in reality they had very different priorities. The frustrations depicted here, sharpens an oppositional identity, a sense that cultural entrepreneurs operate in spite of formal structures and with different objectives.

## Creative Republic

As an organisation, Creative Republic spoke the language of much of the policy documentation I have explored, linking the cultural industries to economic development and the creative city agenda. When Creative Republic was formed (I have not been able to establish the exact date but it is likely to have been in 2008-9), there was a sense that there would be much to be gained from pooling resources to support cultural workers and influence policy.

The aim of Creative Republic is to represent and support the needs of the creative sector in the West Midlands so if you have a cause or a project you think Creative Republic and its members can help with, please click the link above to submit your idea. (creativerepublic.org, no date).

An important aspect of the Creative Republic work was the idea of representing the sector and having a voice, particularly for lobbying larger organisations and policymakers. The website stated that:

To date there's nobody speaking for us collectively to make our opinions heard. We 'd like to see that change so we've set up Creative Republic to be that voice. (creativerepublic.org, no date).

The idea of speaking for 'us' collectively is questionable as there is little information about how that kind of representation might be achieved. Despite the lack of transparency, there was a sense that Creative Republic attempted to shift power from formal institutions to a collective of cultural workers. By cooperating, individual cultural entrepreneurs started to create alternative structures in which they could explore and articulate their version of cultural entrepreneurship and their role in shaping Birmingham's creative milieu.

During its first two years Creative Republic ran a range of talks and activities such as the Invisible City project in 2010 (Unitt, 2010). Other events actively engaged cultural entrepreneurs to participate in policy discussions, although it is difficult to know if policymakers came along to hear these debates. However, cultural entrepreneurs did blog publicly about these activities, as captured in the *Digbeth Is Good* blog post (Getgood, 2008). Furthermore, individuals discussed opportunities for taking the views of the cultural community to 'meetings', although it is not clear what meetings, when and where (joannageary.com, 2007). While there seemed to have been a flurry of activity from 2008 to 2010 there has been little news of Creative Republic since. In 2012-13 I was informally aware of a wish to see it revived but there is little evidence of leadership or funding to support this and during 2014 the website was finally closed or made inaccessible (part way through this study).

Although Creative Republic is a good example of entrepreneurial action to counteract and/or collaborate with agencies, it also illustrates a naivety on behalf of the cultural entrepreneurs involved. As discussed by O'Connor and Gu's (2010) in their study of Manchester's cultural industries, the sector has too many different subsectors, with diverse ways of working and different expectations to form a representative organisation. It is likely that the local cultural entrepreneurs dominated by micro-enterprises, have too few resources to invest time and effort into sustaining an organisation such as this. However, and despite its limitations, Creative Republic can be seen as part of a range of entrepreneurial initiatives which together contribute to Birmingham's enterprising cultural milieu. Developed as a result of frustrations with formal institutions, projects such as Creative Republic are part of a transitory landscape offering space for debate rather than merely supporting local cultural policy rhetoric. Projects like Creative Republic represent an intension to shape the environment for cultural entrepreneurship.

## Created in Birmingham

Alongside Creative Republic, and presented as one of its projects, the blog Created in Birmingham was founded by two local cultural entrepreneurs (Created in Birmingham, no date). The original aims of the blog were firstly to help other cultural entrepreneurs find out about Birmingham events and promote them, and secondly to show that blogging is a simple and effective way of engaging with audiences online. Although the founders of the blog no longer write for it, this seems to have been a more sustainable project as it continues to exist and has managed to secure advertising. Created in Birmingham has acted as a useful tool for communication and developing a sense of what is going on in very small cultural enterprises, as well as the larger more established activities which might be reviewed on the blog. It makes cultural enterprise visible amongst practitioners and to a wider public. As with Parrish's publication, it showcases and creates a language for discussing cultural enterprise, establishing a dominant role through its public presence (1288 subscribers and 12982 followers on twitter [accessed 2 May 2014]). Yet Created in Birmingham is significantly different from the Parrish publication because it attempts to forge a collective identity on behalf of cultural entrepreneurs, than that presented by a formal institution such as Business Link.

Created in Birmingham is a success story in the sense that it still exists and is regularly updated, keeping Birmingham's cultural milieu in touch with a range of activities, events and opportunities. It has successfully changed hands from its founders to teams of bloggers, and is far more transparent in explaining who is involved in its 'about' pages (Created in Birmingham, no date). Like Parrish's *Creative, Cultural and Digital Industries guide*, the Created in Birmingham blog articulates what it means to be involved in the cultural industries in Birmingham through the choice of articles and reviews. There is little evidence of critique or counter-cultural activity such as that discussed by McRobbie (2011). Rather this is as much about presenting Birmingham as a creative city as it is an opportunity for the authors of its content to develop their skills and networks, leading to further work: a pragmatic outcome for cultural entrepreneurs establishing themselves and collectively presenting Birmingham's cultural milieu. Given the fact that different people have managed the content, this also enables a variety of voices and ideas to be explored. Here, the space for 'becoming' exists both in the opportunity to write for the blog and to be written about.

## Discussion and conclusion

In exploring the social and spatial enactment of entrepreneurship, I have focused on a specific case study investigating Birmingham's milieu for cultural entrepreneurship, its policies and individuals. Structures in the form of institutions, policies and key players such as Chloe play an important role in shaping the environment, setting boundaries, creating opportunities and establishing dominant positions for cultural entrepreneurship. As this study suggests, in a regional city such as Birmingham, the role of intermediaries is critical in brokering policies, networks and nurturing relationships. A deeper understanding of the needs of the sector must be based on an awareness of the subtle differences between sub-sectors within the cultural sector and a recognition of the values driving cultural entrepreneurs. Individual actors negotiate this environment with a level of autonomy and agency, evidenced by both individual and collective actions. Within this context, 'becoming' a cultural entrepreneur is understood as a relational process, informed by both formal structures and the motivations of individuals to collectively shape their environment.

By situating the cultural entrepreneurs' narratives within Chell and Karataş-Özkan's (2011) framework of meso-relational level and macro-contextual level, I have observed the space in which cultural entrepreneurs can act. Structural frameworks depicted as formal institutions

and policies are evidently important in terms of offering both opportunities and limiting the nature of cultural entrepreneurship. My aim was to highlight the context in which cultural entrepreneurs operate by outlining important policies and selecting key projects as a means of stating the significance of place; the relevance of investigating the distinctive features of a city such as Birmingham.

The collaborative activities of cultural entrepreneurs demonstrate an entrepreneurial spirit and a wish to provide bespoke support for themselves. This might be the result of gaps in state support driven by a lack of understanding of the specific needs of the cultural industries' subsectors. Equally, it could be indicative of a confidence and pro-active attitude resulting from the general level of support for the cultural sector in Birmingham. For instance, local policies have supported spaces for cultural work and seed funding to initiate new networks. Agentic actions are collaborative and tend to be driven by a sense of responsibility for personal advancement *and* for the general community in Birmingham.

The cultural entrepreneurs I am studying have to navigate this environment and interact with it in their individual ways but also as a community, benefitting from being part of a network rather than operating in isolation. Within this space, cultural entrepreneurs test both collective and individual identities, working within a structure but also creating new temporary structures of their own such as blogs and networks which contribute to defining Birmingham's cultural milieu. Moving forward, policymakers responsible for delivering publicly funded strategies, are well placed to initiate discussions and/or support collective actions to address the challenges and insecurities of cultural entrepreneurship.

The projects described in this paper are partly the result of a very privileged period of time in terms of funding for the cultural industries, pre-austerity. Beyond the influence of New Labour policies, more recently, cuts in funding are likely to increase a reliance on entrepreneurial initiatives. The activities I describe offer much optimism on the surface, but they also depict uncertainties and insecurities for cultural entrepreneurs. The informality of initiatives led by cultural entrepreneurs could be problematic both in terms of the impact they have and in their ability to be sustainable (for example Creative Republic has not been active for four years).

Cultural entrepreneurs ride the tides of changing policies and governments with their usual positive and entrepreneurial spirit, albeit, within an increasingly challenging context. As the recently published Warwick Commission Report (2015) states, to nurture the cultural and creative industries 'ecosystem' there needs to be more collaboration between cultural institutions, and I would argue, with and between cultural entrepreneurs. National and regional policies need to address general issues of insecurity in the sector but much can be achieved by enabling individuals and collectives working within a specific locality. Research projects, such as activities funded by the AHRC Connected Communities fund offers the opportunity to draw on the significance of place, engaging directly with communities in collaborative initiatives. New alliances for research and curriculum development are already being formed with local higher education institutions whose vocational arts, design and media students often feed into the local creative economy (Comunian and Gilmore, 2014; Naudin, 2014).

As Fairclough states, it is possible to see the general acceptance of entrepreneurship as further evidence of how Thatcher's 'enterprise culture' has seeped into all aspects of life. However, this does not necessarily suggest that individuals act out a fixed version of an entrepreneur, caricatured as commercially driven and individualistic. Instead, I find that my research resonates with Davies' comment, that within a capitalist neo-liberal structure, 'Entrepreneurs might be seen as an examples of individuals who operate between or outside of existing conventions' (2014, p.12). As Kate Oakley argues, it may be that cultural entrepreneurs embedded within a regional city such as Birmingham, have just the right attributes for contesting or providing alternative models, using their 'values', 'imagination' and 'persistence' (Oakley, 2014, p.157).

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# Toward an understanding of Entrepreneurship in New Caledonia: A Contextual approach

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The exploration of the different levels of embeddedness brings different perspectives of the entrepreneur and highlights the complex nature of the entrepreneurial process. The flourishing literature on the role of networks and on the characteristics of ties points to the image of the entrepreneur as a social animal but the study of Indigenous entrepreneurship in New Caledonian context also stress the impact of the area's natural endowment on entrepreneurship. Integrating the context approach and the embedded approach of entrepreneurship, this paper presents a synthesis about the ways natural resources had impacted entrepreneurship in New Caledonia and ends on a reflexion about how entrepreneurship can impacts natural resources with the idea to reach sustainable development. Considering the impact of natural resources on the entrepreneurship process the article proposes the integration of the spatial embeddedness in the whole concept of embeddedness. Based on a literature review of the different researches linked with marine resources management carried by New Caledonian research centres; on field observations and interviews with Kanak individuals linked to the fishing activity, this research finds clear evidence of the influence of natural resources on fishing activity in New Caledonia. The article presents propositions about the influence of the spatial embeddedness on the entrepreneurial process but it does not present a robust model. Further researches are needed in other contexts to specify and discuss the outputs and the integration in the whole concept of embedded natural resources.

## **Keywords**

Entrepreneurship, Fishing activity, Contextual approach, Natural Resources Based View, New Caledonia

## **Abbreviations list**

NRBV: Natural Resource Based View .

RBT: Resources Based Theory.

IRD: L'Institut de recherche pour le développement.

Ifremer: L'Institut Français de Recherche pour l'Exploitation de la Mer.

SPC: Secretariat of the Pacific Community.

AFD: l'Agence Française pour le Development.

INSEE: National institute of economic studies and statistics.

FAO: Food and Agriculture Organization of the United Nations.

NGO: Non-Governmental Organisations.

## **1. Introduction**

Pioneers of entrepreneurial literature placed the entrepreneur at the forefront, presenting him as a risk bearer (Cantillon, 1755, Knight 1921), seeking value creation (Say, 1815) by combining resources (Chandler 1962). From the neoclassical considerations of perfect equilibrium to the introduction of more “realistic” views based on the recognition of resource disequilibrium and unequal access to capital, the shift has been marked by a growing

awareness of the influence of the context on economic action.

In economy the exploration of the different levels of embeddedness calls for a full recognition of the non-economic sources and boundaries of the economy (Zukin and Di Maggio 1990).

Welter (2010) specifies that the context provides opportunities and set boundaries, he highlights that the “where” and “when” dimensions are of particular importance. Entrepreneurship research has fully recognized the role of networks and culture (Dana 1995, Dodd and Anderson 2007, Light and Dana 2013). Hindle (2010) illustrates the importance of community context and its impact on entrepreneurship initiatives and the way they can be performed. Also Steyaert and Katz (2004) point at the geographical, discursive and social dimensions and explain that looking at entrepreneurship in society can be translated to a spatiality and geography of entrepreneurship.

On the contrary the different levels of embeddedness presented in the literature do not refer to how the activity is embedded in its place, more precisely how the natural resources are embedded with economic action. However natural resources are part of the context and influence entrepreneurship. The introduction of the element of spatial embeddedness allows exploring a different view of embeddedness looking at the interaction between the natural milieu and entrepreneurship. Hart (1995) noted that the Resource Based Theory was considering a variety of potential resources, but it ignored the interaction between an organisation and its natural environment, this is also true for the study of the different levels of embeddedness.

The article first presents a synthesis about the ways natural resources had impacted entrepreneurship in New Caledonia. We suggest that natural resources (land resources) had influenced ethnic clustering during New Caledonian history, and that natural resources endowment set up boundaries in economic activity. It ends on a reflexion about how entrepreneurship can impacts natural resources, with the idea to reach sustainable development. This idea is articulated with the Natural Resource Based View (NRBV) of the firm in New Caledonian fishing sector and presents different strategies that can be articulated with the embeddedness view once we consider natural resources.

This paper is a theoretical suggestion about the integration of the spatial embeddedness. It is based on documentation, observations and interviews, it presents propositions about the influence of the spatial embeddedness but it does not present a robust model. Further researches are needed in other context to specify and discuss the outputs and the integration in the whole concept of embedded resources. The first part presents a literature review on the concept of context and entrepreneurship, more specially the spatial context. This part reviews the concept of embeddedness and discuss it regard to New Caledonian Context. A second part illustrates how New Caledonian resources have impacted its history and culture, influencing ethnic clustering; and shaped its unique institutional framework. Following the strategies proposed by the NRBV, the last part explores how entrepreneurship in New Caledonian fishing sector can impact on natural capital in sustainable ways.

## **2. Context, embeddedness & Natural Resources Based View**

### **2.1 Context**

In the classification proposed by Welter (2010), the "where" dimensions of the context are presented with four different facets: business, social, spatial and institutional.

Welter (2010) highlights that most entrepreneurship researches focus on the business context (industry, market), also we can note that the impacts of the social aspects are documented through the social network approach (Dodd and Anderson 2007) also the social context can refer to the field study of family business (Kraus and Harms, 2011). Social capital's impact on entrepreneurship has been widely explored (Kim and Aldrich, 2005). Following Welter (2010) the spatial dimension designates the geographical environment, as

countries, communities and neighbourhoods; industrial districts and clusters. This view focuses on the characteristics of locations and local communities and regions. The last presented is the influence of the institutional dimensions (culture and society; political and economic system). It has been acknowledged by the influence of formal and informal institutions (North, 1990), also Baumol (1990) highlights the impact of the institutional framework on entrepreneurship outputs. Harbi and Anderson (2010) explored the impacts of institutional factors on self-employment and innovation. They show that self-employment isn't correlated with growth and innovation. It highlights the crucial role of institutions in the passage from necessity to opportunity entrepreneurship.

We can understand that depending on the type of activity, the society, the milieu and the actors involved the dimensions of the framework are likely to have different impacts. Hindle (2010) underlines that "all the ingredients, physical, human, institutional are always to be important to some degree but the proportions in which they matter will differ from case to case." (p.626). Understanding each context's specificities linked to their impact on entrepreneurship refers to explore the different levels of embeddedness.

## **2.2 Embeddedness**

As underlined by Jack and Anderson (2002) embeddedness is "identified as the nature, depth, and extent of an individual's ties into the environment." (p.468). Zukin and DiMaggio (1990) introduced the concept of embeddedness precisising the nature and process of economic action with respect to cognition, culture, social structure and institutions.

The following paragraph reminds the component of the concept proposed by Zukin and DiMaggio (1990) and discuss it regard to New Caledonian context.

The first dimension, the cognitive embeddedness, refers to the ways in which the structured regularities of mental processes limit the exercise of economic reasoning. Such limitations have for the most part been revealed by research in cognitive psychology and decision theory. Zukin and DiMaggio (1990) underlined that it can be related to the concept of bounded rationality. We can make the same parallel as Welter (2010) about the "Who". Indeed the cognitive processes do not refer directly to the context; they are more a reflexion of the context on the individual.

Then cultural embeddedness refers to the role of shared collective understanding shaping economic strategies and goals. Zukin and DiMaggio specify that culture sets limits to economic rationality. They explain that the form of belief and ideologies, taken for granted assumptions, or formal rule systems, also prescribes strategies of self-interested action and define the actor who may legitimately engage in entrepreneurship. Taboo, customary rules and social stratification are very important in Kanak culture. The embeddedness of culture is explained as a dual effect on economic institutions, constituting the structures in which economic self-interest is played out; and constraining the free play of market forces. We can remark that Barth (1963) also acknowledged the cultural embeddedness. He underlines that we cannot restrict to purely monetary reward the entrepreneurial activity. He uses the term "profit" to describe different forms of net rewards, it isn't necessary monetary reward, he indicates that their commons attribute is their transitivity. The consequence is that "to understand properly the balance-sheet of an enterprise, social costs of various kinds which are not readily recognized as economic must be considered" (p. 8). Barth refers to intangibles like power, rank, goodwill. Making a parallel with New Caledonia it is highly important to understand Kanak value system and what they engage if they engage in a new entrepreneurial activity. Barth (1963) highlights that the "social cost" of engaging in an activity may vary from societies to societies.

Following Granovetter's work on the structural embeddedness Zukin and DiMaggio (1990) refer to structural embeddedness with the "contextualisation of economic exchange in patterns of on-going interpersonal relations. The aspect of structure refers to the manner the web of relation is articulated throw the society: whether there are dense relations between

groups of individuals or in opposition if the web of relation is homogeneity distributed through the population. The structural embeddedness has been shown to impact job recruitment as well as problem solving. The power of network has been well described by Boissevin, Blaschke, Grotenberg, Joseph, Light, Waldinger, and Werbner, (1990). Also Uzzi (1997) acknowledges the impact of network on firms' performance.

With political embeddedness they refer to the manner in which economic institutions and decisions are shaped by a struggle for power that involves economic actors and non-market institutions. Zukin and DiMaggio underline that a complex web of interrelations and expectations influence the political context of economic action. They underlined that the formation of strategies within industrial sectors is influenced by the policies and the local and national states and that political values have also an impact on the behaviour of some professionals this remark is very true for New Caledonia where political embeddedness influence economic exploration and exploitation of natural resources. They follow precisising that in political economy, public policy is structured by the distribution of power between social groups In a larger sense political economy refers to the global context of investments flows and shifts in the sites of production.

### ***2.3 Natural resource based view and the spatial context***

Each part of the context tends to provide tangibles and intangibles resources that are articulated, embedded and influence the entrepreneurial process. As suggested in the introduction, if we try to link closely the context dimensions and the embeddedness dimensions we can note that they make no link to the natural resources embedded in the spatial context.

Resources Based Theory (RBT) explains why some firms consistently outperform other firms. Underlying two assumptions: resources and capabilities are heterogeneously distributed across firms, and the differences among firms may be long lasting. (Barney 2001) argues that some factors of production may be inelastic in supply because of three principal reasons: (1) some resources and capabilities can only be developed over long period of time; (2) it may not always be clear how to develop these capabilities in the short to medium term and (3) because some resources and capabilities cannot be bought or sold. RBT point out that supply inelasticity can become a source of sustained competitive advantage. Barney underlines that RBT can be applied in different ways and that the way it should be applied depends mostly on the empirical context of the application. The World Bank acknowledges the impact of natural capital resources in its measures of wealth. The argument following would be that natural resources endowment of a country allows some of its companies to outperform companies from other countries in the globalized market and so natural resources can also be a source of sustained competitive advantage.

Following the advances of the Natural Resources Based View (NRBV) we argue that any business can be influenced by the natural resources of its spatial context. The NRBV highlights strategies based on the interaction and the long-term relationship between entrepreneurship and its natural milieu focusing on the development of sustainable competitive advantages. In a modest intention to highlight the link between the context approach and the NRBV it is proposed to introduce the concept of spatial embeddedness referring to the natural resources provided by the spatial environment.

## **3. Methodology**

This paper came out after a year and half of research about New Caledonia. A first travel there in 2012 allows making first observations and experiences the particularities of New Caledonia, my PhD research field. The first interest was to look at the influence of cultural capital and social capital on resources mobilization in the fishing sector. But the natural

resources came to be also important. Two examples can justify this remark, first the reserved area to protect the lagoon, and second nickel economy's impacts couldn't be ignored. Discussions in workshops encouraged me to adopt a higher view on the entrepreneurship process. So I proposed to use the resource based theory as an analysis framework to explore how the different type of capital (Cultural, Human, Institutional, Natural, Social,) are articulated as embedded resources in the New Caledonian marine sector.

During one year I had collected much information from different research centres: *L'Institut de recherche pour le développement* (IRD), *L'Institut Français de Recherche pour l'Exploitation de la Mer* (Ifremer), in addition there is a joint program called Zoneco, it works on different thematic. We can find four areas related to fishing activity: the relations "resources - open sea environment", the relation "resources - lagoon environment", "resources characteristics and management", and "human activity". Also the communications from institutions as *L'institut d'émission d'outre-mer*, the Secretariat of the Pacific Community (SPC), *l'Agence Française pour le Développement* (AFD) or politic institutions as the Customary Senate of Kanak people, or the report New Caledonia 2025 from New Caledonian Government were very useful because it was completed with an ethnologic research conducted by Godin (2009) in Kanak tribe about entrepreneurship. In addition source from The National institute of economic studies and statistics (INSEE), World Bank and United Nations reports had completed the whole data.

With the objective of exploring and understanding how the different type of capital are articulated and influence the entrepreneurial process in New Caledonia on which I have no control. Following Yin (2003) I decided to apply the case study methodology and explore in interviews with New Caledonian fishermen and entrepreneurs in the fishing sector how were interacted the different elements. But in the operationalization of my ideas I faced two main difficulties. First the distance with the field study made difficult to make a lot of contacts: the first interview was with a responsible in microcredit who work with fishermen in Maré. This first interview aimed to understand the entrepreneurial process, in Kanak community and complete the information provided by Godin (2009). It was completed with another interview with a Kanak woman whose brother is a fisherman. Then I achieve to reach the chief of the fishermen supply chain of Loyalty Islands, I sent him questions and he sent me information but I couldn't call him, also I could interview by Skype the director of Navimon, the main fishing company. The questions were directed to explore the main challenge they encounter, and compare it regard to the results of the reports I had. Then I ask about their objectives to understand their orientation, and their view about fish stocks resources management, and how they fight illegal fishing.

I realize I will never have the number of interviews I wanted with the fishermen to do the article. It was very difficult to get in touch with the target population, more precisely the one operating in the traditional sector in the island. Following Eisenhart and Graebner (2007) about the methodology of multiple case studies they specify, "In a single-case study, the challenge of presenting rich qualitative data is readily addressed by simply presenting a relatively complete rendering of the story within the text." (p.29) I was far from having a complete story about the interaction of capitals with my method. Also I realize this question was too broad, after the first interviews and the literature review on the researches conducted in New Caledonia the reports and results highlighted close interactions with the natural resources. This supported the idea to look closer at the interaction between natural resources and the other embedded resources in the entrepreneurial process. I looked into the data to explore the pattern of interactions looking for two patterns: (1) the impact of natural resources on entrepreneurship development and (2) following the proposition of the NRBV, which data highlights ways entrepreneurship can impact on the natural resources and pursue a competitive advantage on sustainable development.

## 4. New Caledonia

Located in the South Pacific, New Caledonia is about 1500 km east of the Australian coast and 2000 km north of New Zealand. The archipelago is comprised of four main islands; the mainland called "*Grande Terre*" lies at the west of the three others, which from north to south are: Ouvea, Lifou and Maré. Others islands include *Belep islands* in the north, and another island called "*île des Pins*" in the south.

#### **4.1 Resources and ethnic clustering in New Caledonian history**

Settlement in New Caledonia is dated by Lapita potteries from around 1300 BC (Sand, and Bedford, 2010) from whom the Kanak people are descendants. Poirier (1951) explains that during the Palaeolithic, the geography was completely different and allowed the settlement of the mainland by foot. Their research underlines different migrations before the times of Colonization.

The French government has settled down in the south of the mainland in September of 1853. The Indigenous population was forced onto reserves where the land was less fertile (Horowitz, 2004). At this time the French administration in Noumea, however impatient to establish her effective sovereignty, did not intend to create an administrative permanent structure on the Loyalty Island. Indeed it missed necessary resources and, more important, islands were unfit of a large-scale economic exploitation, on the contrary the mainland endowed with agricultural possibilities and mining potential. Freyss (1995) noted that if we know only one thing on New Caledonian economy, we know that Nickel is very abundant in this country. Freyss (1995) highlights that the original geological history of New Caledonia has created one of the biggest deposits of Nickel of the world. Also are present chrome, iron, cobalt, copper and other minerals.

Nickel exploitation started in the South of the mainland in 1874 in Noumea however in the North the exploitation started recently in 2013. Horowitz (2004) highlights the importance of the Koniambo project (in the north) and presents it as a great advance for Kanak people; the author documents how France developed its power in order to keep control on Nickel exploitation. In 1958, New Caledonian people decided throw the vote for French Constitution to remain within the Republic with the status of overseas territory (TOM). The succession of politic reforms, and the rise of pro-independence movements from 1975 to 1984 led to a destabilization, and the rise of violence, which ended in 1988 with the tragic Events. Today New Caledonia is still a French territory yet the Matignon-Oudinot Accords of 1988, accepted by referendum, re-launched the regionalization and gave rise to the three provinces, North, South and Loyalty Islands, and formed the Congress. As regional authorities these are self-managed and elected through universal suffrage. A second referendum to decide New Caledonia's Independence took place in 1998, politicians from all parties and the State decided a consensual solution that plan to organize between 2014 and 2018 a new referendum to decide their Independence. As underlined by Faberon (2012), New Caledonia has a very particular status today: it is not an oversee territory of the article 74 of the constitution. Its status is specified by the titles XII and XIII of the constitution. It is important to note that two articles specify the title XIII. The article 76 concerning the consultation on the agreement of Noumea and concerning its electorate and the article 77 which imposes the respect of the "orientations defined by this agreement". It plans the consultation of the populations interested on the entry in the full sovereignty and finally specifies the electorate of the provincial elections. New Caledonia is qualified by the category of the territories of overseas, (article 74 of the constitution); and has by virtue of the title XIII of the Constitution, a unique status specify by the agreement of Noumea. New Caledonia is under a transitory regime defined by this agreement, Faberon (2012) specifies that it is the most original 'collectivity' of the French Republic." (p. 84)

In 2009, 320 595 people lived in New Caledonia (INSEE, 2014), 40,3% of the inhabitants declared belonging to Kanak community (99 100 people), the second most represented community were from European origin, representing 29,2%, then Wallisian and Futunian with

8,7%. Also the others communities represents 7,3% of the whole population there are Tahitians (2,0 %), Indonesians (1,6 %), Vietnamese (1,0 %), Vanuatu (0,9 %), other Asiatic (0,8 %) and other (1,0 %). Royer (2001) noted New Caledonian immigration tendencies were quite stable these last 20 years, with French migrants representing more than 70% of the immigrant population. Also he notes that the majority (more than 90%) of the native population that leaves New Caledonia comes back, they usually leave for 2 to 3 years and very few leave again (Royer 2011), we can understand it is often explained by the studies. The overall distribution of New Caledonia is relevant, 70% of the archipelago 's population is concentrated in the South while 20% in North and only 10% in Loyalty Island.

The relation of the population to nickel exploitation is complex. About the South the LIVE project 's report by Sarah Bernard, Shani Lacombe, Loeiza Lancelot, Catherine Sabinot, Jean-Brice Herrenschmidt from IRD explores the interaction between nickel activity and the population in Yaté community, about the north our interviews completed the information. Lacombe (2014) explains that the population express concerns about a possible closure of the plant, subject that has been put on the table after the ecological accidents. Indeed people are now used to the plant, various projects has been developed in synergies with the plant like a salad producer who newly started a hydroponic installation. Also people living in tribe have other concerns: if the plant would close they fear that everybody would come back and that would badly impact other resources as marines resources. Lacombe (2014) underline the rise of a project culture described as a "mood for development". Lots of projects are launched, helped by the financing of the mining plant Vale. During our interviews, referring to the use of nickel resource and the development of the project in the north by the Kanaks Sylvain highlights the benefit of this project that allow them to be more independent from Noumea, in the same time he underlined that there is a dependence upon north nickel plant's revenues.

In conclusion we pointed out that there is neither a homogenous culture, nor a homogenous development in the archipelago. The division of New Caledonia was influenced by its natural resources endowment that had influenced ethnic clustering. As a result the culture in the South of the mainland and more especially in the agglomeration of Noumea, is very similar to French culture however in the rest of the country Kanak culture is dominant. Also this part underlines the importance of land resources exploitation and their impacts on New Caledonian dynamics.

#### **4.2 Spatial embeddedness setting rules and boundaries**

This part is envisaged under two perspectives; first spatial embeddedness refers to the location. Archipelagos and islands economy are particular, building on Baldacchino (2011) this part refers to the elements of the "islandness" that impacts New Caledonian economy. The second part explores ways marines' resources influence the institutional context.

Baldacchino (2011) notes that island communities have to contend with the various implications of their "islandness" that enhance their vulnerability. Taking a deductive, macro-driven, approach may suggest that success is difficult to attain. Some characteristics are common to islands, Baldacchino (2011) explains that the limited land area impacts the size of the domestic market and, in the case of archipelagos, fragmented and dispersed areas directly impact the business. He notes that these elements are often linked to a tendency towards oligopoly and imperfect competition resulting in high transport costs, especially handling, freight and insurance expense. Limited domestic markets and client bases coupled with physical isolation make it difficult for local entrepreneurs to achieve and exploit economies of scales in the local market and costs such as health, energy, education and public administration, tend to be higher per capita. Baldacchino (2011) follows precisising that local economy is often dependent on a single crop, product or service, also he notes the current lack of skilled labour and expertise added to the local consumption patterns that prefer to locally made commodities. We can remark that New Caledonia have few

diversification in its economy. Freyss (1995) said New Caledonian economy were an assisted economy. The presence of a powerful local elites underlined by Baldacchino (2011) is also an interesting element that could link the spatial embeddedness to the political embeddedness.

In face to this pessimistic image of the *islandness* with the entrepreneurial context Baldacchino (2011) suggests that most of island entrepreneurs' population is ambitious. He highlights the high embeddedness of the island entrepreneur with his milieu. Godin (2009) underlines the embeddedness experienced by Kanak entrepreneurs. The entrepreneurial figure is likely to have a position in the community. We have to note that this element is also linked to Kanak culture, not only because of the "*islandness*". Baldacchino (2011) explains "They view their involvement in business as a means of providing cash income for themselves and their families, an opportunity to be in control of their own lives, acquire some prestige, extend influence and, even, as a means of winning political office." (p.405) We can discuss that however this may be also true for others contexts the characteristics of little islands, limited areas, isolation and finite resources, may enhance the strength of the different levels of embeddedness. But more importantly these characteristics may have impacted the embeddedness in the development of particular mental processes, a different collective understanding and rationality, the way the relations are structured and the manner economic institutions and decisions are shaped. The isolation may not prevent opportunities to rise, Baldacchino indicates that nowadays the growth of information networks and technologies remove the physical barriers, but he point out that maintain business relations with clients abroad often requires to take tactical measures as working in cosmopolitan centres.

Spatial embeddedness does not impact entrepreneurship only with its location but also with its natural resources. Here it highlights the relation between spatial context and institutional context supported by the growing environmental concern. Anderson (1998) stress "entrepreneurship is drawn from, and is part of, the wider social milieu; both entrepreneurship and environmentalism are deeply embedded in the social matrix. " (p.138). Moreover during the United Nations' "Open-ended Informal Consultative Process on Oceans and the Law of the Sea " on 6 April 2015, Miguel de Serpa Soares reaffirmed the need to enhance their efforts. He underlines that "Oceans and ocean activities, such as shipping, conservation and sustainable use of marine living resources and sustainable exploitation of non- living resources, contribute directly to the three dimensions of sustainable development. They can also make a positive contribution to poverty alleviation, food security and nutrition, health, gender equality and empowerment of women, energy availability and sustainability, addressing climate change and its impacts, and infrastructure development and innovation, amongst others". (p.5)

Resource management is a growing concern in New Caledonia; land resources are not the only resource potential of the country. To preserve the incredible biodiversity of New Caledonia, (Richer de Forges and al 2005, Richer de Forges and Pascal 2010) the region got in the process of creating protected areas. In 2008 around 15000 km<sup>2</sup> of lagoon were already protected as Marine Protected Areas or as Kanak traditional lands called in French *aires coutumières*. The Natural Park of the Coral Sea (*Parc Naturel de la Mer de Corail*) was created in April 2014 and more protected areas arise in Pacific Ocean. Fishery resources are "critically important as a source of food and employment, a generator of government revenue and a foundation for economic development. " (FAO, 2011, pp255), indeed the general secretary of Pacific community (SPC) underlined the interactions between industrial fishing and artisanal fishing their study highlight the impact on tuna fishing, the interaction with yellow tuna being the most damaging altering 65% of fish abundance (SPC, letter 141). The fishermen are also committed to the monitoring but not in charge. Our interview with the director of Navimon, underlined that their role isn't to watch the area but if they remark an anomaly, a boat that shouldn't be here, of course it will be signalled.

This part explored how spatial embeddedness impacts entrepreneurship and show that the

specific characteristics of the place impact the business context, this is not new and much business researches seek to counter these liabilities. Moreover, sustainable development, in such areas as New Caledonian lagoon, becomes a critical concern for most stakeholders. From international bodies to civil society and Non Governmental Organisations (NGO) natural resources set up rules because their protection is at stake for the present and future challenges.

### **4.3 Natural resources and culture**

The bonds to natural resources vary across cultures, but we can note that “nature sensitivity” is not a usual variable in psychology. However it has been acknowledged that Indigenous Peoples’ cultures are based on a profound spiritual relationship with their land and natural resources (Kipuri, UN report, 2009). Also their entrepreneurial activity is often symbiotic with the nature (Dana and Mallet 2014, Hindle 2002,) several cases in Dana and Anderson (2007) illustrate sustainable activities often associated with traditional practices. The connection between Kanak people and their land is primordial and protected by the article 26 of the United Nations Declaration on the Rights of Indigenous Peoples. Each community unit, each “clan” has a determined function attached to their land. For example Lancelot (2014) indicates that sea-turtle fishing is a collective activity, it’s remains very specific because it’s a protected specie so clans have to held accounts to Province government to fish turtles. Lacombe (2014) precises that this activity is specific to the clans of the sea, they are in charge of this fishing, and people from the other clans can also participate.

The path of knowledge transmission highlights the social stratification. As Lacombe (2014) underlines, very few people with specific status possess the knowledge about clan’s history and their functions, knowledge and power are related, clans’ function determines which type of knowledge is transmitted. The charter of the Kanak people underlines these aspects and mentions various links between Kanak culture and nature. Nature and natural capital is embedded in various aspect of Kanak Identity: they explain that the link to the land relates to the carnal and spiritual relation of a Clan with the natural space where its original hillock is located and where the Ancestor which first appeared and the successive natural land all along the Clan’s history. Their names describe the history of the Clan in the generational cycle of life in space and time. “Chief and the Great Chief, in the Loyalty Islands, is the direct descendant of the sovereign Ancestor. Its word is sacred, that is why it seldom speaks. Its spokesperson expresses its word when required. It vouches for internal social cohesion and intervenes only as a last resort. » (p26). During the interview Sylvain underlined that this is important in entrepreneurship because the entrepreneur is running its project on the customary Land, he notes that there is obviously an environmental aspect and that the action is in a process with the community, it is not individual. Nature is also present in Kanak’s symbols: “The Yam and Taro are the symbols of the Kanak custom. Their presences in customary ceremonies mark the anchoring of Clans on their lands; the same applies with the Pine Tree and the Coconut Tree which are the borders of the Clan’s hillocks and customary zones.” (p.18)

As underlined by Salem and al (2012) ecological sensitivity of Indigenous people is reflected in their perceptions and application of entrepreneurship: their ecological embeddedness and sensitivity and the valuation of traditional knowledge, Traditional Ecological Knowledge and Indigenous knowledge manifest this perceptions. Adding the dimension of natural context Berkes and Floke (1994) underline the interdependency of cultural capital, natural capital and human made capital. This is an interesting approach to the theme of Traditional Ecological Knowledge. As underlined by Dana (2007) “Indigenous knowledge is defined as being founded in a practical and spiritual relationship with the environment” (p4-5).

Kanak fishermen use different ecological signals and traditional knowledge (Lancelot 2014). The moon and the tide are the main indicators for fishermen: depending on the moon position they know which specie is more favourable to fish also linked to the moon large tides

are favourable too. In Yaté Lancelot (2014) reports that people are sensitive to the changes in Nature, Yaté's individuals explain that the sea have seasons too, when the coral blossom the fishes know it, eat it and become fat, and so it is a good moment to fish. In their inquiry with professional fishermen the analysis from Zoneco shows that fishing professional strategies in New Caledonia are conditioned by the species choice that results from economic and abundance criteria. They also highlight that habits and tradition have a considerable influence in fishing activity particularly in Melanesian communities.

Lancelot (2014) also acknowledges recent changes in Kanak communities. One of the main changes highlighted in the interviews by an old fisherman is the noise pollution because of the increasing number of cars. Lancelot (2014) shows that the perceptions are different according to the occupation people had and their location: a young working in a factory highlights air quality deterioration, inhabitants living nearby the seaside underline the importance of coastal erosion, fishermen perceive water pollution and the farmers a reduction of grounds quality. The author underline that the acceleration of the cultural erosion and the diminution of farming practices can lead to an impoverishment of ecological knowledge and a use value of the environment diminished. Different domains are concerned by this phenomenon: Customary (roles, taboo stories), food-producing practices (legends, places and practices taboo), medicinal (remedy), handicraft (taboo knowledge). Lacombe (2014) explains that some knowledge is transmitted but few are putted into practice: lots of "young" are in Nouméa for their studies. These remarks highlight that the bond between natural resource and culture may be fragile.

This part explored the possible interaction between natural resources and culture. Based on the literature about Indigenous entrepreneurship it pointed to the idea that we don't have the same sensitivity to nature across culture. Kopenawa and Bruce (2010) brings a rich narrative about Yanomami's cosmology, which illustrates the special link its community have with Nature. By now this paper highlighted three ways spatial embeddedness, by its natural resource's endowment, impacts entrepreneurship: influencing clustering and provoking dynamics, setting boundaries and rules, and impacting the culture. The following part explores how fishing activity can adopt sustainable strategies in the pursuit of sustainable development.

## **5. Toward a sustainable interaction between entrepreneurship and natural resources**

Hart and Dowell (2011) come back on 10 years of development of the NRBV of the firm. Barney (1991) established that resources must be valuable, rare, inimitable, and supported by tacit skills or social processes. "The NRBV perspective allowed for a more systematic examination of the relationship between environmental and financial performance by specifying the link between resources and capabilities and strategic outcomes. In particular, the NRBV's emphasis on the contingent nature of resources and capabilities has aided researchers in making specific links between environmental and financial performance » (Hart and Dowell 2011, p.1467). One of the principal arguments of this theory was that capabilities that facilitate environmentally sustainable economic activity would become more and more important in the pursuit of a sustainable competitive advantage. They stress that organisational capabilities and cognition (framing), are key in the implementation of a natural resource based view of the firm. Three proactive environmental strategies were presented in the NRBV (Hart 1995) Pollution prevention, product stewardship and sustainable development. Hart and Dowell (2011) specify the improvement of the NRBV by the division of sustainable strategies into "clean technology" and "base of the pyramid strategies" (BoP). The information sent by Mr Humunie from the organisation of Loyalty Islands' fishermen highlighted equipment's needs like for example a boat to maintain their fish-aggregating devices. These devices allow improving their fuel efficiency and security gathering fish-stocks closer to the coast. Their report also stresses the need for skill training, indeed there

is no fishing training specific for the preparation to be a coastal fisherman that integrate the specificities of fishing activity in the Loyalty Islands. Also several fish-conditioning centres have been developed in the Islands in order to ensure the quality of the process. These remarks show that they identify and work on improvements that follow the idea of pollution prevention and product stewardship. Taking into account that nickel economy will not last forever and following Freyss' (1995) idea that it is a chance but not a solution. We argue that the main purpose of its revenue dedicated to fishing activity should be invested into strategies proposed by the NRBV. Harbi and Anderson (2010) pointed out the crucial role of institutions in the passage from necessity to opportunity entrepreneurship, this can be linked to the mood of development underlined by Lacombe.

One important remark to do on applying the NRBV to fishing activity is that the level of analysis of the NRBV is the firm. This makes it easily actionable with nickel economy or Noumea's fishing companies but for the BoP strategies it may not be adequate. Depending on the level of integration of the community to the global economy BoP strategies may focus on the firm for the most integrated; but it can also focus on the community level for rural areas where the western culture isn't dominant. Herrenschmidt and Sabinot (2014) conclude that fishing activity is an activity which seems to escape the economic logics, besides for high value-added pieces as the spiny lobster at the end of the year and some commercial species of the seaside as shells, or octopus which bring punctual but substantial income supplements. For the inhabitants of Yaté fishing activity is mainly for the daily auto-consumption. They perceive it as an activity source of food and financial complements, leisure and well-being. It remains nevertheless a food-producing activity for the most sedentary and precarious populations on the economic plan. The report highlights that the communities don't have the same relation to environment depending on their level of integration in the global economy: it is vital for the community less integrated. In this sense it plays an important social role for the most disadvantaged groups (Lancelot 2014).

Face to the importance of the lagoon as "pantry" for most New Caledonian people we suggest that the BoP strategy would first focus on the preservation of the lagoon and its symbol for Kanak people. Fishing activity is presented both as a symbol of food security and also it has a high symbolic social value. Herrenschmidt and Sabinot (2014) precise that fishing activity has an important socio spatial function that delimits the territorial legitimacies of clans and inhabitants. Pacific Secretary's (SPC) letter on fishing activity underlines that the number of tuna had decreased, the evaluations of fish stocks show that they have reached constant maximum yields. Also the SPC specify that low-scale traditional fishermen are the more vulnerable to fish stocks' depletion because their scope isn't usually larger than 50 km<sup>2</sup> from their base. This document attests of the importance of the protection of the area and monitoring of fishing in addition it underlines the high interaction between traditional fishing and industrial fishing: they capture the same species, on the same shape in nearly the same areas and industrial fishing take large quantities of fishes. They indicate that industrial fishing campaigns have never been so close from the traditional areas.

In addition in our interview Tordine underlined that in their nature Caledonian people are hunters and fishermen. As underlined in our interview with Navimon they are not people from the oceans as Polynesian but they use to practice coastal fishing. He precises that their priority is to hire Caledonian, among Navimon's sailors 50 % come from Loyalty islands and 20% Belep island. Fishing activity is so presented as a good lever for New Caledonian economy, Light and Dana (2013) underline the moderating aspect of culture in entrepreneurship activity; Kanak culture seems to be conducive with fishing activities.

As underlined by Stiglitz (2012) "Countries rich in natural resource are infamous for rent – seeking activities" (p.39), Nickel economy is preponderant in New Caledonia, generating high economic rents, however fishing activity render economic value and very high social value. The report of New Caledonia 2025 shows that subsistence fishing activity account for more than 60% of fishing activity in New Caledonia. This highlight the importance of the interaction needed between highly profitable but short-term activities (as extractive activities) and long-term development activities.

## 6. Conclusion

This article presented New Caledonian fishing activity using the context lens of the spatial context. It highlights that natural resources influenced ethnic clustering and impact business dynamics, set boundaries and rules, and may have an incidence on culture.

Introducing the concept of spatial embeddedness the paper proposes an articulation of the Natural Resource Based View with the resources' embeddedness approach. Institutions are presented as the key players to allow the efficient distribution of nickel rents to develop environmental capabilities needed for a sustainable development.

Further researches are needed to explore the concept of spatial embeddedness and the interaction of entrepreneurship and natural resources. The exploration of how natural resource based view can enhance BoP strategies for a community is suggested to be a path to self-determination for these communities.

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## **Entrepreneurship, employment and exclusion**

# Insights from understanding entrepreneurial intention amongst students across Balkan countries

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**Individual intentions influence human behaviors and, as a consequence, organizational outcomes. Therefore, the ability of eliciting and understanding intentions becomes a central issue in the managerial literature. In this contribution, we aim at determining whether the theory of planned behavior (TPB) combined with elements of the entrepreneurial event model (personal and situational variables) can explain entrepreneurial intentions among students from different Balkan countries. The Eight Balkan countries are studied separately, using a dataset of 931 observations to identify potential similarities and differences across nations with respect to the effects of attitude towards entrepreneurial behavior, subjective norms and perceived entrepreneurial behavioral control on entrepreneurial intention. For each of the eight countries examined, we find that the attitude towards entrepreneurial behavior is a highly significant determinant of entrepreneurial intention. Subjective norms are a better predictor of Albanian students' entrepreneurial intention, and perceived entrepreneurial behavioural control is significant for five out of the eight countries. Thus our research does not really support the view that cross-cultural differences in TPB components are negligible, since the relationships among TPB components are not equally strong or even comparable across countries. Differences across countries have been explained using Hofstede's categorization.**

## **Keywords**

Entrepreneurial intention, theory of planned behavior, entrepreneurial event model, university students, the Balkans

## **1. Introduction**

Entrepreneurship can create occupational opportunities and boost national economic development [1]. Entrepreneurship has gained popularity due to the reduced barriers to entry and increased accessibility of resources, which allows individuals to engage in potential and actual entrepreneurial behavior [2]. Entrepreneurship cannot be discussed without considering the risk factor which, according to [3] is embedded in the entrepreneurial intention, as previous studies revealed that individuals who are not risk-averse are more likely to exhibit entrepreneurial intention. Thus, entrepreneurial intention is key in understanding the functionality of the entire concept of entrepreneurship [4] and intentions have been proved to be the best predictors of individual behaviors particularly when the behavior is rare, hard to observe or involves unpredictable time lags [5]. To enhance Balkan students' entrepreneurial intentions, researchers and educators should investigate the predictors of their entrepreneurial intention.

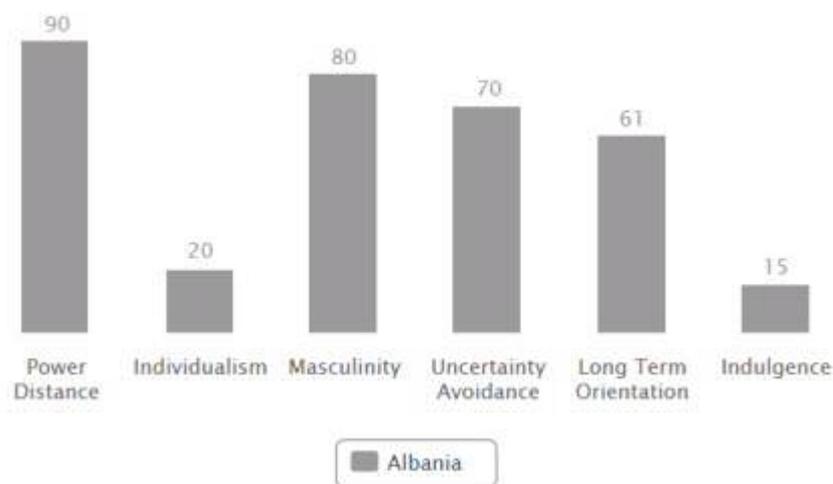
## **2. Literature Review**

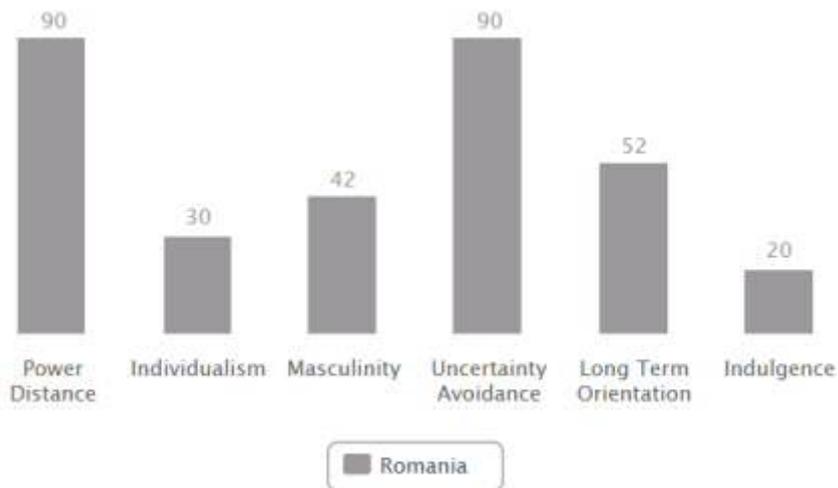
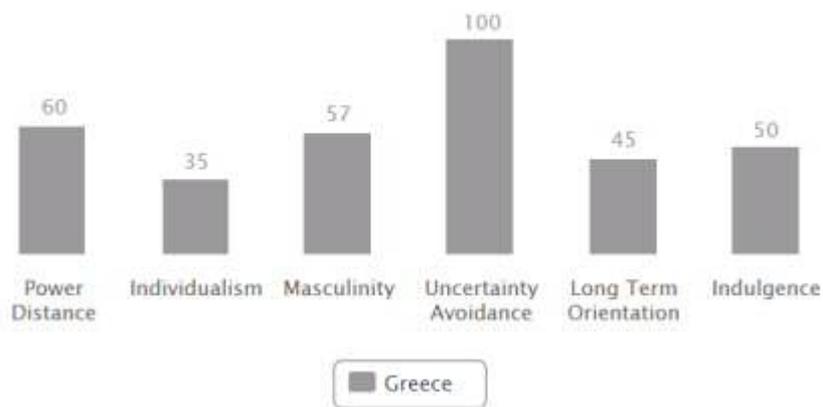
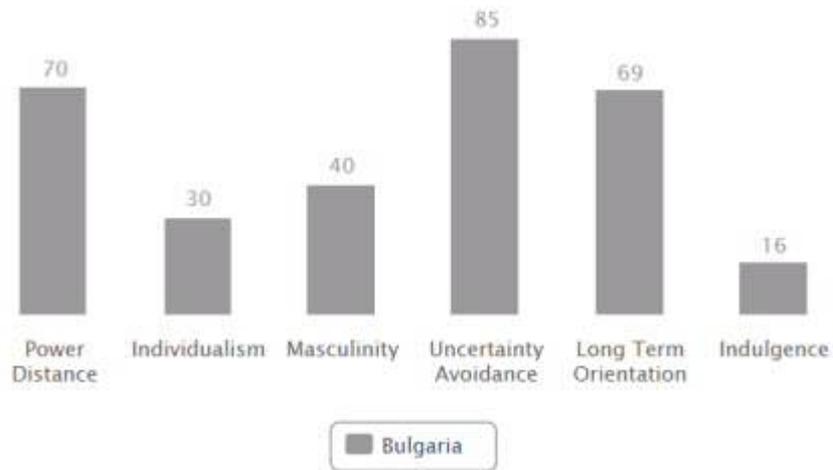
Entrepreneurship is considered by scholars to be contingent on the attitudes and the intentions that are generated by individuals' abilities, experiences and network within the business environment [4]. The two main theoretical frameworks employed in the literature to understand entrepreneurial intention are Theory of Planned Behavior (TPB) [6] [7] and Entrepreneurial Event model (SEE) [8]. According to the TPB, 39% and 27% of the variance in behavioral intention and behavior itself, respectively, can be explained [9]. As entrepreneurship is a kind of planned behavior based on intention [10], it is feasible to assume that the TPB could be used to predict students' entrepreneurial intention.

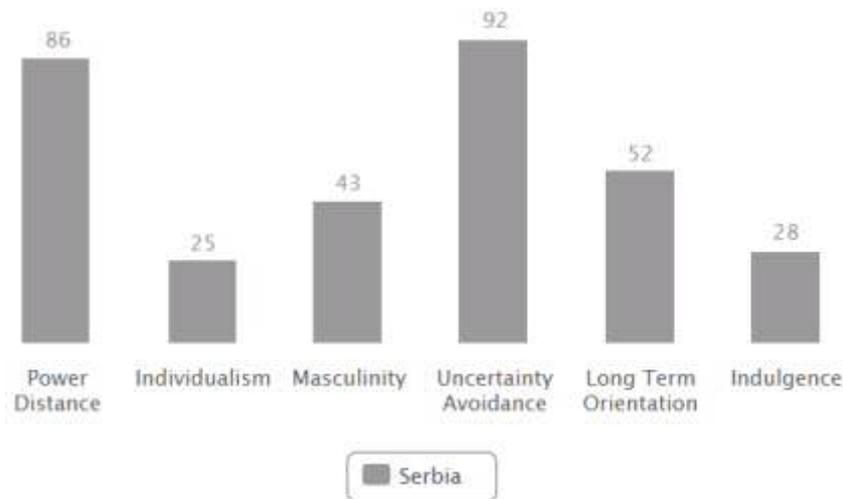
According to the TPB, people are assumed to be rational and to make systematic use of information available to them when making decisions. It is suggested that (a) individuals' behaviour is determined by their intention to perform that behavior, which is the most accurate predictor of behavior; (b) behavioral intention is a function of attitude toward the behavior, subjective norms, and perceived behavioral control; and (c) all other variables affect behavioral intention indirectly through the medium of attitude, subjective norms, and perceived behavioral control [6].

Attitude towards entrepreneurial behavior (ATEB) is a subjective assessment of the consequences of people's behavior and its influence on people, which determines whether people like or dislike some particular behavior [11]. Entrepreneurship is the process of exploring and exploiting business opportunities to create future goods and services by creating a new organization [12]. Some people view entrepreneurship as a last resort for those who cannot find any other job, whereas other people regard it as an admirable career choice that can help people reach self-actualization. Those who show positive – as opposed to negative – entrepreneurial attitudes, will be more likely to act as an entrepreneur and believe that entrepreneurship is not a method to make a living but a way of achieving self-actualization.

Subjective norms (SN) refer to individuals' perceptions that people who are important to them think that these individuals should, or should not, perform a certain behavior [13]. In most of the cases, subjective norms play an important role on one's behavior and normative beliefs push the individual towards seeking approval from his referents [14]. As Balkan cultures differ along the axes of Hofstede's framework [15] (see Figure 1), we expect that different people/stakeholders will be viewed as important by individuals in different countries and the effect of SN will be different across countries.





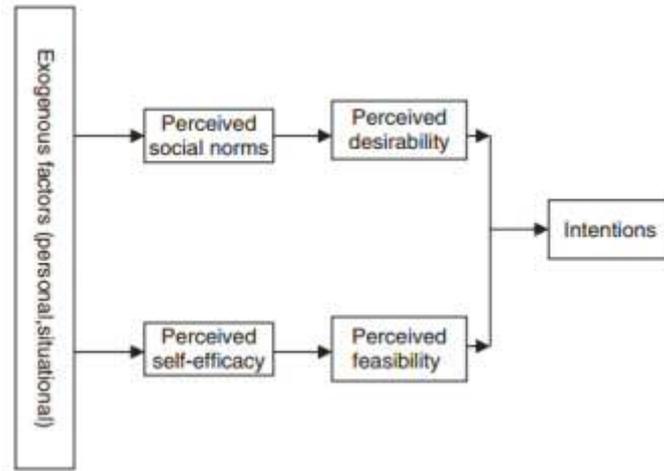


**Figure 1.** Balkan countries' culture dimensions based on Hofstede's categorisation

Perceived entrepreneurial behavioral control (PEBC) refers to the subjective understanding of the level of people's self-control and the difficulty of engaging in the target behavior [6] and it is related with self-efficacy [16]. Entrepreneurial perceived behavioral control can therefore be defined as the subjective evaluation of one's own entrepreneurial ability and resources, and also of the possibility of entrepreneurial success. Although business resources and entrepreneurial abilities are objective and important to the success of the entrepreneurial process, what can substantially influence entrepreneurial intention is neither the absolute number of the resources nor the abilities of entrepreneurs, but rather people's subjective evaluation of the resources and the capabilities [17]. When evaluating the same resources, some will think they are abundant, whereas others will believe they are scarce. The same is true for individuals' perception of their capabilities. People who are positive about their resources and capabilities regard entrepreneurship as an opportunity rather than a risk, and they tend to show a stronger entrepreneurial intention than do those who are negative [18].

The Entrepreneurial Event model (SEE) [8] considers the relationship of cultural and social factors that influence individual's perceptions push them towards venture creation. It has three main elements: The propensity to act, perceived desirability and perceived feasibility which ultimately formulate the intention. Propensity to act is the personal nature to act on one's decisions, reflecting volitional aspects of intentions. The second component of this model is one's perceived desirability on a given entrepreneurial situation. Which means that an individual will act based upon their desires; if it is about creating a business that they admire their intention will be to perform the entrepreneurial act. Third, each person has different ways of perceiving a business feasibility, which is also related to self-esteem. Meaning that, every individual has a different perception of their capabilities, especially when it is about venture creation.

Even though these two study methods are challenging to one another, it has been also found that they have their similarities. Ajzen's attitudes and perceived behavioral control is related to Shapero's perceived desirability and perceived feasibility, respectively. Which means that in these two approaches, intentions are examined and described by willingness and capability. Accordingly, Krueger and his associates developed an entrepreneurial intention model based on TPB and SEE [17] [19], as shown in Figure 2.



**Figure 2.** A classic entrepreneurial intentions model by Krueger.

Many other authors have used combinations of the ATB and SEE to examine entrepreneurial intention (for a review see [19] [20]). These models, which are based on the theory of planned behavior, offer a coherent, parsimonious, and robust theoretical frameworks for understanding and predicting intentions [17]. This paper follows the research stream of studies that have explored the cultural contingency on such mixed entrepreneurial intentions models (e.g. [21] [22]). More specifically, if applied to entrepreneurial settings, these models offer an opportunity to better understand and predict entrepreneurial activities. It is, therefore, reasonable to assume that such models will provide a good foundation for an investigation of Balkan students' entrepreneurial intention. Although some scholars have applied the TPB and SEE to predict entrepreneurial intention among Western students (e.g. [23] [24]), as far as the authors know, no researchers have applied such models in predicting Balkan university students' entrepreneurial intention despite the many cultural differences between Western countries and the Balkans. Therefore, the aim of this study is to determine if the theory of planned behavior combined with elements of the entrepreneurial event model (personal and situational variables) can explain entrepreneurial intention amongst students from different Balkan countries.

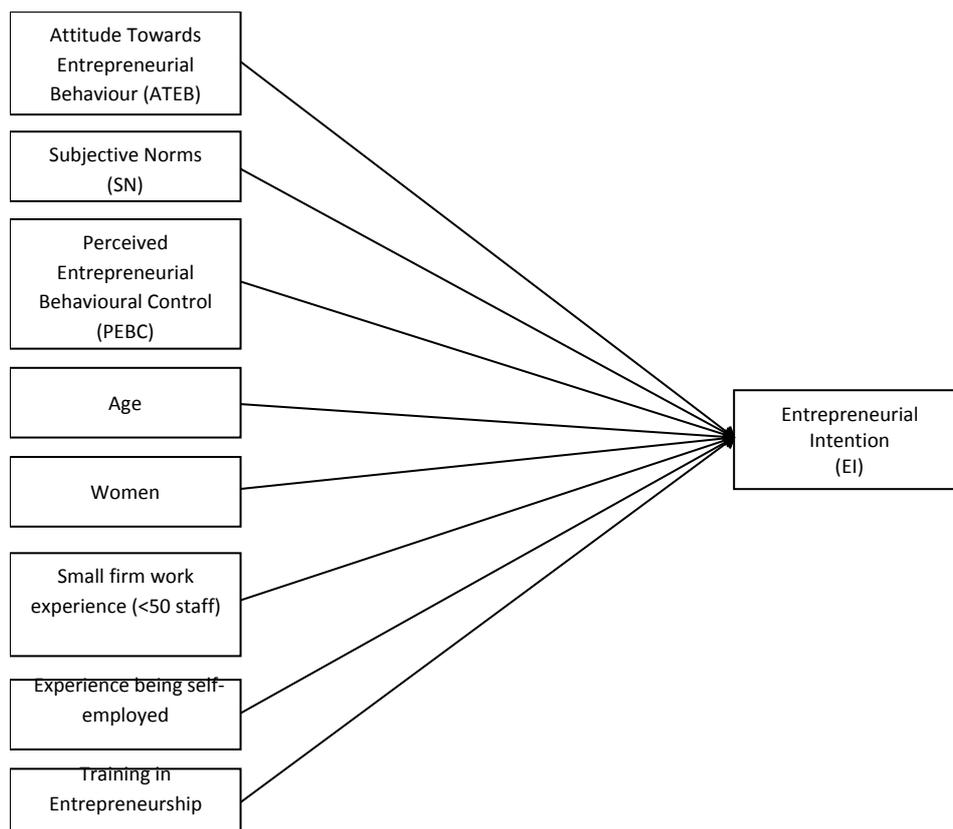
### 3. Model specification

Firstly, the study incorporates the potential influence of personal and situational variables on entrepreneurial intent, such as work experience, self-employed experience, age, gender, and entrepreneurial education on entrepreneurial intention. Work experience in small firms (those with less than 50 employees) was measured as a dichotomous variable of whether the individual had worked in a small firm. Knowledge generated through career experience [25] has been demonstrated to foster entrepreneurial activities. However, previous research has found that prior work experience in an SME does not shape students' EI [26]. A dichotomous variable was also used to log whether the individual had any self-employment experience. The influence of the age of the respondent was examined, and a positive correlation between age and intent is expected because of the increasing imminence of graduation, as indicated by [27]. More specifically, intention and, as a result the likelihood to be entrepreneurial, increases with age, peaking as people approach age 40 and then levels out [28]. We have also included the square of age as a separate variable to explore curvilinear effect on entrepreneurial intention.

Dealing with gender, adult men in the United States are twice as likely as women to be in the process of starting a new business [29]. Furthermore, research on the career interests of

teens, the potential entrepreneurs of the next generation, has revealed significantly fewer intentions among girls than among boys to get engaged in entrepreneurial careers [30]. Finally, one variable in the intentions theory that is not featured enough in literature is entrepreneurial education. The effect of general education has been explored [31] but only a few studies have looked at entrepreneurial education, particularly at university and tertiary institution level ([26] and [32]). For example, entrepreneurship education should create a capacity for imagination, flexibility, creativity, willingness to think conceptually, and the art of seeing change as an opportunity [33], thus affecting intention.

Second, the study incorporates attitude towards entrepreneurial behavior (ATEB), subjective norm (SN) and perceived entrepreneurial behavioral control (PEBC) as determinates of entrepreneurial intention (EI). As far as the subjective norm (SN) is concerned, the studies showed contradictory findings because social norms tend to vary both across cultures [34] and within cultures [35]. For example, in the United States, starting one's own business is usually considered a measure of achievement and personal success and thus attracts admiration and praise. In Finland, however, the general reaction is often a mix of awe and envy [36]. While bankruptcy is probably never considered something to aim for, it is not the "end of the world" in the United States. In fact, there are those who regard it as an effective learning process [37]. [38] argues that US students do not put much emphasis on SN mainly due to their highly entrepreneurial environment, and the same relatively low influence of SN is highlighted by [26] for a British sample. Conversely, [3] found a positive relationship between SN and EI among their American sample, as well as [39] for Indonesia. Yet, social norms may not be a sufficiently strong indicator of EI in individualistic societies [4]. Finally, perceived entrepreneurial behavioral control (PEBC) appears to have an important effect on EI among American students [3] and there are scholars arguing that it is the only major construct which can directly influence EI, because ATEB and SN are, themselves, explained through PEBC [21]. Figure 3 summarises the model used in this study.



**Figure 3.** Entrepreneurial intentions model.

## 4. Methodology

### 4.1 The sample

The current study is based on data from university students in eight different countries namely Albania, Bulgaria, Cyprus, FYROM, Greece, Kosovo, Serbia, and Romania. The dataset corresponds to 931 observations, restricted to individuals between 17 and 29 years of age. The eight Balkan countries are studied separately in order to identify potential national similarities and differences for the effect of the attitude towards entrepreneurial behavior (ATEB), subjective norm (SN) and perceived entrepreneurial behavioral control (PEBC) on entrepreneurial intention (EI). Table 1 also reports the sample statistics for the pooled sample. The data show that women represent 44% of the sample and it appears that almost half of the sample (48%) had work experience in a small firm, 43% had a recent experience as self-employed, and received entrepreneurship training in the past. As in most studies, respondents generally find the idea of being an entrepreneur marginally attractive (mean score 5.02), with a marginally positive approval of that decision by their close environment (mean score 5.19). However, they feel less capable regarding their skills and capabilities to succeed as entrepreneur (mean score 4.15). Lastly 36% of the sample report entrepreneurial intention. Finally, Table 1 shows that the VIF scores are very low thus the sample does not exhibit the risk of multicollinearity.

**Table 1** Descriptive statistics

Variables	Obs	Mean	Std.Dev.	Min	Max	VIF
Entrepreneurial Intention (EI)	931	0.368	0.48	0	1	3.08
Attitude Towards Entrepreneurial Behaviour (ATEB)	931	5.02	1.44	1	7	2.47
Subjective Norms (SN)	931	5.19	1.24	1	7	1.35
Perceived Entrepreneurial Behavioural Control (PEBC)	931	4.15	1.46	1	7	2.52
Age	931	22.6	2.11	17	29	1.09
Women	931	0.44	0.49	0	1	1.04
Small firm work experience (<50 staff)	931	0.48	0.50	0	1	1.11
Experience being self-employed	931	0.43	0.49	0	1	1.2
Training in entrepreneurship	931	0.43	0.49	0	1	1.2
Albania	61	0.065	0.24	0	1	n/a
Bulgaria	280	0.301	0.45	0	1	n/a
Cyprus	49	0.052	0.22	0	1	n/a
FYROM	53	0.056	0.23	0	1	n/a
Greece	210	0.225	0.41	0	1	n/a
Kosovo	61	0.065	0.24	0	1	n/a
Serbia	106	0.113	0.31	0	1	n/a
Romania	59	0.064	0.24	0	1	n/a

### 4.2 Measurement of the Constructs

The Entrepreneurial Profile Questionnaire (EPQ) is partially utilized as a data collection instrument and it was adopted from the studies of [21] and [40]. The administered questionnaire consisted of 2 parts. The first part had consisted of questions on the profile of

the respondents (age, gender, training experience, small business experience). The second part consisted of questions eliciting information about the Major Constructs (Variables): Attitude towards entrepreneurial behaviour (ATEB), Subjective norm (SN), Perceived entrepreneurial behavioural control (PEBC), and Entrepreneurial intention (EI), as reported in the Appendix.

Attitude towards entrepreneurial behavior (ATEB) is measured using five items that describe how attractive an entrepreneurial career is. Cronbach's alpha for the current sample is 0.91. The construct (ATEB) is calculated as the mean of the individual scores ranges from 1 (total disagreement) to 7 (total agreement), and higher scores reflect greater ATEB.

Subjective norms (SN) are measured using four sub-questions each measuring how people in close environment (e.g. family, friends, colleagues, significant others) approve of the decision to create a firm, ranging from 1 (total disagreement) to 7 (total agreement). Cronbach's alpha for the current sample is 0.82. The construct is calculated as the mean of the individual scores ranges from 1 to 7, and higher scores reflect greater SN.

Perceived entrepreneurial behavioural control (PEBC) consists of an index of seven items measuring statements regarding the entrepreneurial capacity of the respondents ranging from 1 (total disagreement) to 7 (total agreement). Cronbach's alpha for the current total sample is high 0.93. High scores are reflective of high entrepreneurial self-efficacy.

Finally, in our model the dependent variable, Entrepreneurial Intention (EI), is measured using a seven-item scale in which each item assesses the perceived likelihood of an individual to choose an entrepreneurial career ranging from 1 (total disagreement) to 7 (total agreement). The Cronbach's alpha is very high at 0.95. The variable is calculated as the mean of the seven constructs items. This seven-point scale is collapsed to a binary variable indicating his/her entrepreneurial intention. This variable takes the value 1 if the individual's reported a score above the sample mean EI score and 0 otherwise.

## 5. Results

This section presents: a) correlation analysis of the variables of interest, b) the results for the factors that affect entrepreneurial intention for the whole sample, and c) the estimation of results for entrepreneurial intention for each country separately.

Table 2 presents the correlation analysis of the variables of interest and, as expected, ATEB, SN, and PEBC are all strongly positively correlated.

**Table 2** Correlations of dependent and independent variables

Entrepreneurial Intention (EI)	1.00				
ATEB	0.73***	1.00			
SN	0.38***	0.47***	1.000		
PEBC	0.74***	0.63***	0.42***	1.00	
Women 1.00	-0.12***	-0.08***	-0.04	-0.13***	
Age 0.11*** 1.00	0.12***	0.01	0.001	0.20***	-

Work experience in small firm	0.09***	0.09***	0.04	0.10***	-0.06*	0.09***	1.00
Self-employed experience	0.15***	0.09***	0.03	0.16***	-0.03	0.06 *	0.24***
Entrepreneurship training	0.15***	0.13***	0.01	0.11***	0.03	0.02	0.24***

Pearson correlation coefficients are shown \*\*\*p<.01; \*\*p<.05; \*p<0.10

Because of the significant correlations between most of the variables, the different variables are entered stepwise to regression models in order to control potential instability caused by multicollinearity. Table 3 presents the results for hierarchical probit model estimation of Entrepreneurial Intention for the whole sample, and Table 4 probit model results of Entrepreneurial Intention for each country. The power of the models is consistent with previous research ([19] [26]).

For the whole sample, the regression analyses show that ATEB and PEBC are significant predictors of entrepreneurial intentions, while no significant influence is indicated for SN. The results also show that the relationship between entrepreneurship intention and age is inversely U-shaped. Also, in line with [16] and [41] among others, this study reveals that entrepreneurship intention is higher among men. A number of studies establish a positive link between entrepreneurship education programs and entrepreneurship (e.g. [42] [43]). The results of this study do not suggest that students that have followed entrepreneurship training will have higher entrepreneurship intention. Probably in most of the Eastern European countries there is a lack of a comprehensive policy framework of entrepreneurial education, and respondents have no such educational experience so the data for this variable are skewed towards the value of 0. Contrary to [44], the present study does find any significant self-employment effects on entrepreneurship intention and this may reflect the existence of particularly unfriendly policies towards entrepreneurs in the countries under examination. Finally, the current study does not find any significant small firm work experience effects on the entrepreneurship intention.

**Table 3** Probit model for entrepreneurial intention

Dependent variable: EI	Model (1)	Model (2)	Model (3)	Model (4)	Model (5)	Model (6)
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Standard errors in parentheses; \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

<b>ATEB</b>	0.598*** (0.061)	0.600*** (0.061)	0.599*** (0.061)	0.601*** (0.061)	0.601*** (0.062)	0.600*** (0.062)
<b>SN</b>	-0.006 (0.054)	-0.005 (0.054)	-0.005 (0.054)	-0.006 (0.054)	-0.006 (0.054)	-0.004 (0.054)
<b>PEBC</b>	0.553*** (0.052)	0.546*** (0.052)	0.545*** (0.052)	0.540*** (0.052)	0.540*** (0.052)	0.551*** (0.054)
<b>Women</b>		-0.205* (0.108)	-0.204* (0.108)	-0.208* (0.108)	-0.208* (0.108)	-0.231** (0.109)
<b>Work experience in small firm</b>			0.053 (0.106)	0.034 (0.108)	0.033 (0.110)	0.035 (0.111)
<b>Self-employed experience</b>				0.105 (0.109)	0.104 (0.113)	0.114 (0.113)
<b>Entrepreneurship training</b>					0.004 (0.114)	0.001 (0.115)
<b>Age</b>						-0.274* (0.158)
<b>Age<sup>2</sup></b>						0.005* (0.003)
<b>Constant</b>	-5.965*** (0.410)	-5.863*** (0.414)	-5.879*** (0.415)	-5.899*** (0.416)	-5.899*** (0.416)	-2.546 (1.948)
<b>Observations</b>	931	931	931	931	931	931
<b>Log Likelihood</b>	-366.1	-364.2	-364.1	-363.7	-363.7	-361.8
$\chi^2$	494.2	497.8	498.1	499	499	501.9
<b>Pseudo R<sup>2</sup></b>	0.403	0.406	0.406	0.407	0.407	0.410

Standard errors in parentheses; \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

The gender issue is further examined in Table 4 which presents regression results separately for men and women in the pooled sample across various countries.

**Table 4** Models by gender

<b>Dep Var: EI</b>	<b>Model 1 Women</b>	<b>Model 2 Men</b>
ATEB	<b>0.733***</b> ( <b>0.120</b> )	<b>0.568***</b> ( <b>0.084</b> )
SN	-0.120 (0.103)	0.096 (0.076)
PEBC	<b>0.537***</b> ( <b>0.099</b> )	<b>0.557***</b> ( <b>0.074</b> )
Age	-0.347 (0.229)	-0.414 (0.272)
Agesquare	0.006 (0.004)	0.008 (0.005)
Albania	<b>-1.120**</b> ( <b>0.468</b> )	-0.061 (0.333)
Bulgaria	0.060 (0.245)	0.212 (0.205)
Cyprus	-0.490 (0.502)	<b>0.878***</b> ( <b>0.307</b> )
Fyrom	-0.210 (0.342)	0.631 (0.396)
Kosovo	-0.686 (0.448)	0.015 (0.331)
Serbia	0.297 (0.372)	0.080 (0.277)
Romania	-0.175 (0.359)	-0.320 (0.325)
Constant	-1.470 (2.824)	-1.179 (3.369)
Observations	388	491
Log Likelihood	-135	-189.3
$\chi^2$	213.2	289.3
Pseudo R	0.441	0.433

This model is also replicated separately for eight Balkan countries (see Table 5). Such a distinction would provide information related to whether the cultural norms play an important role in affecting the entrepreneurial intention. According to [45], cultural values and practices moderate the effects of constructs (ATEB, SN, PEBC) on entrepreneurial intention. Cultural characteristics of Balkan countries according to Hofstede dimensions are shown in Figure 3, in the Appendix. People from more collectivistic countries, such as in our sample, tend to perceive themselves as less autonomous, less differentiate from others and more interdependent. This suggests that probably the consideration of the expectation of people in close environment will effect on the intention to become an entrepreneur.

**Table 5** Probit model for entrepreneurial intention by country

Dependent	Model (1)	Model (2)	Model (3)	Model (4)	Model (5)	Model (6)	Model (7)	Model (8)	Model (9)
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Variable:									
EI									
	Albania	Burgaria	Cyprus	Fyrom	Greece	Kosovo	Serbia	Romania	ALL
<b>ATEB</b>	1.318** (0.644)	0.451*** (0.105)	3.063** (1.550)	0.876** (0.387)	0.706*** (0.161)	1.123** (0.476)	0.636*** (0.227)	0.948*** (0.319)	0.595*** (0.066)
<b>SN</b>	1.163** (0.588)	-0.032 (0.104)	0.768 (0.834)	-0.025 (0.222)	0.161 (0.140)	0.141 (0.594)	-0.207 (0.217)	-0.127 (0.216)	0.031 (0.058)
<b>PEBC</b>	0.806* (0.427)	0.610*** (0.112)	1.090 (0.709)	0.397 (0.268)	0.664*** (0.126)	1.529*** (0.494)	0.569*** (0.161)	0.303 (0.214)	0.549*** (0.058)
<b>Women</b>	-1.840* (1.017)	-0.165 (0.192)	-4.001** (1.983)	-0.744 (0.523)	0.138 (0.258)	-1.587* (0.951)	0.454 (0.396)	0.383 (0.479)	-0.191* (0.115)
<b>Age</b>	12.387 (9.982)	-0.494 (0.349)	-3.198 (2.797)	-3.720 (2.273)	-0.675** (0.308)	-1.982 (2.432)	2.692 (2.244)	1.470 (2.322)	-0.368** (0.175)
<b>Agesquare</b>	-0.286 (0.236)	0.009 (0.007)	0.061 (0.063)	0.084 (0.052)	0.012** (0.006)	0.037 (0.053)	-0.061 (0.050)	-0.030 (0.051)	0.007** (0.003)
<b>Albania</b>									-0.467* (0.260)
<b>Bulgaria</b>									0.144 (0.155)
<b>Cyprus</b>									0.520** (0.252)
<b>Fyrom</b>									0.180 (0.248)
<b>Kosovo</b>									-0.276 (0.261)
<b>Serbia</b>									0.157 (0.219)
<b>Romania</b>									-0.263 (0.237)
<b>Constant</b>	-150.516 (109.230)	1.234 (4.402)	16.986 (33.814)	34.582 (24.505)	1.035 (3.826)	11.418 (29.019)	-34.463 (24.931)	-24.761 (26.428)	-1.376 (2.177)
<b>No of Obs</b>	61	280	49	53	210	61	106	59	879
<b>Log Likelihood</b>	-11.07	-120.6	-7.526	-18.84	-68.24	-9.614	-33.57	-24.44	-332.2
$\chi^2$	32.29	145.2	52.69	35.78	121.8	54.78	71.20	25.28	496.9
<b>Pseudo R<sup>2</sup></b>	0.593	0.376	0.778	0.487	0.471	0.740	0.515	0.341	0.428

Standard errors in parentheses \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

The results indicate that the variable ATEB is a highly significant determinant of the entrepreneurial intention for all eight countries and expect Bulgaria and Kosovo is appeared to be the strongest predictor. Multigroup analyses also show significant differences in predictive power of variable PEBC, as it is significant for five out of the eight countries. As in the basic model, SN have no effects on entrepreneurial intention in all countries expect for the case of Albania. Thus our research does not really support the view that cross-cultural differences in the meaning of TPB components are minor since the relationship among the TPB components are not equally strong and comparable across countries -the only exception being the positive relationship of attitude with intentions.

## 5. Conclusions and discussion

First, an average entrepreneurial intention of 0.368 can be considered normal in the Balkan countries because, according to Figure 1, uncertainty avoidance is high for all such cultures (except in Greece), individualism is low, and indulgence is also low. So Balkan students may not have strong internal locus of control, may not like risk and may not want to indulge in the

material benefits of successful entrepreneurship.

Second, subjective norms was a better predictor of Albanian students' entrepreneurial intention than was perceived behavioral control, which is an expected result because subjective norms vary between different cultures. This may be because Albania is the country with the least individualistic cultural dimension and the strongest power distance dimension amongst Balkan countries (Figure 1) (note that people in societies exhibiting a large degree of power distance accept a hierarchical order in which everybody has a place and which needs no further justification). In contrast, in some Western studies researchers found that subjective norms had no substantial influence on entrepreneurial intention [21]. Whereas in Albanian culture collectivism is emphasized, in Western cultures the emphasis is on individualism [15]. Albanian people from birth onwards are always integrated into strong and cohesive groups, and people in these groups will continuously protect the other members of the group so long as they are absolutely loyal [15]; therefore, people in the group would pay much attention to the opinions of other group members.

Subjective norm was not significant for other cultures probably because of another challenge when measuring norms is identifying the correct reference group. The reference group for an entrepreneur or a potential entrepreneur is not necessarily only family and friends, but may actually include colleagues and business partners [36]. Once again this is a context-specific issue. In some countries or cultures, the impact of family may be greater than in others. For instance, some studies have concluded that families are a source of influence on career choices, personal development, goal orientation, personality, and motivation to become entrepreneurial [46]. The measure of SN used in this study has aggregated the effect of family, colleagues, friends, and people significant to the subject. If SN was measured only based on family and friends, or only based on colleagues the results could have been different. Also, given that the sample is characterized by a homogeneous age level of respondents with limited work experience, they may not consider the influence of colleagues as important, and they may be more focused on their family and friends.

Third, for Bulgaria, Greece, Kosovo, and Serbia PEBC significantly affected entrepreneurial intention, which is similar result to studies with people in Western cultures that have found that perceived behavioral control was the best predictor of entrepreneurial intention, followed by attitude, and then subjective norms, in that order [17]. This is so because in Western cultures, individualism is more emphasized and people place great significance on their own abilities and are not easily influenced by the views of important figures around them.

As far as gender differences is concerned, [30] compared perceptions of knowledge with actual knowledge of entrepreneurial skills and it showed that although the skill levels of boys and girls were comparable, girls were more likely to feel ill prepared. Also, Spanish male students are more inclined than women to become self-employed [19]. This is also evident from the results of this study (Model 6, Table 4) which indicates a macho culture across the Balkans, and it is corroborated by results on table Table 5. When gender was tested at the country level, only female students from Cyprus gained lower scores than those of their male counterparts, indicating that Cypriot males demonstrate a significant entrepreneurial intention compared to Cypriot women. Additionally, Albanian women show a significantly negative entrepreneurial intention compared to Albanian men.

As in any study, this project has limitations. First, all the variables were measured using a single questionnaire. Although common method bias was shown not to be an issue, in future research different variables should be measured with different methods. Second, using the items of [18], which were developed in the United States, to measure Balkan students' entrepreneurial perceived behavioral control might ignore some requisite resources or abilities typical for Balkan students, such as personal relational network similar to the notion of guanxi in China (see e.g., [47]). Finally, entrepreneurship education should include some courses or programs that can promote entrepreneurial attitude and subjective norms. However, there is little knowledge about how to foster subjective norms [21] and future researchers should address this gap.

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## Appendix

### Attitude towards entrepreneurial behaviour (ATEB)

Indicate your level of agreement with the following sentences from 1 (total disagreement) to 7 (total agreement).

- a- A career as entrepreneur is attractive for me
- b- Being an entrepreneur implies more advantages than disadvantages to me
- c- If I had the opportunity and resources, I would love to start a firm
- d- Being an entrepreneur would entail great satisfaction for me
- e- Among various options, I would rather be an entrepreneur

### Subjective Norm (SN)

If you decided to create a firm, would people in your close environment approve of that decision? Indicate from 1 (total disapproval) to 7 (total approval).

- a. Your close family
- b. Your friends
- c. Your colleagues and mates
- d. Other people significant to you

### Perceived Entrepreneurial Behavioural Control (PEBC)

To what extent do you agree with the following statements regarding your entrepreneurial capacity? Value them from 1 (total disagreement) to 7 (total agreement).

- a. To start a firm and keep it viable would be easy for me
- b. I am prepared to start a viable firm
- c. I can control the creation process of a new firm
- d. I know the necessary practical details to start a firm
- e. I have the skills and capabilities to succeed as entrepreneur
- f. I know how to develop an entrepreneurial project
- g. If I tried to start a firm, I would have a high probability of succeeding

### Entrepreneurial Intention (EI)

Indicate your level of agreement with the following statements from 1 (total disagreement) to 7 (total agreement)

- a. I am ready to do anything to be an entrepreneur
- b. My professional goal is to become an entrepreneur
- c. I will make every effort to start and run my own firm
- d. I am determined to create a firm in the future
- e. I have very seriously thought of starting a firm
- f. I have the firm intention to start a firm someday
- g. I am going to start my own business within one year of graduation

# Minority entrepreneurs' exposure and journey in business: the underpinning assumptions and actions

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In this paper we introduce Morgan's (1986, 1997) eight metaphors for *making sense of* entrepreneurs' motives and their view of 'reality'. Employing Burrell and Morgan's (1979, 2003) four paradigms for the analysis of organisational theory, we propose a methodology to capture the 'longitudinal' journey of minority ethnic entrepreneurs' original motives for setting up business; and, current and future perceived image. We use a deductive approach by developing a multiple-choice questionnaire based on eight metaphors. The data is collected from 30 small business owner managers/entrepreneurs based in Bradford, West Yorkshire. Our initial findings show that the assumptions of most of the respondents conform to the "functionalist" paradigm that place emphases on order, objectivity, rationality and tangible view of 'reality'. Accordingly most of the respondents selected the *functionalist* metaphors like 'Brain', 'Machine' and 'Psychic Prison'. Interestingly, most of the respondents selected and re-selected functionalist paradigm to indicate their past and future aspirations, perhaps due to their need for business stability and to subside any insecurity feelings with regards to their future. However, interestingly many respondents selected "radical Humanist" or "interpretivist" paradigms to map their current situation. These paradigms portray relatively more entrepreneurial and explorative mindset, perhaps mimicking unease with the current situation and a *desire* by the respondents to introduce some kind of a change in their current business and social settings. We believe that their metaphorical assumptions could determine their decision making, policy and strategy setting, and, actions. In our view our research instrument is appropriate for conducting 'longitudinal' studies for eliciting past, current and future assumptions of entrepreneurs.

## Keywords

Bradford, Ethnic Minority Entrepreneurs, Metaphors, Paradigms

## 1. INTRODUCTION

Originally the term entrepreneur was used for a businessman (Stevenson and Jarillo, 1990), however, after Schumpeter's seminal work on the topic (Schumpeter, 1951); many have accepted his definition of entrepreneurship to be associated with some kind of technical or financial innovation to generate some (irregular) economic growth. There are three different schools of thoughts with regards to entrepreneurship efforts. The first school considers a strong relationship between entrepreneurship and culture at macro level (national and regional) level (for example, see Morrison, 2000). The second school adopts a process driven attitudinal and external environment mix arguing that it is the external environment which shapes the behaviour of individual's attitude towards risk, work, money and individual goals (Robinson et al. 1991). The third school considers social and economic factors that

affect entrepreneurship regarding availability of economic resource, quality of life conditions and health issues influence in decision making (Pennings, 1982).

There are other entrepreneurial push and pull factors that are found in the literature. For example, push factors are reported as redundancy, blocked promotion, recession, unemployment, frustration with previous employment, the need for creative expression, and need to earn a reasonable living (Watson and Hogarth-Scott, 1994; Davis and Gibb, 1991; Brockhaus and Horwitz, 1986). Whereas, the pull factors include independence, being ones own boss, creative expression, choice of work and profit motives (Watson and Hogarth-Scott, 1994).

In this paper we explore the underlying motives and attitudes of ethnic minority entrepreneurs for setting up new businesses using Burrell and Morgan 's (1979) organisational paradigms along with Morgan's metaphors (1986; 1997). This is to help make sense of the entrepreneurs ' motives and their current and future image of their business. Metaphors create mental pictures, which are used to interpret the world, such as working of an organisation as a machine (Ortony, 1975; Smith and Simmons, 1983; Oswick and Grant, 1996). Lackoff and Johnson (1980) and Morgan (1986) believe that metaphors affect our cognitive learning and structure, by creating certain types of realities within our minds and assist us to contextualise the world in ways that we may not have envisaged before. Metaphors encapsulate perceptions of the organisation held by individuals, and allow them to express their relationship to the organisation in terms of their motives, desires, attitudes, needs and dedication. Similarly, metaphors may express individual 's perceptions of organisational structure, management control and style of management.

## 2. LITERATURE REVIEW ON METAPHORS AND ENTREPRENEURSHIP

In this section we provide theoretical underpinning of our research methodology by reviewing literature on metaphors and paradigms. We also develop a link between metaphors, paradigms and motives of entrepreneurs to engage in a business activity.

### 2.1. Metaphors

Metaphors create mental pictures, which are used to interpret the world, such as working of an organisation as a machine (Ortony, 1975; Smith and Simmons, 1983; Oswick and Grant, 1996). Lackoff and Johnson (1980) and Morgan (1986) believe that metaphors affect our cognitive learning and structure, by creating certain types of realities within our minds and assist us to contextualize the world in ways that we may not have envisaged before. Morgan (1986, 1997) provides eight metaphors of organisations: *machine, organism, brain, culture, political systems, psychic prison, flux and transformation, and, instruments of domination.*

Morgan (1986) refers to metaphors as lenses through which one could view organisations in different ways. Additionally, in a rejoinder to Pinder and Bourgeois (1982) Morgan (1983: 601) stresses that a metaphor is not simply "A figurative device for the embellishment of language and discourse, rather [it is] a basic structural form of experience through which human beings engage, organise, and understand their world ". Lackoff and Johnson (1980, 1999) highlight the psychological impact of metaphors, where metaphors affect our cognitive learning structures. Metaphors create pictures in our minds and affect the assumptions that influence our attitudes and behaviour (Ward et al., 2005). Therefore metaphors can be regarded as conceptual tools for communication of ideas/beliefs (Ortony, 1975; Sacks, 1978; Tsoukas, 1991; Safro and Segel, 2003; Lackoff and Johnson, 1980; Ricoeur, 1978(b); Tilley, 1999; Way, 1991). Metaphors also have an imagery value and affect our view of the world (1978; Sacks, 1978; Morgan, 1986, 1997). They are used in our everyday lives and they affect the way we interpret and *make sense* of the world (Oswick and Grant, 1996; and, Lawley and Tompkins, 2000).

The extent of the application of metaphors to organisational research is impressive. Many writers have

used metaphors to understand and explore organisations. Examples include Gibson and Zeller-Bruhen (2001) who used metaphors to explain organisational teamwork in different contexts; Polley (1997) uses the metaphors of bifurcation and mathematical chaos to explain organisational dynamics; Sushil (2001) uses ten metaphors to describe managerial flexibility. Scholars such as Morgan (1980) and Bryant (1993), use metaphors as problem solving devices and for making general sense of organisations. Morgan (1986, 1997) of course uses eight archetypal or metaphorical images which capture researcher presuppositions and assumptive structure regarding the nature of organisations. Other examples of the application of metaphors to organisational research can be found in Table 1:

**Table 1: Morgan's eight metaphors of organisation**

<b>Machine (M)</b>	Views the world and organisations as having physical existence. Its values rationality and stability, where work tasks are programmed and sequenced, for example division of labour. There is a need for good planning and control over the workforce.
<b>Organism (O)</b>	Views the world and organisations as constantly changing and emphasises the necessity of paying better attention to human needs. It believes that more flexibility should be given to the workforce over decision to operate and work. The human factors are important for the survival and reproduction of the organisation.
<b>Brain (B)</b>	Views communication and decision making aspects as important. It holds a hierarchical view of operating and managing the organisation. It believes in continuous organisational learning and the need for more knowledge.
<b>Culture (C)</b>	Gives an importance to ideology, values and daily organisational rituals of organisations and their importance. Hence learning about employee behaviour and common beliefs is a key to organisational survival and success.
<b>Political system (Po)</b>	Views power and authority as important. It holds that the actual ability to allocate resources and then monitor their use that depends on the degree of political power.
<b>Psychic prison (Ps)</b>	Gives importance to conscious/unconscious and ideological beliefs of individuals. It believes that workers may have different ways of seeing management control and organisational structure and may see themselves as imprisoned by their organisation and its ways of working.
<b>Flux and Transformation (F+T)</b>	Views organisation as in a constant state of transformation and change. Thus depending on the organisation and its circumstances it may be better to give it greater degree of self-determination.
<b>Instruments of Domination (IofD)</b>	Emphasises the power and domination of management and the organisation over its workers and environment. The workers see management as behaving rationally and using humans as objects that are merely tools for production.

## 2.2. Burrell and Morgan's paradigms

Burrell and Morgan (1979) describe their organisational paradigms using five set of assumptions. The first one is *ontological* assumption, which concerns the existence of the social world. On one hand, the social world is considered external to the individual: 'reality' is objective (realism). On the other hand, the social world is considered the product of individual consciousness: 'reality' is subjective (nominalism). The second one is *epistemological* assumption, which concerns the grounds of knowledge. At one end, knowledge is hard, real, and tangible: it can be communicated tangibly

(positivism). On the other end, knowledge is soft, subjective, and spiritual: it can only be personally experienced (anti-positivism). The third one concerns *human nature* with their social environment. At one extreme, humans are viewed as being conditioned or determined by their environment (*determinism*). At the other extreme, humans are viewed as the creators of their environment: they possess free will (voluntarism). The fourth one concerns the *method* used to investigate and obtain knowledge of the social world. Here again at one extreme, method views social world as external, objective reality (nomothetic). At the other extreme, method views social world as created by the subjective experience of individuals (ideographic). The fifth assumption concerns the nature of society. This entails the degree of *regulation* that focuses on whether the social world is stable, cohesive and integrated with underlying unity. There is an emphasis on consensus (voluntary) between humans and needs satisfaction and the stabilizing effect of structure on interaction involved in societal regeneration. The status quo is continually maintained or changes only slowly - conflict and differences are largely absent. *Radical Change*, assumes that the social world is unstable and divided, with deep-seated structural conflict, dissension and modes of domination. It emphasizes the unstable nature of structure or interaction that produces new structure. The status quo changes rapidly and forces exist that tend to change society radically. These assumptions are used to form four paradigms:

*Functionalist paradigm*: The organisation is a concrete entity rarely undergoing radical change, and it exerts influence on individuals to maintain the status quo. Within such organisation stability and the status quo are important.

*Interpretivist paradigm*: The organisation is a social construction created by the process of human interaction. Radical change is infrequent and consensus is important to maintain the status quo. The organisation exists as a result of consensus, which emerges from a social construction process of human interaction. Here the reality exists in human consciousness only.

*Radical structuralist paradigm*: Organisations are shaped by social conflict between production owners and labour which is experienced as objective reality by the oppressed classes (labour). This conflict has the potential for radical change. There is a focus on the ways in which power and domination perpetuate this reality, and there is also a focus on the tendency of society to create conflict and instability. The potential for radical change always exists and strong forces are pervasive in society.

*Radical humanist paradigm* : Organisations are shaped by social constructions arising from the subjective views of their participants. Dissension creates radical change to status quo to potentially emancipate participants. The organisation exists as a social construction - social constructions are a product of human consciousness and are fragile and easily liable to change, such change is healthy and should be encouraged.

We believe that debates about the best way to elaborate specific paradigmatic locations (Sacks, 1978; Lackoff and Johnson, 1980; Miall, 1982; Vincent-Wayne, 1991; Soyland, 1994; Grant and Oswick, 1996; Tilley, 1999; Schreyogg and Hopfl, 2004) could be enriched by more discussions about the importance of 'multi-level' views of metaphor and their use in organisation.

In paradigmatic sense, a typical entrepreneur would fall into those paradigms that are based on change assumptions, such as *radical structuralist* and *radical humanist*. This is due to the fact that most entrepreneurs, at least theoretically, have a desire to change their current circumstances or would like to make a difference through their contribution to society. Furthermore, as at the initial stage most of the entrepreneurial activity starts off in a conceptual manner (rather than making a "physical" attempt to force others into their own 'mind frame'), entrepreneurs are more likely to fall into the *radical humanist* paradigm.

### 2. 3. Entrepreneurial Metaphors

There is some evidence of the use of metaphors to understand entrepreneurial activities. For example, Koironen (1995) conducted an exploratory analysis of entrepreneurial metaphors and concepts to reveal the paradoxical nature of respondents' perceptions of entrepreneurs and their ventures. He grouped the entrepreneurial metaphors into following semantic categories: 'Machine (ry) and other Physical Objects', '*Warfare and Adventure*', '*Sports and Games*', '*Creativity and Activity*', '*Nature*', '*Disease*', '*Food Items*', and '*Special Features*'. "The metaphorical analysis was used as a tool to make

sense, to structure and to understand how people think and speak". Hyrsky (1999) extended this work via empirical analysis by collecting a sample of 751 respondents from a range of European countries. The main aims were to conduct a cross-cultural, cross-gender study of the European entrepreneurs and non-entrepreneurs. Overall results show that a majority of the metaphors contained very positive, even idealistic images as some kind of heroes whose actions are of priceless value to society. In a cross-cultural comparison, the Scandinavians held more favourable views towards entrepreneurship than their English-speaking counterparts. The North European view seems to be that an entrepreneur is linked with initiative, responsibility, motivation, and action, but it is not linked with hardness, selfishness, or insolence. For them "an entrepreneur is regarded as a self-confident, responsible, diligent and professional opportunist and risk taker but he/she is not considered to be a selfish power seeker, speculator or exploiter".

Dodd (2002) constructed a cultural model for the US entrepreneurs on the basis of the metaphors that entrepreneurs used in their daily life and business narratives. The model is argued to be internally consistent in providing more insights to entrepreneurial aspirations, perspectives and cognition process. This model can also be contrasted with the European mental model of entrepreneurship, including metaphorically derived models of organisational behaviour. Hill (1995) argues that "entrepreneurs make an extensive use of metaphors both in developing a vision or mental model of their environment (*sense making*) and articulating that vision to others (*sense giving*). Hill concentrates more on the nature of entrepreneurial activity or process, rather on the traits of individuals.

However, some researchers also highlight the reasons for the limited use of metaphors in studying the entrepreneurship behaviour. For example, Cisgel (1996) provides a detailed critique of how the rigidity of the economic models and metaphorical representations used in the economic discipline, restrict somewhat flexible and fluid concepts and views associated with entrepreneurship. Jennings *et al.* (2005) has emphasised the need to look at entrepreneurship discipline through the lense of Burrell and Morgan's (2003) four paradigms. They argued that "within field of entrepreneurship, the vast proportion of theory and research is located within the bounds of *functional paradigm*, characterised by an objectivists perspectives and rooted in regulation. Contextualised within the range of alternative perspectives available to researchers, it becomes clear that the dominant paradigm of entrepreneurship research is based upon a relatively narrow range of metatheoretical assumptions".

### 3. RESEARCH METHODOLOGY

There are many reasons why individuals embark upon and run business ventures. Their attitude towards taking risk depends on their motives and goals. There are studies which indicate that the decision to start a business by a member of an ethnic minority group may not simply be a matter of choice. In Bradford region, for example, it may be post-industrial struggle to survive, or a lack of opportunities in the main stream business sector. The latter is less likely to be the case for the second generation of ethnic minorities, as most speak fluent English, and are relatively more *aware* of the business opportunities around them compared with their predecessors. We believe that metaphor can facilitate to explore the entrepreneurship behaviour and assumptions, and how this can translate into business success. This would help to underpin the reasons and motivation for small business entrepreneurs to start up a new business venture. Also this research would help to make sense of the motives of the first generation ethnic entrepreneurs towards succession planning and passing it (including the 'know how') to second generation.

We used a deductive research approach in this research involving an operationalisation of Morgan's metaphors in a multiple-choice questionnaire. A multiple choice questionnaire, based on the eight metaphors of Morgan (1997), was administered to business owners in the Bradford district. The questionnaire asked for: (1) demographics data concerned with owner background, business details and location; (2) owners motives for setting up the business; their current perspective of their business; and, their future perspective of the business. We collected the data through paying a personal visit to each business and seeking access to the owners/directors. We sat with the respondents and

explained the nature of research and the questions before they filled them in. We then remained with the owners while they filled the questionnaire and we clarified any queries that they had.

For data analyses, we will follow the example of Morgan (1980) to map metaphors to paradigms to help us devise effective method for data generation and analyses. We will map Morgan 's (1986, 1997) metaphors against Burrell and Morgan 's (1979) paradigms by looking at the individual characteristics of each metaphor. The "longitudinal paradigmatic mapping procedure" has allowed us to plot the past, current and future metaphorical assumptions of respondents into form journey.

## **4. RESULTS**

Our initial findings based on ten respondent returns are summarised in Table 2. The metaphorical journeys for ten respondents are shown in the Figure 1 (1a-1j).

**Table 2: A summary of attitudes and motives of ten business entrepreneurs in the Bradford district**

Respondent number →	1	2	3	4	5	6	7	8	9	10
<b>Ethnic background of the owner</b>	Pakistani	Indian	Pakistani	Kashmiri	Pakistani	Pakistani	Pakistani	Pakistani	Pakistani	Indian
<b>Country of ethnic origin of the owner</b>	Pakistan	India	Pakistan	Azad Kashmir - Pakistan	Pakistan	Pakistan	Pakistan	Pakistan	Pakistan	India
<b>Background of majority of workers &amp; number</b>	- 1	Asian 2	Pakistani 1	Asian 15	Pakistani 4	Pakistani -	- -	Pakistani 6	Mix 15	Asian 1
<b>Background of majority of customers</b>	Asian	Mix	Mix	White	White	Mix	-	Asian	Asian	White
<b>N° of family businesses</b>	1	-	1	-	2	1	1	1	1	-
<b>Age of business</b>	10 years	10+ years	10 years	3 years	5 years, 2 months	9 years, 7 months	6 months	1 year	28 years	10 years
<b>Is this your 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup>.... business</b>	1 <sup>st</sup>	-	1 <sup>st</sup>	3 <sup>rd</sup>	1 <sup>st</sup>	1 <sup>st</sup>	1 <sup>st</sup>	1 <sup>st</sup>	1 <sup>st</sup>	1 <sup>st</sup>
<b>Annual turnover</b>	40K	-	60K	-	-	40K	40K	-	500K	-
<b>Type of business</b>	Milk Distribution	Domestic good retail	Car tyres	Foam for beds	Fast food	Post office	Textile outlet	Television channel	Accountancy	Ladies jewellery
<b>Start up motives</b>	Culture	Political system & Brain	Brain	Brain	Psychic prison	Instrument of domination & Psychic prison	Culture & Instrument of domination	Culture	Brain & Culture	Machine
<b>Present motives</b>	Culture & Organism	Machine	Machine	Organism & Machine	Psychic prison & Brain	Psychic prison, Machine, Political system	Culture	Culture	Brain	Machine & Brain
<b>Future motives</b>	Culture	Psychic prison & Political system	Organism, Political system,	Organism & Machine	Instrument of domination & Brain	Instrument of domination	Culture	Political system, Brain,	Machine	Psychic prison

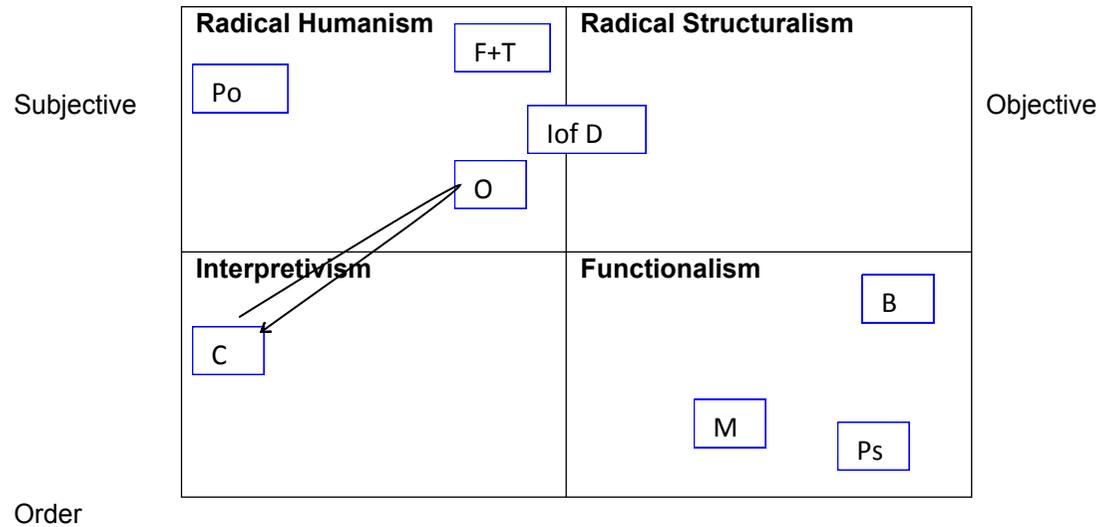
			Psychic prison, Machine, Brain					Psychic prison Culture		
<b>Home paradigm</b>	Interpretivist	Radical humanist	Functionalist	Functionalist	Functionalist	Radical structuralist	Interpretivist	Interpretivist	Functionalist	Functionalist
<b>Current paradigm</b>	Radical humanist	Functionalist	Radical humanist	Radical humanist	Radical structuralist	Functionalist	Radical structuralist	Functionalist	Interpretivist	Functionalist
<b>Key: M - Machine, O - Organism, B - Brain, C - Culture, Po - Political system, Ps - Psychic prison, F - Flux and transformation, IofD- Instrument of domination</b>										

**Figure 1: Journey maps for ten respondents**

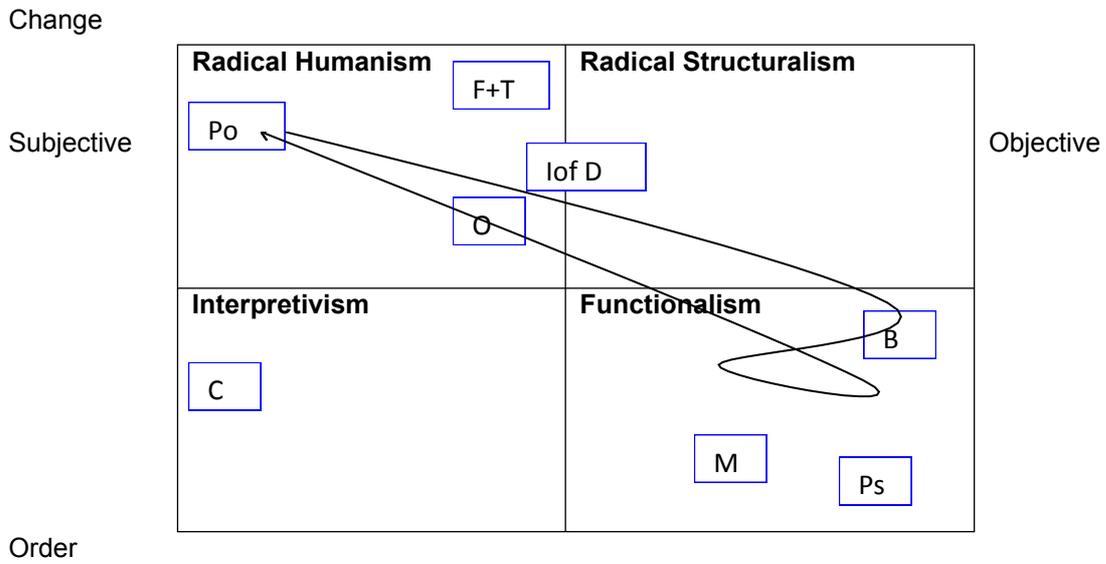
**Key: M - Machine, O - Organism, B - Brain, C - Culture, Po - Political system, Ps - Psychic prison, F - Flux and Transformation, IofD- Instrument of domination**

1a. Metaphorical journey of respondent 1

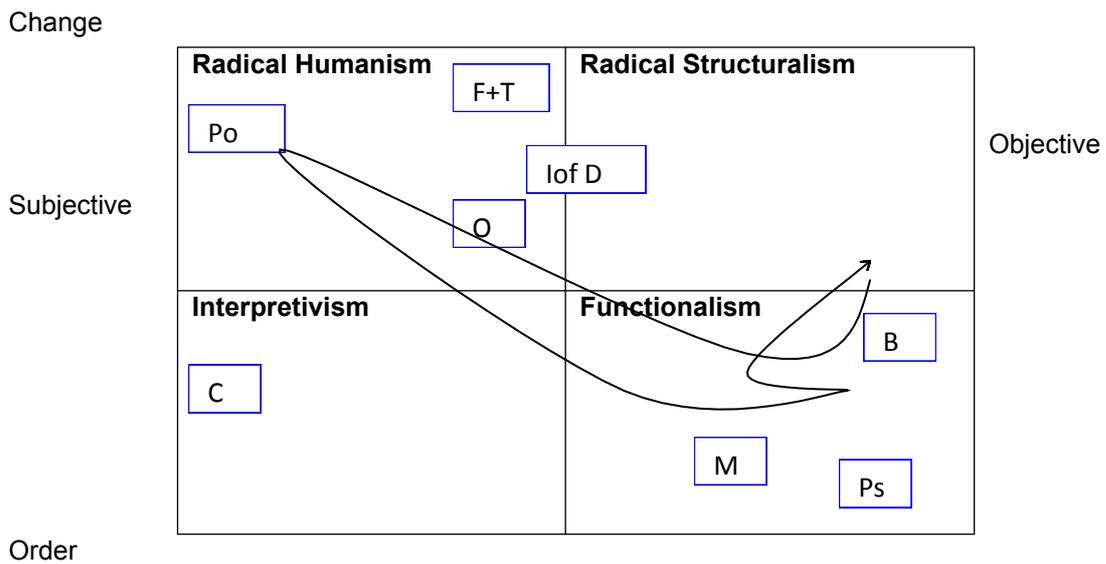
Change



1b. Metaphorical journey of respondent 2

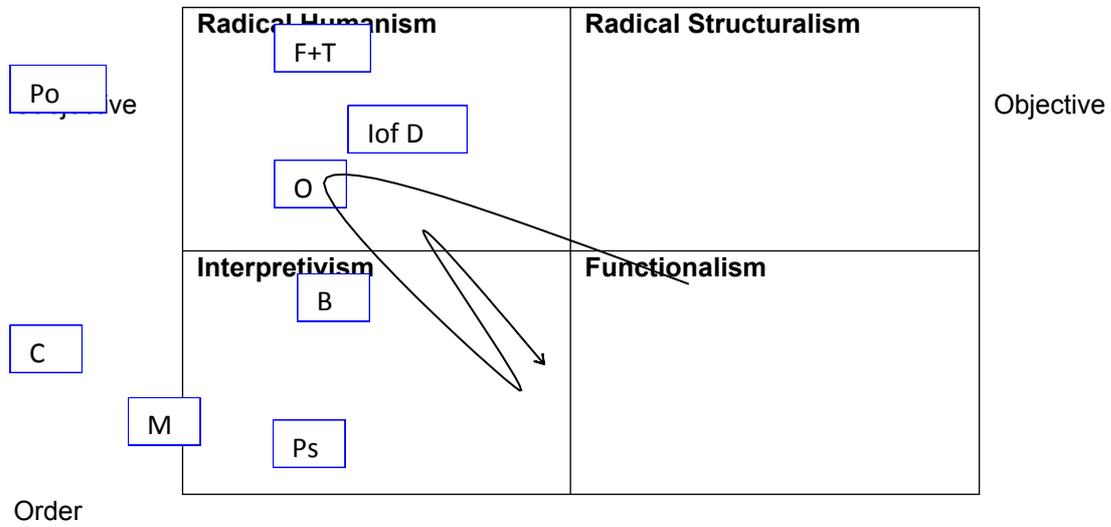


1c. Metaphorical journey of respondent 3

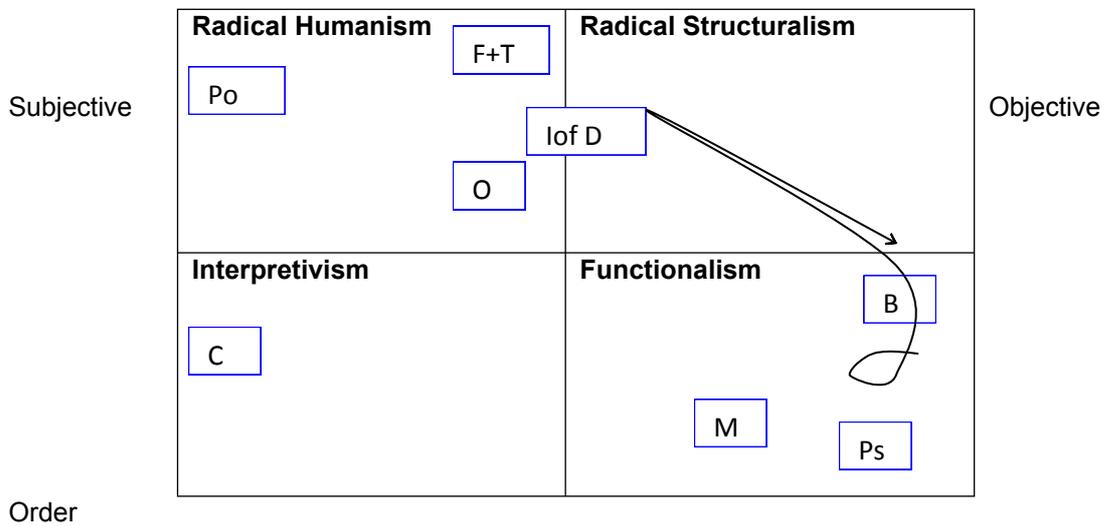


1d. Metaphorical journey of respondent 4

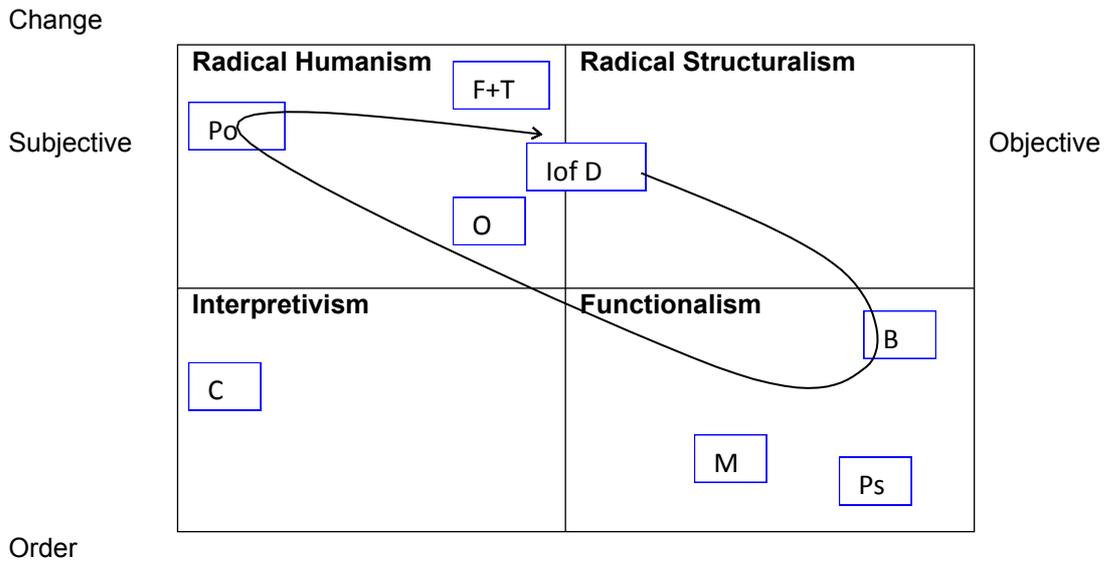




1e. Metaphorical journey of respondent 5  
Change

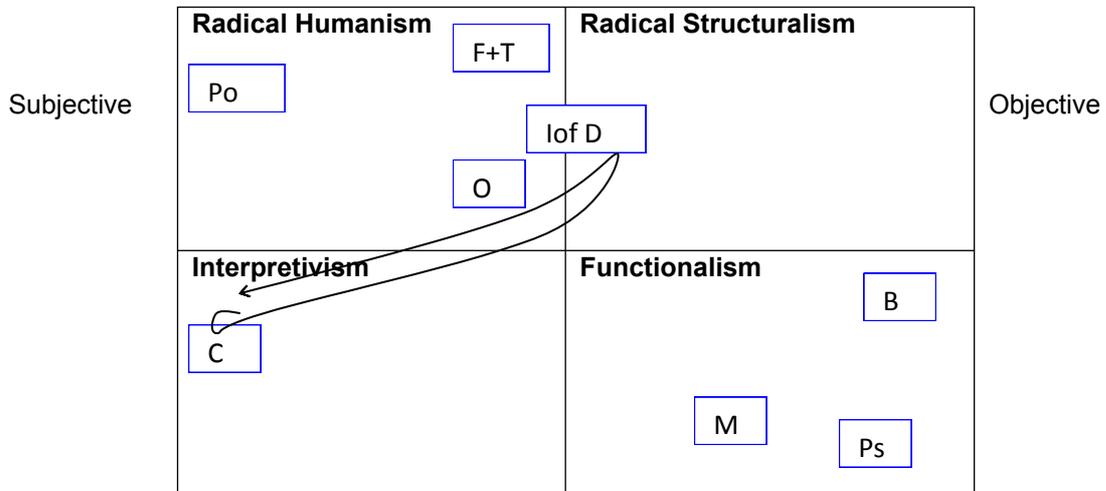


1f. Metaphorical journey of respondent 6



1g. Metaphorical journey of respondent 7

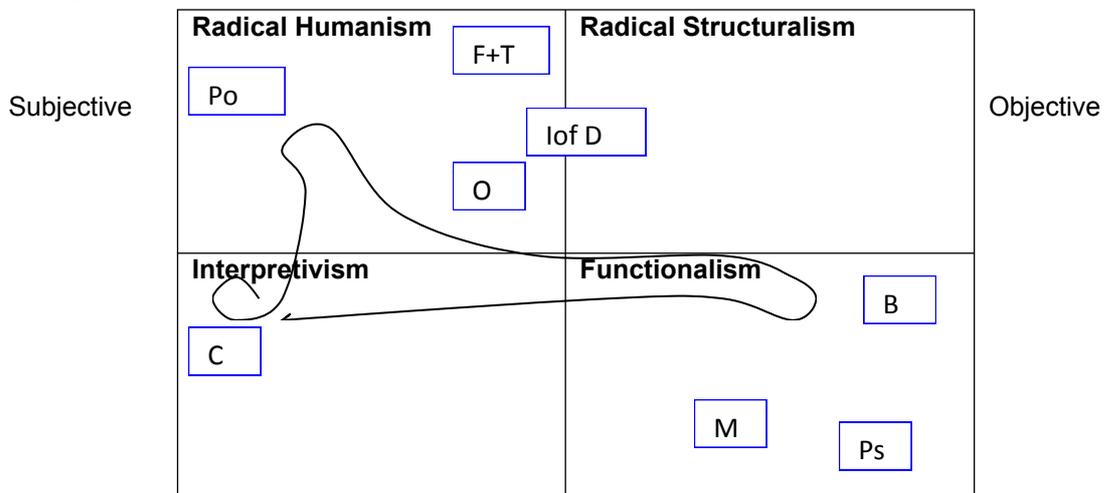
Change



Order

1h. Metaphorical journey of respondent 8

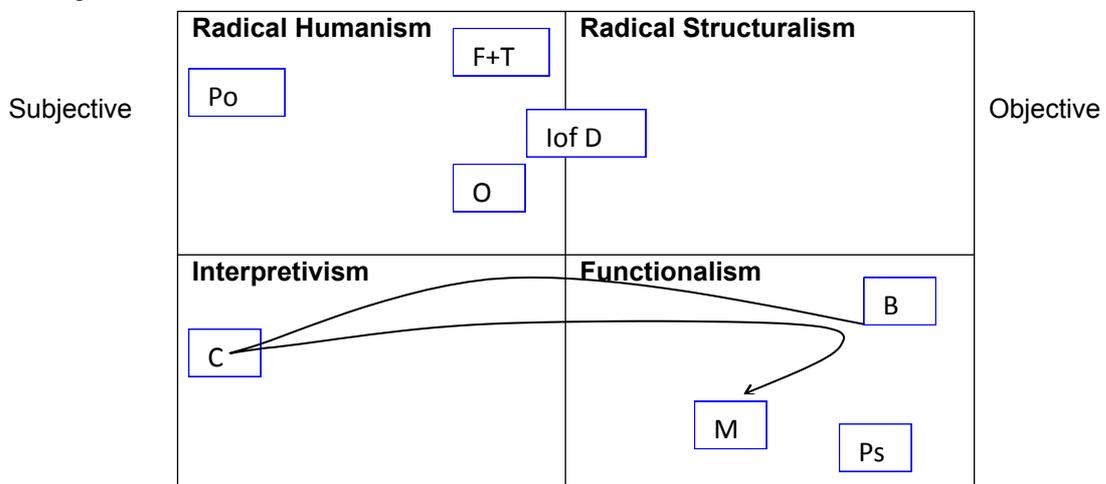
Change



Order

1i. Metaphorical journey of respondent 9

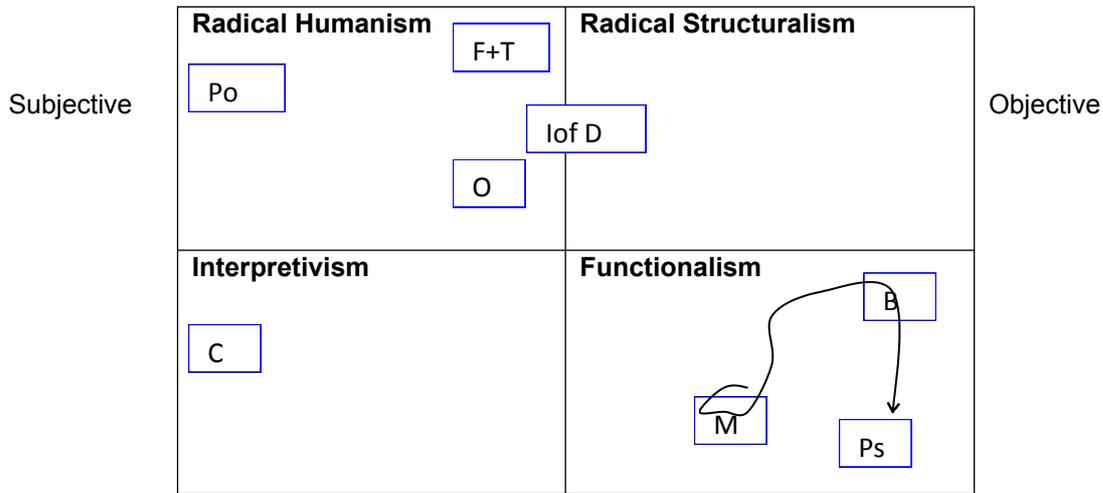
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Order

1j. Metaphorical journey of respondent 10

Change



Our results have generated the following findings:

The past and future journey for almost all respondents have had a very strong single paradigm connection with many reverting back to the same paradigm. For most respondents there was one predominant or “home paradigm”, in which most of their metaphorical choices fell into. Six respondents fell into overall *functionalist paradigm* indicating a strong routinisation and logical mindset for their start-up and future direction, perhaps due to their need for business stability and to subside any insecurity feelings with regards to their future. Three fell in the *interpretivist paradigm* with strong cultural bias, and one fell into the *radical structuralist* paradigm that may delineate “risk” taking attitudes. Apart from one respondent (respondent 10), there has been a shift in the paradigms choice of respondents from past to current. This may be due to instability and/or unease on the part of respondents when focusing on current situation. Only one respondent (respondent 10), who has been ladies jewellery business for almost 10 years stayed in the baseline paradigm of functionalism indicating a “psychic prison” metaphor. However, the metaphorical journey of seven respondents moved between at least two paradigms, and the journey of the remaining two (respondents 6 and 8) moved between three paradigms. Selection of more than one metaphor for future aspirations indicates that at least half of the sample respondents appeared to be unclear about their future motives. This could indicate a lack of vision and planning, perhaps boiling down to uncertainty associated with their business and social settings.

Perhaps the most relevant paradigm with regards to entrepreneurial activities is the *radical structuralist* homing in *IoD* metaphor indicating risk taking attitudes as often prescribed essential for entrepreneurial behaviour (Robinson et al. 1991). The other closer paradigm we would associate with entrepreneurial activity is *radical humanization* containing *Po*, *F+T* and *O* metaphors, representing power/conflicts, and inducing and managing change. Interesting, the two of the respondents belonging two start up companies in the sample (see respondents 7 and 8, for age of business six months and one year, respectively) fall within *interpretivism paradigm* indicating social and cultural aspects as the main motives and driving force for getting into the business. Interestingly, only respondent falling in the entrepreneurial *radical structuralist* paradigm was 6, who have been working for over 9 years in a post office business. With regards to the current position of the respondents, six of these (respondents 1, 2, 3, 4, 6, 8) rested themselves in the *radical humanist* paradigm that closely matches with the entrepreneurial characteristics.

## 5. CONCLUSIONS

In this research we aimed to investigate the motives of minority ethnic entrepreneurs. We looked at their original motives at the time of initiating the business venture, and also looked at their current and future motives to see if there had been a change in their perspectives. Our use of Morgan's (1986/1997) metaphors coupled with Burrell and Morgan (1979) helped us to elicit these motives better and to illustrate the change in motives in the form of journeys. Hence we provided a sketch of the thought process that entrepreneurs may have followed.

Our initial findings show that the assumptions of most of the respondents conform to the "functionalist" paradigm that place emphases on order, objectivity, rationality and tangible view of 'reality'. Accordingly most of the respondents selected the functionalist metaphors like 'Brain', 'Machine' and 'Psychic Prison'. In contrast with the most of the respondents selection of functionalist paradigm to indicate their past and future aspirations, many respondents selected "Radical Humanist" or "Interpretivist" paradigms to map their current situation. This indicate some will from the part of these businesses to introduce some kind of a change in their current business and social settings. We believe that such metaphorical assumptions could determine their decision making, policy and strategy setting, and, actions. By introducing metaphorical journey approach, we have managed to encapsulate the emerging nature of the entrepreneurs motives.

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## **The Impact of Microcredit on Women-Owned MSEs: Evidence from Albania**

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**Microfinance institutions have spent billions of dollars fighting poverty by sustaining a financial system which provides small loans, primary to women entrepreneurs. Proponents argue that microcredit helps women entrepreneurs in the micro and small enterprise (MSE) sector to improve business performance. However, this premise remains a largely unexplored research topic. This paper examines differences in enterprise performance before and after microfinance intervention. It follows a cross-sectional research approach, employing a pre-test/post-test design with treatment group as quasi-experimental design. The study involves a sample of 55 women-owned MSEs in Albania, who were microcredit recipients for an ongoing period of two years. The performance analysis focused on three response variables, namely enterprise profits, revenues, and labour supply. Paired t-test was used to perform the analysis. Prior to the test, the data was subjected to an application of natural logarithm to allow pulling of the highly skewed observations to normal distribution. The results revealed that microcredit significantly associated with enterprise profits and revenues, and positively, but insignificantly associated with labour supply. The results indicate a complicated picture of the impact of microcredit in case of Albania, and the paper recommends the need for repeated borrowings to reach the full and cumulative effects of microcredit.**

## **Keywords**

Impact, Microfinance, Microcredit, Micro and Small Enterprises, Women.

## **1. Introduction**

Since the beginning of the 1990s, microfinance has been a pivotal strategy for poverty alleviation and economic prosperity among low-income earners, the majority of who include women [1][2][3]. Low-income women set up their own employment in small-scale dairying, agriculture, food processing, tailoring, traditional handicrafts, and petty trading [4][5][6][7][8][9]. Reliable macroeconomic situation and business environment, such as infrastructure, regulation, and legal policies, are typically seen as factors that promote entrepreneurial activities. While these are relevant, access to finance remains a dominating constraint in this category of entrepreneurship [10], which is almost deprived of credit service from commercial banks [5][7]. The higher the risk of business, the more collateral commercial banks require, and micro and small enterprises (MSEs) are largely considered high risk [11][12][13][14].

Contrary to commercial banks, microfinance banking aims to help women entrepreneurs in the MSE sector to set off and finance their enterprises by employing credit methodologies that substitute collateral, such as the group-based model of lending [15][3]. In such a case, the lack of physical collateral has been solved by introducing social capital [16]. If a group member defaults on a loan, the entire group is not eligible for receiving any further loans until the balance is paid out. Methodologies like this make sure that group members work together to ensure everyone in the group pays the loan [3]. It is thus argued that microfinance loans can help women entrepreneurs in the MSE sector to improve business performance and accumulate working capital [7][16][17][18].

The question whether there is a positive correlation between microcredit borrowed and the performance of micro and small enterprises has not been convincingly answered in the existing literature yet. Up to the present, there is a limited inquiry into the microcredit industry in Albania and its impact on micro and small enterprises, while it is very difficult to find any research if there is any, on the impact of microfinance loans on women-owned MSEs in the country. This paper fills this research gap and it reviews the underlying reasons for

microfinance in Albania by performing a cross sectional study on microcredit impact on women-owned micro and small enterprises. We focus on three impact variables, namely enterprise profits, revenues and labour supply and we formulate three hypotheses, as follows: (H1) Microcredit intervention has a positive impact on the profits of women-owned micro and small enterprises; (H2) Microcredit intervention has a positive impact on the revenues of women-owned micro and small enterprises; and (H3) Microcredit intervention has a positive impact on labour supply to women-owned micro and small enterprises.

## 2. Traditional sources of financing for MSEs

There are two possible sources of capital that low-income women can theoretically access to fund a micro and small enterprise, namely internal and external financing. Internal financing includes personal funds gathered from individual savings and borrowings from relatives. This is rarely possible, however. Low-income women in most cases live on a subsistence income and are unable to save [11]. Whereas relatives and friends can only lend short-term capital, assuming they have money to lend [19]. In terms of external financing entrepreneurs who operate in developing or transition economies, are entirely dependent on bank credit, as this is likely the major source of external financing, provided that capital markets in these economies are either not available or rudimentary [12].

As internal financing is rather inconceivable to this category of entrepreneurs, external financing becomes problematic for several reasons. According to the Modigliani-Miller (M&M) Theorem, in a perfect capital market there is no difference between internal and external financing of any investment project and the internal and external financing are perfect substitutes [20]. However, when capital is no longer perfect, the economic theory of credit rationing by Stiglitz and Weiss [21] implies that information asymmetry and transaction costs instigate the cost of external funds to be high and this leads to underinvestment [22].

In developing market economies, asymmetric information between this category of entrepreneurs and banks creates adverse selection and moral hazard issues [20]. Adverse selection arises when banks do not have adequate information about the risk profile of the borrowers –their willingness to repay loans, risk tolerance and investment choices. Consequently, banks will charge higher rates to match the higher risk level. While higher interest rates increase the possibility for repayment of successful loans, the average riskiness of borrowers who apply for these loans increases as low risk borrowers might decide to not borrow because of high interest rates. Additionally, the limit liability of borrowers in conjunction with high interest rates can lead to the default of bank loans if the investment fails, a situation known as moral hazard [23].

Both adverse selection and moral hazard increase the likelihood of default in a bank's loan portfolio. If interest rates are increased to compensate for the risk of default, banks will experience an increase in average riskiness of the borrowers and a decrease to the expected returns. Therefore, they will keep the interest rates low enough to preclude a high-risk profile and to ration their available loanable funds. Instead, they will demand additional collateral and pursue a form of credit rationing by denying credit to prospective borrowers because of perceived risk [23].

In most cases, women in developing countries do not own any asset to be used as collateral [24]. Even if they own land, it is difficult to collateralize it because of ambiguous or unrecorded property titles. Lend tenure and property rights in these countries are not adequately secure [22]. As World Bank notes, for the case of Albania "the restitution or compensation for owners whose property was expropriated under communism" encounters problems which "have resulted from incomplete first title registration, the lack of accurate cadastral records, and, in many cases, the absence of reliable evidence of ownership" [25].

On the other hand, the transaction size of the banking service provided to women entrepreneurs in MSE sector is very small. Any processing cost turns out to be a high percentage of the transaction amount and this makes the service very expensive [26]. The

costs are expected to be even higher in developing countries. Due to the lack of the available means of external finance, women entrepreneurs in the MSE sector rely entirely on bank loans. When banking institutions turn into a virtual monopoly over lending to small businesses, they can take advantage of the market power to increase the borrowing costs for this category of entrepreneurs [20].

### **3. Microcredit as a social innovation in the credit market**

As existing banking institutions cannot solve the problem of financial and social exclusion of women entrepreneurs in MSE sector, the need for social innovation in the traditional credit market that could overcome the conservative forces of the existing system, has become necessary [27]. Microcredit is an example of social innovation [27], which provides answers to financial exclusion in the case of micro and small entrepreneurs and works as a device capable of empowering women [28]. The new system creates loans to female entrepreneurs or perspective female entrepreneurs in the small business sector, who are typically rejected by commercial banks. The social innovation that microcredit is characteristically associated with is the use of an innovative design that includes creating groups of borrowers, frequent repayment, gradual increase in loan size, training in management and income-generating activities, and mandatory savings. The joint effect of these measures reduces the default risk and atones for the absence of collateral [26].

This simple mechanism overcomes the problems outlined in the previous section. The use of social information, which is derived from lending in groups, helps microfinance institutions to gather information on the risk profile of borrowers, as groups are composed of similar kinds of members. This helps overcome the adverse selection problem. Moreover, group lending can also consist of granting credit to members that are chosen freely, that is, without congregating members with similar risk profiles into the same group. Rather, the freely chosen members are jointly liable for the repayment of all the loans borrowed by the group. If one member fails, the others are required to manage her to fill her obligations otherwise they will be collectively responsible to pay her loan, in order for them to be eligible for receiving further loans. In both cases, group lending enables social collateral to provide for the absence of physical collateral [26].

The propensity to save, combined with money management and business skill delivery, help to overcome moral hazard. Reimbursements are likely to happen as they are collected frequently, specifically on a weekly basis rather than monthly. Moral hazard dwindles as lending is progressive and consists of providing credit in tranches, the amount of which increases as repayment is materialising. Therefore, the borrowers consider loan repayment as an opportunity to lend more, increase the investment and augment the accumulation of savings over time [29].

Owing to low transaction size and because of the relatively high processing costs, microfinance institutions adhere to an interest rate that in general is higher than that of the traditional banking institutions. Government regulators attempt in some cases to impose a ceiling on credit rate. For instance, in the case of countries of the West African Monetary Zone, the law prohibits financial institutions, operating within the monetary zone, to impose an interest rate that is more than twice the discount rate of the central bank [30]. In Albania, the ceiling on domestic credit rate can change on a quarterly basis [31].

### **4. Microcredit and enterprise performance nexus**

Based on research approaches used, the literature which investigates the nexus between microcredit and enterprise performance can be divided into three clusters: panel data research, randomized experimental research, and cross sectional research. This paper follows the cross sectional approach. The general idea of cross sectional research is to

employ a quasi experimental design, namely pretest-posttest design with treatment group, or pretest-posttest design with treatment and control group, both of which study the variables of interest in a specific point in time [33][34][35][36][37][38].

The research setting of most of the literature is in developing areas, where microfinance operates mostly, mainly in East Asia and Pacific, South Asia, Eastern Europe and Central Asia, Sub-Saharan Africa, and Latin America and the Caribbean. In general, findings are not consistent with each other, as demonstrated in the meta-analysis on the impact of microcredit intervention by Awawory [33]. Kaboski and Townsend [39], Takahashi et al [40], Abou-Ali [41], Garikipati [42], Afrane [43], McKernan [44], Copestake et al [45], Edgcomb and Garber [46], and MKNelly and Lippold [47] perform cross-sectional studies to investigate the impact of microcredit on enterprise profits. Of the aforementioned scholars, Kaboski and Townsend [39], Abou-Ali [41], Afrane [43], McKernan [44], and Edgcomb and Garber [46] find statistically significant positive effects on profits in women enterprises in Thailand, Egypt, Ghana, Bangladesh, and the Honduras, respectively. Takahashi et al [40], Garikipati [42], Copestake et al [45], and MKNelly and Lippold [47] estimate in their studies how enterprise profits behave on microcredit intervention in Indonesia, India, Peru, and Mali, respectively and they conclude that microfinance loans appear to have no statistically significant impact on the profits of women enterprises.

Studies by Ouma and Rambo [2], Takahashi et al [40], Coleman [48], Copestake et al [37], and Kevane and Wydick [49] examine the impact of microcredit on enterprise revenues. Among them, Ouma and Rambo [2], Takahashi et al [40], Coleman [48], and Kevane and Wydick [49] find the treatment effect to be positive and statistically significant on the revenues of women enterprises in Kenya, Indonesia, Thailand and Guatemala respectively. In nonalignment with them, in a study about monitoring the impact of microcredit in Peru, Copestake et al [37] report no significant effects on revenues in women enterprises.

As far as labour supply is concerned, Al-Mamun et al [50], Ouma and Rambo [2], Atieno [17], and Magill and Meyer [51] engage in measuring the performance of women enterprises in terms of labour force, after microcredit intervention, in Kenya, Malaysia, Bangladesh, and Ecuador. Al-Mamun et al [50], Ouma and Rambo [2], and Atieno [17] document positive effects of microcredit on the number of paid labour force. Magill and Meyer [51] find that even though women-owned enterprises record statistically significant positive outcomes in labour supply, the statistical values were notably lower compared to their male counterparts.

Although, microfinance has been operating in Albania since the beginning of 1990s, there is a very limited research on microcredit industry and its impact on enterprises. The two most appropriate studies that can be found are those of Loca et al [52] and Loca and Kola [35]. Both studies examine the impact of microcredit on micro, small and medium enterprises in Albania, but they provide no insight into the impact of microfinance loans on women enterprises, neither do they specify the number of women interviewees in their sample. Apart from that, they offer statistically significant positive impacts of microcredit on enterprise profits, revenues, and labour supply in Albania.

## **5. Description of data, survey design and methodology**

The research respondents were women MSE entrepreneurs operating in Albania. The data sourced was from 55 women MSE owners who had received microcredit from institutions of Urban Credit Department of the Albanian Development Fund (ADF) for an ongoing period of more than two years. Purposive sampling was used to obtain the sample of MSEs and women entrepreneurs, who were interviewed in 2014. Interviewees were women between 30 to 50 years old, with basic literacy skills. 40 percent of them had primary education, 55 percent secondary, and only 5 percent of them had a bachelor degree. The type of business activity varied from food shops, to small warehouse of car cleaning products, to centre of elementary education for children. 40 percent of women declared to be the sole proprietor of their enterprises, and 60 percent of them run a family business.

We used pre-test/post-test design with treatment group as quasi-experimental design of the cross-sectional survey. Respondents were asked to estimate the impact variables at two different points in time, before the intervention and after the intervention. Pre-test/post-test design with treatment group allowed the usage of data in the form of matched pairs, permitting to compare the outcome of treated observations with the outcome of the treated observations if they were not treated. To measure the differences in central tendency, matched data did not require homogeneity of variances of the two observations to apply as it dealt with the same group, but the assumption that pairwise differences of the two observations were normally distributed had to be satisfied. The Shapiro-Wilk's test for normality indicated that the data was non-normally distributed. Therefore, prior to the test, the survey data was subject to an application of natural logarithm to enable pulling of the highly skewed observations, either to the right or left, towards the normal distribution. Paired t-test was used to perform the analysis and measure the differences in the central tendency of impact variables.

## 6. Results

Table 1 shows the descriptive statistics, which reveals that all impact variable averages were higher after microcredit intervention. In order to use the results of Table 1 for meaningful statistical inference, several paired t-tests were performed for each impact variable at 10%, 5% and 1% level of significance. Table 2 indicates statistically significant differences for enterprise profits and enterprise revenues, and statistically insignificant difference for enterprise labour supply. The estimated significant p-values are less than significance levels for profits and revenues. As for labour supply, the p-value is less than significance value 10% and greater than significance value 5% and 1%. The analysis suggests a positive impact of microfinance on labour supply, but not statistically significant. The null hypothesis of paired t-test which state that enterprise profits, revenues, and labour supply have approximately equal central tendency before and after microfinance loans is rejected with reference to enterprise profits and revenues, and accepted for enterprise labour supply. Thus, the research hypotheses which refer to enterprise profits and revenues are confirmed, whereas the research hypothesis pertaining to enterprise labour supply is declined. For a simpler picture of the variation of variables with microcredit intervention see the dot plots of observations in Figure 1.

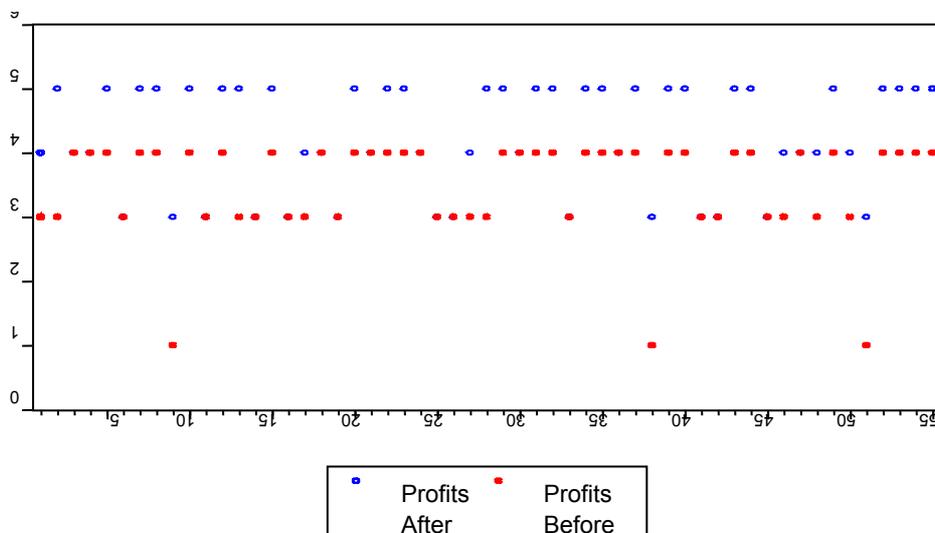
**Table 1** Descriptive statistics

Nr of observations: 55	Status of intervention	Mean	Std. Deviation	Std. Error Mean
Enterprise Profits	Before	1.206067	0.2121553	0.0286070
	After	1.422609	0.3230108	0.0435548
Enterprise Revenues	Before	1.212491	0.1891369	0.0255032
	After	1.398266	0.2016793	0.0271944
Enterprise Labour Supply	Before	0.510532	0.4447871	0.0599751
	After	0.553570	0.4570717	0.0616315

**Table 2** Paired t-test results

	Lower	Upper	t	df	Sig. (2-tailed)
Enterprise Profits	0.1246730	0.3084125	6.293	54	0.000000***
	0.1475582	0.2855273	6.293	54	0.000000**
	0.1589582	0.2741273	6.293	54	0.000000*
Enterprise Revenues	0.1241544	0.2473962	8.049	54	0.000000***
	0.1395044	0.2320462	8.049	54	0.000000**
	0.1241544	0.2473962	8.049	54	0.000000*
Enterprise Labour Supply	-0.0173189	0.1033962	1.904	54	0.062263***
	-0.0022836	0.0883608	1.904	54	0.062263**
	0.0052061	0.0808711	1.904	54	0.062263*

Note that \*\*\*, \*\* and \* represents significance at 1, 5 and 10 percent level, respectively.



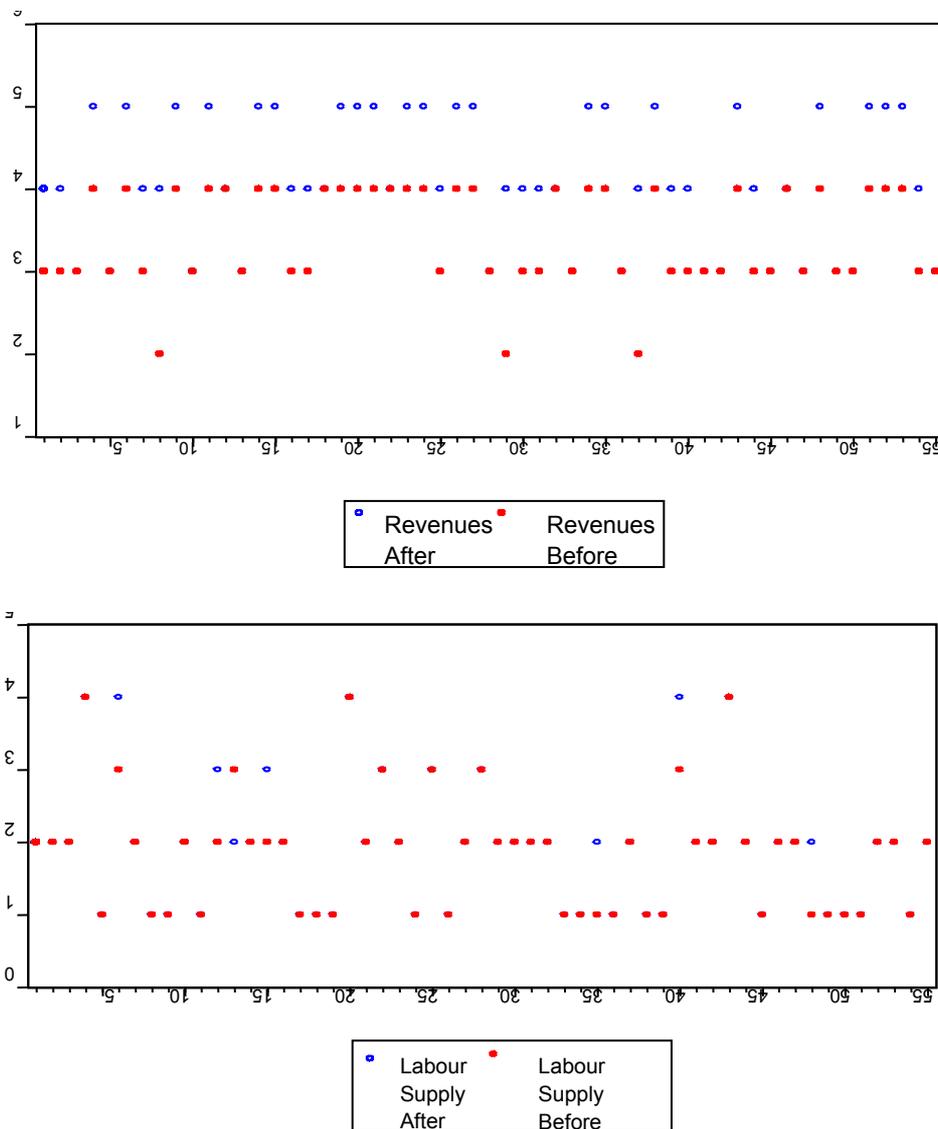


Figure 1 Dot plots of observations

## 6. Conclusions and discussions

It is generally perceived that microfinance institutions help to decrease the inequality of access to credit for women entrepreneurs in the MSE sector. This study investigated how effective microcredit is in improving business performance in female owners of micro and small enterprises. The results indicate that, for women-owned MSEs in Albania, microfinance intervention has statistically significant impact on enterprise profits and revenues, and positive, but statistically insignificant impact on labour supply. The findings of higher profits and revenues are consistent with the theoretical framework of microfinance. However, statistical evidence on enterprise labour supply seems to contradict the theory.

The route to a clear discussion of the results is two-sided. The one side provides argumentation to this outcome. A variation in paid labour force usually derives from an increase in the level of operations. Conceivably, variation in paid labour force occurs after a vastly long change in other impact variables, as Kessy and Temu [52] explain. Small entrepreneurs opt for paying debts, accumulating working capital, creating economic stability, and acquiring high monetary value assets, before increasing labour supply. Another possible explanation claims that microcredit tends to have impact on job stability and enhanced labour productivity, rather than job creation [53].

The other side restrains from offering an argumentation and it rather emphasizes the relevance of replicating studies of interventions across different settings. Our findings append to a very muddled picture on the impacts (or lack thereof in case of Albania) of microfinance intervention. Microfinance institutions around the world assist different categories of clients, operate in diverse environments and use different policy frameworks (for instance different interest rates). Given this underlying heterogeneity across settings, over-interpreting and linking the results can be an error, since each study is relevant only to a specific context and it can be interpreted only as a fragment of a growing mosaic of knowledge about how microfinance performs in different parts of the world [54].

Whatever the approach of discussion followed, the results of the study show that the impact of microcredit on enterprises can be multidimensional and it may not be completely captured by a single enterprise impact variable, as different results are noticed for different variables. Further research must concentrate more on robust specifications that integrate multidimensional effects of microcredit on enterprises. The findings have some managerial implications, advocating a more action-oriented view for providers of microfinance services in Albania. The fact that labour supply is positive, although not statistically significant on microfinance intervention, denotes that eligible entrepreneurs should be encouraged not only to borrow, but also, if possible, to remain longer in the borrowing relationship so as to accomplish the full potential of their borrowing.

Ultimately, the results suggest that microcredit can be a remedy for the problem of financial and social exclusion of women entrepreneurs in MSE sector. Caring ignored entrepreneurship shapes the context in terms of national location and social location –in this case defined by gender and class. Microcredit is hailed as a sustainable approach to promote economic incubation in Albania and redefine the cultural-institutional approaches towards gender and low-income earners. Similarly, it brings to the surface the unused potential that women in Albania have for entrepreneurial activities. For instance, although more than 50 percent of Albanian women work in agriculture, they only own 6 percent of farms. One of the reasons for the low percentage is because they lack knowledge of financial support policies and programmes [55]. Microfinance resolves these patterns of disadvantages and contributes to establishing a society which benefits from the input that women bring to entrepreneurship process and outcome.

Women provide different approaches with regard to enterprise's policies and employee benefits. It is widely evidenced that they offer more inclusive management style and treat employees more fairly. They try to provide a collaborative work environment in their enterprises by involving employees in decision making process and recognizing the need for life-work balance [56]. Profits are often first invested in children's education and health, and this has a transformative effect on society [57]. Furthermore, the entrepreneurial vision of lower class individuals, or in other words the target customers of microfinance, can bring a fresh perspective to problems and identify markets, which are yet untapped.

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# Young People and Entrepreneurial Cultures in ‘Low-Income Communities’

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Understanding how to support entrepreneurial cultures is critical for the future of places. Local entrepreneurial cultures are the shared views that determine how people in a place - or location - understand and experience the phenomenon of entrepreneurship. The entrepreneurship literature has often attributed lack of enterprise in certain types of places, particularly ‘depleted’ or ‘low income communities’ to an entrepreneurial deficit and distance from enterprise culture. In UK policy, however, enterprise has long been promoted as panacea to deprivation in low-income communities. Little is known about how entrepreneurial cultures develop differently within more and less deprived places. Particularly little is known about how young people’s attitudes to enterprise, as one element of those shared views, are affected by place, as they conceptualise it. Yet entrepreneurial responses might still be needed most in the places marginalised from the growth centres. Enterprise initiatives targeting young people as an alternative career route tend to be universal rather than place-based and take-up of enterprise remains low. How far the potential for enterprise within young people’s trajectories is influenced by place is unknown. This paper reports the findings of a research project exploring the links between place, enterprise and young people in Bradford and Liverpool, UK. The research combined interpretive, corpus linguistic and discourse analysis to examine how certain place factors affect young adults’ attitudes to enterprise in low-income versus more prosperous neighbourhoods. Beyond various age-based commonalities, we found that *where they live* and *deprivation status* each has defined effects on how young adults construct enterprise within their own trajectories and the trajectories of their places. This paper challenges views that attribute simplistic place or person specific factors to an area’s propensity for enterprise. We argue for understanding how place-based factors, expressed and shaped by the attitudes of young members of those places, affect the future of entrepreneurial cultures. In this way, the paper bridges thinking on informal, youth and place-based entrepreneurship.

## Keywords

corpus linguistics, discourse, entrepreneurial culture, place, young people

## 1. Introduction

Place matters to people and communities [1], [2]. Place also matters for entrepreneurship and the relationship has been well researched [3], [4], [5]. Embeddedness theories for example are used to examine the link between entrepreneurial action and local social structures [6], [7], [8] [9]. Cultural embeddedness is used to explain how forces in the local environment define the choices made by actors and entrepreneurs [11]. However, entrepreneurship research has done little to advance atheoretical and *ad hoc* notions of entrepreneurial culture and place [10].

How people articulate attitudes to enterprise is important to understanding place-based entrepreneurial cultures. Entrepreneurial cultures, defined as ‘outlooks that shape the actions of actors connected with the entrepreneurial phenomenon’ [10: 805], are made up of the shared views that determine how people in a place understand and experience entrepreneurship [10]. It is recognised that the enterprise culture can manifest in places differently and take on meaning for different groups and purposes in society [12]. The mundane practices that sustain different patterns of ‘socio-cultural conventions, norms, attitudes, values and beliefs’ in different places are less well recognised, even though they could ultimately shape entrepreneurial success [11: 395]. As Spigel notes [10], research needs to examine how culture shapes but is also reciprocally shaped by everyday practices if entrepreneurial actors are not to be seen as cultural dupes.

Little is known about how place affects entrepreneurial cultures differently between more and less prosperous areas. Studies of entrepreneurship in ‘low income’ or ‘depleted’ communities establish a lack of fit between certain places and enterprise [4], [13], often depicting entrepreneurial potential as limited because of an entrepreneurial deficit among their residents [9]. While problematizing low income communities in this way has been criticised [14], [15], entrepreneurial responses might still be needed most in the most marginalised places, as the UK concentrates resources on growth cities and city regions [16].

Understanding how shared views develop within more and less deprived places, and affect entrepreneurial cultures differently, is important.

Less still is known about the relationship between enterprise and place as it moulds and is moulded by young people. This link between place, youth and enterprise matters partly because young people are the workforce of the future. Enterprise is understood here broadly as the ‘attitudes and skills which when possessed by individuals, lead them to exhibit innovative behaviour including entrepreneurship’ [54: 38] through a range of formats including self-employment. Defined thus, enterprise could be a potential fourth option within young people’s trajectories, alongside education, employment and training. However young people today are entering their working lives at a precarious point when unemployment, poverty, living standards and work security are worst affecting the young [17]. Engagement in enterprise and self-employment remain low.

The literature offers a number of explanations for entrepreneurial propensity among young people [18], [19], [20], [21]. These provide a partial picture of how age and background affect young people’s entrepreneurship but do not tell the whole story. Do young people in low income places reproduce the marginal versions of business that are typical of the places they come from, as some suggest [18]? Or are young people who are growing up in the new economy with its changing opportunities for enterprise [22] better able to transcend the territorial problems of place? Parkinson [23] found that young interviewees, who were widely known to be resourceful and well networked in the business community, were driven to discursively reject the possibilities of enterprise in their place. Understanding how entrepreneurial attitudes develop in a place, and the inherent barriers that some places erect, is of concern for policy, research and practice.

The exploratory question we ask in this paper is: *How does place affect attitudes to enterprise among young adults in areas labelled as deprived and non-deprived?* Attitudes are one element of entrepreneurial cultures along with other aspects such as norms, values and beliefs [11], [10]. We draw on a UK study conducted in 2014 that examined attitudes to enterprise by comparing the spoken text of young adults aged 18-25 living in both extreme deprived and more prosperous areas within two UK cities, Liverpool and Bradford. The findings suggest a complex interplay between place factors, age factors and attitudes to enterprise.

In the sections that follow, we first review the literature informing our study. We then set out our approach to the research and the methodology in Section 3. Section 4 presents the three stages of analysis undertaken, followed by a discussion of the findings. The conclusion section challenges arguments that attribute an area’s propensity for enterprise to narrow place or person specific factors and argues for bridging thinking on place and youth.

## 2. Place, Entrepreneurship and Young People: A Review of the Literature

Entrepreneurial activity is generally considered important in shaping the success (or failure) of places. Enterprise was seen for a long time as an indicator and driver of economic growth, based on spatial understandings of the enterprise gap between lagging regions [24], [25], [26], [27]. In the UK particularly, enterprise was presented as a panacea to deprivation and inequality, under the 'enterprise for all' agenda [15]. Private enterprise as an escape route out of deprivation, often caused by decline, was a central premise of urban regeneration policy [28] and with it came a perpetual duplication of enterprise policy [29]. As UK policy has moved to a growth centred strategy, cities and city regions have become the drivers of economic growth [16]. Resources and power over enterprise support have become centred increasingly on certain growth places and areas under the Local Enterprise Partnerships. Rhetorically, these 'additions to the enterprise landscape' [22] are expected to 'reconnect businesses and place.

Place can be simply understood as a 'particular position, point, or area in space; a location'<sup>1</sup>. However places are more than physical spaces. Place is seen as the social location on which community is centred [2], [4]. Place is thus a product of social relations, the site where social life, culture and identity are created and create and therefore malleable and fluid, not fixed or bounded. According to Massey [55] and Hudson [2], places have different mixes of social relationships that make them unique, defined by history, other places and the people. Places can also be understood as reproduced by different groups for different agendas; 'the image of the place as such can be mobilized rhetorically' and 'places as apparently coherent entities can be (re)produced discursively' [2: 268]. In the community literature, too, locality is seen as a 'phenomenological aspect of social life, categorical rather than either scalar or spatial' as opposed to *neighbourhood*, 'situated communities characterised by their actuality, whether spatial or virtual, and their potential for social reproduction' [56, cited in 57: 3).

Theories of place attachment [1], [2] offer a way of understanding the importance of place for people. Seen as a condition of capitalist production, place attachment increases in areas that are left behind and where people become firmly anchored in situ [2]. From a more social perspective, place attachment refers to the social cultural patterns that are essential to establishing a sense of community [1]. People find security in, and fight threats to, the community or place within which they live. In 'monoindustrial' places such as steel towns or coalmining villages, for example, people can develop place identities as a means of dealing with economic and social uncertainty [2].

We refer to place as it is defined here rather than community, despite the title of this paper. Community is not only more than locale, the place where culture, identity, place, social relations come together; it is also the product of a collective cultural consciousness and symbolic; 'something is shared among a group of people at a time when we no longer assume *anything* is necessarily shared' [58: 169]. Community can be place-less therefore [57]. Like contributors to Southern [15], we have a particular concern with the structurally based treatment of depleted or deprived communities, as the 'manifestations of uneven development', characterised by stagnation and decline [59: 80]. Depleted communities are often portrayed as failing economic spaces but persistent successful social places [2], [4] and sites of alternative or even new forms of enterprise activity [9]. How places are socially and discursively constructed is important for this research, rather than notions of community or other social categorisations.

By place then we refer to a sense of location as a social entity rather than a simple geographical unit. Place factors of particular interest in this paper are two-fold: place as in *where they live*, however research subjects define it (in this case related geographically to the urban and semi-rural areas around Liverpool and Bradford); and deprivation status, defined by multiple deprivation indices. The two place factors are of interest because they

might tell us about how young people's attitudes are influenced by and influence in turn entrepreneurial cultures in those places.

Conditions for and experiences of entrepreneurship of course vary between places [30], [31]. We take a broad, social understanding of entrepreneurship as being about opportunity and value creation but situated in social context [32] and socially constructed [60]. The literature has tried to understand spatial differences in entrepreneurial culture. Mason [25] suggests that entrepreneurial take up is 'historically conditioned and always spatially uneven'. The links between cultural differences and uneven spatial supply of entrepreneurship at local, regional or national levels is well researched. There has been less work on the micro cultures below the regional level, the effect of sub-cultures on enterprise [61] or other variables that could aid understanding of the culture-entrepreneurship link.

Work on entrepreneurial cultures has recently taken steps to link questions of culture and place much more concretely [10]. Attitudes are part of the shared views constituting cultural embeddedness [11], as noted, along with other aspects such as norms, values and beliefs. There has been some empirical work on attitudes to enterprise [34], which suggests that propensity to engage in entrepreneurship is linked to certain attitudes over others, such as a positive attitude to risk and independence over income. Walstad and Kourilsky [35] look at entrepreneurial attitudes among Black youth. Others examine the role of geography and age on attitudes to entrepreneurship [36]. So far, research has tended to conflate attitudes to enterprise with entrepreneurial intent and overlooked the link between place and entrepreneurial culture.

That link is particularly underexplored in relation to young people. In the literature on young entrepreneurship there is a consensus that entrepreneurship among the young is not reaching full potential [37], even though unemployment has risen and organisational careers have declined [38]. Engagement by young people in entrepreneurship is examined from a number of perspectives. Firstly, young people's lack of time and experience in the labour market is an enduring narrative in the literature. As expected, there are barriers facing young people, including: access to finance and a lack of management experience [39], time pressures and availability of qualified help [40]; and age discrimination by financiers, suppliers and customers [41], [37]. Experience is found to determine propensity to succeed in business [42], [43], [19] and likelihood of having a business idea [44]. For such reasons, the optimum age for start-up is considered to be over 30 [45] and the barriers for less experienced younger adults are prohibitive.

A second longstanding perspective focusses on the influence of background on young entrepreneurs. There is some evidence that people with self-employed parents are more likely to become self-employed themselves [44], [46], [39]. Some suggest that socio-economic status influences young people's potential for entrepreneurial success. Jayawarna et al. [21] find that children from higher socio-economic status families but with lower human capital have more opportunities and are better supported to pursue entrepreneurial outcomes [21]. The implication is that young people from more and less deprived backgrounds, and potentially linked to place, start out with different levels of entrepreneurial propensity.

Attitudes to self-employment in relation to career choices [47] shift the focus from barriers based on experience and background, towards identity. 'Pull' factors of economic opportunity, authority, autonomy, challenge and self-realisation and freedom to be their own boss [48] are identified as driving young people's choices for self-employment over organizational careers. Work on young entrepreneurial identity [49], [37] however establishes some distance from the career influences on attitudes. Lewis [37] finds young people's entrepreneurial identity is less about career and more about personal ethics and authenticity. This identity perspective offers some insights into young people as having agency within a less deterministic perspective.

Finally, an interesting development in the literature on young people focuses on the nature of entrepreneurial activity among young people. There is growing evidence that young people engage in enterprise activity on an informal basis. Contrary to the socio-economic status

argument, Hickie [19] discovered that young people engaged in informal enterprise prior to establishing their business benefitted from the human capital developed through their informal ventures. Fletcher et al. [20] find informal entrepreneurial behavior in UK secondary schools as an expression of counter-school resistance to regulation. Chavdarova [50] looks at young informally self-employed people in Bulgaria, to examine how informal self-employment is socially legitimate, often supported through friends networks. The suggestion is that social capital is more influential on young people's engagement with enterprise than economic factors. This body of work offers a fresh perspective on young attitudes to enterprise as less structured.

These explanations generally treat young people as homogeneous and none considers place explicitly. Yet, as inequalities widen [51], structural changes affecting labour market, housing markets and financial markets may anchor young people in situ longer. It is well known that the young are currently bearing the brunt of the economic and social inequalities in the UK [17], with a large rise in the proportion of adults under 25 in poverty, manifested in the largest drop in earnings among younger workers and largest fall in living standards. Young people are also particularly susceptible to changes in the labour market, experiencing a huge rise in non-secure work. This contests the idea that employment is an exit from poverty [17] and presents a very precarious picture for young people entering their working lives.

The rhetorical response is on helping young people into economic activity and creating their own job [22]. The new economy, when it is 'easier than it ever has been to start a business, quicker than it has ever been to grow' [22], is expected to offer changing opportunities for enterprise to young people in particular. Furthermore, a continued educational shift is on the policy agenda with the 'Enterprise for all ages and stages' agenda set to encourage more integrated youth enterprise in schools and colleges. Generally, however, the policy environment for young people places greater emphasis on jobs and work opportunities, with little reference to entrepreneurship or self-employment beyond the rhetoric.

Our review therefore reveals a critical gap in the literature and policy discourses. The youth enterprise drive is essentially 'place-less' and economic development mainly 'youth-less'. These discussions led us to formulate our precise research question for this study: *How does place affect attitudes to enterprise among young adults in areas labelled as deprived and non-deprived?* By capturing the attitudes of young people at a given point in time and place, we can better understand how the future of place-based entrepreneurial cultures can be supported.

### **3. Approach to the Research and Methodology**

By capturing the voice of young adults at different ends of the deprivation spectrum, the study considered the influence of different factors on attitudes to enterprise in different settings. The research was designed to capture the voices of a range of individuals aged 18-25 years from more and less deprived areas in two broadly comparable cities in the north of England, Liverpool and Bradford. The aim was to identify any variance in attitudes to enterprise between places and deprivation status, using individual interviews and a corpus database. We adopted a mixed methodology combining interpretive, corpus linguistic and discourse analysis, using a comparison tool called Wmatrix [52]. We purposefully used an open interview structure and avoided imposing any definition of enterprise, entrepreneurship, business or self-employment so that this could emerge from the young people's own understanding. Letting definitions or associations emerge was critical as we wanted to see which possibilities the young interviewees drew on in relation to enterprise, as well as associations with place or places.

Setting out the context for the study should be more than a simple characterisation of the places as often assumed [9]. However, as a background to the selection of the places from which our interviewees were drawn, we describe the places broadly. Bradford is a large metropolitan district covering the City of Bradford, a small number of semi-rural towns and

many villages. It is equidistant from the east and west coasts of northern England. Bradford is a city full of rich contrasts, with a strong industrial heritage but its current image is blighted by multiple deprivation. Bradford has one of the youngest populations of all major cities in Britain. Youth unemployment is higher than the national average and growing. Bradford is thus an interesting site for examining how young people might influence the future of entrepreneurial cultures as it relates to deprived areas.

Liverpool also suffers from multiple deprivation but its external image is more positive than Bradford's, represented by its image as a 'pulsating arts, music and cultural capital'. It is a slightly larger city but with a smaller rural hinterland. During the past decade or so the City of Liverpool has undergone regeneration attracting prestigious initiatives, such as the European Capital of Culture. The Liverpool city-region continues to exhibit characteristics of deprivation that are amongst the most problematic in the UK and districts within the city-region have the lowest levels of new business start-ups in England. Liverpool includes prosperous, deprived, enterprising and non-enterprising areas that provide rich contrasts for examining how images of place influence the future of entrepreneurial cultures.

Qualitative, semi-structured interviews were conducted with 40 respondents (see Table 1). Interviews were with individuals or small groups, determined simply by the interviewees' preference and comfort. As the data were not going to be analysed in a corpus rather than individually attributed, this would not affect the analysis or findings. Interviews usually lasted from 45 and 60 minutes, were recorded and transcribed. The interviews were largely unstructured but drew on six broad interview prompts used at the discretion of the researchers. Interviewees were all aged 18-25 (20 in Bradford District and 20 in Liverpool and outlying areas). They were recruited through a combination of local organisations and personal networks and using snowballing techniques. Local organisations we have ongoing links with, including city councils, social enterprises working with young people and enterprise support organisations, helped identify some participants. Potential participants were filtered by postcode using the Open Data Communities mapper to select individuals living in the 20% most deprived and 40% least deprived Lower Super Output Areas, according to the Index of Multiple Deprivation (IMD) 2010. Reflecting our earlier distinction between a focus on *place* and *community*, the interviewees are in no way representative of any specific community, other than living in the more or less 'low income communities' of Bradford or Liverpool areas. Filtering by individual postcodes rather than selecting deprived wards means that individuals could come from quite separate neighbourhoods; whether they consider themselves members any community might fall out of the data but our interest is in place-based factors of where they live and deprivation status by postcode. Theoretical sampling was employed so the interviewees provided variation in gender, age and those with a known interest in enterprise and no known interest. Ethnicity was not considered important for the purposes of this research; participants are broadly reflective of the demographics of the areas studied.

**Table 1** list of research participants

*Bradford Interviewees:*

*Liverpool interviewees:*

Name	Gender	Age	Main occupation/enterprise	Name	Gender	Age	Main occupation/enterprise
<b>Deprived</b>				<b>Deprived</b>			
Flo	F	24	beauty treatments	Mia	F	26	Beautician
Anil	M	19	Paper crafts	Declan	M	24	Computers
James	M	20	window cleaning	Dan	M	20	Promotions
Kiran	M	20	Student	Anne-Marie	F	21	Health
Rahul	M	20	employed	Freya	F	20	Apprentice
Ajay	M	21	student	Sophy	F	25	make-up artist

Robert	M	20	drama workshops	Josh	M	22	window cleaner
Kira	F	21	student	Milly	F	20	Photography
Sara	F	21	student	Will	M	22	Tyres
Aneeta	F	21	student	Alfie	M	18	Student
<b>Non-deprived</b>				<b>Non-deprived</b>			
Safiya	F	24	trainee solicitor	Mike	M	24	student
Maya	F	24	freelance tutor	Lauren	F	22	student
Charlotte	F	23	trainee	Max	M	20	magician
Jayne	F	23	employed	Adam	M	22	student
Rashid	M	21	employed	Sue	F	21	student
Ben	M	21	employed	Sarah	F	21	full time mum
Liam	M	18	student	George	M	18	student
Beth	F	24	riding school	Claire	F	18	student
Jayden	M	24	employed	James	M	23	student
Anna	F	22	self-employed hair & beauty	Tom	M	23	musician

Analysis of the 40 transcripts involved a three stage approach: interpretive analysis capturing inter-rater reliability; corpus linguistics analysis using Wmatrix [52] and discourse analysis on excerpts of the data. The Wmatrix software ‘allows the macroscopic analysis (the study of the characteristics of whole texts or varieties of language) to inform the microscopic level (focusing on the use of a particular linguistic feature) as to which linguistic features should be investigated further’ [52] and is based on corpus linguistics. Words and concepts are analysed in terms of degree of difference (log likelihood) to test whether frequently occurring words or concepts appear significantly more (or less) frequently in the young adults’ texts. Log-likelihood value (LL) appears next to the domain name in a list and has a plus or minus symbol before to indicate overuse or underuse between two corpora. Similar methods have been used in entrepreneurship research [53].

#### 4. Analysis

The interpretive analysis suggested that overall there are more commonalities between the young adults’ accounts than expected. Themes common across the transcripts were: young people have strong connections to place; existing engagement with enterprise and informal activity is prevalent; financial and employment stability are dominant concerns; enterprise is perceived to have a transient role; personal, familial or other life-changing stories are formative; and there is an overall sense of open-mindedness. Early indications were then that age may exert more influence on these young adults’ attitudes to their own future, and any potential role for enterprise, than where they live or their background.

Comparing all young people’s spoken text to the British National Corpus (Spoken) (BNCS) using the Wmatrix corpus tool confirmed the topics the interviewees draw on relative to the spoken norm. As expected given our interview topic, semantic concepts relating to geographical names (+1063), business (+2029) work/employment (+1085), family (+787) and education (+1495) all appear in the top ten most frequent concepts and have a high log likelihood value (+786 to +2029). The concepts are shown below in the semantic tag cloud in Figure 1.



**Figure 1** Key Semantic Tag Cloud

Taken in aggregate, the semantic priorities of the young adults in their spoken text therefore reflected the findings of the interpretive stage. When we separated out the Liverpool and Bradford data at the interpretive stage, however, some differences emerged around: young adults' geographies and mobility; relevance of place for enterprise; influence of enterprise background; and enterprise as relevant to their own trajectories . These differences suggest that strong connection with specific localities is a factor in defining attitudes to enterprise differently after all.

Returning to the Wmatrix to compare sub-sets of the corpus allowed these differences to be examined in more detail. This stage of the corpus linguistic analysis entailed moving from age as the 'variable' to focus instead on *engagement with enterprise* , *where they live* or *deprivation status*.

#### 4.1 Where They Live

Table 2 shows the overused concepts in Bradford as being, *Geographical\_names*, *Helping* and *Strong\_obligation\_or\_necessity*. Conversely, in the Liverpool data temporal domains are overused compared to the rest of the corpus. *Time:\_Past*, *Time:\_Old;\_grown-up* and to an extent *Time:\_Old,\_new\_and\_young;\_age*, combined might indicate a stronger historical attachment to place, with concordances around 'old', 'grew up', 'used to', 'history', 'background', 'last year', 'ages'.

**Table 2** Key semantic domain frequencies (Where they live)

Bradford		Liverpool	
74.87	Geographical names	76.37	Personal names
52.62	Helping	68.03	Knowledgeable
43.08	Strong obligation or necessity	61.31	Pronouns
42.38	Open; Finding;Showing	25.28	Evaluation: Good

## 4.2 Deprivation Status

The data from the more deprived areas show an overuse of business concepts (*Business:\_ Selling* and *Business:- Generally* ), also *Knowledgeable*, *Helping* ( ‘supportive’, ‘encouraging’, and welfare ‘benefits’), *People generally* (as opposed to the *Kin* concept) and *People:\_Female*, including, ‘she’, ‘she’s’, ‘woman’, ‘women’, and family members, ‘sister’, ‘nan’. Meanwhile, the non-deprived data reveal few significant differences to the whole database, as seen in table 3.

**Table 3** Key semantic domain frequencies (Deprivation)

Deprived		Non-Deprived	
40.71	Business: Selling	10.59	Generally
27.71	Knowledgeable		kinds,groups,examples
25.21	Business: Generally	8.62	Interested/excited/energetic
24.91	People	8.06	Politics

## 4.3 Engagement in Enterprise

Young people with reported *low engagement in enterprise* appear to have a different relationship to place than those with a *high engagement*. *Geographical names* and *Places* are significantly overused among the low engagement group. This is strengthened by a significant overuse of terms in the *Belonging to a group*, *Residence*, *Kin* and *Personal\_relationship:\_General* domains. This could indicate a stronger degree of attachment (to place and contacts) than those with a higher interest in enterprise.

**Table 4** Key semantic domain frequencies (Engagement in enterprise)

High engagement		Low engagement	
38.78	General actions/making	115.94	Geographical names
28.68	Pronouns	32.30	Belonging to a group
27.47	Knowledgeable	28.81	Places
18.40	Business: Selling	27.85	Interested/excited/energetic

So far these findings support the interpretive assessment, that different attachments to location and place-based deprivation status might influence attitudes to some extent. Finally, we analysed discursive constructions in the interviews, using a basic approach to text based discourse analysis.

This stage entailed another analytical shift, from the three variables above, to foreground *place*. Analysis was undertaken on the data based on four place-based categories: deprived Liverpool, non-deprived Liverpool, deprived Bradford and non-deprived Bradford.

Points of discursive difference were identified, as shown in Table 5, around four attitudinal elements, categorised as: attitudes to enterprise generally; attitudes to enterprise as being relevant to their place; attitudes to enterprise as relevant to them in terms of their own past, present or future trajectories; and attitudes legitimising certain types of enterprise activity. On two of these attitudinal elements, *deprivation* is more likely to shape the discursive difference; *where they live* appears to influence the construction of the other two elements of attitudes.

A summary of how the discursive differences manifest in the text of the young interviewees is given in table 5. Examples of the data analysis are provided in the following sub-section, to illustrate the range of voices occupying these discursive patterns. Quotations are not individually attributed but, appropriately to the corpus methodology, are attributed to each of the four place-based categories above.

**Table 5** Discursive patterns in constructing attitudes to enterprise

<b><i>Attitudinal element:</i></b>	<b><i>Point of discursive variance</i></b>	
<b><i>Attitudes to enterprise generally:</i></b>	Instances in the Liverpool data appear predominantly ideational in nature, and contain strong discursive threads around self-determination and independence.	In Bradford, constructions of enterprise seem more problematized. Professional and career related accounts are used more to argue for or against enterprise, than independence. Also there is a prominent discourse in the Bradford data around support, particularly public support for enterprise.
<b><i>Attitudes to enterprise as relevant to (their) place:</i></b>	Instances using place to discursively connect Liverpool and enterprise are few in either the deprived or the non-deprived data. However, in the Liverpool data, the city is constructed as a positive place for enterprise.	Place-based constructions of enterprise are more common in the Bradford data. Some use place arguments to present Bradford as a positive enterprise environment; others draw a discursive divide between enterprise and Bradford. Accounts rely on external places.
<b><i>Attitudes to enterprise as relevant to them (their own past, present or future):</i></b>	As expected, work, careers and experience are strong discursive threads among the non-deprived data.	In the deprived data, more radical arguments position enterprise as an inevitable choice. Contingency planning and a hard work ethic (mainly family members) resonate as both positive and negative influence on enterprise.
<b><i>Attitudes legitimising certain forms of enterprise (perhaps over others):</i></b>	There is a tendency in the non-deprived data to qualify references to enterprise experiences known to them. This has the discursive effect of delegitimising regular forms of enterprise activity, including informal.	In the deprived data, examples of enterprise are mentioned without any tempering; (in)formal activity as a route into enterprise often carried through notions of 'toying', invoking experimentation and playfulness

#### ***4.4 Attitudes Influenced By Where They Live***

Textual analysis suggested the first two attitudinal elements varied most strongly by *where they live*, in other words the areas around Bradford and Liverpool, rather than by deprivation status.

In the Liverpool data, discursive constructions of enterprise appear predominantly ideational in nature. Liverpool accounts also tend to contain strong discursive threads around self-

determination and independence. Arguments depicting enterprise in positive and negative lights are often connected with the individuals' own independent trajectory.

Liverpool Non-Deprived: 'Doing it yourself. Probably having a different outlook than what other people have got. Like you want what you want and if you can get the backing for it you can hopefully get where you want to be.'

'get it made into a proper business and start your way in life'

Liverpool Deprived: 'you are going for something that you want what you'd like to do maybe, or what you'd like to do ...and it's like you are doing it for yourself.'

'But I would like to have ownership of something you know like real you know what I mean'

In Bradford, constructions of enterprise seem more problematized. Here professional and career related accounts are more likely to argue for or against enterprise, than independence. Also there is a prominent discourse in the Bradford data around support, including public support for enterprise.

Bradford Non-Deprived: 'I think if he made his business big enough he'd do really well in it. But I don't know how sustainable it is as a proper career.'

'In developing countries ... they have the confidence and also because the environment is so dynamic, you want to do something for yourself because you have to. Here I think we have university.'

Bradford Deprived: 'But I think the other side of self-employed is the fact that you don't get any sick pay. And I think areas like that you've not got the security as being employed.'

'Support , we need so much support.... If I start a business, how do I start it, how do I know who to cater it for, ... Everything , I just don't think there's enough support .

*Where they live* not only exerts a strong influence on constructions of enterprise, but also on attitudes to enterprise in relation to their place. Place centred logics positioning enterprise in Bradford as (un) favourable are mixed. Some (from both deprived and non-deprived areas) use place arguments to present Bradford as a reasonably positive enterprise environment, others to draw a divide between enterprise and Bradford.

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Bradford Non-Deprived: 'Bradford seems to be awesome for business. There seem to be new businesses opening every time I go into Bradford and closing as well to be fair.'

'I think every time there's a new business open its based on bad money. So my perceptions of enterprise in Bradford aren't really that positive

Bradford Deprived: 'I don't think there's a difference between opening a business

elsewhere and opening a business in Bradford.'

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Things like takeaways will always work in Bradford, because Bradford is known for that. Whereas you look at things like accounting and things like that, the main industry is outside of Bradford.

place to connect Liverpool and enterprise are few. One exception is: 'If there 's no opportunities in Liverpool I 'll make my own opportunities do you know what I mean ' This might suggest that place (location) is perceived as generally more relevant to considerations of whether enterprise is a favourable option in Bradford than Liverpool.

#### 4.5 Attitudes Influenced By Deprivation Status

The other two attitudinal elements, by contrast, were found to vary most strongly according to deprivation status.

As might be expected, there is a stronger discursive thread relating enterprise to interviewees' own life trajectories work, careers and experience in the non-deprived data.. Enterprise is occasionally positioned as career path itself and often positioned as an 'eventual' option. Non-family members are equally likely as family members to be connected with arguments for or against enterprise as relevant to the interviewees

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Liverpool Non-Deprived:

'But the point is I need a career before I can go into a business immediately you know.'

' this fella did it on his own just set up by himself and people loved it ... and people at this event were going wild for it and I thought that's such a simple idea

Bradford Non-Deprived:

I always thought I'd go into something, a profession that was a readymade profession rather than starting anything up myself .

And I think that's definitely influenced rather than again like my dad who's invested and gone into business. Actually, I want to be more like my aunty than my dad or my mum

uments position enterprise as an inevitable choice for the interviewee, particularly evident in the Liverpool deprived data. In the Bradford deprived data, meanwhile, more pragmatic and possibly cautious arguments position enterprise as either thinkable or not. Contingency planning and a hard work ethic also resonate throughout the deprived data but do not always appear as a positive influence toward enterprise as a life choice.

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Liverpool Deprived:

'I want my own business and I want my own money and I'm going to work'

'I don't need anybody to tell me to go back to work because I can define my own future. I don't need anybody to tell me what to do anymore. Because I'm a mum.'

'you don't want to worry when you're getting older, so set something up now which you can then bank on later.'

Bradford Deprived:

'So basically the reason why we first set up this business was because I wasn't having any joy in finding a job'

Deprivation status is also influential in constructing attitudes to legitimate forms of enterprise. There is a tendency in the non-deprived data to qualify references to enterprise experiences known to them. Some references to informal enterprise activity do appear in the non-deprived data, for example: 'to actually have a crack at it' (Bradford Non-Deprived).

Usualy in the deprived data, examples of enterprise are mentioned without any tempering or qualification. Informality is also more prevalent in the deprived data from both Bradford and Liverpool, partly carried through notions of 'toying'. This might be important because it could signal experimentation and playfulness.

Liverpool Non-Deprived: 'Her and her friend do wedding photography and children, things like that. But it's not like their main source of income.'

' she loved doing it but she never really made like a proper business out of it, she just done it for like something to do'.

Bradford Non-Deprived: 'it was because of external help that, you know. If that wasn't the case, because his dads a taxi driver, what kind of aspirations, how high aspirations can you have with the little means.'

Liverpool Deprived: 'I'd just like to have my own businesses and sit back on the beach and let them all do the work'

'you can you know be self-employed and make your own money, it's not exactly easy but worth having a go'

Bradford Deprived: 'Because my brother and my uncle set up a furniture business, and I help set it up and they made me the sales manager for the business so I do all the sales for the sofa business. So that's an income on the side for me as well.'

'He's got his own business now. So I might as well. Give it a whirf'

the non-deprived data also, for example: 'to actually have a crack at it' (Bradford Non-Deprived). However, generally in this final part of the analysis, it is again deprivation status which reveals greater difference than location in interviewees' constructions as they legitimise forms of enterprise activity over others.

## 5. Discussion

This research does not look at entrepreneurial practice but at attitudes as one element of entrepreneurial cultures [11], [10]. The findings indicate that age creates commonalities but that place-based factors and level of engagement with enterprise also play distinct parts in the corpus of spoken text. We propose that looking at attitudes to enterprise constructed in spoken data, at a given point in time, helps understand how place-based entrepreneurial cultures develop.

On one hand, the parity in attitudes between young adults overall reflects the age related explanations for entrepreneurial propensity among young people in the literature. Age related barriers to enterprise stemming from lack of time or experience in the labour market [43], [41], [37], [19] and perceptions of self-employment based on career or entrepreneurial identities [47], [49], [37] echo across the young adults' spoken text. There is also significant fluidity and ephemerality in the young adults' constructions of enterprise, between mainstream economic activity, traditional businesses and informal, community and social activities. These versions of enterprise do not appear bounded by place factors but constrained by universal concerns about financial and employment stability.

On the other hand, it seems that the place factor of an area's *deprivation status* affects their attitudes to enterprise in two ways: how they argue for or against enterprise in relation to their personal trajectories; and the nature of the activities legitimised in the process. The deprived and non-deprived contrast here shows that the specifics of place and structures may be important. The effect of certain place factors on attitudes to enterprise mirrors the literature that focuses on the influence of background and socio-economic status [44], [46], [39], [21].

However, it also seems that the specific place factor of *where they live* (Bradford or Liverpool) affects different aspects of attitudes to enterprise: how young people conceptualise enterprise generally; and how they construct it as relevant to their city. There is an interesting difference between the Liverpool diaspora and more parochial Bradford attachments, which might be related to separate histories and cultural transformations the two cities have experienced. Furthermore, it also appears that the young adults with a reported high engagement with enterprise already, relay a weaker attachment to their area than those with a low engagement.

Place factors appear then to operate in complex combinations of location, deprivation status, stage in life and contemporary structural factors. The complex interplay that affects how attitudes to entrepreneurship or self-employment are constructed means that there is no simple answer to whether young people in low income areas are likely to reproduce marginal place-based versions of enterprise [18], [23] or whether young people can transcend territorial barriers to enterprise thanks to opportunities for enterprise in the new economy [22]. The paper does allow some insights though into how place affects attitudes to enterprise. The different operation of place factors leads us to caution deterministic versions of young adults' attitudes to enterprise as determined by family background, socio-economic status, or other person or place specific factors.

The findings are based on our qualitative data only and therefore neither generalizable nor representative. At the final stage of the analysis, we are comparing relatively low numbers of interviewees, compounding the limitations of qualitative research. Ethnicity might be in the background, as well as gender. Neither of these aspects is the focus of this research but it would be worth revisiting the data to consider how gender and ethnicity and other factors relate to place, age and entrepreneurship. Despite these limitations, the research does allow us to infer that place has some complex effects on attitudes to enterprise, interwoven with other non-place factors.

## 6. Conclusion

This paper has considered the links between place, youth and attitudes to enterprise through the voices of young adults, who were drawn more closely from localities than many studies to date [19]. By using three approaches to analysing a wide range of young people's voices, this paper has provided insights into how certain place factors shape young adults' attitudes to enterprise. *Where they live* and the area's *deprivation status* are shown to have different effects. These are in addition to age factors, enterprise experience and other factors known

to influence young adults' enterprise activities. This allows us to partially answer the research question: how does place affects attitudes to enterprise among young adults in areas labelled as deprived and non-deprived ? The picture emerging is of the complex interplay of place and other factors on attitudes to enterprise.

We have shown how this complex picture both reflects and challenges some assumptions in the literature about place and about youth in relation to enterprise. We question suggested links between childhood resources and entrepreneurial propensity as Jayawarna et al. [21] suggest. Absence of or cultural distance from enterprise culture [33], [41] does not seem to be a significant factor for these young individuals. Young adults at both ends of the deprivation spectrum (and both places) have fairly locally rooted plans and recognise enterprise as something experimental, informal and fluid. Even where it is not part of their normative long-term aspirations, enterprising activity is already part of many young adults' lives. These could be important assets for future entrepreneurial cultures in places like Bradford or Liverpool.

Overall, we suggest there are dangers in attributing place or person specific factors to enterprise potential, without regard to wider structural dynamics affecting young adults. We concur with Spigel [10] that research needs to get beyond simplistic treatments of entrepreneurial culture and place, to look at how culture helps construct the context for locally relevant entrepreneurial practice. We also highlight an unbridged divide in the entrepreneurship literature on youth and place and a corresponding discourse gap in public policy relating enterprise to place and young people.

Finally, these data support claims that there is little rationale for assuming future enterprise will be more or less likely to emanate from certain types of places or backgrounds, nor that certain types of enterprise activity are more or less typical of deprived or inner city places [15]. If indeed entrepreneurial cultures are linked to place [10] and affect the success of places, policy cannot rely on structured approaches alone. Understanding young adults' interest in experiential learning and the formative value of informal activity in pre-entrepreneurial processes may be critical if enterprise is to be part of the success of place.

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## **Networks and Innovation**

### **Emerging Knowledge Patterns in Complicated, Chaotic and Complex Entrepreneurial Environments**

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Entrepreneurship may have been with us from time immemorial; however it has metamorphosed over time through modernity and scientific discoveries. This process of evolution can be likened to an emergence or re-emergence of entrepreneurial ideas which has undergone various environmental tests and adaptations. A complex entrepreneurial simulation is presented to understand emerging systems observed in entrepreneurship, as well as finding a simplified logic or trends for the entrepreneurial knowledge emergence as conceptualised and simulated within an artificial universe. In this universe, people are denoted by agents who gain insightful information through interactions, attractions, learning and adaptation, and advancing from *unaware agents* (laymen) to *activist agents* (proficient entrepreneurs). This study suggests that entrepreneurs learn processively, and therefore seek to trace their learning patterns in the pursuit of their entrepreneurial expertise. This paper focuses on the information acquisition and development prospective entrepreneurs engage in as well as the cognitive processes which characterize the acquisition, retention, and use of the gained entrepreneurial knowledge. Principles from several studies within the disciplines of the cognitive sciences are embedded in simulation to help explain entrepreneurial learning processes. The simulation uses Bayesian probability model which enables the system to predict eventual outcomes based on certain known status information of a given agent and the accompanying changes due to circumstantial variation which is typical of people as knowledge is acquired and previous know-how is updated. For instance, the probable outcome of an agent's know-how given its status: level of education, experience, technological know-how, its social circle and economic environment, is written and derived mathematically as  $\{Pr(EK|Education, Experience) + \text{the influence of (Environment, Social Network and IT know-how)}\}$  which is unique for each agent and expressed as  $Pr(EK) = Pr(Education)*Pr(Experience) + Pr(Tech)*Pr(Social Network)*Pr(Economic Environment)$ .

#### **Keywords**

Chaos and Complexity, Cognition and Discovery, Emergence, Entrepreneurship and Innovation, Research and Developments, Simulation and Adaptive Systems

#### **Abbreviations**

Conceptual Framework (CFW)

Economic Environment (EK)

Education (Ed)

Entrepreneurial opportunity Emergence (EOE)  
Environment (EV)  
Equation (Eq)  
Experience (Ex)  
Information Technology (IT)  
Opportunity Emergence (OE)  
Personality Trait (PT)  
Prior Knowledge (PK)  
Probability (Pr)  
Social Network (SN)  
Technology (TE)

## 1. Introduction

Literatures abound that have discussed diversely the topic, entrepreneurial discovery and creation [29] [30] [31], but very little or nothing has been done to properly simulate the discovery or creation of the evolutionary trends and patterns in entrepreneurial endeavours thereby making it an insufficiently understood area of enquiry. This paper takes a critical look at how the message of entrepreneurship is spread by agents who thrive in a knowledge environment and grow till they attain an entrepreneurial knowledge threshold (level contextually defined) which makes them become active entrepreneurs.

While the idea of computer simulation has had enormous influence on most areas of science and even on the public imagination through its use in computer games, it was until the 90 's that it begun to have a significant impact in the social sciences [33]. The breakthrough became apparent when it was realised that these simulations are capable of creating 'artificial' societies in which individuals and collective actors such as organisations could be directly represented and the effect of their interactions observed [2][3]. This provided for the first time, the possibility of using experimental methods with social phenomena, or at least with their computer representations; to indirectly study the emergence of social institutions from individual interactions as well using computer code as a way of formalising dynamic social theories. In this paper, advances in the application of computer simulation to social sciences is harnessed, demonstrating how it has become appropriate for analysing social phenomena that are inherently complex[1][4][5].

## 2. Literature Review

The twenty-first century is starting with a huge bang. For the layman on the streets, the bang is about a technical revolution that may eventually dwarf the industrial revolution of the 18th and 19th centuries having already produced a drastic change in the rules of economics [29]. For the scientifically minded, one aspect of this bang is the complexity revolution, which is changing the focus of research in all disciplines (especially scientific disciplines) [27].

Advances in this century 's theoretical sciences are coming out of these seemingly chaotic revolutions of complexity, and its principal tool will be the computer [26].

Now that the world economies, military and actual strength of nations are tested on the platforms of technological advancements, what really is this chaos about and how does it fit complex systems? Space and time has been viewed as the most adequate dimension with which to view chaos [39], hence, let us consider chaos in space. An object which is perceived to be chaotic in space is called a "fractal" [13]. Although literatures vary in an acceptable definition of fractals, a very supple and general explanation views fractal as a

geometric figure that does not become simpler when analyzed in smaller parts [34]. This implies that fractals are not smooth and abound in nature while some are man-made. For instance, a mountain range is a fractal. A healthy old tree is a fractal. The human body is a fractal. A pattern of human settlements, a fern leaf, a pattern of earthquake faults lines, the sky on a partially cloudy day, the coast of Great Britain or any other section of a coast, the waves on the surface of the ocean, the pattern of vegetation in the Sonoran Desert or patterns of dunes in Sahara and Arabian deserts etc. All of these are fractals in the general sense given above, meaning that they do not become simpler when examined with an increasingly powerful microscope or at the smallest unit possible [28].

A system whose configuration is capable of changing with time is known as a “dynamic system”. This type of system consists of some “variables” which could be translated into “dynamic equations” [23] [24] [25]. The variables are anything which can vary with time. They can be multiple or single, continuous or discrete. They must be chosen in such a way that the complete knowledge of all the variables determines uniquely the “state” of the system at a time. In other words, two similar systems with the same values of all the variables are in identical configurations in time, and should evolve identically [6] [7].

The signature of time-chaos is something called ( “sensitivity to initial conditions that is, how much information an entrepreneur has”). It says that, if you have two sets of initial conditions (two individuals set out to be entrepreneurs with similar backgrounds), or two points in phase space (two entrepreneurs having similar experience and positions), extremely close to each other, the two ensuing entrepreneurial trajectory patterns, though close to each other at the beginning, will eventually diverge exponentially away from each other. [19][8] The discovery of sensitivity to initial conditions is also called “the butterfly effect ” because, thanks to sensitivity to initial conditions, it is possible for a butterfly, by flapping its wings on some Caribbean island today, to change completely the weather pattern in Europe a month from now.

Butterfly effect and Sensitivity to initial condition both refers to a fortuitous phenomenon which implies that, a very small cause which escapes our notice may determine a considerable effect that we cannot fail to see, and then we say that the effect is due to chance [34]. If we knew exactly the laws of nature and the situation of the universe at the initial moment, we could predict exactly the situation of that same universe at a succeeding moment. But even if it were the case that the natural laws had no longer any secret for us, we could still only know the initial situation approximately [38] if that enabled us to predict the succeeding situation with the same approximation. That is, all we should say is that the phenomenon had been predicted, that it is, governed by laws. But it is not always so: it may happen that small difference in initial conditions produce very great ones in the final phenomena [35]. A small error in the former will produce an enormous error in the latter. Prediction becomes impossible, hence the fortuitous phenomenon.

Sensitivity to initial conditions is the death of reductionism. It says that any small uncertainty that may exist in the initial conditions will grow exponentially with time, and eventually (very soon, in most cases) it will become so large that we will lose all useful knowledge of the state of the system. Even if we know the state of the system very precisely now, we cannot predict the future trajectory forever. We can do it for a little while, but the error grows exponentially and we have to give up at some point [9].

When everything interacts, nothing is simple, and that means the effect of a single variable is not merely hidden in the noise of other variables. Rather, its effect is fundamentally transformed through those other variables [4]. A system is *complicated* if it contains many variables which combine in linear and predictable ways so that their effects can be isolated and their overall impact on the system is ultimately knowable. This is a description of the present paradigm, in which the assumption is that relationships among variables can be captured adequately with systems of linear equations. Also, a system is *chaotic* if it is governed by non-linear relationships which combine in such a way that under some

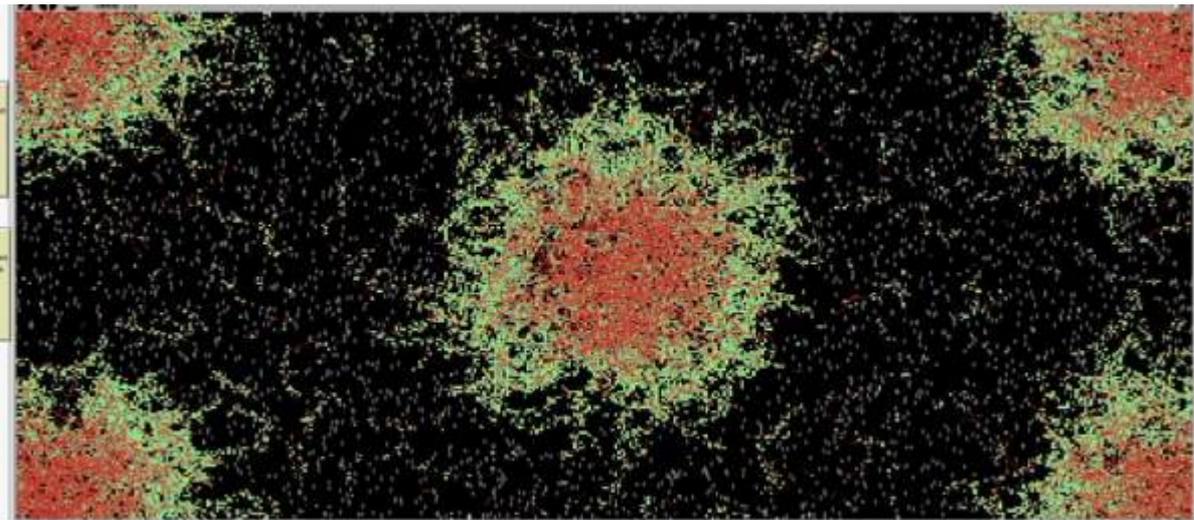
circumstances, the ultimate state of the system is unpredictable [34]. However, the variables themselves are explicit and knowable and may be few in number. Furthermore, the system may be completely deterministic in some choices of parameters, but chaotic in other regions [38].

Conversely, a system is said to be *complex* if, in addition to non-linear relationships, it is characterised by multiple indefinable variables interacting in indefinable, unstable and ultimately unknowable ways so that no system of linear equations can represent the reality [36]. In addition, a complex adaptive system also exhibits large-scale regularities (self organisation) that cannot be extrapolated from the properties of individual elements [20].

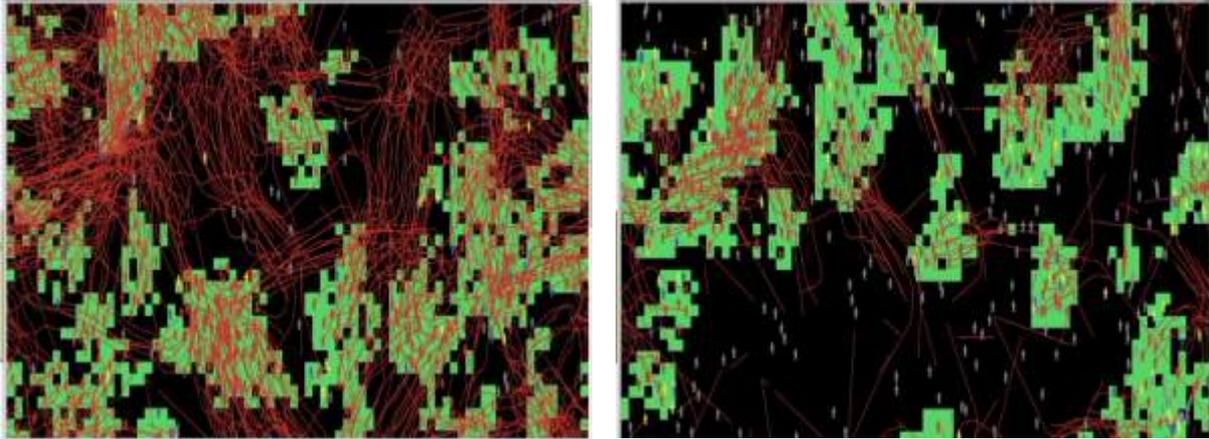
Complexity theory shows how regularities – ‘self-organisation’ – can arise from multiple interactive, non-linear and changing elements. Put simply: ‘Complexity Theory looks at how complex systems can generate simple outcomes [10] [11][2]’. Thus complexity theory in entrepreneurship shows how simple predictable outcomes can arise from complex, rudimentary multi-element entrepreneurial systems. However, the key distinction between this and the regularities observed as a result of classical deterministic systems is that in complexity theory the regularities arise from within the system itself [12][1][4]. At a micro level, the system ‘need not have fixed relationships, fixed behaviours or fixed quantities. Thus, their individual functions may also be undefined, but regularities are observed in the collective motions’. Therefore, the focus is on the overall system, and the behaviour of individual elements and their relations to one another is of secondary importance [13].

### 3. Methodology

A simulation approach is adopted where agents gain knowledge as they go through information centres and lose same as they dwell outside the knowledge boundaries [38]. The agents grow through stability phases which begin as an *Unaware agent*, to an *Aware agent*; then becomes *Well informed agent* and eventually fully develop to an *Activist agent*. On the same platform, the information centres which are institutions of knowledge available in the environment are subject to elimination if, they do not update at least an agent over a specific period of time which is regarded as non-usage limit in the simulation scenario.



**Figure 7** Geographically located entrepreneurial concentration behaviour



**Figure 8** Green patches showing the institutional developments left by the agents (entrepreneurs) as they move about their businesses in pursuit of incremental success while the red lines traces the paths of progress for individual agents

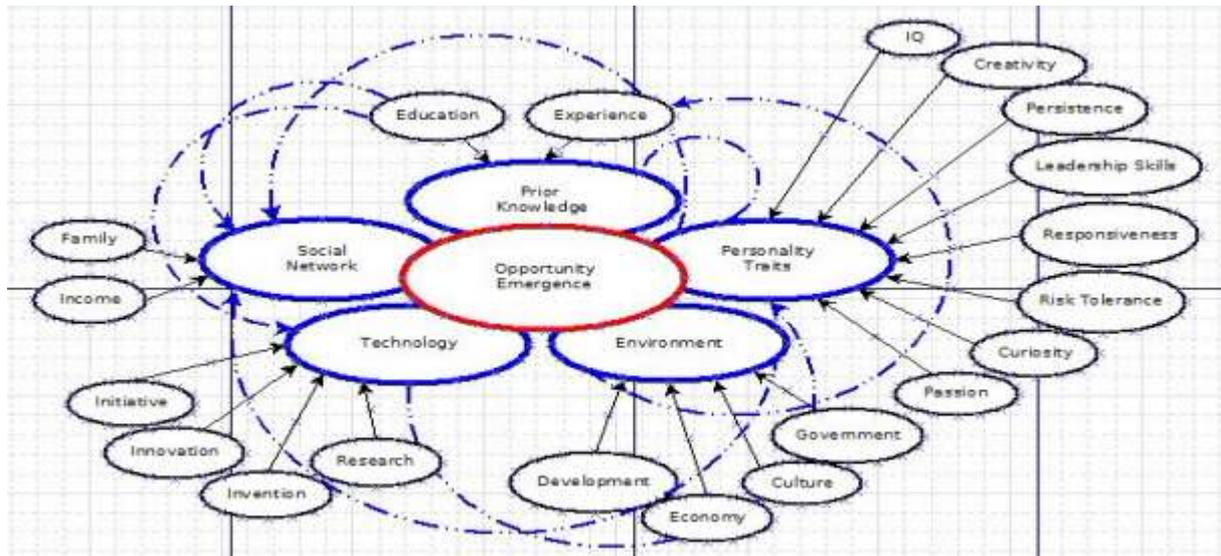
A flocking and crowd movement style for information attraction is adopted to help typify the entrepreneurial adventures as obtained in reality. Successful entrepreneurs tend to attract followers, admirers and stewards who in due course gain knowledge from their followership and move-on to become independent entrepreneurs. In the journey to a stable entrepreneurship, individual knowledge retention needs to be articulated and factored into an entrepreneur's rate of transition from *unaware agent* to *activist agent*. According to [14]; "retention interval" is defined as the time that elapses between a test of original learning and a retention test. "Knowledge retention" is defined as the proportion of knowledge retained by an individual after a specific retention interval. They further suggest that knowledge retention generally falls to about 75-89% after a relatively short period of time. The result of several studies suggests that retention rate decreases linearly with time as has been observed in various fields (Medicine, Education etc.). Although variables abound in literature which suggest how knowledge retention is influenced [18], this study focuses on a simple logical symmetry for knowledge gain and loss in the pursuit of entrepreneurial competence where obstacles to information are considered evenly distributed with the exception of some who were hitherto located by providence in a knowledge/information dense environment.

*Just like the axiom; birds of a feather flock together or show me your friend and I will tell you who you are*, by virtue of association whether planned or unplanned, information is gained or lost, and as the agents continue to coexist within the simulated universe, some attain enough information to become entrepreneurs and attract others who are not, while some other agents experience knowledge decline and tend to lose their initial status and the intermediate agents fluctuate in their knowledge steadiness between *well-informed* and *unaware*.

Knowledge as contained in various entrepreneurship literatures has been shown to be a crucial factor for innovation, new products and services [15]. Many organisations undertake research and development aimed at generating innovations, firms' viability and new knowledge [32]. This new knowledge needs to be adequately exploited by properly translating this knowledge into modified or new products and services. [16] Argues that knowledge spill over makes new knowledge available. However, to exploit this new knowledge proficiently is an act only an entrepreneur can deliver. There appears to be a delay between knowledge discovery and application (transmission from emerging ideas to a production line) due to the inability to transmit certain type of knowledge (i.e. tacit knowledge) effectively. It therefore implies that, knowledge flows with ease and successfully through interpersonal interactions. While knowledge reveals opportunities, the entrepreneur responds towards the conversion of new economic knowledge into commercialized

economic opportunities.

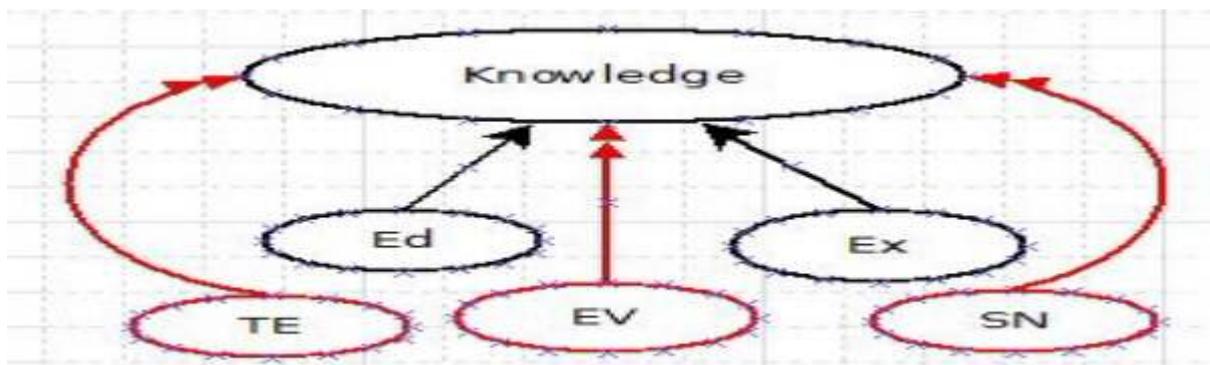
Here is a theoretical framework from which the mathematical model and simulations were based.



**Figure 9** A conceptual framework adopted from (Okoye 2014)

[17] Suggested that entrepreneurship opportunity emerges through multiplicity of activities [31] as depicted in the model he proposed. However, he highlighted the interconnectivity between these variables and how a change in one can trigger variation in the ultimate outcome.

For the purpose of this paper, let us focus on the contribution of knowledge and its elements. The influence of knowledge in this complex and chaotic framework shall be extracted via a Bayesian mathematical model of probability as described in the works of [17].



**Figure 10** Entrepreneurial Knowledge Aggregation belief network

[17] Implies that knowledge results from the probabilistic impacts of Education (Ed), Experience (Ex), Technological know-how (TE), Economic Environment (EV) and the Social Network (SN) of the entrepreneur. We already have seen that TE, EV and SN as shown are all a product of decision variables which were not explored in this study.

For our study, Ed, Ex, TE, EV and SN are the decision variables for Knowledge and their values have to be determined as they affect the eventual outcome of the theory being modelled.

These decision variables are derived from sub-variables through a mathematical specification relationship termed objective function. This function is further interpreted as the probability of obtaining a higher value of decision variable given certain values of attributes observed in an entrepreneur or potential entrepreneur.

Therefore, a conditional Bayesian probability model is adopted to generate the mathematical illustrations and a Netlogo simulation tool to demonstrate the expected behaviours of potential entrepreneurs. Conditional probability is the probability of an event occurring, given that we have some knowledge of factors that may contribute to the event.

The data in Ed, TE, EV, Ex, SN were generated through a random Bayesian probability technique where, Ed = Pr (Education score) and the values randomly picked between 1/5 to 5/5 and incorporated into equation 3. Same prediction applies to the variable Ex = Pr(Experience score) and all independent variables.

TE, SN and EV were derived from the conditional probability equations below;

[i]                   Where

[ii]

[iii]           respectively.

*Note; however that Pr(TEi) and Pr(SNi) are the initial conditions from the dependent variables without the effect of external influences from other interacting independent variables at an initial time as seen in the CFW (figure 3). This refers to the initial condition (i.e. probability scores on the likert scale 1/5 through 5/5 for each variable at a time.*

“If we agree that tacit knowledge cannot be completely measured or transmitted or put into words”, then Bayesian conditional probability answers the question- how does the probability of an event change if we have extra information? Put succinctly, how can the entrepreneurial knowledge of an entrepreneur change or vary given certain scores in his education, experience, environment, social network and technological know-how.

The scores for education and experience are derived from the entrepreneurs by grading on a likert scale of 1 – 5 their academic study level and experience, where one illustrates very low and five a very high scores as shown in Table 1.

**Table 6** Description of the likert scale used in the data generation for the simulation

<b>Attribute used in scaling the agent (entrepreneur)</b>					
	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree
	Not at all	A little	somewhat	A lot	Completely
	1	2	3	4	5
<b>Probability score</b>	1/5	2/5	3/5	4/5	5/5

Initial probability of Entrepreneurial Knowledge is expressed as

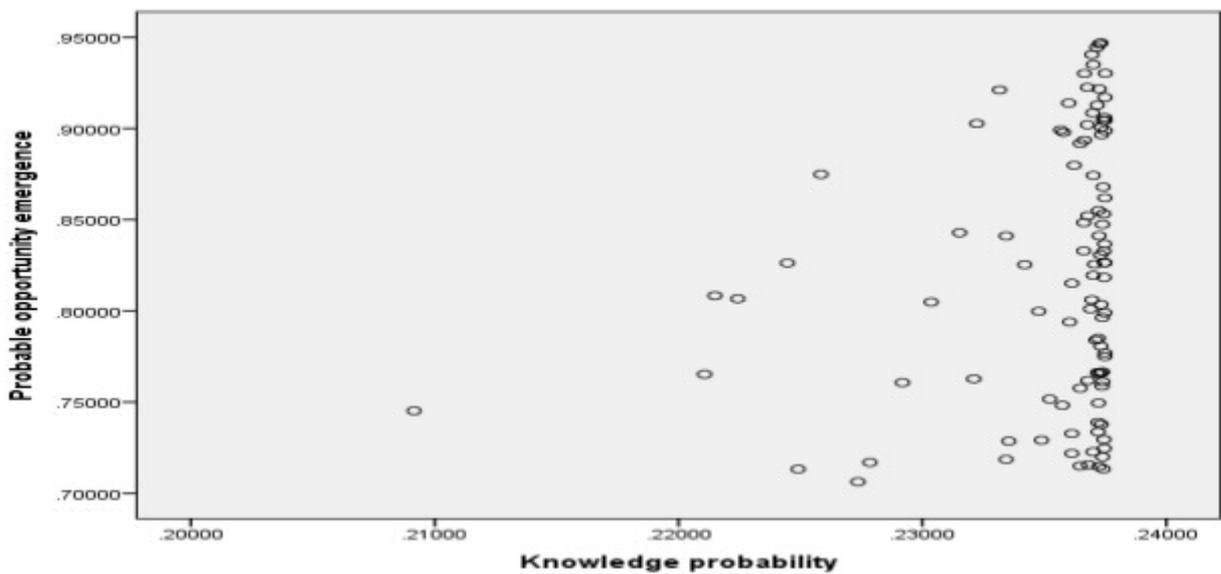
(i.e. the probability of entrepreneurial knowledge given the educational level and the extent of experience exposures.)

Probabilistic value of Entrepreneurial Knowledge given the influences of Technology, Environment and Social Network is defined as

If the equation above can be rewritten as follows;  $Y = \alpha y + \beta x \dots \dots \dots eq5$

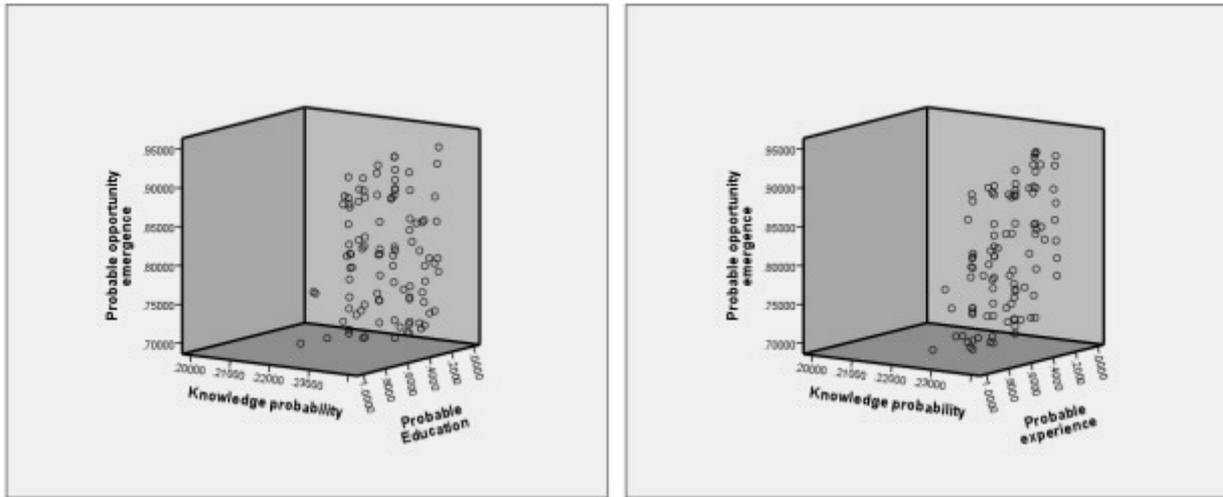
$$\Pr(OE) = \alpha y + \beta x \dots \dots \dots eq6$$

Were  $Y = \Pr(OE) = \Pr(EK)$ ,  $y = \Pr(EKi)$  and  $x = \Pr(TE) * \Pr(EV) * \Pr(SN)$  however,  $\Pr(Eki)$ ,  $\alpha$  and  $\beta$  are usually constant for any single agent at a given instance of circumstance and time.



**Figure 11** Entrepreneurial opportunity expression against knowledge

Figure 6 clearly illustrates that, knowledge in whatever form or however little is crucial to the emergence of opportunities as conceptualized in this paper. Therefore, at every level of emergence, knowledge is required as is further concurred in figure 7. In figure 5, we find that increase in know-how shows an increased possibility of emergence (i.e. discovery). This is illustrated in the accumulation of more scores at the positive end of the knowledge spectrum axis. But knowledge in this framework could be acquired through formal education or informal education (experience) and it 's consequent effect on emergence in the context of this study is noticeable in both figure 5 and figure 6, as knowledge scores seem to spread across the spectrum inferring that emergent ideas result at various levels in the knowledge spectrum and not necessarily only when the know-how is at its peak.



**Figure 12** Expression of Knowledge dependence on Education and Experience in entrepreneurial emergence

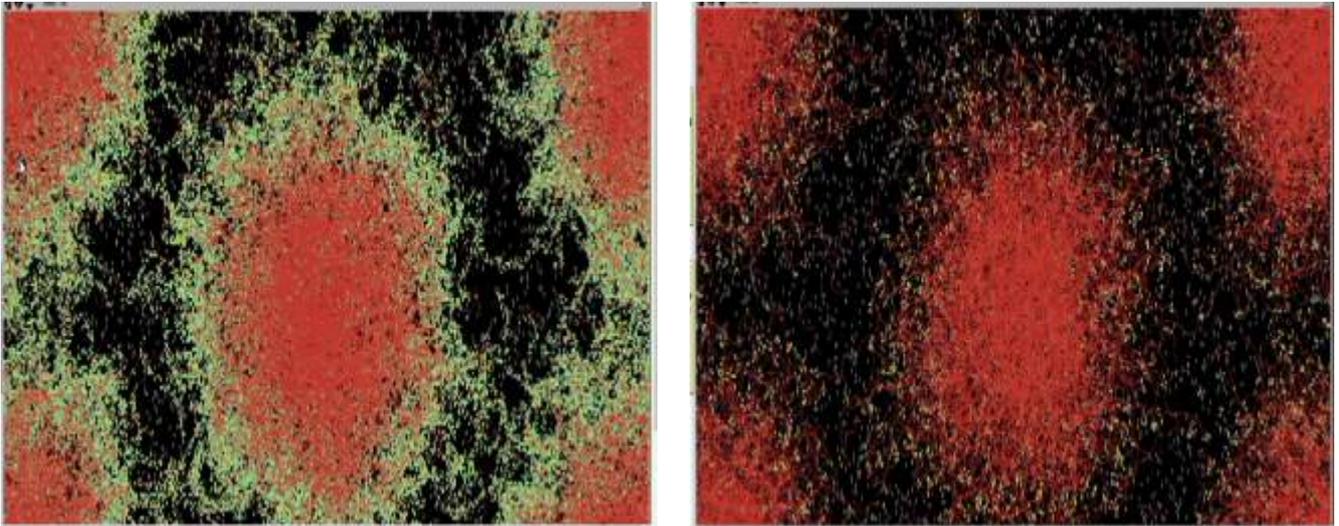
## 4. Results

In the evolving patterns observed in the simulations, it emerged that as agents search for entrepreneurial knowledge through interactions with the *activist* agents, and align with the same to gain entrepreneurial competence, when adequate knowledge and proficiency is attained, these agents begin to break away from the leading activist agents in its group, hence producing a splinter group which by proximity and radius sensitivity tends to attract other knowledge seeking agents thereby resulting in a new group. This seems to continue endlessly and has been seen to be very sensitive to non-usage time and the degree of separation. The lower the non-usage time, the faster the rate at which the knowledge of information gained by agents is outdated, and the larger the separation, the longer it takes for an agent to reach a more informed enclave of activist agents.

While interaction and higher information is required in this simulation for an agent to advance through the hierarchy, it is not certain exactly through what medium this information is accumulated by the agents. To this end, it has been argued by [17] that, prior knowledge and technological inclination of an agent (entrepreneur) reasonably influences entrepreneurial personalities through social media and virtual environments. Observations in modern societies reveal that an entrepreneurial mindset centred on technical and digital advancements can greatly affect the decisions that engineer ideas propagated within an entrepreneurial corridor.

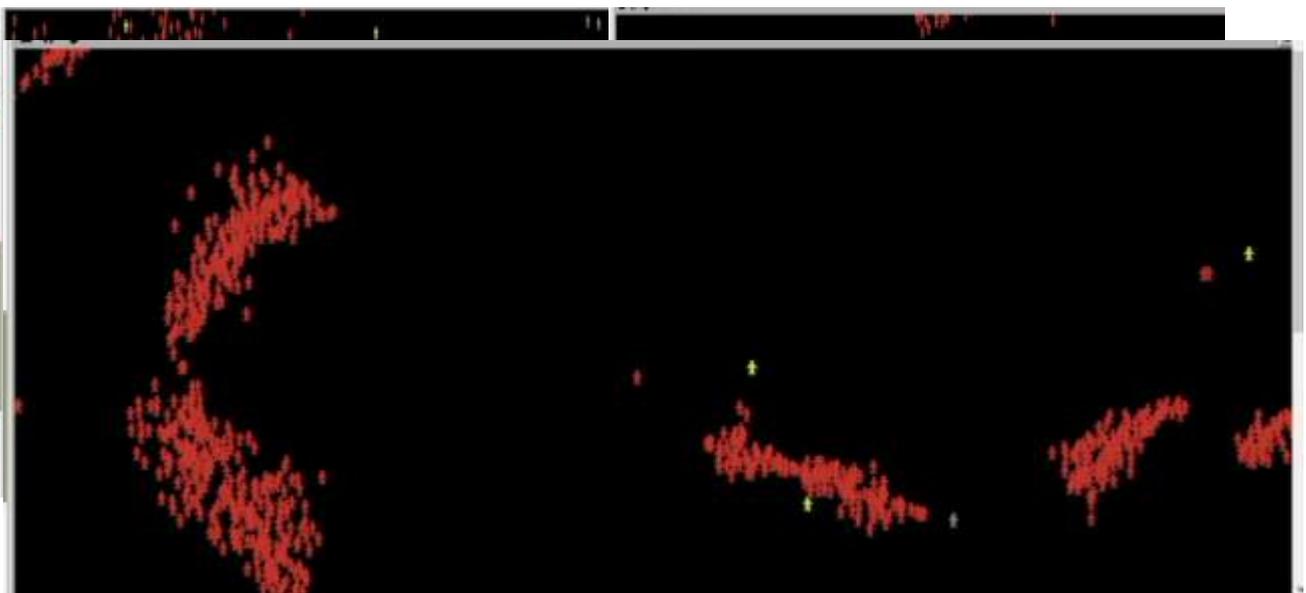
The results emphatically shows a consistency in entrepreneurial progress when the agents continuously increase in knowledge either by associations or research and keep abreast recent happenings in their field of endeavour. Therefore, knowledge of the environment, association and network, and the drive for breakthrough were seen to show a consistent trend in the behaviour of agents in the simulation.

Some simulation graphics of the behavioural patterns observed from the agents

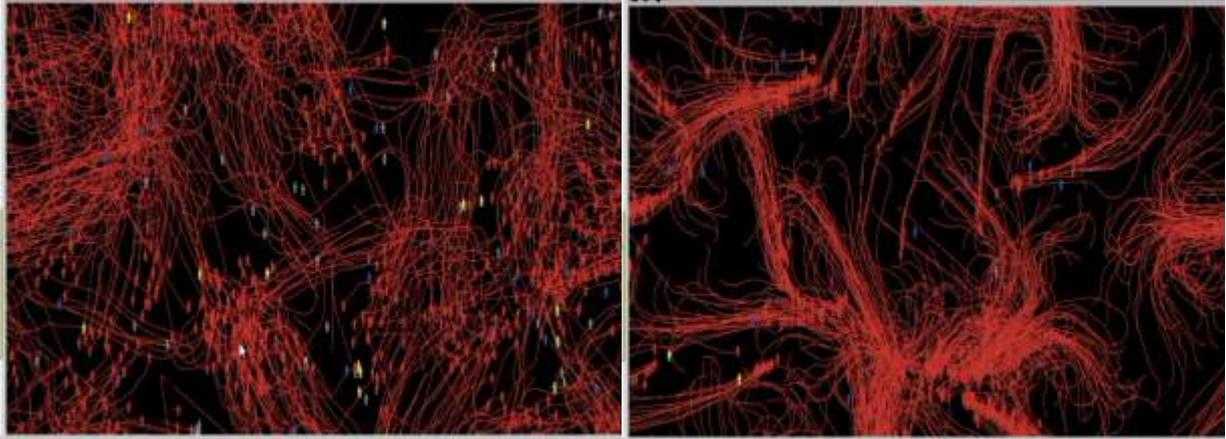


**Figure 13** Convergence and behaviour trace pattern in geographically distributed entrepreneurial agents

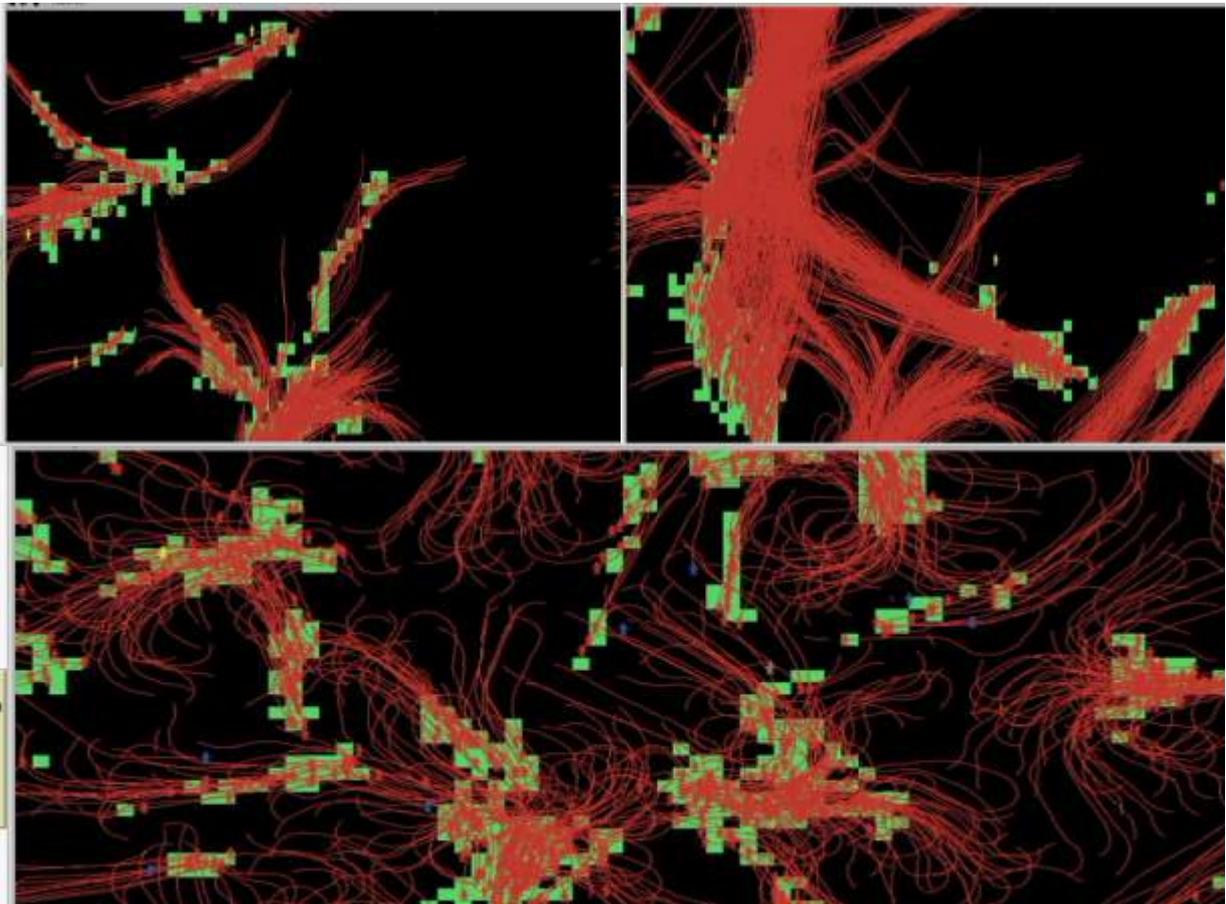
While very few agents started with the activists' entrepreneurs' values, most started as intending entrepreneurs' values (Unaware) which refer to higher and lower Bayesian probability scores of the agents respectively. The agents' knowledge grows in the simulation if the aggregate opportunity emergence is increasing, and drops in knowledge if otherwise. Nevertheless, variations in the starting values which imply the number of activists, the level of knowledge and the number of unaware agents will affect the rate of convergence since the simulated universe tends to have increasing institutions and emerging activists too soon. As knowledge increases and conditions of the simulation are left constant, convergence occurs eventually due to continuous growth in the knowledge of the entrepreneurs.



**Figure 14** Views of dynamic agents' groupings according to attraction and knowledge, a process that eventually results in institutional developments



**Figure 15** In this output, the institutions have been removed to clearly show the pattern of the agents' trace and attraction based on knowledge exchange in their environment



**Figure 16** Snapshot showing the pattern of alignment towards higher knowledge symmetry and the subsequent formation of institutions

## 4.1 Discussions

The question still has not been clearly answered about whether people (intending entrepreneurs) grow their knowledge due to the economic advances of a place or through following entrepreneurs who have attained a certain knowledge level such that they impact their immediate environment or even still a combination of both. In reality, entrepreneurs exist around the world irrespective of the level of environmental development.

However, types of environments determine the kinds of entrepreneurial activities that are pursued within it even though, simulation result is expected to show that as successful entrepreneurs move around environments to expand their enterprises, they attract people including employees and by so growth is seen to be a trace of the impact trail of an influential entrepreneur rather than a radial economic expansion of a place brought about by congested economic activities.

Figures 9, 10, 11 and 12 shows an emerging behavioural pattern observed in entrepreneurs as they engage in social, behavioural and economic aspects of learning in agreement with [21]. This observation suggests that, while entrepreneurial education is good and profitable, the act of entrepreneurship is learned mainly in the business environments, through social, emotional, practical and inductive experiences. Therefore, entrepreneurial knowledge is acquired through a very dynamic process of awareness, reflection, association and application that involves transforming experience and know-how into functional outcomes.

## 5. Conclusion

“It is neither the strongest of the species, nor the most intelligent that survives, but it is the one that is most adaptable to change.”- *Charles Darwin*.

The present economic environments and prevailing human activities in terms of wants and needs are dynamic and changing at a rate that only adaptable business stands the survival test. Therefore, it is the consequence of actions, application of knowledge and variation of environmental forces rather than the character of any entrepreneur that spring forth entrepreneurial ideology [22]. The entrepreneurial transitions from having a business idea to an entrepreneur, a firm/venture and finally an established firm begin not by nursing a desire to start a business but by engaging in activities that further the objective.

An opportunity emerges from the pool of ideas wherein one idea enhances another or it is enhanced. In this loop, a perceived commercial idea emerges which is termed as an opportunity if the prevailing economic conditions and environment allows for its exploitation. This ideas/knowledge becomes entrepreneurial if an action towards its exploitation is taken even in the face of associated risks.

An obvious deduction from the results is that, the decisions and presumptions observed in an entrepreneur are influenced a lot by perceptions. This can better be understood if viewed from the perspective of acquired knowledge: declarative, procedural and invasive tacit knowledge. The cognitive behaviour in the simulation ultimately suggests that, agents tend to converge during knowledge acquisition and based on rational expectations, upon attaining self sufficiency and confidence may explore it 's (Agents) knowledge database to propose solutions to perceived problems or re-invent previously held notions thereby provoking innovation and creativity.

## Symbols

Infinity (“ ”)

And Operator (∩)

And Function (\*)

Or Operator (+)

Summation Operator ( )

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## **Employees' technology acceptance of ERP systems in a Bulgarian car dealer company**

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**Although many businesses invest a lot of their capital on Enterprise Resource Planning (ERP) systems, employees and other potential end-users may not adopt or utilize their full potential. Several theoretical models have been developed to explain and predict employee acceptance and utilization in business settings, such as the Unified Theory of Acceptance and Use of Technology (UTAUT). The present study set out to assess the acceptance technology of the ERP system using UTAUT in a sample of employees in a car dealer company in Bulgaria. The main outcome is to reveal how various factors affect employees during a technology adoption process and the effects those factors produce on a company's management practices. A mixed methods approach was used utilizing structured focus group interviews and a cross-sectional survey-based research. The mix of qualitative and quantitative methods exposed some similarities but also important differences in the UTAUT model application. A key finding of the current work is that the UTAUT model is applicable to a Bulgarian car dealership as it revealed significant potential net benefits for the company after its adoption. Specifically, the following findings were of particular significance: First, BI and FC do not affect AU; second, FC influences BI; third, gender affects FC; and fourth, SI and EE are correlated with BI. The study was limited by the short time over which it was conducted and the narrowly defined area of research.**

However, this also enables future researchers to expand the studied period and confront or validate the findings and recommendations offered here. Managers can also use the study to predict which factors might affect their employees when introducing a new technology or when updating a management system. This work advances the research methods used to evaluate the adoption of a novel management model in the Bulgarian car dealership industry. The advantages of the new model demonstrated in this study could increase the impact the model has across the firms within the industry. On a macro level, the study has broader implications for the advantages of technology adoption in a nowadays economy.

## Keywords

Technology acceptance, optimization, ERP

## 1. Introduction

Bulgarian companies are striving to be competitive on the European market and to modernize the way they do business by relying more and more on information systems such as ERPs. However, the managers make no evaluation of the information systems that they introduce or already use in the company in order to assist with their operations and efficiency. This leads to many errors, not only in the systems, but in the whole working process. Employees cannot properly use the system, they do not know its functionalities, it is not suited for the specific business process etc. which at the end of the day leads to system rejection by the employees and loss of business value.

In order to assist in this matter, the academic and practice literature uses the Technology Acceptance Model (TAM) [3] – for dealing with technology acceptance issues. This model aims to explore the factors and moderators that affect technology acceptance (TA) by an individual. Subsequently, other models were developed like TAM2, TAM 3, Unified Theory of Acceptance and Use of Technology (UTAUT) and they all aim to find out what helps and what hinders a person to adopt technology. These models have numerous practical applications, especially in the last few years when technology entered in all spheres of life.

However, the application of such models in the Bulgarian market is non existing or in the best case very limited to specific sectors. In this context, the current paper aims to research the TAM model by identifying one of its suitable extension towards assessing the readiness of the Bulgarian market in terms of utilization of ERP systems. This will be achieved by focusing on an in-depth case study and mixed-method research on a large scale automobile dealer from Bulgaria.

The remainder of the paper is structured as the following: the systematic literature review section –for providing various views of selected authors are collected, analyzed and grouped in different sectors; the chosen methodology; data analysis and recommendations; and the conclusion sections which provides the final remarks.

## 2. Literature review

The academic literature has been proactively analyzing different aspects of technology acceptance since the 1970 's. From the Theory of reasoned action [5], through the Technology acceptance model TAM [3], TAM2 [20] and UTAUT [21] until TAM3 [19] different scholars are trying to find out why users accept or decline to use a new technology. Although main reasons for that (such as PU and PEU) are considered identified, many authors try to prove that there are other factors with same or even higher importance.

The first definition and structure of TAM is given by Davis [3]. He acknowledges the work of

others like [12, 16] etc. concerning the issue of user acceptance but insists that their works have been insufficient and constrained. He conducts two studies and proves that PU and PEU are indeed powerful forces that can predict the level of technology acceptance. TAM is efficient because it uses simple and compact ways and terms to explain and/or predict potential future results. However, exactly its positive qualities are used by some authors to prove it is not as solid as it seems.

Venkatesh and Davis [20] extended the TAM by adding „additional theoretical constructs spanning social influence processes (subjective norm, voluntariness, and image) and cognitive instrumental processes (job relevance, output quality, result demonstrability, and perceived ease of use)”. One contribution of this method called TAM 2 is that it proves with sixty percent explanation rate the factors that influence PU. Other major addition to TAM is that fifty percent of the research was conducted with population that used mandatory systems. Other very important finding of TAM 2 is that job relevance is connected with output quality and influences the PU. This proves that TAM 2 is usable for prediction of technology acceptance of company employees working with new technologies.

Furthermore, Venkatesh et al. [21] proposed a unified theory UTAUT (more business oriented) that aimed to combine the findings and positive aspects of eight prominent models. The UTAUT is more complicated than TAM, but it has many positive effects that justify its use. Through UTAUT managers are able to better identify the reasons for acceptance or decline of technologies that are implemented in their companies. UTAUT uses three intentions of use and two usage behavior determinants. Additional personal characteristics like age, gender, voluntariness and experience are set as key moderators. These moderators are very useful for managers and analyzers and help them make the right decisions whether to implement a new technology or no. Especially important proved to be gender and age. From there arise promising new possibilities for research and for experimentations between different age/gender combinations and their effect on technology acceptance.

TAM 3 was introduced by [19]. The authors identified the need of a method that will allow better investigation of the effects of potential post and pre-interventions. These interventions should improve the ability of the user to adopt and accept information technologies. The authors believe that the relationships proposed in TAM 2 will be useful in TAM 3 and that there will be no crossovers. They claim that PEU of IT is strongly connected with self-efficacy beliefs and computer knowledge of the respective person. Based on these findings, the authors are convinced that there will be no influence from PEU determinants on PU. Three new relationships are proposed in TAM 3 – 1) experience - PEU - PU; 2) experience - computer anxiety - PEU; and 3) experience- PEU - BI. Most significant theoretical contributions of TAM 3 are its actual guidance and that it is comprehensive. It can be easily and successfully used for decision making in companies of any scale or industry.

Authors that use TAM and its variations have always tried to explain the level of acceptance of new technologies in connection with the practical use and implementation of innovations in real business environment. Such are the works of [13, 10, 4]. They investigate technology acceptance in online banking and e-commerce environment. Sadeghi and Farokhian [13] concluded that acceptance can be increased by implementing education and increasing users' knowledge. Mangin, et al. [10] investigated on-line use of banking operations and ascertained that TAM is strongly supported in French North-American banking. They also found perceived usefulness to be highly influential factor. Usefulness is the most important factor also according to Filimban and Aljahdali [4].

One major application area for TAM, in the context of this research, resides in ERP systems which are complex elements of each successful business information system. At the same time, often they are implemented without preliminary testing of user acceptance. Rarely managers survey the employees about their intend to use the system, do they feel confident and comfortable with the new system. ERP systems are also very dynamic and need

constant changes and updates. This represents additional stress for their users.

Acceptance of ERP systems is investigated by many authors like [6, 14, 8, 11]. They all believe that TAM and its successors can be used to predict acceptance of users of ERP and its updates. Gumussoy, Calisir and Bayram [6] and Kwahk and Lee [14] prove that PU and PEU have solid influence on acceptance of ERP systems. All are confident that education and/or training have positive impact on users of new ERP systems and can minimize negative effects on employees' job satisfaction.

Seymor, Makanya and Berrangé [14] use UTAUT to test end user acceptance of ERP. They concluded that often ERP could be fully installed and implemented but the end users might refuse or be reluctant to use all of its available features. According to this article, age was found to be important moderator between symbolic adoption and its antecedents. The authors also claim that it is more important to get end user to accept the ERP and use it properly than to simply install it.

Morris and Venkatesh [11] analyzed the impact of ERP introduction on job characteristics and job satisfaction. They discovered that ERP implementation can be quite stressful and can dramatically change job characteristics of the employees. They claim that training will increase the speed with which users will accept the new technology, will decrease the time for its full implementation and will reduce employees' dissatisfaction. Managers might need to redesign existing business processes so the ERP systems can work and be fully operational in corporate environment. In spite of this broad international research, there is very limited attempt to investigate, using TAM or its extensions, the adoption of ERP systems in Bulgaria (some additional work is performed by [9] for example), in order to enable the Bulgarian business sector to fully take advantage of the lucrative outcomes offered by such systems.

### 3. Methodology

Quantitative methods are the most used methods in TAM researches [17]. However, their limitations are: self-reporting, inability to control the environment, limitations of the answers only to the asked questions, there is no encouraging to examine the research phenomenon, assumption that the facts are true [7].

The current research will first use quantitative method (survey) to collect data from ERP system users (employees) and analyze relationships provided by the UTAUT model. Then, based on the results, further interviews will be conducted. This approach resembles the two-phase mixed study, explained by [2] – in which they argue that mixed-method approaches enable better understanding of the problem. The two phases were conducted one after another with no more than one month period between them.

Additionally, [15] used mixed method to study TA in education. According to him by using multiply methods the researcher adds depth to the analysis. Qualitative method further complements quantitative results. Thus, the proposed questionnaire will generalize and provide valid statistical data. It will allow to quickly determine which are the main relations between different variables of UTAUT. The additional interviews will give a chance to the researcher to control the environment, to go deeper and investigate the reasons behind some results of the questionnaire.

In order to develop the questionnaire, the following research has been followed:

- For readiness for change (RFC) the author used [8];
- For BI and AU, the author used Venkatesh and Bala [19];
- For Perceived usefulness PU, Effort expectancy EE, Social Influence SI, Facilitating conditions FC the author used [21];
- For PU and FC he also used [1];

- For EE he also used [18];
- For the demographic questions the author used [6].

The target population consisted of 119 employees in eight branches of the company throughout the country. After the completion of this phase, ten branch managers of this company were interviewed (5 women and 5 men) in order to obtain the required data.

## 4. Data analysis

### 4.1 Quantitative phase (survey)

The survey had 116 valid responses with the majority of the subjects: being above 40 years old (under 30: 25.86%; 30-40: 48.28%; over 40:25.86%), being male 74.14% (female: 25.86%), not having a degree (31.03%), having significant experience in this field (74.14%), and being more than 18 months in the company (83.62%) as well as having good computer literacy skills.

Reliability testing has been performed in order to assure the quality of the results:

Performance expectancy (PE): excluded item PE4 from the total, and obtained reliability Cronbach's  $\alpha = .64$ ; Effort expectancy (EE): excluded item EE3 from the total, and obtained reliability Cronbach's  $\alpha = .69$ ; Social influence (SI) scores were all OK and a mean score of all items was computed with Cronbach's  $\alpha = .70$ ; Facilitating conditions (FC): excluded item FC5 from the total, and obtained reliability Cronbach's  $\alpha = .62$ ; Regarding the Readiness for change (RFC): the two items do not make up a reliable scale – which means that they will be used separately.

Furthermore, a correlation analysis process revealed that:

- PE correlates with Age, EE, SI, FC and BI. From this analysis it can be concluded that older employees, whether men or women, are more willing to use the system if it will improve their results.
- EE - According to UTAUT, EE should be affected by Age, gender and experience. However, the results show that there is no correlation of EE with any of the moderators. However, it may be presumed that younger employees who are inexperienced are more confident and have no doubt that they won't need much effort to work with the system.
- Social influence. As the results show, SI correlates only with the moderator Gender. Opinions of others and their personal understanding of the status of the company will positively affect their intention to use the system.
- An important fact to be noted is that the moderators that exist in the UTAUT theory (age and experience) again have no influence on the connection between the factor and BI (this time SI-BI). This means that the Bulgarians do not recognize as relevant the opinion of others and have inherently disrespect of social norms.
- FC - According to this research FC does not correlate with any moderator but only with PE, SI, EE, and BI. This again contradicts strongly with the UTAUT model.
- BI - According to this research BI is dependent on age ( $r = .32, p < .05$ ), gender ( $r = .18, p < .05$ ) performance expectancy ( $r = .21, p < .05$ ), social influence ( $r = .24, p < .05$ ), and facilitating condition ( $r = .20, p < .05$ ). These results correspond almost entirely with the UTAUT, except as stated above with the fact that FC influences BI and not AU. The analysis shows that employees' intentions to use the ERP are stronger if they also hold stronger performance expectancies, perceive greater social influence to use the ERP, are older, are women and report more facilitating conditions.

Consequently, in order to supplement and clarify the results of the correlation analysis, regression analysis has been performed. The UTAUT was tested at two levels: the first level

included age, gender, education, and experience; second level included the UTAUT variables (PE, EE, FC, SI), and predicting intentions to use the system in the next six months. The results showed that an overall significant model ( $F = 3.68, p = .001$ ) emerged predicting (Adjusted  $R^2$ ) 15.8% of the variance in intentions to use the system. The only significant predictors of intentions to use the ERP in the next six months were: age ( $\beta = .268, p = .005$ ), and EE ( $\beta = -.228, p < .05$ ). The results show that being older and expecting less effort significantly predicted intentions to use the ERP in the next six months. EE was significant predictor of usage intentions even after controlling for background demographic variables, such as gender and age. Still these results are a valuable addition to the correlation analysis results. They show that EE and age are valuable factors that influence at least 15.5% in their BI to use the system in next six months.

#### **4.2 Qualitative phase (interviews)**

Five women and five men participated in consented interviews covering six main questions. The results for each questions are the following:

- Q1: All participants (except one male) responded that the main reason to use ERP systems is that they cannot do their job without it. The only one who does not give this answer, however, explained that his job without the program is possible, but it would be very difficult.
- Q2: It should be noted that all employees claim that despite the obstacles encountered, they will continue to use the system. That is why, in their minds, this question applies only to increase or decrease their intention to use the system (BI), but not the actual use of the system (AU).
- Q3: All respondents except one woman answered that the opinion of their colleagues is not important to them. The one employee that thinks her colleagues' opinion is important to her says she feels better when others assess her work positively in the community.
- Q4: When answering this question, women are much more unanimous than men. All women are for training that should be conducted by the internal IT department. The reason is that the IT department is most familiar with both the specifics of the program and the internal working process.
- Q5: All participants believe that education helps them to accept technology. One interviewee specialized IT education, which helps him especially during training with the IT department. It reduces his EE, and helps him to use easily FC. Employees who except their main area of expertise also have IT knowledge will be able to accept technology and to increase their BI. They can use their knowledge to reduce technological problems and to introduce positive changes in the system.
- Q6: Here again there is a difference between men and women. While men unanimously felt that their working conditions do not need to improve, women have some issues. They believe that they need more working space and better computers and accessories (scanners, etc.). Once more, the research shows the greater needs of women of improved FC that will assist them in working with the system. Again, there is a clear distinction between factors that stimulate BI of men and women. Once more, the intention to use the system for women is stronger when they are provided with better FC. Men think that these factors are insignificant and don't consider them as something that will stimulate their BI.

#### **4.3 Mixed analysis**

The findings of the 2 phases have been combined in one analysis:

- In the questionnaire correlation analysis, BI correlates with PE, SI and FC and EE does not correlate with any of the major factors. In the second interview question and partly in the third there is information that EE has an impact on BI of part of the employees. The qualitative approach proves that EE is a factor in the formation of BI, but also revealed a relationship between EE and gender. EE influences stronger BI of men than of women.
- The mixed approach confirmed that FC is another major factor that influences BI. The questionnaires' correlation analysis showed that FC is correlating only with PE, SI, EE and BI. It does not appear related to the moderators' age, gender, experience.
- Author wants to address the relationship between FC and BI. The author confirmed this interaction between FC and BI during the interviews. For participants AU is constant. Regardless of any other circumstances, they use the system at work. All factors, including FC only affect their BI.
- Both, the questionnaire and the interviews, confirm the impact of PE on BI. The correlation between PE and BI is not particularly strong ( $r = .21$ ,  $p < .05$ ). However, in answer to the first interviews question hundred percent of the respondents indicated that PE is the most important factor influencing their intention to use the system.
- According to the correlation analysis SI does not correlate with BI and correlates only with gender. The regression analysis, however, reveals a link between BI and SI. On the other hand, in the interviews there is also a contradiction. In the answer of fourth question, two of the respondents claim they need assistance from the managers of the company in order to be able to easier introduce changes in the system. This answer shows the connection between SI and BI. Nevertheless, it is directly related to continuous innovation, a principle that has been introduced from one of the managers of the company and perhaps is a remnant of this influence.
- Experience - Same thing that the author said about Age, holds true for experience. Employees do not mention their experience as something that affects the way they perceive technology or technology changes. The correlation analysis also shows no correlation between experience and any of the major factors, BI and AU.
- Gender – Analysis of this moderator gets the most benefit from the mixed method study. According to the correlation analysis, gender correlates with SI and BI. In interviews, however, the author found additional differences between men and women in their perception of technology acceptance.

## 5. Conclusions and recommendations

### 5.1 Summary

Technology acceptance of an ERP system by employees of a Bulgarian car dealer company is very high. This is evidenced both by the large number of employees who responded to the questionnaire and by the answers of the respondents. The mandatory use of the ERP system is an additional incentive for employees to perceive and learn the system. They all unanimously said in interviews that they cannot do their job without using the system. Analysis shows that PE, FC, EE, and SI (even slightly) influence the BI of the employees to adopt the system and further encourages them to use it. The employees also support the Introduction of new updates. This is shown both in the questionnaire and interviews. In the survey results, the questions of RFC have high mean results. During the interviews, some of the employees themselves displayed a willingness to propose and implement changes in the ERP system.

UTAUT model is applicable to the specific Bulgarian company which is the subject of this

study. The study used different questions for the questionnaire and they gave concrete results that are highly relevant to the model. Correlations between the main factors of the model PE, EE, SI, FC and BI were found. In many cases influenced by moderators age and gender, and sometimes by experience.

When comparing this study and UTAUT model of [21] the following links are confirmed to mach:

- The relationship between PE, EE, SI and BI;
- The influence of age on the relationship PE – BI;
- The influence of gender on the links EE-BI and SI – BI.

The fact that this study found the above links and that they affect technology acceptance of the respondents shows that the UTAUT model is applicable. It answers some of the questions why and how the employees of the Bulgarian car dealer company form their BI. This gives leeway for future researchers to use the model for their studies. However, the author did not find many of the links that [21] claims to be relevant within his UTAUT model. These missing connections are:

- FC does not correlate with AU and is not open to the influence between FC and AU;
- Age does not affect the relationship of EE and SI with BI;
- Gender does not affect PE - BI connection;
- Experience does not affect the relations of PE and EE with BI. It does not influence also the link FC with AU, because this link was not found in current research;
- Voluntariness of use has not been studied at all, because the use of the system is mandatory.

There are several main reasons for the lack of these relationships:

- Mandatory use of the system - mandatory use of the system makes employees automatically assume that they should use it.
- On the other hand, gender does not affect the relationship PE - BI. Especially the interviews clearly reveal that the overall orientation of employees is to achieve their stated goals in the most rapid and quality manner.
- All employees are experienced –
- Culture – The results that Age does not moderate the connection between EE and SI with BI, may be due to cultural peculiarities of the Bulgarian people. SI does not exist prominently as company's policy of Bulgarian firms and thinking of the Bulgarians as a whole. The fact that Bulgaria was a communist country only 22 years ago also has its influence.

It is important to note the presence of a new relationship between FC and BI, which is modified by gender. This relationship is not present in the UTAUT model. Venkatesh et al. [21] believe that FC is not relevant in the presence of EE and PE connections with BI. In this particular survey, however, there is a strong connection between FC and BI. Especially in the interviews, women employees consider FC to be a very important factor which influences their BI. The author did not observe this in men who do not consider FC to be important.

Based on the above, this study may indicate that the UTAUT model is fully applicable to the selected car dealer Bulgarian company. Different results from those of [21] are particularly important for the practical application of research, but they also can be a sound basis for future studies.

## ***5.2 Implications for Practice and recommendations for Future Research***

In general, all of the described recommendations for managers of the researched company can be used (more or less) with other companies. To what extent and whether there is a difference between men and women, or whether there are differences in the factors that influence BI and AU should be determined by a preliminary study of TA. Thus, companies should perform a similar analysis before implementing the system. In the company that is subject to this research, such preliminary study was never made. That led to many difficulties and problems for employees. A preliminary study will help the company to choose the right approach for promotion of the ERP system. It will provide clarity on how and from what angle to approach the respective employees' groups according to their age, gender and experience. Managers will be able to determine what is fundamentally the most important factor affecting the BI. This will remove obstacles before TA and achieve optimal intention among employees to use the system.

Also, managers of companies that intend to use ERP systems should use all above described preliminary measures. Even if these systems are with mandatory use, the managers still should try to increase the BI of the employees. Enhanced BI will always result in better and more optimal AU, which will lead to stronger company and significantly better financial results.

The results of the study provide numerous opportunities for future research. These can be:

- To deepen the study of TA in Bulgarian companies.
- To explore the resulting differences between current research and UTAUT model of Venkatesh et al. [21].
- A study on the impact of UTAUT in Bulgarian company in which system use is voluntary and employees can perform their work without the system will also be very interesting.
- It is important to establish whether the experience can have effect on the connection of different factors and BI in other Bulgarian companies.
- It is interesting to investigate the influence of SI on BI.
- Future researchers can use the results of the questionnaire and interviews for their research.

### **5.3 Limitations of the Study**

The limitations of this study are the following:

- The study is localized on Bulgaria.
- The study focuses only on employees who use the system and they have to use it. This prevents the author to determine whether employees who are not required to use it and have no practical need for the system would like to work with it.
- Another limitation is the small number of employees interviewed. This implies subjective results. They may not represent the views of the majority group. This can be avoided if there is more time to conduct more thorough interviews with more employees.
- If possible, in future studies, the researchers should select target population with a greater difference in experience.

### **5.4 Conclusion**

This research aimed to reveal how various factors affect employees during a technology adoption process and the effects those factors produce on a company's management practices. This has been achieved by applying the UTAUT model on the adaptation of ERP

systems by a car dealer company in Bulgaria. A mixed methods approach was used utilizing structured focus group interviews and a cross-sectional survey-based research. The mix of qualitative and quantitative methods exposed some similarities but also important differences in the UTAUT model application. A key finding of the current work is that the UTAUT model is applicable to a Bulgarian car dealership as it revealed significant potential net benefits for the company after its adoption. Specifically, the following findings were of particular significance: First, BI and FC do not affect AU; second, FC influences BI; third, gender affects FC; and fourth, SI and EE are correlated with BI. The study was limited by the short time over which it was conducted and the narrowly defined area of research. However, this also enables future researchers to expand the studied period and confront or validate the findings and recommendations offered here. Managers can also use the study to predict which factors might affect their employees when introducing a new technology or when updating a management system. This work advances the research methods used to evaluate the adoption of a novel management model in the Bulgarian car dealership industry. The advantages of the new model demonstrated in this study could increase the impact the model has across the firms within the industry. On a macro level, the study has broader implications for the advantages of technology adoption in a nowadays economy.

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## **Entrepreneuership in new venture: a dynamic capability perspective**

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**This is a conceptual study which investigates the change in the absorptive capacity of new venture due to change in its organizational structure. It focuses on the process aspect of entrepreneurship and discusses how the organization structure elements-centralization, formalization and specialization vary as the venture passes through its various phases i.e. from opportunity recognition phase to conclude phase. The examination posits that the potential absorptive capacity of venture decreases whereas realized absorptive capacity of the venture increases as the venture grows and traverses through different phases of venture creation process. The investigation of the study also suggests that potential absorptive capacity is positively associated with the venture performance and entrepreneurial experience or/and industry specific experience moderates the relationship of potential absorptive capacity with venture performance.**

### **Keywords**

Absorptive Capacity, Entrepreneuership, Organization Structure, Experience, Venture Performance

### **1.0 Introduction**

Dynamic capabilities are conceptualized as “the firm ’s ability to integrate, build and reconfigure internal and external competencies to address rapidly changing environments ” [1]. Literature on dynamic capability has mainly focused on large and established

organizations, whereas dynamic capability in context of new ventures may be different from the established firms [2]. The area of dynamic capability in new venture context seemingly is less researched. Entrepreneurship literature is categorized on the basis of cause, effect and the process [3]. This study will be focusing on the creation of a venture, the process aspect of entrepreneurship, for furthering the discussion.

The organization structure of the new venture evolves and changes as the venture grows and traverses through various phases of the entrepreneurial process. The potential and realized absorptive capacity of the organization is influenced by structural elements. Thus, this study will be discussing how the constituents of absorptive capacity- potential absorptive capacity and realized absorptive capacity, changes as the new venture grows. This study attempts to elucidate the association of absorptive capacity with performance of new venture and the influence of experience on the relationship.

This study comprises of three sections, wherein first section involves the discussion on literature review and the second section furthers the discussion on change in absorptive capacity at various phases of new venture creation process. The third section discusses the association of absorptive capacity with performance of new venture and the influence of experience on this relationship and last section concludes and suggests the scope for future research.

## **2.0 Literature Review**

### **2.0 Entrepreneurship**

Entrepreneurship has been defined by different things to different people [4]. There appear to have been two definitions relied upon by two groups of researchers, one focusing on cause side “carrying out new combinations”, promoted by Schumpeter (1934) [5] and another one focused on effect (outcome) side “creation of value”, supported by Gartner. Stevenson and Jarrilo suggests the categorization of entrepreneurship literature on the basis of i. effect of entrepreneurial activities ii. Cause of entrepreneurial actions and iii. Process of entrepreneurship [3]. The process of entrepreneurship has been defined as the “process by which entrepreneurs identify opportunities, innovate and create new combinations of resources, translate ideas into action and maintain the continuum of innovation” [6]. However, creation of venture has generally been considered as a unique aspect of entrepreneurship [7] and the same definition of entrepreneurship is being adopted here for furthering the discussion in this study. According to Ray and Ramchandran, entrepreneurship is an individual’s response to the situation and entrepreneur, organization and environment as critical elements of entrepreneurship [7].

### **2.1 Venture Creation Process**

Ray and Ramchandran conceptualize the entrepreneurial process comprising of four phases i. opportunity recognition phase ii. Venture start up phase iii. Survival and growth phase iii. Concluding phase [7]. They argue that entrepreneurial process commences with the recognition of opportunity in an environment and it’s three elements – entrepreneur, environment and entrepreneurial choice are in existence at this phase. They further add that business concept, identified during the first stage of the entrepreneurial process, is transformed into marketable products entailing the existence of the organization. During the phase, organization structure can be characterized by the slow evolution of processes, less functional differentiation, fluid departmental boundaries and informality is emphasized rather than formality [7]. Transformation of business concepts into marketable products and start of

it's selling to the customer, pushes the venture into survival stage [8]. At this stage, the entrepreneur may lessen his direct involvement and delegate many activities to subordinates [7]. As the venture attains stability and approaches the success stage, the scale of operation becomes important for the growth of the venture, necessitating the more formalization of systems and processes and the innovative and creative activities takes backstage [7].

## **2.2 Organization Structure**

As the venture passes through the various stages, characteristics of organizational structure also change and evolve. Prior studies recognize several elements of formal organization structure which includes formalization, centralization and specialization [9,10]. Pugh et al. consider formalization as a core element of organization structure [11]. Further, the two dimensions which have been discussed by many scholars are formalization and centralization [12,13]. Olson et al. operationalise the organizational structure construct by centralization, formalization and specialization variables for their empirical study [14]. This study will also be concentrating on formalization, centralization and specialization elements of organization structure and subsequently attempt to establish the relationship of these elements with absorptive capacity, a dynamic capability of a venture.

### **2.2.1 Centralization**

Centralization, one of the important parameters of organization structure, is “associated with design of decision making system ” and can be defined as the degree of decision making authority in the organization distributed among it ’s employees (15). Centralization requires stern coordination of decision making [13]. “All decisions are made by one individual, in one brain, and then implemented through direct supervision ” [13] . Aiken and Hage argue that centralization indicates the extent to which decision making authority is delegated and the managers participate in the decision making process [16]. Thompson considers environment a critical element for decentralized decision making and organization become more decentralized in dynamic environment whereas centralization, is employed in a stable environment [17]. These arguments appear to be made considering the organization as large and established. The environment of new venture is dynamic, as ‘markets are unformed, customers are unknown and product attributes are yet to be revealed ’ [18]. In contrast to established and large organization, organizational structure of the new venture is centralized, as most of the decisions are taken by the entrepreneur due to scarcity of the resources. Pugh et al’s study posits a relation between structure and the age of the organization [11]. Reliance of organization on standardization of coordination mechanism increases as they grow and organizations tend towards centralized and formalized decision making [19].

Prior organization behavior research found that the firms which have a more decentralized structure are likely to make greater utilization of new information [ cf. 20, 21]. Deshpande and Zaltman ’s empirical study also suggest similar findings in respect of utilization of market research information by the firm [22]. Sinkula and Hampton, while investigating the impact of centralization on the acquisition of market research information from the external source, argue that prior studies merely suggest of making greater utilization of information by the decentralized organization, this doesn ’t mean that decentralized organizations acquire more information [19]. They, further, argue that centralized market department acquires more market research information in comparison to firms having decentralized market research department [19].

### **2.2.2 Formalization**

Formalization, another important parameter of organization design, is referred to as standardization of work processes “ through rules, procedures, policy manuals, job descriptions, work instructions, and so on ” [15]. According to Halls, Haas, and Johnson (1967), formalization is the extent to which “roles, authority relations, communications, norms and sanctions, and procedures” are defined by the rules in an organization [23]. It is also an indicator to measure the manager ’s flexibility of handling a task [22] . New ventures have informal processes and systems, indicating towards the very less degree of formalization.

### **2.2.3 Specialization**

Specialization is the prime factor for “determining division of labor, concerns the number of tasks and the breadth of each in a given position (horizontal job specialization) and the incumbent's control over these tasks (vertical job specialization) ” [15]. Burns and Stalker argue that coordination cost increases and flexibility decreases with the increase in degree of specialization, resulting in to deterioration in organization ’s ability to respond to environmental changes [ 24; 25]. Specialization facilitates the organizational members to focus “on execution of specialized and narrowly defined task and to accumulate task-related knowledge, and thus it enhances information-processing capabilities ” [17]. Degree of specialization in early phase of new venture- start up phase is less and the division of labor increases as the venture grows and traverses through subsequent passes of entrepreneurial process.

### **2.3 Organizational Structure and Venture Creation Process**

Organizational structure does not have it ’s existence during the first phase of venture creation process i.e. opportunity recognition phase and takes birth only at the commencement of start up phase, when business concept is transformed in to marketable product. At this stage, organizational structure is highly centralized, as entrepreneur directly interacts with the environment and most of the decisions are taken by the entrepreneur themselves. Ray and Ramchandran argue that, organization structure can be characterized by slow evolution of processes, less functional differentiation, fluid departmental boundaries and informality is emphasized rather than formality at this stage [7]. Thus the other two elements of the organization- formalization and specialization at this stage are very less in degree. Favourable responses from environment may lead to increase in scale and scope, entailing the delegation of many activities to the subordinates. At survival and growth phase, centralization decreases while specialization and formalization increases. When organization attains some stability and approaches to success stage, scale of operation becomes important for rapid growth and thus requiring bureaucratic structure to increase the operational efficiency [7].

### **3.0 Absorptive Capacity and Venture Creation Process**

Cohen and Levinthal “argue that the ability of a firm to recognize the value of new, external information, assimilate it, and apply it to commercial ends is critical to its innovative capabilities” and labeled it as an absorptive capacity of the firm [26]. Zahra and George ’s absorptive capacity construct consists four dimensions – acquisition, assimilation, transformation and exploitation and these dimensions have further been categorized in to potential absorptive capacity (PACAP) comprising of acquisition and assimilation and realized absorptive capacity (RACAP) consisting transformation and exploitation dimensions [27]. Zahra and George have further conceptualized the absorptive capacity, as a dynamic capability of firm [27].

Deshpande and Zaltman hypothesized that greater the centralization in the organization, the less is the use of new information [22]. Exploitation, a dimension of RECAP, is referred to as “ability to harvest and incorporate knowledge into its operations” [28]. Further, Zahra and George clarify exploitation stating an example of new venture “that capture knowledge from their market, competition, and customers, and then in which knowledge is used to create new competencies” [27]. Thus combining both types of studies i.e. absorptive capacities and the use of new information, elucidates that firms having greater centralization possess the lesser ability of exploitation of information and hence lesser realized absorptive capacity. Whereas formalization facilitates the organization to retrieve the knowledge which has already been absorbed [29]. Formalization enhances the prospects of unit members for identification of opportunities to transform the new external knowledge [30]. Further, formalization process also facilitates the firm to codify the best practices which makes knowledge to be more efficiently exploited, to be easily applied, and to be fast implemented [31,32]. Thus, higher degree of formalization enhances the transformation and exploitation of knowledge and thus likely to increase the realized absorptive capacity.

Sinkula and Hampton’s study suggest that centralized firms acquire more externally supplied information [19]. Acquisition of information is a dimension of potential absorptive capacity (PACAP) which is referred to as identification and acquisition of externally generated knowledge [27]. Thus, both the arguments together indicate towards positive relationship between centralization and potential absorptive capacity means firms with higher centralization possess a higher potential absorptive capacity. Formalization reduces the manager’s flexibility of handling the task [22] and lessens the likelihood of deviation of individual from established rules [33]. Weick further argues that “formalization acts as a frame of reference that constrains exploration efforts and directs attention toward restricted aspects of an external environment” [33]. These arguments suggest that formalization inhibits the acquisition and assimilation of new external knowledge, positing the negative association with potential absorptive capacity (PACAP).

McGrath argues that ‘diverse knowledge structures support explorative learning’ [34] and thus enhances the probability that ‘new external knowledge is related to existing knowledge’ [35]. Further, possession of diverse and varied knowledge by the employees also augments the organization’s capacity for making novel linkages and associations [26]. Sivan et al. posit that the functional diversity of the new venture’s team has a positive relationship with Potential absorptive capacity (PACAP) [36]. Thus, specialization inhibits the acquisition and assimilation of external knowledge, the two constituents of PACAP. Thompson argues that specialization facilitates the organizational members to focus “on execution of specialized and narrowly defined task and to accumulate task-related knowledge, and thus it enhances information-processing capabilities” [17], which explains that specialization enhances firm’s information processing capabilities. Specialization doesn’t specifically refer to internal or external information (as in respect of the other two elements- centralization and formalization) as it mentions only the enhancement of information processing capabilities which may include both external as well as internal information. Specialization facilitates the organization for efficient transformation of external knowledge [cf 37]. Therefore, bringing together both the arguments suggest that higher degree of specialization is likely to enhance the transformation capabilities resulting in to higher realized absorptive capacity (RACAP). The arguments posit that the constituents of the absorptive capacity are influenced by the change in degree of the organizational structure elements. As the new venture passes through the various phase from growth to concluding phase, the structure of venture also changes from centralized to decentralized whereas degree of formalization and specialization decreases. Thus, the potential absorptive capacity and realized absorptive capacity also vary due to changes in its’s structural elements, as the new venture evolves. The relationship of structural elements with the absorptive capacity during the various phases of the new venture is given below:

**Table 1: Relationship of structural elements with the absorptive capacity**

Absorptive Capacity	Degree of centralization/ formalization/ specialization	PACAP during various phases of new venture	RACAP during various phases of new venture	Absorptive Capacity during various phases of new venture
Phase of new Venture				
Venture start up phase	High/Low/Low	High/High/High	Low/Low/Low	Inconclusive
Survival and growth phase	Medium/Medium/Medium	Medium/Medium/Medium	Medium/Medium/Medium	Inconclusive
Concluding phase	Low/High/High	Low/Low/Low	High/High/High	Inconclusive

Summarized arguments (Table 1) suggest that the potential absorptive capacity of the firm decreases as the venture grows and traverses through the various phases of the entrepreneurial process whereas realized absorptive capacity of the firm increases. As the absorptive capacity comprises PACAP and RACAP, change in absorptive capacity with the growth of the venture, due to changes in organization structure is inconclusive.

**Proposition 1:** Potential absorptive capacity of the new venture, due to changes in organizational structure, is likely to decrease as the venture grow and passes through the different stages of venture creation process *ceteris paribus*.

**Proposition 2:** Realized absorptive capacity of the new venture, due to changes in organizational structure, is likely to increase as the venture grows and passes through the different stages of the venture creation process, *ceteris paribus*.

#### 4.0 Absorptive Capacity, Experience and the Performance of New Venture

Literature on absorptive capacity posits a positive linear association of absorptive capacity with firm performance [26, 38, 39, 27]. The firm's locus of technological search is defined by the past experiences [40] and they search information in the areas of their past success [41, 42]. Zahra and George suggest that 'experience influences the development of a firm's potential absorptive capacity' [27]. Prior knowledge plays an important role in the repetition of the entrepreneurial process [43]. Market and technological knowledge facilitate the firm to discover and exploit the opportunity [44]. Learning from experience facilitates the firm to acquire and assimilate the knowledge in future [26, 45]. Further new ventures, supported by venture capitalists, perform better than the new ventures that are not supported by venture capitalists due to venture capitalist's experience [46]. Those ventures are more likely to be successful which are supported by the venture capitalist having experience in that particular industry [47]. They further argue that venture capitalists reduce their risk by investing in those ventures that are managed by the entrepreneurs who have exhibited their competence in prior adaptive activities. The entrepreneur's industry specific experience of high growth firms is considered an important antecedent of firm survival [48, 49]. Thus, the experience that enhances the performance of the new venture is entrepreneurial experience or/and experience of a specific industry of the new venture. Findings of an empirical study posit a positive relationship of potential absorptive capacity (PACAP) with the new venture performance [36]. Thus, the potential absorptive capacity of new venture is positively

associated with the performance of the firm and the entrepreneurial experience or/and experience of the industry of new venture moderates this relationship.

**Proposition 3:** Potential Absorptive capacity of the new venture is positively associated with the performance of the new venture. Further, entrepreneurial experiences or/and experience of the industry of new venture moderate PACAP- venture performance relationship.

## 5.0 Conclusion

This study adopts process aspect of entrepreneurship for investigation, from the three aspects cause, effect and process. The venture creation process comprises of four phases i. opportunity recognition phase ii. Venture start up phase iii. Survival and growth phase iii. Concluding phase [7]. The organization structure of the new venture evolves and changes from highly centralized, less formalized and less specialized to less centralized, more formalized and more specialized as the venture grows and traverses through various phases of entrepreneurial process. Accordingly, PACAP of venture decreases while RACAP of venture decreases due to change in organizational structure as the venture mature.

The dynamic capability in new venture emphasizes on the creation and exploitation of opportunities rather than focusing upon sensing and seizing the opportunities for established firms. The dynamic capabilities in high velocity environment entail to be simple, iterative and experiential that relies on situation specific knowledge while dynamic capabilities in high velocity environment detailed, linear, analytical and relies on existing knowledge. The context of venture varies with the maturity- the phases of the entrepreneurial process and the environment of the industry.

The literature suggests the linear association of absorptive capacity with the firm performance, while in the context of new venture potential absorptive capacity, a constituent of absorptive capacity is positively related with the venture performance and the experience of team influences the relationship of PACAP with the venture performance.

## 6.0 Limitations and Future Scope of Research

This study investigates the process aspect of entrepreneurship from dynamic capability perspective. There is a scope for future research for study from cause and effect perspective. How the traits of the entrepreneur may influence the need of dynamic capability of new venture in high and moderate velocity environment? Further, this study explicates the influence of individual elements of organizational structure on the constituents of absorptive capacity. The empirical literature suggests the interdependence of these elements centralization, formalization and specialization [12], which appear prudent in a practical scenario of firms. Thus, the influence of the interaction of these elements on constituents of absorptive capacity may be investigated by empirical examination. This is a conceptual study only, but puts promise that a future work on the same could validate the propositions and statistical inferences can be made.

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# **Information and Knowledge network of Agricultural research Institute in Sri Lanka: Strengths and challenges**

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The role and capacity of Agricultural R & D Institutes in context for innovation of technology and knowledge dissemination process have emphasized by many literatures. The prevailing approach of knowledge and information access in the developing world is characterized by problem identification and solving process, which is done by research scientists in research station and later those new knowledge, transfers to farmers through extension agents (Wood et al, 2014) [1]. Both internal and external links of each institute greatly influences on the innovation capacity and knowledge dissemination process. Innovations are new ideas, practices or products that are successfully introduced into economic or social process (Aseno et al, 2008, Halle et al, 2001) [2], [3]. In the field of Agricultural R & D studies and Economic Geography, it is widely agreed that innovation takes place through collaborations. Therefore, the importance of Network for innovation and knowledge has given priority by recent studies “Absorptive capacity” of a firm defines as the ability to recognize the value of new information, assimilate knowledge and applies that knowledge to commercial end (Cohen and Levinthal, 1990) [4]. Accordingly, the study intended to test the absorptive capacity of R & D institutions and its external openness-using samples of 26 Agricultural R & D institutions. Four main variables were developed to measure the absorptive capacity of the research institutes. Roaster call method was employed to measure the external openness of the institutes for the technical assistance and joint experimentation. Further, the study intended to measure the factors affect to external openness of the institutes using four proximity variables. The Study has shown that the absorptive capacity of the agricultural R & D institutions in Sri Lanka greatly reflects by its internal human resource capacity and years of experiences of each human capital. Two Major types of knowledge network were constructed and a network of technical knowledge reflects more developed, more certain, and more accurate network compare to the network on joint experimentation. More interestingly, the absorptive capacity of the institutes determines its behavior within the institutional cluster. The Study has concluded that, agricultural Universities in Sri Lanka play critical roles in both knowledge creation and dissemination process being the core of the research network. Moreover, external openness of the institutions do not merely affected by graphical proximity, but rather

**through cognitive and social proximity.**

## **Keywords**

Absorptive capacity, Agricultural research, External openness, Institutional network, Knowledge dissemination

## **1. Introduction**

The majority of the farmers living in rural areas in developing countries is often constrained by the issues of access to appropriate information and technology. In the context of developing countries, this has been affected by primarily due to institutional and organizational weakness (Aseno et al, 2008) [2]. Management of research and development, education and extension services in many developing countries are extremely poor or disorganized by limiting access to new information and technology. The Agriculture sector is still a major economic sector in both developed and developing countries in spite of the scale of production. A recent trend in food security and spike of food prices raises concern about the increase of productivity of Agriculture sector. With the comparative limitation of increasing land for cultivation, productivity improvement is a possible solution. Among the myriad factors driven for productivity enhancement, contribution of Agricultural R & D for the Agricultural productivity is the greatest driving force in the developing countries. Many literatures often suggest that all the firms in the same cluster benefit from knowledge spillovers being a part of extensive local network and belong to the same cultural environment (Boschma and ter Wal, 2007) [5]. According to Boshma (2005) and Torre and Gilly (2000) [6], [7], geographical and organizational proximity between interactive institutions is seen as a key driving force knowledge creation and exchange between organizations and individuals.

### **1.1 Information and Knowledge network**

Over the years, many literatures have emphasized the role and capacity of R and D Institutes of Agriculture sector in context for innovation and diffusion of technology. Nevertheless, knowledge creation and dissemination process of many agricultural research institutes in developing countries is still not properly developed. Therefore, well-established knowledge network in the agriculture sector is an urgent and important issue.

Many studies have underlined the role of different dimension of proximity as an effective way to transfer knowledge and information related to some of the basic properties of knowledge and institutional framework (Boschma, 2005, Marrocu et al, 2011) [6], [8]. Hence, focus on the proximity effect in knowledge networking is a crucial factor. Further, some researchers have recently challenged the conventional approach of knowledge transfer based on two basic types of knowledge: tacit and codified knowledge base (Boschma and Frenken, 2006, Ahuja, 2000) [9], [10]. Therefore, knowledge base of the each firm in the knowledge network affects to its knowledge flow within a network.

In the field of Agricultural R & D studies and Economic Geography, it is widely agreed that innovation takes place through collaborations. Therefore, the importance of Network for innovation and knowledge has given priority by recent studies. Particularly, Agriculture researchers must focus efficient knowledge transferring mechanism to give the maximum benefit to the farmers. In the context of the developing countries, geographical and sectoral

concentration (clustering per se) does not necessarily provide any beneficial effect unless an active process of inter-firm co-operation and networking (Giuliani, 2002)[11]. The nature of the Heterogeneity of firms within a network tends to make linkages with external firms to create new knowledge gaining an external source of knowledge bases. Further, firms are heterogeneous in their knowledge and competences base.

A Large body of empirical and theoretical literature in the field of industrial and regional studies has emphasized the importance of clusters, networks and informal relations as key drivers for Knowledge creation and diffusion (Morrison and Rabelotti, 2008)[12]. Particularly, research institutes and local communities in Agriculture sector increasingly focus on knowledge and information sharing. Innovation studies have emphasized the effect of Knowledge networks on organizational performances (Ahuja, 2000; Boshma and ter Wal, 2007) [10], [5].

The Importance of individual firm in a knowledge network heavily depends on inherent characteristics of firms. Prior knowledge base, cognitive capacity of firms, organizational structure and institutional framework are important inherent characterizes of firms, which affect the knowledge network. Recent research has increasingly given priority to the analysis association between firms ' learning capacity and network structure. Innovative and interactive learning requires both local and external knowledge bases. Heavy dependency on local knowledge sources may lead to lose the innovative capacity of a firm, which called as 'lock in effect '. Further, external sources of knowledge are often critical to the innovation process irrespective of the organizational level (Boschma and ter Wal, 2007; Cohen and Levinthal, 1990) [5], [4].

Firms and Institutions in a network acquire knowledge from both intra and extra-cluster knowledge bases and from different sources external to the cluster (trade fairs, buyers, suppliers, international consultants and participation of local events). In fact, Knowledge spillover and "information in the air " are often mentioned as main explicative factors of knowledge transfer and ultimately as an incentive to innovation (Giuliani, 2002) [11]. Anyhow, many literatures often have suggested that all firms in same cluster benefit from knowledge spillovers, which belongs to the same cultural environment (Boscham and ter Wal, 2007) [5]. Further, traditional view of innovation studies tends to ignore the importance of heterogeneity of absorptive capacity and economic power of individual firm in a network to create new knowledge. Leading firms in a cluster affect the degree of knowledge creation and diffusion in a cluster than in other external firms (Cohen and Levinatha, 1990; Giuliani and Bell, 2005) [4], [12]. Similarly, it has argued that external sources of knowledge play a key role in avoiding lock-in at the firm and local level. Localized knowledge bases itself facilitate the combinations of similar and non-similar resources to produce new knowledge and Innovations (Bathelt et al, 2004) [13].

Moreover, literature has underpinned the facts that knowledge externalities readily available for the firms within the knowledge network. Effective knowledge sharing will enhance by social and cultural proximity between firms in the network (Boschma and Lambooy, 2002) [14]. Further, the Geographical and cultural proximity facilitates interactive learning in networks, demarcating borders of the network (Crevoisier, 2004) [15].

## **1.2 The absorptive capacity of the organization**

"Absorptive capacity " of a firm defines as the ability to recognize the value of new information, assimilate knowledge and apply that knowledge to commercial end (Cohen and Levinthal, 1990) [4]. Learning and innovation capability of a firm is primarily determined by its capacity of knowledge acquisition, knowledge assimilation, knowledge exploitation and sharing (Lazari and Pisano, 2014) [16]. Further, Unevenness of the knowledge base and inherent heterogeneity of firms ' determine the learning and absorptive capacity of the firm

(Cohen and Levinthal, 1990) [4]. In addition, Firms cognitive capacity depends largely of knowledge and experiences they have acquired in the past (Boschma and ter Wal, 2007) [5]. The absorptive capacity of a firm heavily depends on its cognitive structure, which implies prior knowledge base and existing human capital of the firm. Consequently, the absorptive capacity depends on its stock of knowledge and inter-firm learning ability (Boschma and ter Wal, 2007; Cohen and Levinthal, 1990) [5], [4]. The Firms' absorptive capacity provides both opportunity and constraint for firms to learn. Accumulated knowledge in the structure of a firm will embodies in routines and human resources in the firm. This whole knowledge sharing process differs one firm to another and decides the different role firms can perform on the knowledge network (Boschma and Ter Wal, 2007) [5]. A leading firm with the higher absorptive capacity will act as hubs in the network while weaker firms will operate as isolated firm in the network (Giuliani and Bell, 2005) [12].

Similarly, firm's investment in R & D contributes to firms' absorptive capacity through enabling knowledge creation and acquisition from local and external sources. A firm's 'absorptive capacity' depends both direct interfaces with its local environment (local buzz) and knowledge pipelines into the firm from various external sources of knowledge (Global pipelines). (Cohen and Levinthal, 1990; Bathelt et al, 2004) [4], [14]. In this context, internal gatekeepers and boundary spanners in a firm who translates the external knowledge into a firm are crucial. In this regards, improving the capacity of human resources through training and educations become important measures in firms' development. Alternatively, a firm's Economic power, firms' internal competences and organizational strategies make a cognitive structure of the firm (Boschma and ter Wal, 2007) [5].

Access to external knowledge is important and vital aspects for firms' research and development activities. External openness reflects the firm's propensity to acquire extra-cluster knowledge. The degree of openness of a firm in a cluster inevitably depends on its member firms and institutions ((Giuliani and Bell, 2005) [12]. It is argued that firms are heterogeneous in their capabilities and knowledge bases and thus have different roles within the cluster absorbing external and internal knowledge bases.

### **1.3 Knowledge network structure and firm characteristics**

A Cluster does not absorb external knowledge uniformly through all its member firms and institutions. Cognitive capacities of individual firms determine the overall capability of the cluster. Firms with high external openness and cognitive capacity could potentially contribute to the knowledge diffusion to other firms in a cluster (Giuliani and Bell, 2005) [12]. Based on above literature, firms will exchange knowledge within and outside a cluster depending on the amount of knowledge stock; they have over the time and their capacity to decode and absorb knowledge (Cohen and Levianthal, 1990; Giuliani, 2002; Giuliani and Bell, 2005) [4], [11], and [12].

Based on the external linkages of a firm with other similar type of firm and inherent cognitive position of a firm within a local knowledge network, there are five main "cognitive roles" have identified, i.e. Technological gatekeepers, Active mutual exchangers, Weak mutual exchangers, External stars and Isolated firms (Giuliani and Bell, 2005) [12]. Differences of knowledge base and capacities lead to play a different role within the cluster knowledge system. Firm with particularly advanced knowledge bases like to perceive by other firms in a cluster as the 'technological leaders' or early adopters of technologies in local area. Further, technological gatekeepers of a network may act as "bridging enterprises" that link the network to the outside world (Owen-Smith and Powell, 2004) [17]. Leading firm who acts as gatekeepers of knowledge network will search and absorb new knowledge of local and external sources and have well-established contacts with local and external to the cluster in order for effective knowledge transfer. Moreover, they are well equipped to identify and

incorporate new knowledge external to the cluster (Malipiero et al, 2005) [18]. Therefore, local firms require a sufficient amount of absorptive capacity to enable interactive learning with leading firms.

Alternatively, firms with a lower level of knowledge level, but with higher capacities to absorb more knowledge act as “absorbers” in a network (Schrader, 1991) [19]. Further, some firms act as ‘sources’ within the cluster knowledge system by transferring more knowledge than they receive from other local firms. Some firms within a cluster offer neither any knowledge nor information to other firms nor has a capacity to acquire and exploit knowledge. Those firms are likely to be isolated within the cluster knowledge system (Giuliani and Bell, 2005) [12].

In addition to industrial cluster with similar capacity, some clusters have to link with the local community such as the agricultural sector. Cluster affiliated with more local communities requires a more specific knowledge system and mechanism to transfer knowledge to those communities. Knowledge workers who defined as individual with higher education and training in a particular profession play an important role in the formation of local knowledge network and boosting of knowledge exchange and generation process within the community level (Giuliani and Bell, 2005)[12] . In some context, the knowledge workers may be the most experienced community member (most experienced farmers in agricultural community). Those actors in the community simply seek advice from other community members and interconnect of knowledge exchange (Breschi and Lissoni, 2001) [20]. Particularly, knowledge transfer at community level depends on those ‘cognitive subgroup’ such as innovative farmers or community organizations.

#### **1.4 The context: A cluster of agriculture Research and Development Institute in Sri Lanka**

The study will be based on the Agricultural R & D institutes in Sri Lanka. Development of Agriculture research system of Sri Lanka has a history of more than a century. Being a former British Colony, Sri Lanka has experienced with major development initiatives which adopted by British governors. Most of Science and Technology policies and Agricultural Research Policies have developed during the colonial period. Currently, the National Agricultural Research system in Sri Lanka (NARS) consists of main 16 research institutions/Organizations which belonging to five main different ministries. Agriculture sector can divide into main two-sub sector as crop and livestock farming while crop cultivation playing a major role in the Sri Lankan Economy. Crop cultivation consists of the plantation sector and the smallholder peasant sector. Plantation sector represents mainly by tea, rubber, and coconut and Smallholder peasant sector represent mainly by paddy and other field crops such as vegetables, fruits, spices, etc. Still, the livestock sector in Sri Lanka has not much developed and mainly comprises dairy farming and poultry industry. Forestry sector also has included to agricultural sector due to the heavy dependency of the rural population on forest.

Government of Sri Lanka attempted to develop domestic Agriculture research systems and other agricultural infrastructure after independence in 1948 in order to develop the domestic agriculture sector. Sri Lankan agricultural research and knowledge services mainly provide by public organization while few private sector institutions provide services for rural communities. Sri Lanka Council for Agricultural Research Policy (CARP) authorizes to develop policies for agricultural research and extension service. The National Agricultural Extension Committee (NAEC) advice to CARP on policy matters in Agricultural Extension, especially agricultural extension and training, organization, coordination, planning, execution, funding of agricultural extension services, extension pilot programs. Six major R & D institutes are governed under the ministry of Agriculture: Council for Agricultural Research

Policy (CARP), Department of Agriculture (DOA), Department of Animal Production and Health (DAPH), Department of Export Agriculture (DEA), Hector Kobbakaduwa Agrarian Research & Training Institute (HKARTI) and Post Harvest Technology Institute (PHTI). Another four important R & D institutes are governed by the Ministry of Plantation industries: Coconut Research Institute (CRI), Rubber Research Institute (RRI), Tea Research Institute (TRI) and Sugarcane Research Institute (SRI). National Aquatic Resources Research & development Agency (NARA) and National Aquaculture Development Authority (NAQDA) are under the ministry of Fisheries and Aquatic Resource. Forest Department is under the ministry of Environment and renewable energy. Postgraduate Institute of Agriculture (PGIA) and eight major Faculties of Agriculture are under the ministry of Higher Education: University of Peradeniya (UOP), University of Ruhuna (UOR), Sabaragamuwa University in Sri Lanka (SUSL), Uwa Wellassa University (UWU) is a few of the main faculties of Agriculture.

Apart from above major R & D Institutes, following technical Institutes are functioning under the Department of Agriculture to cater the research and development need of the country. Research Institutions established for Rice, Horticulture and Field Crop conduct Research and disseminate research outcome and new knowledge to their stakeholders. Rice research and Development Institute (RRDI), Horticulture Research & Development Institute (HORDI), Natural Resource Management Center (NRM), Field Crop Research & Development Institute (FCRDI), Fruit Crop R & D Centre (FCRDC), Food Research Unit (FRU), Horticultural R & D institute (HORDI), Plant Genetic Resources Centre (PGRC), Plant virus Indexing Centre (PVIC), National Plant Quarantine Centre (NPQC), Veterinary Research Institute (VRI), Grain Legumes & Oil crop R & D Centre (GLORDC), National Cinnamon R & T institute (NCRTI9, Seed Certification and Plant Protection Center (SCPPC), Seed and Planting Material Development Center (SPMDC), Socio- Economic and Planting Center (SEPC) and Extension and Training Center (ETC) are the major research Institutes. CIC is the one of the prominent private R & D institutes in Sri Lanka and there are no any other larger institutes for the Agriculture R & D in Sri Lanka.

## 2. Research methodology

The study has designed to examine the role of Agricultural Research and Development institutes with respect to its absorptive capacity to grab the new technologies and knowledge. Further, it has designed to measure the firm's external openness to other research institutes in the cluster. More specifically, the study has constructed a knowledge network of the agricultural research institutes in Sri Lanka.

Based on the theoretical framework of the study, accordingly, following hypotheses were tested as the one component of the research study:

**H1:** There is a significant correlation between the absorptive capacity and external openness of the institutions.

To test above hypothesis, 26 of Agricultural R & D institutes were interviewed using a semi-structured questionnaire. The absorptive capacity of the each research institutes has measured by applying a principle component analysis of the four correlated variables. External openness which reflects the firm's propensity to acquire external knowledge and was measured using the number of linkages with other research institutes that considered as sources of knowledge and information. In addition, the linkages with other institutes for the joint projects and experimentation also were considered. Further, study has investigated the structure of the knowledge relationship in the agricultural research sector of Sri Lanka. Further, the study has measured the depth the knowledge relationship (how the linkages are important and intensity of linkages) among Agriculture research institute. In addition, the

breadth of the knowledge relation reflects by number of linkages also were measured. The Developed Knowledge network has determined the position of each individual institutes in the local network. Moreover, it has configured the whole knowledge network on the aggregate level. In measuring knowledge relationship between firms in the study, the method so called 'roster recall' was employed (Morrison, 2004, Giuliani and Bell, 2005) [13], [12].

### **3. Research findings**

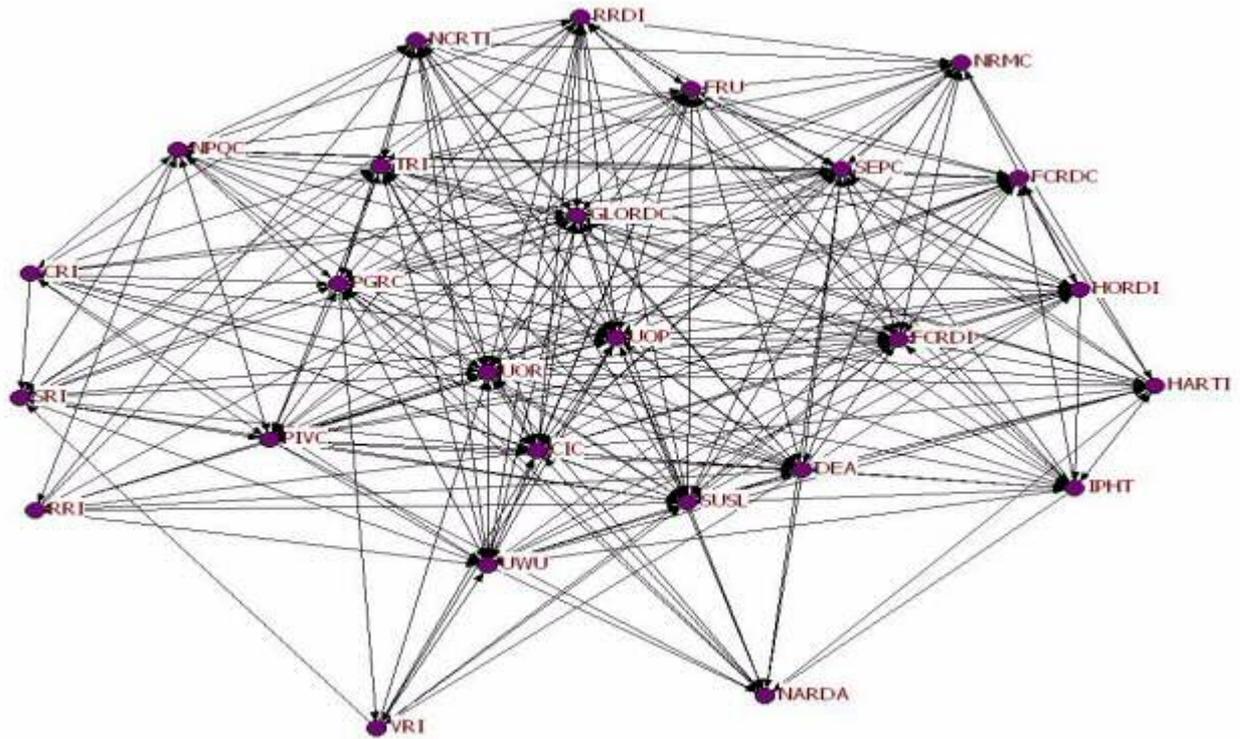
#### **3.1 Absorptive capacity of the Agriculture research institutes**

The most important characteristics of a firm are the absorptive capacity of a firm, which determines its specific characteristics. Following Giuliani and Bell (2005) [12], he study has assumed that the absorptive capacity of an institute positively affects its network connectivity. Further, absorptive capacity determines its knowledge base that is required to absorb and exploit external knowledge (Cohen and Levinthal, 1990) [4]. As Giuliani and Bell (2005) [12], this study used four variables and employed a principle Component Analysis to construct a single component for an absorptive capacity of the institute. (Their weight in the component has mentioned in parentheses. (a) the level of education of the research scientist in the research institutes (0.857); (b) each research scientist 's month of experiences in the agriculture sector(0.803); (c) the number of firms in which each scientist has been previously employed (0,786), and (d) the type and intensity of R & D undertaken by the research institutes (0.772). An index derived from the application of principle component analysis to the data about the two major components. The component explains 68.7 percent of the original variance of the variables.

#### **3.2 Knowledge network of Agriculture R & D institutes**

The study has been able to conduct the 26 agricultural research and development institutes, which represents 75 per cent of the total population. Applying the roster –recall methodology, two types of knowledge networks have been constructed: on technical knowledge and on joint experimentation.

The study has investigated the structure of the knowledge relationship in the Agricultural research institutes in Sri Lanka. The both depth and breadth of knowledge relationship among institutes were measured. As stated earlier, the resulted knowledge network is analyzed through social network analysis, in which the network ties with other institutes were examined. The study has used the graph theoretical methods, which allows determining different dimensions of network structure. Other than the major network, which shows the knowledge network of agricultural research and development institutes, other two types of knowledge network have been constructed based on the type of knowledge shared with other institute. Following Figure 01, have depicted the local knowledge network of Agriculture research institutes in Sri Lanka. The graph has a high number of connected firms implying the generally well-established linkages among research institutes in Sri Lanka.



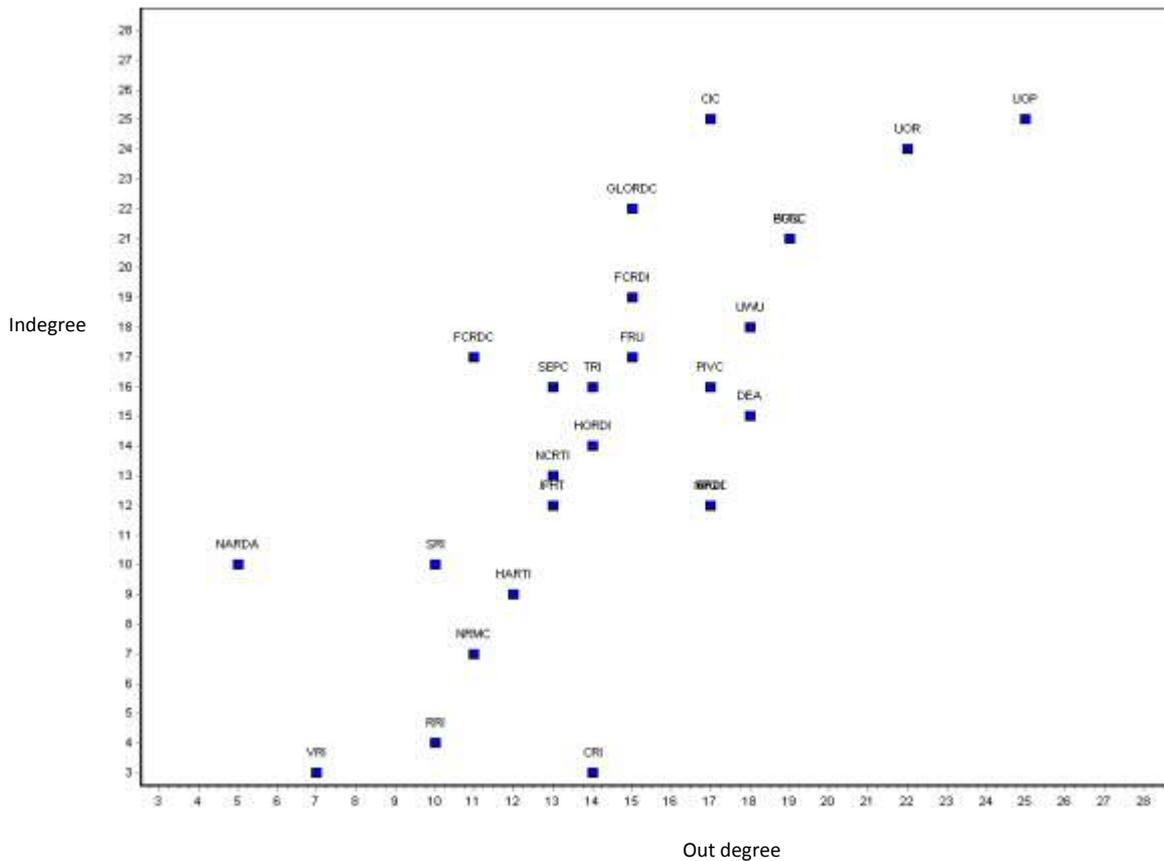
**Figure 17** Knowledge network of Agriculture R & D institutes

The properties of the knowledge network further illustrated by the density of network, expressed as a ration between the actual number of ties and the maximum number of potential ties (Wasserman and Faust, 1994) [21].

$$=L/g (g-1)/2= 2L/g (g-1)$$

Where , network density, L is number of ties and g is the population size.

The knowledge network of Agriculture research institutes has an average 0.586. It shows that they still have the potential to make linkages with other research institutes. Still the network density is nearly 60 %. The average distance, which calculates the average distance to reach every actor in the network, is 1.414 for the network. The degree centrality of the network, which shows the number of incoming and outgoing ties for each individual actor and this, indicates how well an actor is connected within the overall network. In agriculture knowledge network has a 0.435 out and in degree centralization. In the context of the individual degree centrality measures, core group of the network, which represents the major agriculture faculties in Sri Lanka and they have shown highest in/out degree centrality. The following Figure 02 shows the In/out Degree centrality of the R & D institutes in the network.



**Figure 18** In/out degree centrality of R & D institutes in the network

In an undirected network, actors differ from one another only in the number of connections they have. Centrality based approaches are important for directed data. If an actor receives many ties, they are often called as ‘prominent’ or have high prestige. Institutes who have high out-degree is able to exchange with many others, or make many others aware of their views. Actors who display high out-degree centrality is often said to be *influential* actors. University of Peradeniya (UOP) and University of Ruhuna (UOR) has comparatively high out degree measures showing influential actor’s role. Research station who is doing more specific research on only for one area such as a Rubber/Coconut research station, Veterinary research station has shown more isolated role in the knowledge cluster.

### 3.3 Cognitive role of agriculture research station

The external openness of institutes and the cognitive position of the institute within the local knowledge system has illustrated in following Table 01. Five major cognitive roles within the cluster have been identified combining the External openness and ratio of In/out degree centrality. Technical gatekeepers are the institutes who have a central position in the network in terms of knowledge transfer to other local institutes. Those actors are strongly connected with other external sources of knowledge. According to the study, Department of Export Agriculture and Plant virus Index Center act as the technological gatekeepers of the network. Mutual exchangers can be defined as a role-playing by an institutes being central part of the local knowledge system with a balanced source/absorber position within the cluster [4] (Giuliani and Bell, 2005). Mutual exchange institutes have divided into two categories as active and weak mutual exchangers. Active exchangers behave in a similar way to technological gatekeepers by bridging external sources and local knowledge absorbers.

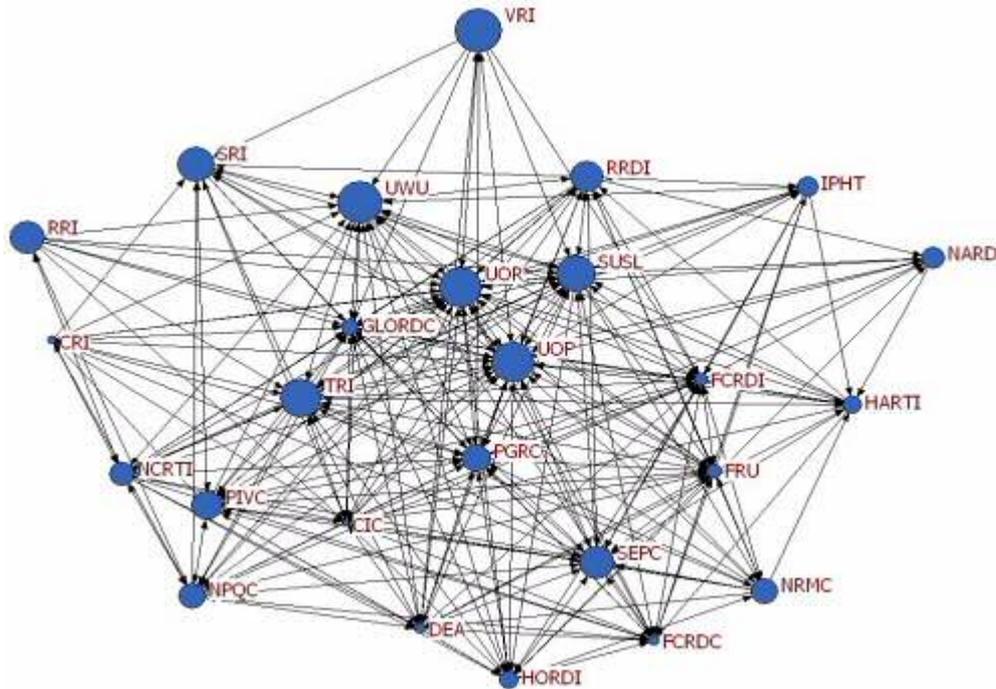
Weak mutual exchangers are well linked to external knowledge sources. Compare to Active Mutual Exchangers, weak exchangers are less connected to other firms in the cluster. External stars have established strong linkages with external sources. Isolated firms are poorly linked to other institutes. The institutes, which belong to each cognitive position has illustrated in following Table 01.

**Table 7** Different cognitive roles within the knowledge network

Intra cluster cognitive role	External Openness		
	<u>Low</u> (Below Average)	<u>Medium</u> (Average)	<u>High</u> (above the average)
<u>Source</u> In/out DC <1			<u>Technological Gatekeepers</u> DEA, PIVC
<u>Mutual Exchange</u> In/out DC > 1	<i>Intra-Cluster mutual exchange</i> SRI, NCRTI	<u>Active mutual Exchange</u> HORDI, IPHT, UOP, UWU	
		<u>Weak Mutual exchange</u> RRIC, NPQC	
<u>Absorber</u> In/out DC >1	<i>Local absorber</i> TRI, SEPC,		<u>External Stars</u> FCD, FRU, FCRDC, PGRC, GRORDC, UOR, SUSL, CIC
<u>Isolated or Poorly interconnected</u> In =out and < 0	<u>Isolated Firms</u> CRI, RRI, VRI	<i>Locally isolated</i> HARTI, NRMC	

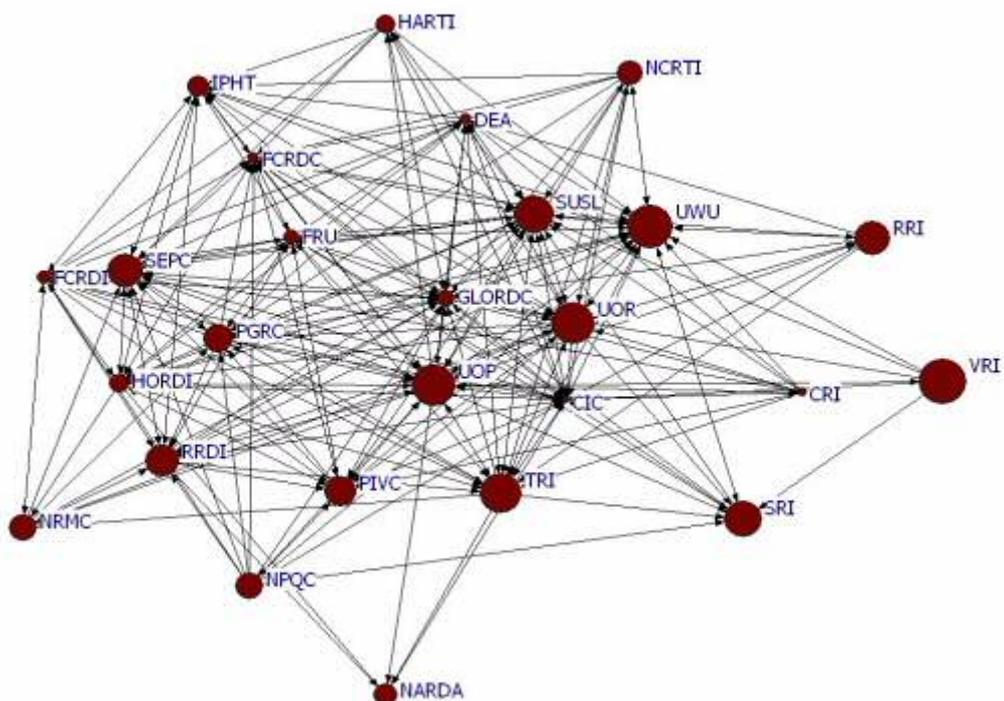
### 3.4. Technical knowledge network and network through joint experimentation

The following Figure 03 has shown the knowledge network of Agriculture research institutes based on the technical knowledge shared among the institutes. Technical knowledge implies the technical advices and services shared within the institutional cluster. The size of the nodes denotes the absorptive capacity of the research institutes



**Figure 19** Knowledge network on technical knowledge

The following Figure 04 shows the knowledge network among research institutes based on the joint experimentation. Agricultural research institutes tend to conduct multidisciplinary experimentation and project with the combination of other research institute to develop innovation and knowledge. In this network, also the node size denoted the absorptive capacity.



**Figure 20** Knowledge network on joint experimentation

The graphs make clear that the network on technical advices and services in much more

developed than the one concerning joint experimentation. The network on joint experimentation has a high number of poorly connected institutes compare to the network of technical knowledge. The following Table 02 shows the differences of these two types of network based on the density, degree of centrality, average distance and In/Out degree centrality.

**Table 8** comparison of the two network properties

	<b>Technical knowledge network</b>	<b>Joint experimentation network</b>
Density	0.552	0.449
No of ties	359	292
Average degree	13.808	11.231
Average Distance	1.462	1.594
Out degree centralization	0.3824	0.4896
In degree centralization	0.4656	0.5312

According to the above Table 02, the network of technical knowledge has an average density of 0.552, while the density is 0.449 for the network on joint experimentation. Apparently, the densities between these two-networks imply that on average local knowledge relations on technical issues and services are 'deeper'. It means the relations among institutes for technical knowledge are many more important and intensive than the linkages for the joint project. The network of technical knowledge consists of three larger components, which are in the centre of the network, while the network on joint experimentation has larger number of firms and clearly visible isolated firms in the network. Average distance of the each network shows the average distance to reach every actor in the network. Shortest distance shows by technical knowledge network compare to others showing that high connectivity among the actors.

In summary, a slight majority of the R & D institutes in the agriculture sector in Sri Lanka is involved in the local network on technical knowledge and issues. In contrast to the absorptive capacity of the each institute, the leading and principles institutes within the research cluster does not play a major role as a knowledge sources or gatekeepers while few specific research institutes act as technological gatekeepers.

### **3.5 Correlation between External Openness and Absorptive capacity**

The simplest hypothesis of the research was to test the positive correlation between the Absorptive capacity of the research institutes and external openness of the each institute. A non-parametric test was run between the level of institutes' absorptive capacity and their degree of external openness. The Kendall tau\_b coefficient was used to measure the correlation between these two variables.

**Table 9** Correlation between external openness and absorptive capacity

<b>External Openness</b>
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	Average absorptive capacity
Above the average ( <i>n</i> =14)	0.46
On the average ( <i>n</i> =1)	-0.20
Below the average ( <i>n</i> =11)	-0.36
Kendall tau_b correlation between External openness and absorptive capacity	0.129**

\*\* Coefficient tested with  $p < 0.01$  significant level

According to above table 03, the test does not show a significant correlation between those two variables. The Kendall tau\_b coefficient is 0.129 with  $p < 0.01$ . This result indicates that the institutions with a higher absorptive capacity do not tend to make effective knowledge linkages with other research institutions.

### 3.6 Factors affect to external openness of the research institutes

The Agricultural research Institutes in the local network were asked in response for the factors, which affect to the decision of making knowledge network. Those factors are, Absorptive Capacity of the other Institute (Human resources capacity, research expert), Technical Capacity of other Institute (Technical resources, laboratory facilities, etc), Geographical Proximity of external Institutes and Social proximity to other Institute (linkages based on relationship and friendship). The response was measured using five Licket scale ranging, highly important to no important. Non-parametric statistics show that the absorptive capacity of the other research institutes (mean rank 2.8) is the major consideration to make external of the institutes. Secondly, the technical capacity of other research institutes (mean rank 2.5) considered by research institutes to make external knowledge linkages. In the context of the proximity effect, both social and geographical proximities moderately considered by research institutes when making knowledge network with other institutes of the cluster (2.4 and 2.3 mean rank respectively).

## 4. Conclusion

The research findings of the agricultural R & D institutes have made some interesting research implications. The study made clear that agricultural research institutes are heterogeneous concerning their absorptive capacity and cognitive role in knowledge network. Nerveless, the concertinaing the network connectivity of the whole cluster is not strong enough since it has more potential to make more linkages among each other. Another striking result was that only a limited number of local actors were part of the knowledge sources. The study could identify the two types of knowledge network within the Agriculture R & D institutes, knowledge network of technological relationship was more developed, and effective compare to knowledge network made through joint experimentation. This does suggest that, innovation of agriculture sector in Sri Lanka can be improved through more research project collaboration. The institutes those who have higher absorptive capacity and external openness do only act as knowledge absorbers. Therefore, it can conclude that the absorptive capacity of institutes does not influence their position in the local knowledge network. Further, the study has revealed that the correlation between absorptive capacity and external openness is not significant for the R & D institutes in Sri Lanka. Absorptive and technical capacity of the other research institutes were major factors considered by research institutes making knowledge relationship over the geographical and social proximity to other institutes.

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# INNOVATE? GO...VIRTUAL! The Case of SE Europe Consultancies

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The term Virtual refers to a specific domain, that of knowledge-intensive work production; however, effective virtual team management greatly differs from traditional team management for a number of interrelated factors such as time, distance and even dependence on communication technologies involved in decision making [1]. The efficient management of the inherent knowledge within virtual working teams is an issue that recently has grown into a research topic among consultancies in SE Europe; due to the continuous development in technology, it has resulted into the development of methods and functions, giving an even more important meaning to the evolution of such teams into modern globalized businesses [2], [3], [4]. The paper approaches the creation of virtual working teams, as the result of the continuously growing need of Management consulting firms to obtain a functional advantage over competition: innovative partnerships paired with new technologies. It attempts to define those variables and inherent corporate features enabling consultancies to turn themselves into Virtual Organisations. It is the result of an in-depth study of those factors affecting organizational and business level for the smooth transition of firms & organizations into virtual structures [5], [6], [7]. The yielding structure will help enterprises develop an innovative nature as their competitive advantage at international level while reducing their operating costs [8]. The final outcome of the research comprises a very useful management tool for consulting firms with expertise mostly in Project Management: an organisational model which is expected to be in favour of a variety of business activities within the tertiary sector, such as Strategy Consulting, HR Consulting and IT Consulting to mention but a few; it applies to those firms active in Projects increasingly involving multifunctional alliances with wide geographic area extensions and most often dispersed expert working teams, temporary in their functional duration [9].

## Keywords

Knowledge-intensive work, Multifunctional alliances, Organisational model, Virtual Organisations, Virtual team management.

## 1. Introduction

In the following sections, the purpose of this research is analyzed, which focuses on the concept of virtual work teams. The development of all forms of entrepreneurship, as expressed in the context of modern "business" has brought about radical changes in the modern business world, pushing organizations and businesses in a constant effort to increase their efficiency and corresponding improvement of those qualitative and quantitative indicators that will ensure the desired competitive advantage in their activity domain [10], [11].

The business world, worldwide, keeps changing, especially in areas with ever-growing pace, deploying at the same time the existing technology in combination with the Internet. This

allows for more independence of working place and time as well as the internationalization of enterprises [2], [3], [4]. Therefore, the question arises to what extent to use this possibility as a competitive advantage based upon the development of small and manageable virtual working teams, promoting thus, entrepreneurial innovation [12], [13].

Virtual working team members need to choose the most appropriate communication channel in order to achieve their business goals and ensure efficient remote collaboration through direct and interpersonal communication. Leader-coordinators of these teams should have the ability to encourage spontaneous communication and brainstorming along with liability avoidance [14].

The core issue of the conducted survey is the concept of virtual organizations in correlation with:

- Knowledge management [15]
- Management of available operational resources, and
- Successful development of a sustainable and competitive business in an open global system [16].

## 2. Deployed Theories

*The development of the survey was based on the following theories:*

1. Business Development by Penrose [17], according to which:

- the development of a company derives from its *internal structure*
- failures in operations are seen as the outcome of wrong operational guideline choices, inadequate management skills and inefficiency to increase financial resources, low criticism capacity which leads to "expensive" mistakes, and even poor adaptability and change management, while
- "entrepreneurship" is analyzed simultaneously in sociological, organizational, technological and economic terms.
- "Versatile Production" or Agile Manufacturing by Goldman [18], which is actually the evolution of the "Frugal Production Process - Lean Manufacturing" theory of E.T. Penrose, aiming primarily to reduce costs, the company's ability to operate and compete through a state of dynamic and often unpredictable constant change.

2. System Dynamics by Sterman aiming to elevate a Virtual Organization into a Model, on the basis that it is considered a satisfactory approach to the function of complex systems – such as Virtual organisations - that are characterized by a dynamic behavior [19]; System Dynamics is also an efficient approach for the management of quantitative & qualitative variables.

However, during this process, there had been certain barriers encountered, such as:

- absence of recorded time series flow of specialized know-how for transfer
- excessively large number of variables
- necessary coordination of expertise group activities (economists, psychologists, job experts, V experts)

3. Empirical Research, aiming to define the level of:

- activity of the modern consultancy company on the international synergies level
- development of the necessary virtual characteristics on organizational level and,
- feasibility for mild & smooth transition to a virtual organization, in the light of development of sustainable competitive advantage and profitability.

The geographic range in which the empirical research was conducted was over Southeastern Europe and particularly in Bulgaria, Macedonia, Serbia, Romania, and Bosnia,

including Greece. The choice of the area is due to the many common and also different cultural elements, the main difference being both in the spoken as well as the written language among the participants; significant differences in the operational and the working concept (workforce culture) were also taken into consideration, due to the different starting point of the existing socio-economic system per region. Moreover, the area is characterized by intense business activity in the studied areas - Consulting and Informatics - while in the context of their forthcoming membership as member states of the European Union, synergy development trends are also presented for the rest of Europe and America.

### **3. The Research Process**

The sample consisted of managers and line managers, who were selected as a target group among consultancies, while their age ranges from 23-50+. Generally speaking, consultant executives are characterized by enthusiasm, flexibility for adaptability to situations and people, ambition and intense energy, due to increased requirements (non-standard working hours, intensive work - usually under pressure, often traveling at national and international level, working in multi-cultural environments with emphasis on the use of new technologies and their applications) within the responsibilities of their positions. Their educational level is characterized as particularly high because of the high qualification requirements and skills that their expertise requires.

In order to investigate the current state within the Greek territory, primary research was conducted in the field of management consulting, with a representative sample of EUROCONSULTANTS SA Group of companies, including those integrated companies in the i4G Business Incubator.

In Annex I, there is a presentation of the questionnaire circulated among executives of the Group, followed by the presentation of the conclusions reached. The survey involved 80 members from 15 companies of which 60% said they only participate in groups that interact face to face on a daily basis, while the remaining 40% said they participate in groups whose main feature is virtual interaction. As our area of interest focuses on virtual teams, the attempted analysis was related to their responses according to the survey.

Due to the fact that the corresponding research required both the identification of factors affecting the formation of virtual working groups as well the identification of their problem areas and needs, the Delphi method introduced by Schmidt [20] was opted for application. The Delphi method is a decision-making process where, through iterative feedback, the views of the group of respondents are exported in order to achieve consensus. The method has been used in a wide range of disciplines, including public administration [21], social work [22], operations research [23], and information systems [24], [25]. The first stage of the Delphi method is to select the sample to be involved in the research.

### **4. Initial Research Outcomes**

Given some general characteristics of the sample we should mention that most virtual groups are active in the sector of service provision and have been in operation for almost over a year. The virtual members that make up most of the groups are more than eight (8) and are characterized mainly by a high educational level. 56% of them belongs to the 30-40 years old age group, while 60% of the sample is comprised by men. The research consists of three parts:

- The first part produces information about the methods of designing virtual teams and their processes in general.
- The second part produces information about the systems used at a corporate

level in order to support their virtual groups.

- The third part produces information about the team members, their performance and their level of satisfaction.

From the *responses of the first part* it was found that only 48% said that their team carefully examined their objectives when planning, while almost half of them participated in the design of their team. Nevertheless, members noted that they were informed at a 60% rate for team goals and their role within it, while the same percentage said it was chosen according to their individual abilities. About 41% stated that they discussed issues related to the improved development processes of the group at an early stage. Members also felt that between them there is a modest trust, cooperation and mutual understanding. They noted that the new members become active quickly enough within the group and that they are originally provided with the necessary technological equipment. During interpersonal meetings that are held almost once a month, they devote sufficient time to deal with matters of their business and a moderate amount of time to develop their social relations. With respect to any disputes, most members argued that there is no registered process for their immediate settlement and that they do not follow a specific process in decision making.

From the *responses of the second part* it was found that 52% of virtual members said they were not adequately trained by their company, which leads to the conclusion that although the members' experiences are those that by a large percentage guide them, they are inevitably "trained" by both their success and mistakes. The remaining 48% were satisfied with the training offered by their company which was supported by a modest contribution to improving efficiency within the group as well as development of their technical skills. However, only 36% said that their company conducted special training sessions to enhance effective communication among participating members.

For team leaders, the majority of members (approximately 72%) appeared to be positively indicating that the head of the team was the one to create a vision for the team, give rise to new ideas with the view to encouraging members and optimizing their productivity. They also seemed satisfied with the tools offered by their company and by the extent they were encouraged to communicate electronically with each other and take general initiatives within their group. They agreed that the diffusion of information is a condition within their group, but disagreed on the same reward for all members after the achievement of team goals.

The tools and methods the members of virtual teams prefer to use for communication with each other, are mainly e-mail (including all service messages via any internet-messengers), communicating face to face, voice messages, fax, the use of private transport services and less to no use of video-conferences and group call meetings.

In the *third part of the research*, 52% of the sample stated that their team has always been effective in achieving business goals and often enough managed to do so within time and budget limits. The members in general noted a moderate level of reward from their work, while at a large percentage they believe that they develop and enrich their knowledge and capabilities through their work. The vast majority is presented as receptive to participation in any other group. The overall experience of the members seems to be small given that previously they did not participate in more than two virtual teams.

The results of this survey should not be so surprising, since the implementation of virtual teams at national level is still at an early stage. Companies and heads of companies are not fully aware of the strategic advantages resulting from the application of virtual teams and the organization and management of such groups. Therefore, the fact that there is no clear separation between virtual members and members involved in interpersonal groups is justified to some extent. Comparing the responses of both categories it was found that virtual teams have not developed a clear framework for development and for this reason the members' answers differ slightly. Virtual teams should generally create reliable processes and strong interpersonal relationships. Specifically, the virtual teams should:

- set clear objectives for their members,
- develop an action plan for those necessary activities for corporate objectives enhancement
- develop decision-making and conflict resolution processes,
- devote time to develop mutual trust and confidence,
- create strong partnerships.

Even the most complete range of equipment that works in conjunction with the most advanced technologies is not sufficient to make a virtual team effective. Virtual team members should be trained in such a way as to improve their effectiveness and to develop their technical skills and should feel rewarded by their work both financially and spiritually. These dispersed workgroups must allocate enough time during the initial design phase, so that they can consider their future goals and develop a healthy and stimulating work environment.

#### **4.1 Reformulation of Research Questions**

The introduction of teamwork with features of global internal structure, which is part of the virtual framework, offers a range of new opportunities for companies in order to develop into such a level to obtain the benefits of their global operations [26], [27]. The development of appropriate systems for HRM and IT infrastructure with the view to supporting Virtual Teams, however, is questionable, as communication between the participating members is affected by their geographical distance, the synchronization of the operating cycle and the cultural differences between the members [28], [29].

Communication Technologies and IT infrastructure, which successfully facilitate the dynamic flexibility of the global virtual teamwork, increase the importance of staffing as well as other HR management issues. Therefore, an HR management system that meets the needs of virtual working groups should not only focus on the overall talent of the staff of the organization, but also in the overall coordinated virtual extension of these talent groups scattered through the relations network of the organization.

This broad involvement of HR management requires a new approach to decision-making and more specifically the development of innovative methods and management of people, new and systematic staffing solutions for global team management, high involvement of different officials and efficient and effective communication. These emerging HR management practices can achieve the development of a cultural group that will focus more on innovation and less on unilateral modifications of traditional executive management policies. The empirical research can assess which innovations in the discipline of human resources management will be suitable for the preparation and coordination of virtual work teams.

The growing popularity of organizational alliances coupled with globalization has accelerated the need for companies to coordinate those of their activities ranging geographically as well as organizationally. Moreover, the shift from production to services has adopted a new generation of people working for knowledge and which are not bound to physical jobs. Overall, these factors indicate that companies are facing growing challenges in equal goals in different time zones, physical limits, and operational frameworks.

The introduction of team work that is virtual in the framework and global within the field has opened a new set of opportunities for the organizations in order to reap the benefits of their global activities. Many vertically-aligned organizations are now turning their efforts to designing more flexible and adaptable structures to meet the requirements of the changing market. Corporate leaders have realized that a large proportion of people as labor capacity is

now asked to perform professional obligations much more quickly and with the least possible degree of communication and cooperation with others. In order to achieve operational objectives such as speed, cost, quality or innovation, a flatter and more lateral organization is required.

Led by these requirements, the traditional face-to-face working teams face pressure to operate in a virtual environment and to coordinate activities among their members at physically dispersed locations. Therefore, virtual teams have emerged as a new type of organizational structure, supported by information and communication technologies, able to face the challenges of this new labor framework. According to Townsend et al. [30], "Virtual teams consist of members who are geographically and administratively linked through telecommunications and information technologies trying to achieve an organizational objective."

Given the international business scene, the expansion of virtual teams is an attractive management strategy for a variety of reasons. In principle, it allows dispersed organizations to grow their experience without having to physically relocate their members. The necessary experience for a given objective or a program can be dispersed in multiple locations throughout the organization. However, a virtual team can facilitate the "concentration into a single whole" and can give basis to a specific problem without having to physically relocating people. Moreover, virtual teams can allow organizations to unify the diverse perspectives of different cultures to avoid counterproductive ethnocentric prejudices [31]. Other benefits include reduced costs, reduced life cycle and solving other more complex problems.

Perhaps the growing importance of virtual teams can best be described by Ms. Carla Hargrove McGill, President of Hargrove McGill Inc., who states that: "In future, the source of human achievement will not be excellent people, but the extraordinary combinations of people." Since companies face the challenges of the 21st century, the adoption of virtual team practices will provide an important opportunity to coordinate the complex operational objectives of an organization.

However, as companies seek to strengthen the potential benefits of virtual teams they also need to address the many complexities inherent in this new type of working teams. First, communication between virtual teams is less effective than the more traditional groups and is extremely difficult to control. Given differences in time and space, companies will need to adopt innovative technologies to facilitate coordination for achieving the objective among the totally scattered members. These communication problems occurring due to different time zones, difference in technology infrastructure, as well as difference in the ability to handle technology among members. Finally, management of virtual teams can become overly complex when cultural differences are added to this mix of potential issues.

Regarding culture, Solomon [31] stated that: *"The fundamentals of the global success of the teams are not very different from the practices operating in the internal working groups. But there are more variables. Moreover, there are inherent challenges to be overcome: work in different time zones, the number of trips and busy conflicting programs"*. It is in this context, the survey questionnaire was developed, in order to investigate the following business attributes, which comprise as an important factor for a business transition to a virtual organization:

- The degree of the business activity at international level,
- The familiarity of executives of the firms under investigation, with new technology applications in order to promote communication,
- The extent of their participation in already developed virtual work teams,

- The degree of operational development and adoption of features, Organisational Behaviour attributes and administrative models that could promote the virtual character of the business,
- The familiarity of staff with the meaning and operation of a virtual organization,
- The degree of corporate culture development with features of transnationality, which would represent a real incentive for a company to evolve in one with a virtual dimension.

## **4.2 Implementation and Results of the Empirical Research**

Given the rapid changes in the international business environment, the need for creating a differentiated business profile becomes necessary. The survey questionnaire was totally developed aiming to consider the parameters required for successful transition and formation of any business into a Virtual Organization. It can serve as *a diagnostic tool* in the hands of the entrepreneur in order to approach and define the initial framework in which the appropriate required skills for the achievement of flexible and efficient company structures should be developed with the objective to effectively respond to the challenges of the constantly changing business environment.

It takes into consideration corporate inherent flexibility skills, closely related to the international activity undertaken by the company, the use of technology, the formation of working teams, the organizational behavior influenced by both corporate management, the transnational corporate identity and the basic values on which the virtual work teams base their performance, such as mutual trust, information management, communication, mutual respect, knowledge and experience management, creativity, development strategy and corporate culture. Its structure supports the exploration *from the human perspective of entrepreneurship*. It attempts to thoroughly define the criteria knowledge intensive businesses should comply with, in case they would be interested in developing a Virtual Organization profile, as complementary to their international activities as well as for reasons of enhancing economy scales. Until today, *a relevant business tool has not been developed in order to link the inherently available knowledge, operational costs and also the required by the entrepreneur corporate performance*. The questionnaire as a diagnostic tool and the correlations derived from the analysis of the collected replies, aims primarily to fill this gap. The development of the questionnaire was based upon the following assumptions:

- *Limitations* – The questionnaire was issued in Greek and English, but there can be no limitations as to which languages it could be translated into; of course, the selection of English is considered a common element in the virtual environment.
- *Practical Application* – Coordination of skills and know-how can bring particularly beneficial results to the profitability of enterprises. The findings resulting from this research study could be used as guidelines by entrepreneurs to develop various dimensions of their business expertise.

Issues related to managing cultural elements are an important factor in the development of entrepreneurship, since they often create differences between national and regional borders and affect the development of a country's business potential. The handling of the questionnaire within a business or an organization enables entrepreneurs to find out whether their personnel is ready to accept the changes brought by a potential transition to a Virtual Organisation.

In order to ensure proper completion of each questionnaire, which would also foreshadow the basic prerequisite for the successful outcome of the research, the following were carried out [32], [33], [34].

- Before the final circulation of the questionnaires to the target group, the appropriateness of the questions and the necessary time for its completion were checked by the author, the supervisor and a senior business executive from a private service sector firm.

- The questionnaire was circulated electronically to selected recipients who are active in the tertiary sector of consultancy services in Greece and abroad; it was dispatched along with a cover letter attached with all necessary information for the recipients, confirming at the same time total respect to their anonymity; it was constructed containing only "closed type" questions in order to facilitate the respondents to reply, hinting the selection of an answer with the symbol: .
- No financial details were required in order to avoid creating a climate of suspicion, and a potential refusal to participate on behalf of the respondents.
- The questions were grouped into sections, not only with clear title and content, but also with the feasibility of measurement and therefore export of specific conclusions.
- A Reliability Analysis was conducted, in order to ensure the questionnaire capacity of maintaining consistency and reliability in the answers even if the questions are replaced with similar ones. For this purpose the Cronbach's alpha factor was calculated, a reliability ratio in the interval [0, 1] with desired high values (usually above 0.7) [36]. The reliability ratio for different groups of questions with thematic relevance was also calculated. The ratio is extremely high (over 0.90) for the question group VI on "*Substantial Values & Virtual Working Teams Specifications*", quite satisfactory (within the 0.80-0.89 interval) for three question groups, namely: VIII on "*Corporate Culture & Transnationality*", V on "*Organisational Behaviour, Management & Transnationality*" and VII on "*Evaluation of Firm / Organization as to the Virtual Working Team Development Strategy*", and satisfactory (within the 0.70-0.79 interval) for two question groups, namely:  $\chi$  on "*International Corporate Activity*", and  $\chi$  on "*Use of Technology*".
- The Factor Analysis (FA) method was applied separately to each one of the thematic group of questions – except for group I on demographic characteristics – and only for ordinal variables. The FA exploits the correlations in order to group them by estimating new variables called factors. These correlations help us understand which variables are correlated with each other. This axis can often take existence as a concept behind the measurements or data in the form of responses collected. This is precisely part of the interpretation attempted in each group. It is also noted that the sign of this correlation is important because it shows a positive or negative correlation. Also, the order of the factors is significant, i.e. the first explains the higher variability rate, the second the latter, etc. Furthermore, due to the large number of questions of the questionnaire, there was an attempt to condense the overall information while reducing the variables that represent the answers of respondents. The FA as a multivariate method exploits the structure of correlations that exist between many variables and discovers new variables deriving from these; these may be fewer in number, but they can be estimated as scores and used for further analysis.
- In all cases a specific methodology of extracting principal components was applied and also a specific method of varimax rotation, in order to better adapt the axes to input variables.
- Along with the results, the following is reported as well:
  - a) How many factors were found (the criterion of eigenvalues  $>1$  was used),
  - b) the percentage of the initial variability, as explained by the factors, and
  - c) the table of the biggest correlations that the original variables have with new factors.
- T-test and ANOVA tests were performed in order to check whether the factors found from the FA are differentiated as to the different categories of the demographic characteristics of group  $\chi$
- The factors found by the FA in each thematic set of questions were tested for correlation with factors of all other groups with Pearson and Spearman correlation coefficients.

The results also provide opportunity for developing a classification that can help as an

operational tool to identify possible resources as well as corporate skills; this would be useful for those businesses that are interested in their own assessment as to their potential for a smooth transition to a virtual organisation. Beneficiaries of this application may be businesses and organizations willing to proceed to their restructuring and acquire the required profile in order to cope with the rapidly growing and unstable modern market. At this point it should be clarified that an operational tool was built taking into account the need to incorporate sufficient potential for future development and expansion. Its creation aims to develop a functional application with dynamic behavior.

Since emphasis has been placed on the importance of the virtual nature of numerous organizations and businesses in order to reduce their operating costs on the one hand but at the same time enhance their effectiveness, efficiency and competitiveness on the other, appropriate policies should be developed and adopted by these so that the transition to virtualization is feasible. In this context, the objective of the empirical research was to keep records of the participants' views in relation to the basic parameters already existing in their companies and could be developed or optimized for their successful transition to virtual organizations.

These six (6) basic parameters refer to:

1. international business activity,
2. use of technology in business,
3. participation in working groups,
4. organizational behavior,
5. the basic values and properties of virtual working groups,
6. Corporate Culture and transnationality.

These six parameters were analyzed into their core components so as to determine the type of incentives, the benefits and the necessary strategies contemporary businesses need to develop with a view to adopting practices for transition into virtual organizations; the aforementioned parameters resulted mainly from the literature review at international level. It is considered that this research contributes positively to the further enrichment of the know-how on the operational issues of virtual organizations, as these result from the fulfillment of the objectives originally set for the structure of it; the aforementioned objectives refer to the following:

- obtaining information on incentives, benefits, business practices, but also obstacles that arise in many businesses trying to cope with increased competition through their transition to virtualization,
- quantifying the significance of the aforementioned basic parameters for safe transition to virtualization,
- discriminating and mapping parameters that lead to sustainable competition,
- mapping of current realities and practices at a local and international business level.

### **4.3 Questionnaire Configuration**

The structure of the questionnaire was designed to gather useful information concerning the safe transfer of tertiary sector businesses to a virtually operating environment. For an operational and clearer data collection, the questionnaire was divided into the following sections:

- I. Demographic Characteristics
- II. International Corporate Activity
- III. Use of Technology

- IV. Participation in Working Teams
- V. Organizational Behavior, Management and Transnationality
- VI. Substantial Values & Virtual Working Teams Specifications
- VII. Evaluation of Firm/Organization as to the Virtual Working Team Development Strategy
- VIII. Corporate Culture and Transnationality.

There follows a concise presentation of the findings as a result of the collected valid responses as well as the FA analysis for each group of questions separately; the analysis includes the following:

*Descriptive Statistics* for all variables (categorical, ordinal)

Presentation of all categorical variables in *frequency tables* with aggregated statistics, e.g. frequencies, percentages and cumulative percentages

*Graphs* (bar charts and pie charts) of variables

*Reliability Analysis* for the questionnaire as a measurement tool,

According the *Factor Analysis* (FA) for each thematic group of questions separately and only for the ordinal variables, the following conclusions have been drawn:

- *Demographic Characteristics* (Group of Questions 1). From the analysis of the data it is concluded that there is no statistically significant difference between the different age groups and their involvement in business activities internationally. More specifically, it appears that there is significant variation across the age groups [31-40] and [41-50] with the age group over 51 as far as the use of technology is concerned. Indeed, it seems that the age group above 51 gives less weight to the importance of networking, portals and emails compared with younger age groups; they also give less weight to matters related with flexibility and adaptability in terms of transnationality and knowledge transfer and acquisition as a result of transnational agreements. Furthermore, the following conclusions which relate to *Project Managers* have been drawn; they give less weight to issues related to communication, flexibility, information management, the existence of climate of freedom, confidence and commitment among colleagues; on the contrary, they give greater weight to strategic planning, teamwork building and respect for multiculturalism rather than Senior Consultants.
- *International Corporate Activity* (Group of Questions 2) consisting of 13 questions, has been found in *close relation with* 5 factors/axes, which can justify 77.13% of the entire variance, while they are all positively correlated with one another and refer to issues of *international turnover, subsidiaries and partnerships, globalization environment, multiculturalism and emerging markets*.

From the answers given in this section it has been concluded, that if a company would like to explore the possibility of safely developing business activity at an international level, *the five aforementioned axes should be seriously considered*, since the implication behind these axes is the necessity for successful drawing of *international agreements* through the development of partnerships with international organisations, their engagement in international projects, the degree of the personnel susceptibility to population movement and ethnic diversities, the acquisition of specific expertise in distant project management, all highly contributing to the international profile of the organization.

- *Technology Usage* (Group of Questions 3) consisting of 13 questions, has been found in *close relation with* 4 factors/axes, which can justify 73.71% of the entire variance, positively correlated with one another referring to the importance of issues such as the *on line collaboration of the participating executives, use of portals and internet websites, intranets and strategic planning and resource management software, and the physical communication among the executives*.

The conclusion drawn from the clustering of the given responses implies the importance

of advanced knowledge in terms of communication technologies, internet navigation skills.

- *Organizational Behavior, Management and Transnationality* (Group of Questions V) consisting of 21 questions, has been found in *close relation with* 6 factors/axes, which can justify 80.63% of the entire variance, positively correlated with one another referring to the importance of issues such as: *Transfer of know-how on Transnational Agreements, the Development and acquisition of learning skills and infusion of vision within the organization, Organizational divergence from the existing business models at transnational level, Job Rotation, Initiative taking* during transnational project implementation, and the *Coordination of transnational activities implementation*.

The conclusion drawn at this level shows that the alignment of the organization in terms of transnationality can be the result of consequent organizational behavior and resources management, which requires flexibility on behalf of the personnel, as well as adaptability to a transnational identity and certainly alignment of the organizational objectives with those of the transnational project undertaken. At this point it would be worth adding that not only expertise availability and resources saving should be seriously taken into consideration but differences in generations as well.

- *Substantial Values & Virtual Working Teams Specifications* (Group of questions VI) consisting of 37 questions, has been found in *close relation with* 8 factors/axes, which can justify 85.95% of the entire variance, positively correlated with one another referring to the importance of issues such as: *successful communication among the participating members, specificity of prevailing attitudes, mutual trust, feedback provision, convergence between organizational and project objectives, equal opportunity policies, skill management and free expression of oneself, information management, and efficient incoming information diffusion*.

From the analysis, it appears that communication is associated with the degree of the existing flexibility to express their attitudes, but also the way incoming information is administered by the personnel in general. This is a very important positively affecting the reduction of possible complications during the implementation phase of a transnational project; at the same time it supports all joint effort with the view to achieving economies of scale, avoiding unprofitable derogations of the project budget, still providing the incentives to members of the working teams in order to reach high levels of job satisfaction. It can also be concluded that mutual trust contributes positively to feedback and guidance provision as well as information diffusion among the participating members, which should be elements of virtual work teams.

- *Virtual Working Teams Development Strategy* (Group of Questions VII) consisting of 4 questions, has been found in *close relation with* 1 factor/axis which can justify 67.45% of the entire variance, positively correlated with one another focusing on the importance of communication, know-how transfer and expertise developed on behalf of the participating members paired with their stance on the issue of know-how transferability skills.
- *Corporate Culture and Transnationality* (Group of Questions V<sub>2</sub>) consisting of 9 questions, has been found in *close relation with* 3 factors/axes which can justify 81.33 % of the entire variance, positively correlated with one another, focusing on the creation of *a climate of freedom, trust and loyalty, consistency and respect for diversity in terms of multiculturalism and management of errors* occurring during project implementation.

The conclusion drawn out of this analysis implies the importance of employee behavior management which can seriously affect the corporate policy towards decision making; it also correlates with the strategic business planning and the development of team spirit among the staff, complying with a sense of respect for multiculturalism at all hierarchy levels of the corporate management. Free expression of one's own attitudes is encouraged for strategic

decision-making, an important element for virtual working teams.

## 5. Conclusions and Suggestions for Further Research

The recent period of economic crisis requires the exploration of new business strategies and implementation of innovative tools from the companies' side for their effective and efficient operation. A relevant characteristic case is the development of virtual work groups. The need to investigate the effectiveness of virtual work teams, always bearing in mind the increase in productivity, but also the increase in their turnover, is more vital to the region of Southeast Europe and the Greek business reality.

Therefore, the main contribution of this research study is that it is *the first study* that focuses on the classification of the transnational virtual teams in Europe with the aim of drawing a cognitive business model for further and direct use in the area of Virtual Management, which could potentially help with future research efforts.

The conclusion deriving from the literature review has proved the lack of studies at regional, national or even European level, to provide reliable statistical indicators illustrating the existing capacity in organized virtual working teams. Furthermore, at European Union level, UK seems to be leading the creation and consequent development of virtual working groups, while other member countries are just about starting to adopt similar operational policies.

In addition, the professions which seem most likely to be strongly influenced by this operational policy, are those that rely on the use or they are affiliated in any way with the provision of digital services (1.3% of all business activity categories) as well as "other enterprises" (6.3% of all business activity categories), which together constitute a group of 13.7 million workers within the European Union. However, the development of virtual working teams poses a serious risk of significant reduction in job positions, so that many of them, considered "safe" until now, would be suffering from the shock more than anyone would realize.

As far as the development of international business activities is concerned, the international turnover may be associated with the influence formed through partnership development with international organizations, drawing up of international agreements and collaboration with foreign executives. It is of great importance for both executives and organisations to be familiarized with distant or abroad project processing methodologies. Furthermore, the existence of subsidiaries in other countries is highly associated with the development of partnerships with other businesses and their simultaneous engagement in international contracts, familiarizing, thus, their staff with working conditions abroad. Still, within a global environment executives are greatly affected regarding their susceptibility to the working population movement as well as the gap between different nations. The multinational identity of the executives is associated with the impact of multiculturalism in their thinking and action taking during the implementation of projects abroad or partnerships with foreign enterprises or experts. After all, emerging markets are an important way out for the economic recovery of all businesses.

The use of technology in business is a prerequisite for the encouragement of virtual working Teams. Specifically, in terms of information and communication technology, it is particularly important to electronically monitor projects and cooperation of executives through voice messaging, group call meetings and videoconferencing. Also, telecommunication tools are necessary to promote virtual working teams including the internet, the use of portals and emails. The contemporary global environment still requires the use of intranets, e-business planning and resource management systems. Furthermore, the development of virtual working teams is closely related to interpersonal communication.

In relation to the substantial values of virtual working teams, communication is related to the degree of flexibility expressed by the executives but also to the way in which they manage

any information they receive. The prevalence of a mutual trust climate, encouraging creativity, pluralism, equal opportunities and collective effort is particularly significant in order to achieve the enlarged perspective of transnational projects under implementation. Besides, feedback and guidance for the successful implementation of transnational projects is critical. Furthermore, executives belonging to the oldest age group (over 51) in comparison to their younger age colleagues seem to place less emphasis on the importance of networking, portals, emails, acquisition and transfer of knowledge derived from transnational agreements, flexibility and adaptability in terms of as to transnationality and the reliable and responsible management through discussions and corrective actions. This research study offers ground for further development; the evolution of an integrated business model could be enhanced on the grounds of System Dynamics principles.

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## Appendix I

Questionnaire: **VIRTUAL TECHNOLOGY WORKING TEAMS' MANAGEMENT**

With respect to your anonymity

### I. **DEMOGRAPHIC CHARACTERISTICS.**

Please express your preferences with a [✓]:

1. Which business sector does your organization belong to?
- A) DEVELOPMENT CONSULTING  C) IT INTEGRATOR   
B) MANAGEMENT CONSULTING  D) OTHER (PLEASE SPECIFY)
- .....
2. Which age group do you belong to?
- a) 20-30 yrs  c) 41-50 yrs   
b) 31-40 yrs  d) > 51 yrs
3. The organisation, you work for, employs:
- a) 0-50 employees  c) 101-200 employees   
b) 51-100 employees  d) >200 employees
4. What is your position?
- a) Department Manager  c) Senior consultant   
b) Project Manager
5. Which of the following expresses your academic profile best?
- a) Technical college graduate  c) Postgraduate   
b) University graduate  d) PhD
6. Does your organization develop international corporate activity?
- a) YES  b) NO
7. Within your organisation 's scope of activities, are there any "ad hoc " working team formations of multi-national nature?
- a) YES  b) NO
8. If yes, are the members of the transnational working teams based at different coordinates over the world?
- a) YES  b) NO

### II. **INTERNATIONAL CORPORATE ACTIVITY.**

1. The turnover percentage deriving from international project implementation, ranges between:
- a) 0-25 (%)  c) 51-75 (%)

- d) > 75 (%)
2. Does your organization have any affiliate bodies or general representation in other countries except the one where it keeps its registered offices?  
 a) 0 countries  c) 3 – 5 countries   
 d) > 5 countries
3. If your organization is active abroad, in how many countries do you keep permanent cooperation with working teams from other organizations?  
 a) 0 countries  c) 3 – 5 countries   
 d) > 5 countries
4. Does your organization employ personnel of various nationalities?  
 a) NO  c) 3 – 5 countries   
 d) > 5 countries
5. How long is your organization active in the field of international contract agreement?  
 a) 0 – 5 yrs  c) 11 – 20 yrs   
 d) > 20 yrs
6. Does your organization operate an International Projects department?  
 a) YES  b) NO
7. Does your organization hire freelance experts?  
 Solely freelancers managed by the organisation   
 Mixed working teams (personnel & freelancers) managed by the organization
8. Express the extent to which you agree or disagree with each one of the following statements, where:  
 1=no idea, 2=totally disagree, 3=partially disagree, 4=partially agree, 5=totally agree.
- |   |  |   |   |   |   |   |
|---|--|---|---|---|---|---|
| a | <i>Globalization issues seriously affect your organization's HR Management</i>   | 1 | 2 | 3 | 4 | 5 |
| b | <i>Emerging markets comprise an important business outlet for your organisation</i>  | 1 | 2 | 3 | 4 | 5 |
| c | <i>Certain International Organisations (e.g. European Commission, World Bank etc.,) are your clients &amp; affect your organization's operations as such</i> | 1 | 2 | 3 | 4 | 5 |
| d | <i>International agreements seriously affect your organisation's operations</i>  | 1 | 2 | 3 | 4 | 5 |
| e | <i>Delegating to or hiring foreign executives worldwide is of great importance to your organisation</i>  | 1 | 2 | 3 | 4 | 5 |
| f | <i>Your organisation's operations are seriously affected by worldwide population mobility</i>  | 1 | 2 | 3 | 4 | 5 |

- g *Your organisation's operations are seriously affected by multi-cultural working teams as well as their cultural differentiation* 1 2 3 4 5
- h *Your organization's efficiency is seriously affected by the existing "gap" between the already developed and developing nations* 1 2 3 4 5

### III. USE OF TECHNOLOGY

9. Express the extent to which you agree or disagree with each one of the following statements, where:

1=no idea, 2=totally disagree, 3=partially disagree, 4=partially agree, 5=totally agree.

- a *The communication tools provided by your organization are particularly efficient* 1 2 3 4 5
- b *Access to Internet as well as other worldwide information networks is exceptionally important for your organisation* 1 2 3 4 5
- c *Portal technology comprises an important competitive advantage for your organisation* 1 2 3 4 5
- d *Access to Intranets is a business tool of great importance to your organisation* 1 2 3 4 5
- e *Electronic control of all personnel activities is of great importance to your organisation* 1 2 3 4 5
- f *Your organizational needs are fully satisfied by the means of Enterprise Resource Planning Systems applications, etc.,)* 1 2 3 4 5

Please tick according to the best description of your own case:

	NON APPLICABLE	ONCE/MONTH	ONCE/WEEK	SOMETIMES/WEEK	DAILY
Interpersonal Communication					
Voice messages					
Group Teleconferences					
Video-conferences					
Facsimile					

E-mail

Courier Services

#### IV. PARTICIPATION IN WORKING TEAMS

1. Have you participated in any working over the last year?  
a) YES  b) NO
2. In how many different teams based on the same geographical site have you participated over the last year?  
A) 1-2  C) 5-6   
B) 3-4  D) > 7
3. In how many different teams of which members had been scattered over different coordinates have you participated?  
A) 1-2  C) 5-6   
B) 3-4  D) > 7
4. What was the total number of that team's members?  
A) 1-2  C) 5-6   
B) 3-4  D) > 7
5. When within a team, do you usually act as:  
A) A MEMBER  B) THE LEADER
6. How long had that team been operational while you were one of its members?  
A) 1-3 MONTHS  C) > 7 MONTHS   
B) 4-6 MONTHS  D) > 1 YEAR
7. How often do interpersonal meetings among the team's members occur?  
a) Never  c) Often   
b) Rarely  d) Always

#### V. ORGANISATIONAL BEHAVIOUR, MANAGEMENT & TRANSNATIONALITY

1. Express the extent to which you agree or disagree with each one of the following statements, where:  
*1=no idea, 2=totally disagree, 3=partially disagree, 4=partially agree, 5=totally agree*
  - a *Corporate Management responds as a system of interactions* 1 2 3 4 5
  - b *Corporate Management encourages personnel participation in learning processes* 1 2 3 4 5
  - c *Corporate Management develops the organisation's vision* 1 2 3 4 5
  - d *The responsibility limits of various departments, functions and levels of* 1 2 3 4 5

*management are distinct*

e *Personnel often move to different job positions either within your department or other corporate departments* 1 2 3 4 5

2. The transnational working teams you usually participate in, employ executives from:

a) the same department

b) various administrative levels

c) different departments

d) a combination of all the above

3. Express the extent to which you agree or disagree with each one of the following statements, where:

*1=no idea, 2=totally disagree, 3=partially disagree, 4=partially agree, 5=totally agree*

a *Your organisation's participation in transnational cooperation schemes has particularly contributed to your learning skills and further knowledge absorption* 1 2 3 4 5

b *You are encouraged by the Board of Directors to transfer knowledge as well as expertise over to all employees within your organisation* 1 2 3 4 5

c *The transnational cooperation you have developed is on the whole characterised by efficiency and consistency in communication* 1 2 3 4 5

d *Timing requirements met by all the participating members comprised one of the main features of the synergies developed as well as the deliverables* 1 2 3 4 5

e *There have been cases, when the involved personnel flexibility & adaptability proved to be an important asset to the efficient management of the cooperating executives' multicultural features* 1 2 3 4 5

f *There have been cases, when your communicative & technological skills were falling behind those of your transnational colleagues* 1 2 3 4 5

g *Most synergies were developed as a result of a simultaneous search within the transnational need to increase operational efficiency, national alertness and knowledge acquisition at a global level* 1 2 3 4 5

i *The diversity of the operational management model among the transnational partners was a substantial problem in the evolution of cooperation in general* 1 2 3 4 5

j *Your organization is particularly susceptible to adaptation in the successful management models applied by the transnational partners* 1 2 3 4 5

k *Your organisation's profitability is affected by the "gap" between the* 1 2 3 4 5

*executives' variety of generations (Intergenerational Conflict)*

4. As a member of a transnational working team, express the extent to which you agree or disagree with each one of the following statements related to your involvement and commitment to the project effectiveness and objective achievement.

- |   |  |   |   |   |   |   |
|---|--|---|---|---|---|---|
| a | <i>You are capable of completing all assigned tasks according to the project schedule even when faced with competing priorities between the work of this project and other assigned work</i> | 1 | 2 | 3 | 4 | 5 |
| b | <i>The project objectives are aligned with the overall organizational goals and objectives</i>   | 1 | 2 | 3 | 4 | 5 |
| c | <i>You put forth more effort and take more initiative than expected in order to complete the assigned project work</i>   | 1 | 2 | 3 | 4 | 5 |
| d | <i>You take corrective action as required to ensure that all work is done on schedule and meets performance specifications</i>   | 1 | 2 | 3 | 4 | 5 |
| e | <i>You are considered to be among the most reliable and dependable in all aspects of the project work</i>  | 1 | 2 | 3 | 4 | 5 |
| f | <i>You ensure all team members participate in discussions concerning the team's mission, scope, deliverables and how best to work toward success.</i>  | 1 | 2 | 3 | 4 | 5 |

**VI. SUBSTANTIAL VALUES & VIRTUAL WORKING TEAMS SPECIFICATIONS**

1. As a member of a transnational working team, express the extent to which you agree or disagree with each one of the following statements related to a working team's substantial values and specifications, where:

*1=no idea, 2=totally disagree, 3=partially disagree, 4=partially agree, 5=totally agree*

- |   |  |   |   |   |   |   |
|---|--|---|---|---|---|---|
| a | <i>You certainly contribute to the development of mutual trust among working team members</i>  | 1 | 2 | 3 | 4 | 5 |
| b | <i>All incoming information is collected, analyzed, and integrated so that methods of fair resolution are determined, if there are competing requirements and objectives</i> | 1 | 2 | 3 | 4 | 5 |
| c | <i>You disseminate all incoming information that may affect project development to all the members of the working team, in a clear, concise and effective way.</i>           | 1 | 2 | 3 | 4 | 5 |
| d | <i>You trust and consequently rely on the working team members' <u>skills and efficiencies</u>.</i>  | 1 | 2 | 3 | 4 | 5 |
| e | <i>You work to ensure that the project's <u>technical and performance goals</u> are met, even if this requires compromises in terms of cost and schedule</i>                 | 1 | 2 | 3 | 4 | 5 |
| f | <i><u>Communication</u> among team members is basically written in a way that all members of the project team easily understand all communicated issues.</i>                 | 1 | 2 | 3 | 4 | 5 |

- g *You seek additional information with the view to clarifying all items related to the project.* 1 2 3 4 5
- h *You encourage the expression of diverse points of view in communication with other team members.* 1 2 3 4 5
- i *A single member tendency to dominate project team meetings is generally avoided.* 1 2 3 4 5
- j *Individual differences in communication with project team members is highly appreciated and recognized.* 1 2 3 4 5
- k *Formal and informal communication networks are well established and equally acceptable by all project stakeholders.* 1 2 3 4 5
- l *Communication is based on reciprocal and mutual respect.* 1 2 3 4 5
- m *If there is evidence of unethical behaviour, the most appropriate corrective action is identified and suggested.* 1 2 3 4 5
2. The Management of the incoming knowledge and accumulated experience, on behalf of transnational group members in charge of international project implementation, is characterized by emphasis placed on improving the efficiency of the group.
- a *Working team members assess themselves as far as the strong or weak points of their behaviour is concerned* 1 2 3 4 5
- b *Continuous feedback is provided in regard to project performance and evolution* 1 2 3 4 5
- c *Information & Practices are applied for the improvement of the project efficiency* 1 2 3 4 5
- d *Coaching, mentoring & practice are provided to team members for reasons of ad hoc know-how and best practice experience transfer* 1 2 3 4 5
3. In cases of strong disagreement among project team members, balance of power is enhanced.
- a *Suggestion of alternative solutions is put forward to working team members* 1 2 3 4 5
- b *A policy of detachment and neutrality is engaged* 1 2 3 4 5
- c *Emphasis is placed on the arising issues and not on individual personalities involved in them* 1 2 3 4 5
- d *Inconsistencies and conflicts are identified as creative power* 1 2 3 4 5
4. Any expression of creativity is an important factor for groupwork reinforcement.

- a *Changes to already existing procedures or new applications, technologies and techniques are proposed within the scope of reducing bureaucracy, optimizing project team collaboration & efficiency increase.* 1 2 3 4 5
- b *Achieving added value to the project is an ongoing and substantial pursuit of the working group members.* 1 2 3 4 5
- c *The project team members take seriously into consideration potential options and contingency plans when coping with implementation problems.* 1 2 3 4 5
- d *The project team members are encouraged to establish guidelines rather than strict rules and procedures, with the view to promoting flexibility and innovation for the benefit of the project* 1 2 3 4 5
- e *All potential stakeholders are taken into consideration, so that project perspectives could be broadened* 1 2 3 4 5

5. The working group contribution to achieve the objectives of the project is encouraged, recognized and rewarded.

- a *Success is communicated to all other members via e-mail* 1 2 3 4 5
- b *Both pioneers of new ideas and their supporters are equally rewarded* 1 2 3 4 5
- c *Project results are compared against the initially defined scope for further use of the provided information in order to evaluate the actual work implemented by team members* 1 2 3 4 5
- d *New opportunities are constantly offered to all project team members to contribute their own ideas and interests* 1 2 3 4 5
- e *Any personal success is recognized as a result of collective effort and a team achievement of the project goals and objectives* 1 2 3 4 5

6. As a member of a transnational working group, you have experienced a variety of behaviours addressed to and by other members, colleagues, etc.

- a *The working group completes the assigned project on time and within the proposed budget* 1 2 3 4 5
- b *Each group member is receptive to the business challenges met, rewarded and derives satisfaction from their work* 1 2 3 4 5
- c *Personal charges are not addressed to individual project team members* 1 2 3 4 5
- d *Sufficient time is devoted on rendering advice and guidance to all project team members* 1 2 3 4 5
- e *The feedback of the members of the task force focuses on the concerns and their solutions rather than individuals* 1 2 3 4 5

- f *Team members are given opportunities to develop long standing cooperation relationships among themselves* 1 2 3 4 5

**VII. EVALUATION OF FIRM / ORGANIZATION AS TO THE VIRTUAL WORKING TEAM DEVELOPMENT STRATEGY**

4. As a member of a transnational working group, express the extent to which you agree or disagree with each one of the following statements related to the assessment policy deployed by your firm/organisation , where:

1=no idea, 2=totally disagree, 3=partially disagree, 4=partially agree, 5=totally agree

- a *The organisation continuously collect, record, evaluate and process the proposals of members of the transnational working groups, during implementation and upon completion of the transnational project* 1 2 3 4 5
- b *All employees receive training as members of a transnational working team in all issues required for the implementation of a corresponding project* 1 2 3 4 5
- c *Members of virtual transnational working teams are rewarded according to their new abilities / skills acquired* 1 2 3 4 5
- d *Upon completion of each transnational project, members of the virtual team involved present and analyze the results achieved, the knowledge gained and the new learning opportunities* 1 2 3 4 5

**VIII. CORPORATE CULTURE & TRANSNATIONALITY**

Your organisation's culture is expressed by the means of the following ways:

1=no idea, 2=totally disagree, 3=partially disagree, 4=partially agree, 5=totally agree

- a *All employees are given the opportunity to freely share their personal views about the current status of the organization with the senior management* 1 2 3 4 5
- b *Mutual trust prevails among the employees of your organization* 1 2 3 4 5
- c *The employees' dedication to their work is characteristic for each one of them* 1 2 3 4 5
- d *All employees punished for any mistakes they make* 1 2 3 4 5
- e *All strategic planning decisions taken within your organization are formally discussed among all level hierarchy administrative executives* 1 2 3 4 5
- f *All strategic planning decisions taken within your organization are formally discussed only between the senior and middle administrative executives* 1 2 3 4 5
- g *All decisions related to employees are reached in cooperation with them* 1 2 3 4 5
- h *Team spirit sustenance is imposed through participation and acknowledgement encouragement* 1 2 3 4 5

- i *There has been expressed genuine interest in the multicultural diversity of the virtual transnational working team members for the adoption of new ideas and approaches necessary for the development and management of transnational* 1 2 3 4 5

## **Innovation leadership as a key concept in entrepreneurship**

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**The paper examines the key factors for effective leadership in organizations. The dynamic environment of entrepreneurial innovation clusters requires specific set of behavioral characteristics. Innovation leadership suggests a new and interesting**

concept that fits perfectly in modern dynamic business environment. The analysis of the key factors necessary for successful leadership model in entrepreneurship is based on various successful companies and leaders who successfully applied this concept. The specific enterprise environment requires a number of requirements on the personality of the leader and therefore innovation leadership with its complexity and globality meets this environment. The paper examines the best business practices and successful models of leadership in the field of entrepreneurship. On the basis of the reviewed companies and leaders makes classification of the best and successful business models, which are used in entrepreneurship and other areas? The paper displays and offers specific innovative techniques and methods that have a positive impact on organizations and employees and stimulate creative environment.

### **Keywords**

*Entrepreneurship, innovation leadership, psychological traits, self-leadership, organizations*

## **Paper**

When economy boomed in late 1990s corporations start to believe that they have follow and invest in innovative ideas. They fill money into new programs for generating fresh ideas, exploring news technologies and promoting entrepreneurship and creativity among people in organizations. They launched new venture capital in new business incubators, hubs and business angles organizations. They recruit executives who weren't afraid to rock the routine and corporate environment, brought creativity consultants to enhanced out-of-the-box thinking.

Many organizations believe and would like their leaders to create more innovative teams and ideas. The question is how exactly they should do this. A lot of researches try to find a key what make innovative leaders highly effective. Most leaders unfortunately aren't usually very good at catching and determination of their emotions, decisions and exactly what define their skills.

Innovation is the successful delivery of a new product, process or service. It is the combination of knowledge, materials and forces in original, relevant valued new products, processes or services. Innovation is the successful implementation of creative ideas within the context (Rixhon, 2008). Individual or collective creativity is a starting point for innovation. The creative insight must be put into action to make a genuine difference, to introduce a modified business process to provide an improved product. Creativity may be displayed by individuals, but innovation – the production of the creation occurs in an organized environment. Innovation such as many functions requires specific tools, methods and leadership.

The problem with the discussion on innovation is that the term “innovation” is used in many different ways. The most useful and practical definition is “applied creativity that achieves business value”. Creativity is about having new ideas relevant or not, useful or not, able to be implemented or not, while the outcome of innovation achieves defined value for the organizations. How innovations happen is also misunderstood. Innovation only happens when individuals and small teams engage in innovative thinking. There are two key factors that create the innovation gap. *The first is knowledge*. Many established organizations are not innovative because their leaders do not know how to make innovation systematic. The second is that some of the management systems that made organizations successful in business and entrepreneurship are *now major obstacles* as they try to become more innovative in the knowledge economy.

Most leaders in established companies have never formally learned how to lead and manage an organization that innovates systematically.

Over the past 25 years the society moved from the industrial economy to the knowledge economy. Complicated issue can be solved with logic and by drawing on past experience. It is a matter of simplifying, organizing and applying solutions that have worked in similar situation. Complex issue on the other hand is more ambiguous, uncertain and somewhat unique problems or opportunities. Implementing the process of innovation in established organizations is a perfect example of a complex problem. Leaders are tempted to apply directly to their organization some of the best practices from exceptionally innovative organization such as Disney, Apple or Google without fully factoring in the difference in their history or context. To close the knowledge gap, leaders must understand the principles of innovative thinking and how to lead innovative individuals and teams. Managers must know how to lead innovative teams and individuals must know how to apply innovative thinking. Most leaders believe that innovative thinking is a talent and that the secret to success is simply hiring creative people.

Organizations today need to learn quickly and apply their learning across boundaries. Newer organizations created after the start of the knowledge economy, have a considerable advantage. They are not bound by legacy leadership, culture or organizational processes. Such organizations when they reach a certain size or stage in their development tend to develop innovation by introducing some of the attitudes and behaviors typical of the industrial economy. Leaders can close the innovation gap by working simultaneously on four essential organizational enablers.

Leaders directly influence whether or not individuals and teams can innovate. Executive leaders hold the level and success of innovation in their organization. They manage the strategic direction, influence the culture and directly and indirectly control all organizational practices as well as the skills taught to managers and employees. Innovation rarely happens and certainly cannot be sustained without the active commitment and involvement of every member of the executive leadership's weakest believer in innovation.

Innovation leaders understand very well the need to play a prominent role in establishing a culture of innovation. Cultures define as organization's implicit rules, norms and behaviors. Some of the elements of the culture such as decision-making or risk tolerance are not supportive, innovation will never happen systematically. Legrand and Weiss (2011) conduct a research and revealed seven major characteristic of a culture of innovation that leaders need to enable:

- Everyone understands the organization vision and mission;
- Innovation is a priority;
- Executive team models innovative thinking and practices;
- Open and honest communication and trusting relationships;
- Effective cross-functional teams that encourage various points of view;
- Leaders who are risk-takers focused on delivering value;
- Balance innovative thinking with the discipline to implement solutions;

In creating an organization that innovates systematically, it is important to pay particular attention to the organization's practices, procedures and policies. This is because these practices can undermine its innovation efforts. Organizational practices are the result of cumulative decision taken by many leaders over many years. Organization need to develop practices that make it easier to innovate. In most cases it requires an adjustment to specific processes and rules. The Human Resources department has a significant impact on the organization's ability to innovate. It works with leaders, employees and teams who are the main source of innovation. HR Department can definitely influence innovation through various practices such as talent management, acquisition, employee engagement, talent recognition and rewards. The Department also should pay attention to the capability to lead

innovation part of the criteria for recruiting or promoting leaders. The department should include innovation in performance metrics for employees and teams.

The innovation projects are usually complex and include uncertainties that cannot be eliminated. The success of innovation is usually connected with IT department. It has two main roles in organizations. First, it needs to support the teams that are developing innovations. The second role is more proactive. Technology has become an enabler of innovative ideas, but it is also often the starting point for innovative products or services. The IT department should pay attention to fully contributing to cross-cultural innovation projects. The department should also support the implementation of test or pilot innovative ideas effectively and also bring new technology ideas than can serve as the starting points of innovative ideas.

Last, but not least, the Finance Department has a considerable impact on innovation through the development and implementation of budget. Budget development is a unique opportunity to apply innovative thinking. The budget should include funding for innovation. The questions that leaders in organizations should answer are does the budget development process encourage innovative thinking, does the organizations allocate specific funding for future innovation plan and is the budget is flexible enough to move funds from non-performing projects to innovation projects.

Although many organization are trying to close the innovation gap, very few are successful. One of the main reasons they do not achieve their goals is that they fail to develop a formal plan. Even when innovation is a priority leaders are most likely to make a few speeches and ask their employees to have more ideas. They rarely develop a specific innovation plan that is budgeted, resourced and implemented. There are six guiding principles to follow when developing an innovation plan. These principles ensure that the plan is solid, sustainable and will achieve objectives:

- Focus on clear business objectives;
- Engage the whole executive team;
- Top-down but open to bottom-up input;
- Include clear boundaries;
- Resource and enforce the plan;
- Include metrics to track progress;

Organizations must invest in their leaders to ensure they develop their own innovative thinking capabilities and have the capability to develop their employees ' and teams ' innovative-thinking and decision-making skills. Organization also needs to design their culture and organizational principles to make innovation possible. When innovation occurs in organizations it becomes an invisible competitive advantage, consistently creating new value for the organizations. It is reflected in how individuals and teams think innovatively as they redefine complex issue; generate new ideas and discovering solutions.

Innovation can take many different forms ant there is an outgoing movement towards further formalization of the innovation function. Miller and colleagues (2012) conduct an innovation leadership study. They asked their interviewees about their personal role as innovation executive. Many of the respondents mention that much of their role is being a catalyst. Whereas many innovation leaders are able to explain how they personality build and nurture innovation within and outside their companies, few of them explain how the innovation at large enables that. Most of the time the extent to which an innovation function succeeds in building and enhancing motivation seems to depend on the capability of the individuals within the innovation function to network and build relationships for the company as a whole.

Managing innovation requires having both formal and informal mechanism in place. As a formal mechanism for managing innovation the innovation strategy plays an important part.

Few companies had yet mastered the skill of working together effectively with external partners to improve their innovation results. Innovation leaders are probably better than the regular managers at integrating external parties into their innovation process. The disconnection between leadership and employees couldn't be more clearly demonstrated than in the difference between executive and employee motivation. In the interviews the researchers found that self-motivation was perceived as important.

Modern companies try to stimulate idea generation through different mechanisms and practices such as:

- *Innovation performance measures* – creating targets for innovation through key performance indicators;
- *Free time* – giving staff the time to explore and examine new ideas;
- *Networking* – partnering with universities, idea providers and other groups of innovative people;
- *Reward system* – recognizing the providers of great ideas;

*Consumer oriented culture* is crucial for innovation. This means understanding clients so intimately that you can detect unarticulated needs and get a feel for the acceptability of new technologies or concepts. Organizational creativity can be encouraged in four different ways:

- *Ensuring team and staff diversity* – to generate the best innovative ideas team members need to be as diverse as possible in gender, age, education, function, culture and mindset;
- *Tolerating dissenters* - dissenters are lateral thinkers who challenge "group think". Such people are good for innovation, but need to be managed well. Companies need to accept that by their nature dissenters tend to come and go; the important thing is to make sure enough are coming in and that the company culture supports them;
- *External contact* – innovation leaders should have strong networks in all areas;
- *Promoting broad-bandwidth managers* – these managers have a mix of technical and functional depth. They may not be expert in a particular area, but their diverse interests and ability to see approaching paradigm shifts will promote innovation.

Entrepreneurship culture established by a *positive attitude towards risk* is extremely well accepted in principle but very rarely implemented in practice. The company should actively support people who try new things and are open to risk and also accept failure. Constant learning is another important aspect of an entrepreneurial culture. To encourage bottom-up innovation, a company's leaders must fire their employees with passion. Management also needs to ensure there are no barriers to innovation, either in their own attitude and behavior or in the company's processes and policies. Critical climate factors include *management attitudes* that are interested in innovation, tolerate risk and failure and share lessons from failure; *management policies* – that reward innovators, systematically track innovation, strongly empower teams and make innovation resources available and *management processes* such as clear innovation strategy and fast and clear decision-making;

Unfortunately, after years of studies and investigations, there is no short answer to the question how to achieve your own goals which is one of the main behavioral focuses of leaders. A primary task of leadership is to direct attention. Every leader needs to cultivate this thread of awareness. Emotional intelligence begins with *self-awareness* – getting in touch with your inner voice. Hearing your inner voice is a matter of paying full attention to internal psychological signals.

*Self-control* is another personal characteristic of innovation leaders (Goleman, 2013). Cognitive control of minds is the scientific term for putting one's attention where one wants. Cognitive control enables executives to pursue a goal despite distractions and problems. Good

cognitive control can be seen in people who stay calm in a crisis and serious situations and tame their own agitation. How we focus holds the key to exercising willpower. Three major characteristics of cognitive control are at play: the ability to voluntarily disengage our focus from an object of desire; the ability to resist distraction and the ability to concentrate on the future goal and imagine how good the individual will feel when they are achieved.

The empathy triad is most commonly described as a single attribute. We can define three distinct kinds, each important for leadership effectiveness: *the cognitive empathy* – the ability to understand another person's perspective; *emotional empathy* – the ability to feel what someone else feels; *empathic concerns* – the ability to sense what another person needs from you. Cognitive empathy enables leaders to explain themselves in meaningful ways – a skill essential to getting the best performance from their direct reports (Goleman, 2013). Cognitive empathy is also an outgrowth of self-awareness.

*Emotional empathy* is important for effective mentoring, managing clients, and reading group dynamics. Our capacity for emotional empathy depends on combining two kinds of attention: a deliberate focus on own echoes of someone else's feeling and an open awareness of that person's face, voice and other external signals of emotions. *Empathic concerns* enable individuals to sense not just how people feel but what they need.

*Social sensitivity* appears to be related to innovation leadership. Attention to social context lets us act with skills no matter what the situation; instinctively follow the universal business etiquette. Innovation leaders with a strong outward focus are not only good listeners but also good questioners. They are open – minded to the surprising ways in which seemingly unrelated data can inform their main interests.

Jack Zenger and Joseph Folkman (2014) conduct their own study of 10 traits of innovative leaders. They collaborate with respected organizations in the telecommunication sector whose leaders scored well above average on most managerial competencies. They identified 33 individuals who scored as above 99<sup>th</sup> percentile of innovation as measured by their peers, subordinates and bosses in 360 – degree feedback. They believed that these closest colleagues would have the most accurate view of what made this group of leaders' extraordinary people.

They combine the interviews with 360 – degree feedback and found that 10 distinctive behaviors emerged as a short list. They listed them in descending order of importance.

1. *Display excellent strategic vision* – the most effective innovative leaders can perfectly describe their vision of the future. The respondent notices that his boss is “excellent at painting a clear picture of the destination, while we worked to figure out how to get there”.
2. *Have a strong customer focus* – the innovative leaders sought to get inside customer's mind. They collaborate with clients and ask questions about their needs and wants.
3. *Create a climate of reciprocal trust* – innovation often brings some level of risk. Not all innovative ideas are successful or sometimes they are applicable after years. The highly innovative leaders initiate permanent and collaborative relationship with the innovators who worked for them. The employees know that their leaders would cover their backs and not blaming them if something went wrong. People were never punished for honest mistakes.
4. *Display fearless loyalty to doing what's right for the organization and customers* – pleasing the boss or some other higher level executive always took a back seat to doing the right thing for the project of the company.
5. *Put their faith in a culture that magnifies upward communication* – the leaders believe that the best and most innovative ideas bubbled up from the underneath. They strive to create a culture that uncovered good ideas from the first level of the organization. They were often described as an optimist, full of energy and always open to new ideas.

6. *Are persuasive* – these individuals were highly effective in getting others to accept good ideas. They did not push or force their ideas onto their teams. They presented ideas with enthusiasm and conviction.
7. *Excel at setting stretch goals* – these goals required people to go far beyond just working harder. These goals required that they find new ways to achieve a high goal.
8. *Emphasize speed* – these leaders believed that speed scraped the barnacles off the hull of the boat. Experiments and rapid prototypes were preferred to lengthy studies by large committees.
9. *Are sincere in their communication* – these leaders are often described as providing honest and trust and at times even sometimes blunt feedback. Subordinates felt that they could always count on straight answers from their leader.
10. *Inspire and motivate through action* – a respondent shares that “for innovation to exist you have to fill inspired.” This come from the clear sense of purpose and meaning in the work.

The research is interesting with that this is admittedly an investigation into a single company, this feedback data are consistent with other analysis of highly innovative leaders in hundreds of other organizations as varied as automotive, pharmaceuticals and consumer products and from all parts of the globe. This suggests that we can make an outcome that highly innovative leaders are similar in possessing similar personality traits.

Another classification is presented by New & Improved. They classified the innovation leaders' personality into five dimensions:

- *Integrity* – great innovation leaders have a very high level of integrity. It is a critical component to inspiring trust in leadership. We can count on them to have deep integrity to being a growing up, sustaining efforts even when it 's difficult, and being a curious learner throughout their life;
- *Tenacity* – if people don 't see the value of their idea, they find another way to help people see that it 's a smart solution. They flow through challenges rather than push through challenges;
- *Curiosity* – the difference between innovation leaders and average managers is that the first structure their lives in such a way that learning is never relegated. It is a core value of their daily routine;
- *Courage* – driving innovation requires that action be taken even in the face of fear. Courage is not fearlessness, but a willingness to act even when fear is present. Imagining ourselves seeking and getting honest feedback from others can be fear-inducing. Innovation leaders find the courage to overcome the fear in the moment for the greater good;
- *Humility* – innovation leaders have great self-confidence. They fundamentally believe that there is no such thing as a grown-up; there are just stuck people and growing-ups.

Due to Selman (1989) innovation and leadership are closely related. Leadership always has some focus on bringing about a better future. In this district, leaders are necessarily innovators. The term innovation also suggests some “break” with the norm and normal work flow. Selman believes that there are obvious distinctions between the innovators (who), an innovation (what) and the process of innovating. Innovation is always related to some practical “in-the world” value. Art is creative and may have value to its consumers, but requires no utility to be art. Art might be seen as the artist 's self-expression of experience of the world. Innovation on the other hand must allow for something else, some possibility or accomplishment or value behind the innovation itself. The author delivers the idea that there are six ways that people relate to circumstances and the changes occurring all the time. If

people consider that change is a constant and always occurring they might also say that these six ways of relating to the circumstances are also ways we relate to the world and become the contexts within which we deal with everyday life.

Probably the most common way we relate to the change is *resist it*. To resist means to be stand apart from whatever one is resisting and judge it as “not being as it should be”. Resisting can be overt or covert, employees can resist by agreeing with someone and then gossiping when the person is not around. People can procrastinate, argue, rationalize or even sabotage a change initiative simply by ignoring it and waiting for the next change to come along. All forms of resistance are “counter-innovative” and breaking human intentionality to create own change. Any effort spends in opposing blind people for possibilities. Most of the times, resistance is rooted in the past and is grounded in a negative mood are attitude. The people’s commitments and actions are organized by what people see as feasible and know how to do. Innovation leadership in this context is opposition to the circumstances.

*Coping* might be viewed as a positive alternative to resistance as the coping person works within the circumstances effectively. Energy spend in resistance is redirected to problem-solving and designing ways to overcome barriers to accomplishing one’s intention. Like resistance coping is also “counter-innovative” as a relationship to change but with one big difference: there are many innovations that are conceived as tools or strategies for more effective coping. Innovation leadership in this context is often facilitated and oriented toward reasonable expectations and interpretations of what is possible and not possible. In a coping context, leaders will typically be arguing for and justifying whatever limitation seems to exist and encouraging working around or “in spite of” strategies for getting things done.

*Responding* is behavioral strategy means owning the circumstances. This means that to freely choose action, given the circumstances. To respond requires different relationship to the circumstances in which one considers that circumstances are subordinate to the action of the individual. When we are responding we are beginning to innovate to the extend we are – have some intention or commitment; are owning and not “re-acting” to circumstances and are bringing something new into existence which has value and can be replicated in the future. Leaders who are responsive rather than reactive are not blind to problems or to people’s concern, but are organizing their actions based on other considerations. They are not attempting to fix people or simply solve problems but keep their eye on the intended outcomes or purposes for which they are working.

*Choosing* is other innovation strategy and means accepting the circumstances. To choose is a step beyond owning and responding freely to circumstances. A person can observe all sorts of possibilities and choices that otherwise would remain buried in the circumstances. This is a state in which innovation is natural and effortless even obvious. This is a state where leadership begins to become an increasingly creative process. In this context it is obvious that possibilities are by definition created and leadership is about creating vision and possibility in relationship with other human beings.

This way of relating to the world and to circumstances is the state that we normally associate with truly creative people – *creating the circumstances or bringing forth*. In an organizational context most of employees have experienced or witnessed moments of sudden and often profound insight into the nature of situation or circumstance and have formulated what seem to be genuinely original ideas or solutions. Leaders who bring forth are those we normally consider to be visionary and charismatic and who are often see as gifted in their capacity to keep moving forward and creating openings for action regardless of the circumstances.

*Mastery or creating the context for change* means to distinguish the rare ability that a few people have demonstrated to invent entirely new fields of inquiry. These people are creating new fields, new openings and new possibilities for others to explore and innovate. To create a new reality means to be responsible not only for what is being perceived but to be responsible for creating the background or space within which the circumstances appear.

Entrepreneurial leaders have some specific leadership attributes. Entrepreneurial leadership is leadership that is based on the attitude the leaders is self-employed. Leaders of time can be masters in time-management, organizing people and influence and affects the others. These leaders:

- *Take initiative* – act as if they are playing a critical role in the organization rather than a mostly important one and energize their people;
- *Demonstrate entrepreneurial creativity* , search continuously for new opportunities and pursue them;
- *Take risk* – venture into new areas and provide strategic direction and inspiration to their people;
- *Take responsibility* – for the failures of their team, learn from these failures and use them as a step to ultimate success and strategic achievement.

Entrepreneurial leadership involves instilling the confidence to think, behave and act with entrepreneurship in the interests of fully realizing the intended purpose of the organization to the beneficial growth of all stakeholders involved. Venture values are different from established corporate shared values. Entrepreneurial speed demands agility, experimentations, adaptation and rapid response in order to be first to market. To be innovative leader ' vision should be short and inspiring. It should set a challenging and stretching goal that gives employees enormous freedom in finding ways to achieve it. Leading innovation is a delicate and challenging process. The leader or entrepreneur need to encourage expansive out-of-box-thinking to generate new ideas, but also filter through these ideas to decide which to commercialize. The commonality between innovation and entrepreneurship is in organizational ability to tap into individual and collective creativity in order to innovate and those employees ability to cope with change. It 's argued that in essence all people are creative, usually manifesting in one 's past-times or hobbies, in other words where someone 's in their element (Csikszentmihaly 1996 ; Robinson 2001). The entrepreneurial leaders challenge is, one doesn 't manage creativity by instructing people to innovate, one manages for creativity (Amabile & Khaire 2008). The entrepreneurial leader needs to develop an environment, culture and capabilities that draw on these founts of creative energy (Clawson 2006) and apply them to the work setting.

Most people fear change because it 's often disruptive, risky and costly and put them into unknown situation (Tidd et al. 2005). With the trend for flatter, flexible organizations requiring entrepreneurial innovation due to increased volatility and competition (Kotter, 2001). Quite simply, they lose their identity or hierarchical title and their reality becomes uncertain. This fear has negative consequences for ideation (Hellström & Hellström 2002, p 108) the very source of creativity. It 's "not surprising that individuals and organizations develop many different cognitive, behavioral and structural ways of reinforcing the status (Tidd et al. 2005). Again this is the domain of entrepreneurial leaders through coping with change not just complexity (Kotter, 2001).

When we examine innovation leadership in entrepreneurship we should thing at question how culture affect innovation. However this creates a paradox, as all people are influenced by many cultures at many levels, including temporal and regional circumstances (Hofstede et al. 2010). This contributes to Schein 's (1990) proposition that there aren 't good or bad cultures, there just are cultures. One of the main reasons for this complexity is due to the world becoming more connected through the mixing of people and cultures on a global, regional, national and organizational scale. Nowhere is this more evident than in the workplace that's no longer homogenous due to progress society has made both socially and technologically (Dickie & Soldan 2008).

Hofstede et al. (2010) explain the polarity and complexity of some cultures through their explanation of collectivist versus individualist cultures that may have weak or strong

uncertainty avoidances. These factors need to be considered by the entrepreneurial leader because as Drucker (1985, p 25) states, “people who need certainty are unlikely to make good entrepreneurs.” This is an argument that focuses on the individual by placing, for example, someone from Japan in a box of non-entrepreneurial yet highly collective. It doesn’t take into account that the Japanese have pioneered innovation management practices such as Kaizen since WWII and now dominate the automotive industry (Ireland et al. 2008).

The *entrepreneurial leader’s role* is to “map out” the stages of innovation and recognize the different processes, skill-sets, and technology support each requires (Amabile & Khaire 2008). The duty of entrepreneurial leaders is to create safety and draw out the very things that motivate and drive people that are intrinsically linked to their desires (George et al. 2007). At the core of community is voluntary contribution to the whole, above and beyond the call of duty. This is where intrinsic motivation and reward resides. The feeling of a job well done or having made a difference can stimulate more than extrinsic carrot and stick motivation (Clawson 2006; Covey 2004).

Innovation and entrepreneurship *requires energy* (Tidd et al. 2005) and leadership requires the management of energy (Clawson 2006) by building a shared vision of a better future, fostering genuine commitment (Senge 2010) to overcome change resistant obstacles of the status quo. This seems perfect, although it’s often more difficult than the previous statement suggests. Not everyone is aggressively focused like Maccoby’s (2004) ‘productive narcissists’ or driven to show their extrinsic desires (George et al. 2007). Collins (2001) outlines individuals who were paradoxical in nature demonstrating humility plus will, of which there were only 11 from a sample of 1,435 companies, not even 1%! This is why the idea of servant leadership (Banutu-Gomez 2004; Hannay 2009; Quist 2008) can be applied particularly when latent creativity (Csikszentmihaly 1996) and talent exists throughout the organization that if channeled provides value (Goffee & Jones 2009). If there are people who are entrepreneurial or innovative help them by enabling and guiding them. Extrinsic satisfaction will come but is no substitute for intrinsic desires.

The entrepreneurial leaders’ particular foundational capability begins with *self-knowledge and authenticity* (George et al. 2007). Through having self-awareness, self-regulation, motivation and empathy (Goleman 2004) they clarify their center (Clawson 2006) through developing an open stance making it possible to be objective, whilst being aware of alternative possibilities (Csikszentmihaly 2008, p 205). If entrepreneurial leaders develop the requisite ‘self’ skills then it’s possible that their “emotions and actions prompt followers to mirror those feelings and deeds” (Goleman & Boyatzis 2008). This becomes the Gandhian (1957) self-fulfilling philosophy of, ‘be the change you wish to see.’ If this happens and a focus on understanding the individual’s strengths and weaknesses occurs, the reality of distributing leadership throughout the organization through complimentary skills could be realized (Ancona et al. 2007) releasing creativity to feed innovation and entrepreneurship. By living this centered reality beginning with the self and establishing trust (Covey & Merrill 2006), for those that shy away from uncertainty in the safety of the collective it’s possible that innovation and entrepreneurship can occur.

An interesting point view highlights Pisano (2014) discussing the importance of routine innovation in organizations. Academics write about today innovation turns to the topic of “disruption”. Consultants have set up practices to focus specially on helping and enhancing companies become disruptive innovators. Disruptive innovations – generally defined as innovation that fundamentally transforms the way value get created and followed in the company – has the promise to catapult start-ups into multi-billion dollar enterprises and stagger seemingly untouchable giants. It’s interesting that based to some researches the vast majority of profit from innovation does not come from the initial disruption, it comes from the steam of routine or sustaining, innovations that accumulate for years (even decades) afterward. An innovation strategy has to include both. There are a lot of examples that can

prove this belief.

For example *Intel* is one of the great disruptors of all time. Its microprocessors generally altered the structure of the personal computer industry. The strategy of the company for almost 30 years can be described as been a sustainer, not a disruptor. The reality is that *Intel* growth slowing today. The company facing threads today from companies that are making chips better suited to mobile computing. But at the same time the company passes up the opportunity to generate close to three hundred billion in cash. Another example for innovation leadership is also a company from the IT sector – *Microsoft*. The company has its origin as a disruptor. But most of the time *Microsoft* has been an incredible sustainer. *Microsoft* establishes and defended its competitive position by reinforcing its Windows Office franchise. The tactics of the company evolved over time, but the basic strategy has remained the same.

When most authors examine innovation leadership probably all of them underlie the importance of *Apple* in innovation entrepreneurship. The *iPhone* itself is probably the most successful electronics product in history. Since 2011, *Apple* has generated approximately \$ 150 billion in cash flow, much of that from the *iPhone*. There were plenty of smartphones and in the same time *iPhone* succeed. The explanation of the extraordinary profit is the design of the product – design aesthetically and functionally working great. It was beautiful and far easier to use then the existing products of other companies. During the years there was no big disruption. The *iPhone* did not change the value proposition of the business and did not create a new market field or enter an existing market with a low-end alternative (which is a classic disruption strategy).

There are many examples of initial disruptors in all industry that did not sustain their advantage because they were unable to rapidly build upon and improve their initial design (Pisano, 2014). *EMI* invented the *CAT* scanner but was crushed by *GE*, which brought its superior engineering experience and distribution in diagnostic imaging. There were dozens of early personal computers in late 1970s, but most of them failed after *IBM* entered the market. The early internet search companies (e.g. *Lycos*) were surpassed by *Yahoo*, which itself got crushed by *Google* because it had a superior search algorithm. *Nokia* lost in smartphone market because they fail to win at this competitive game of rapid innovation.

Innovation takes places at different levels from modern environment on an existing product or process to dramatic and even historically significant breakthroughs in how we connect and relate to the surrounding. The capacity to innovate will be a function of our own commitment, what we want to accomplish and our relationship with the circumstances we perceive we are in. if we are resisting or coping we see no innovation and whatever change we generate will be a reaction to the circumstances and part of the process by which those circumstances persist. When we are responding or choosing we are in position to innovate and will do so naturally and consistently as a function of what we observe is missing in our perspective of the world. Change based on this view is likely to be an improvement on already exists. When we are bringing forth or creating we are not only in a position to innovate but are predisposed to do so. Further, in these ways of relating to circumstances, we have few if any limitations on what we can imagine and generate. We are likely to be generating breakthroughs or even creating entirely new spheres of possibility.

Innovation leadership in entrepreneurship has in common certain personality characteristics but there is a wide range of individuality among them. Based to some researches one of the most successful entrepreneurship quality is passion. When people fee committed to what they are doing and when they care deeply about it, they stand the best chance of being successful at it. Another key quality is self-confidence. Every entrepreneur encounters problems and has to believe that will overcome it. Entrepreneurs are self-reliant. They do not wait for others to tell them what to do. To accomplish their goal successful leaders must have driven, persistence, the ability to complete tasks and willing to work hard. Entrepreneurs tend to thrive on competition. They are more likely to compete against themselves. Most of them

are creative; they always look for new and better ways to do things – ways that have not occurred to the others. The more leaders developed at their innovation and entrepreneur's skills, the better they will be able to grow and sustain their business. The nature of innovation is a complex but the modern leaders should strive to be successful following the new ideas, products and innovative ways of decision-making.

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## **Managing Sustainable Enterprises and Promoting Open Innovation in Bulgaria**

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**The paper aims to examine the current status of entrepreneurial establishments in Bulgaria and the innovation processes which will shape their future profile. It emphasizes on the importance of a reliable and crisis resistant management environment in the Bulgarian SMEs. The analysis points to a number of examples of sustainable enterprises which have successfully implemented innovation policies and have the potential to further develop and promote the sustainable development of entrepreneurship on a regional level. The authors provide argumentative evidence that the successful implementation of a combined policy of consistent innovative managerial practices and sustainable economic mechanisms will ultimately enhance entrepreneurial vitality and provide an efficient solution to the persistent economic problems in the country. Consequently, the impact will be the solution to social and environmental problems on a local and national level, which will have significant implications for the economic and political development of the country and its**

**regional role in South Eastern Europe.**

## **Keywords**

**Crisis management, innovations, SMEs, sustainable development**

## **1. Introduction**

The link between sustainability and modern day entrepreneurship has been widely discussed in a number of scientific works [1], [2], [3], [4]. In times of growing global concerns on climate change, population growth and unforeseen ups and downs in overall economic performance, it is a major challenge to revise the factors which led to unsustainable practices of today's enterprises and to offer reasonable and applicable solutions as well as quick and efficient remedies. All scientific research has gathered around the idea that business as usual is not an option and that we need new paradigms to completely transform the current production practices.

Dormann and Holliday [5] claim that innovation is at the core of creating a sustainable human society. As a society, we will not succeed in creating a sustainable world if we focus merely on doing more efficiently what we currently do. We believe that the integration of sustainability thinking into a business's innovation process – not as a negative or limiting factor in the creative process, but as an opportunity – is in its best business interests. Companies whose products and services receive quick acceptance from society and also create solutions to environmental and social problems will benefit. In the long run, such companies will be the ones that succeed [5]. On the other hand, there have been a number of discussions on designing compliance assurance programmes that stimulate growth through influencing firms to comply with environmental requirements [6]. The model requires that penalties be applied in all circumstances when firms do not comply with environmental requirements, taking into consideration that even the law-abiding companies might be subject to management random errors which might lead to non-compliance.

In light of the foregoing, this paper aims to examine the current status of entrepreneurial establishments in Bulgaria and the innovation processes which will shape their future profile. It emphasizes on the importance of implementing and sustaining a reliable and crisis resistant management environment in the Bulgarian SMEs to ensure the proper application of social and environmental standards in the production processes. The object of the analysis is to provide a number of examples of sustainable enterprises which have successfully implemented innovation policies and have the potential to further promote sustainable development of entrepreneurship on a regional level. *The thesis which the authors argumentatively support is that the successful implementation of a combined policy of consistent innovative managerial practices and sustainable economic mechanisms will ultimately enhance entrepreneurial vitality and provide an efficient solution to the persistent problems with the economic development of the country. The foreseen impact will be the solution to social and environmental problems on a local and national level. In the long run, it is expected that there will be significant implications for the economic and political development of the country as a EU member state and its regional role in South Eastern Europe.*

*Section one* of the paper gives an overview of the sustainability benchmarks for SMEs and the potential of entrepreneurial business to implement sustainable practices. It proposes a model which comprises of five major aspects of SMEs' contribution to sustainable development. The *second section* of the paper comments on the current status of SMEs in Bulgaria, their overall performance during the financial crisis and the trends for their future development. In *the third section*, the analysis provides eight case studies to support the thesis that sustainability can be achieved through innovative practices, implemented by small

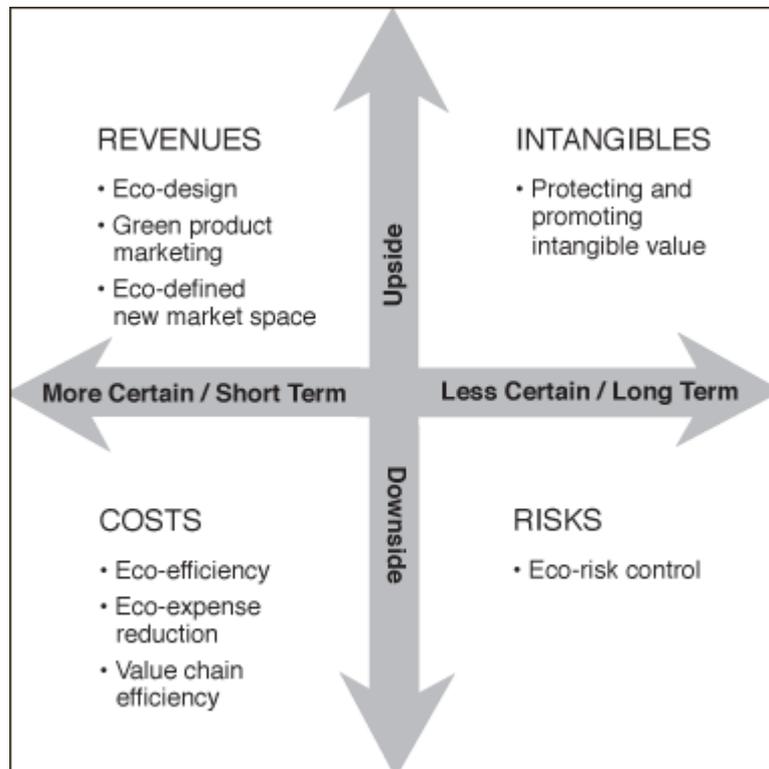
and medium enterprises on a local level. The companies are mainly foreign direct investments and have made significant contribution to the economic, social and environmental development in the region of their operations. *Section four* summarizes the main observations and concludes.

## **2. Sustainability benchmarks for entrepreneurial enterprises**

In their study Esty and Winston [7] claim that for some enterprises, a new green perspective will be transformative, leading to fresh thinking, new markets, profitability gains, and increased value, while for others, the environmental approach may emerge more gradually and modestly. It is not only the big, heavy industries that should expect assured gains, but also smaller companies could benefit from implementing green policies. According to them ([7], p. 19) there are five reasons in support of this argument:

- Laws that once applied only to big business are encroaching on smaller enterprises.
- Going after the consumption choices of individuals remains difficult politically, but advocacy groups have no problem demanding that small businesses curb their impacts.
- The Information Age is reducing the cost of pursuing smaller-scale actors. New sensors, information systems, and communications technologies make tracking pollution and monitoring regulatory compliance cheaper every day.
- Large customers are putting pressure on small business suppliers to comply with environmental standards.
- Small companies can be more nimble than their larger competitors. Entrepreneurial businesses can move quickly to take advantage of changing circumstances or meet niche demands.

Esty and Winston further delineate a framework for building competitive eco-advantage ( [7], p. 295):



**Figure 1:** Green-to-Gold Plays Framework ([7], pp. 295)

The role of SMEs in contributing to sustainability could be discussed in *five major aspects: innovation development, social contribution, environmental contribution, good management and leadership practices, contribution to local networking incentives and NGOs (Fig. 2)*

SMEs are the most appropriate environment for *generation of innovation and development of innovative mechanisms*. They are easily adaptable to macroeconomic fluctuations and most ready to respond to the needs to invest in improvements of processes and products (incremental improvement) or developing products/services which are entirely new (radical innovation). In most cases, innovation in SMEs is an imitation of existing practices through the process of learning by using or learning by doing [8]. The indicators which are most often used to monitor the level of innovation in SMEs are R&D expenditure, personnel employed in R&D and number of patents.

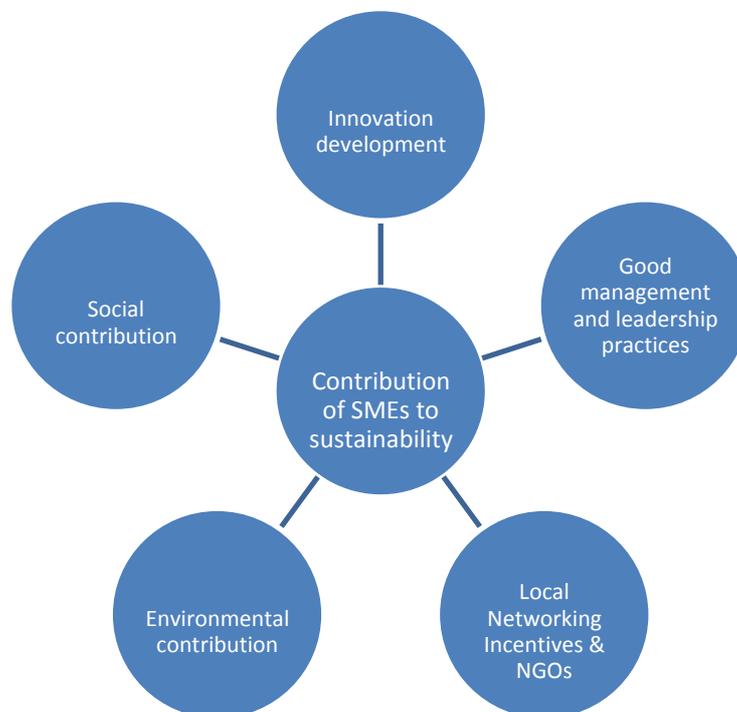
The next aspect is *social contribution* of small and medium businesses. Social entrepreneurship is particularly promising in SME environment, when social problems are to be adequately solved – e.g. alleviating poverty, providing employment opportunities, integrating people with disabilities, etc. Hence, SMEs have high levels of social contribution as they are easily adaptable to changing economic and social environment.

Equally important is the contribution of SMEs in solving problems of *environmental concern*. Small and medium sized organizations (SMEs) individually have, by definition, very limited operations, and therefore would not have the potential to impact the environment, to the same degree, as very large businesses [9]. The case studies discussed further in this paper could be considered in support of this argument, as they explicitly show that SMEs primarily impact economic and social development, while their environmental contribution is either very scarce or does not exist at all. Yet, it is primarily in the limited scope of their

performance that we can expect to identify motivating factors for environmental contribution of such companies. They are largely driven by the high competition among SMEs occupying the same market position as well as the close relationship established both with customers and suppliers, which provides for tight environmental requirements being set out by both parties.

*Good management and leadership practices* are of paramount importance when developing sustainable SMEs. They are particularly manifested in environmental management and pollution control [10], as well as in managing activities with significant social impact. Hence, SMEs are the proper environment for implementing CSR practices with local as well as national impact.

*Local networking incentives and NGOs* work in close cooperation with SMEs, acting as intermediaries between the government and the business as well as between local communities and small companies. NGOs and SMEs might work together in developing sustainable local markets and this cooperation is expected to be organized on several levels of networking aggregation, although they might have different perspectives on sustainability. While NGOs' main aim is to promote development, SMEs' main aim is to produce products or deliver services at the market [11].



**Figure 2:** Contribution of SMEs to sustainability - own model based on analyzed case studies

### 3. The current status of SMEs in Bulgaria

There is a growing tendency of a socio-economic division between the northern and southern part of Bulgaria. According to the most recent data provided by the National Statistical Institute, the regions in the northern part of the country keep high unemployment levels, low income, and decreasing population [12]. Sofia keeps the first place as the most

developed region in terms of social and economic development. With the phasing out of the economic crisis, the last three years have shown a slow but steady economic revival of certain regions – mainly the central and southern regions. Yet the spiral high unemployment – low income – decreasing population keeps investment activity far below the pre-crisis levels.

There is a negative tendency in the infrastructural development, especially with regard to the declining levels of road maintenance which is only 39% as of the end of 2014. Negative tendencies have been also identified in education and healthcare – the percentage of health insurances has decreased to 86% and the attendance level in primary education has also decreased to 79%. The only strong economic region in northern Bulgaria is Varna, yet it is situated too far from the other economically underdeveloped regions and thus they cannot benefit from its economic influence. In addition, the last three years have been marked by worsening local governance and high corruption levels, which has been a major drawback for the city to develop its main potential in tourism and harbor infrastructure. The rest of the regions are marked by low entrepreneurial activity, which significantly reduces the production volumes, increases the unemployment levels to 12% (6% being the average for the country) and consequently decreases the income levels.

In this socio-economic environment, it is highly predictable that the economic performance of SMEs would be low. According to the statistical data, in 2011 the average profitability of the top 100 firms was 43%, declining to 40% in 2012 and 33% in 2013. In terms of regionalization, 43 out of the top 100 SMEs are based in the capital – Sofia. The sector which is mostly represented is agriculture with 19 companies, followed by construction works which totals 14 companies and machinery and equipment with 10 companies.

Statistical trends since 2003 provide clear evidence of dynamic development of the Bulgarian SME sector in recent years. The growth in the number of Bulgarian enterprises was only temporarily slowed down during the crisis in 2007 and 2008. However, growth levels picked up again relatively quickly, driven by small and medium sized enterprises.

**Table 1: SMEs in Bulgaria – basic trends [13]**

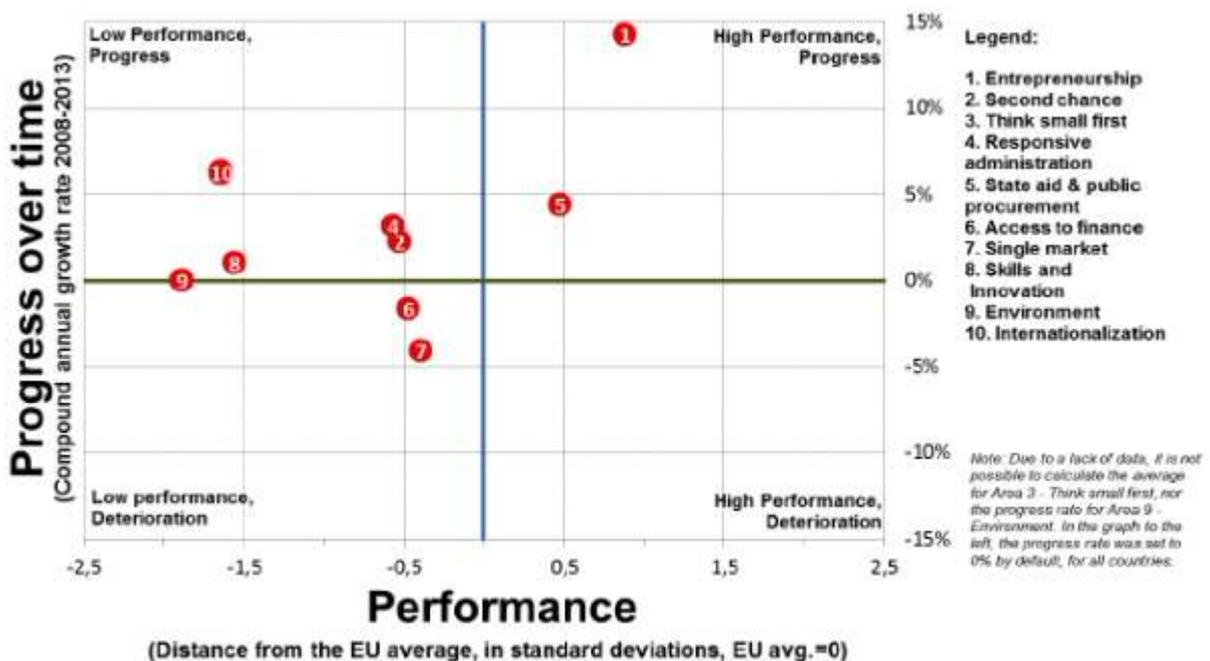
	Number of enterprises			Number of employees			Value added		
	Bulgaria		EU27	Bulgaria		EU27	Bulgaria		EU27
	Number	Share	Share	Number	Share	Share	Billion €	Share	Share
Micro	252,137	90.0%	92.1%	532,880	28.9%	28.7%	3	16.9%	21.1%
Small	22,871	8.2%	6.6%	447,581	24.3%	20.4%	3	20.8%	18.3%
Medium-sized	4,325	1.5%	1.1%	412,065	22.3%	17.3%	4	24.9%	18.3%
<b>SMEs</b>	<b>279,332</b>	<b>99.8%</b>	<b>99.8%</b>	<b>1,392,527</b>	<b>75.5%</b>	<b>66.5%</b>	<b>10</b>	<b>62.6%</b>	<b>57.6%</b>
Large	676	0.2%	0.2%	451,752	24.5%	33.5%	6	37.4%	42.4%
Total	280,008	100.0%	100.0%	1,844,279	100.0%	100.0%	16	100.0%	100.0%

*These are estimates for 2012 produced by London Economics, based on 2008-10 figures from the Structural Business Statistics Database (Eurostat). The data cover the 'business economy', which includes industry, construction, trade, and services (NACE Rev. 2 sections B to J, L, M and N), but not enterprises in agriculture, forestry and fisheries and the largely non-market service sectors such as education and health. The advantage of using Eurostat data is that the statistics are harmonised and comparable across countries. The disadvantage is that for some countries the data may be different from those published by national authorities.*

The data in the table demonstrates that the contribution of SMEs in creating value added and especially in providing jobs exceeds the EU average, moreover, the share of SMEs compared to Large Enterprises (LEs) in value added and employment in almost all sectors is

higher than the EU average. However, this has resulted in labour productivity far below the EU average due to the lower capacity to benefit from economies of scale in low-value sectors. The Bulgarian economy went through a decline in value added and employment in the period 2008 – 2012, when both SMEs and LEs were affected. The decline in value added for the SMEs was by 4% without corresponding fall in employment – the SMEs are much more reluctant than LEs to fire their workforce, as they have difficulties in attracting skilled employees once they re-hire.

Another specificity of the Bulgarian SME sector is its concentration in the wholesale and retail trade sector, where almost 50% of the Bulgarian SMEs are active, and the low innovation activities of Bulgarian SMEs, which tend to specialize in bringing to market less expensive and better quality products from abroad. Foreign direct investment is concentrated in the construction and real estate sectors and it has declined ten-fold since 2008 as a result of high speculative movements before the crises, which significantly exceeded stable growth levels and did not correspond to actual demand. In 2011 about 37 000 SMEs closed down and more than 36 000 were created due to the financial shortcomings of the Bulgarian SME sector – companies face a lack of access to finance while at the same time there is a high level of inter-company indebtedness and late payments for work that has been delivered.



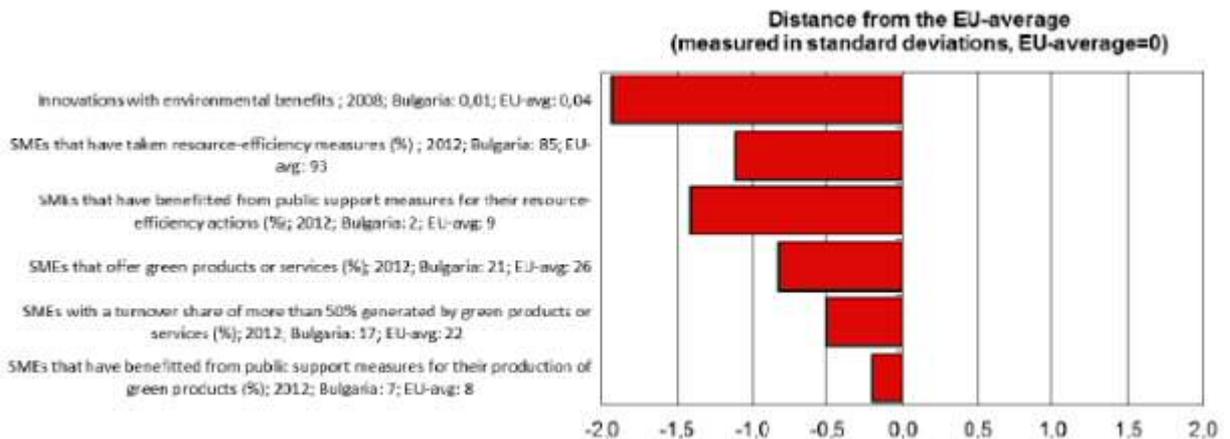
**Figure 3:** Bulgaria's SBA performance: status quo and development over 2008-2013 [13]

Bulgaria's performance in the area of entrepreneurship is above the EU average although the self-employment rate falls behind the EU average (11% compared to EU 15%), which is an evidence for unused potential, considering that the share of adults that have taken steps to start their own business is 36% (EU: 23%). Overall, the proportion of entrepreneurs who started their own business to exploit an opportunity – 42% compared to EU 49% - suggests that the majority of Bulgarian entrepreneurs go into business for lack of alternatives.

Access to finance for start-ups and SMEs is severely limited in view of weak credit growth due to the need for balance sheet adjustments and the on-going upward trend in non-performing

loans. Some timely policy initiatives co-financed by the Structural Funds were launched to tackle some of the weaknesses highlighted. A new funding scheme was adopted in 2012, called the “acceleration and Seed Fund”, to support SMEs in their seed and start up phases. According to most recent data in 2010 only 13% of Bulgarian SMEs are innovating in-house (compared to 17% in 2008), which is a direct consequence of the low rate of introduction of new products, processes, marketing or organizational innovations.

Bulgaria is clearly behind the EU average in terms of environmental performance as only a quarter of Bulgarian SMEs introduced environmentally friendly innovations or received public support for their resource efficiency measures.



**Figure 4:** Bulgaria’s distance from EU average in terms of environmental performance [13]

Many sectors which constitute the backbone of Bulgaria’s economy – such as real estate, construction, and financial services – were negatively impacted by the financial crisis in 2008, resulting in 10%-12% reduction of employment level or 350 000 people lost their jobs [14]. However, it is precisely the SMEs that considered the recession as an opportunity to embark on new entrepreneurial ventures. In 2009 there were 315 850 SMEs which made up 99.8% of all Bulgarian enterprises and 90,3% of the SMEs were micro enterprises. In general SMEs provide 76% of the jobs in Bulgaria, while large enterprises account for 24%. During the peak of the crisis in 2008-2009 the SMEs were the source of employment, keeping 5 people on average as personnel. Approximately 56% of all SMEs dealt proactively with the crisis by cutting down costs, while 44% adopted a rather passive attitude.

In the beginning of 2011 over 90% of all SMEs had difficulties in accessing finance, the worst affected being the micro enterprises as well as the service firms, while financing is provided by the company owners themselves. In 80% of the SMEs innovation activity is weak, only 10% of all SMEs have substantial resources to finance innovation and the most innovative are the manufacturing companies. There are three prerequisites for innovation to be implemented in SMEs: new equipment, skilled and qualified workers, good financial status. In general, innovation in Bulgaria is hindered by the lack of appropriate funding, the high number of population with low income and declining demand as well as the lack of a national innovation system, which would enable some firms to transfer and apply innovations.

## 4. Case studies of innovation SME leaders

The analyzed tendencies can be further supported by examples of recent processes which are observed in a number of innovative SME leaders, operating on the Bulgarian market. Every year a publishing company issues a ranking of the most dynamic small and medium enterprises in Bulgaria. The ranking for 2014 includes 1 578 small and medium enterprises. The region of Sofia is evidently a leader in this business segment. However, the overconcentration of SMEs in the capital has a negative impact on the national economy due to the imbalances in the regional development and the decreasing economic activity in the other big economic centers – the regions of Plovdiv, Varna and Burgas.

In order to fulfill the ranking criteria, a company should comply with the following requirements:

- employ full-time between 10 and 249 employees
- demonstrate an increase in operating income for two consecutive years
- comply with all regulative requirements for small and medium-sized enterprises (not micro)
- achieve an annual financial result between 3.9 million BGN and 97.5 million BGN income and / or assets between 3.9 million BGN and 84 million BGN

The companies should be 100% privately owned and should have been registered before 2009.

Innovation is one of the most important components of the dynamic development of small and medium businesses, but to implement new ideas in operation, there must be close cooperation between companies, government, education and consumers. According to experts, SMEs have both potential and interest to develop innovations. The Foundation for Applied Research and Communications [16], which prepared the annual report "Innovation" recall that the growth of funding for research and development is higher than the growth of gross domestic product.

### 4.1. "O.M.S Saleri" [17]

The company is 1 in the national ranking, part of the Italian company "O.M.S. Saleri", situated in Vratsa. Italy is one of the largest partners of the Bulgarian economy and is among the countries that have highest contribution to the growth of foreign investments in Bulgaria. According to the Bulgarian National Bank [18] direct investments of Italian companies in the country amount to 1.74 billion euro for the period from 1996 until the end of 2012, which gives them 11th position among foreign investors. In essence, Italy takes the leading position, if countries like the Netherlands and Luxembourg are excluded due to the setting up of many daughter companies, registered to benefit from the low tax rates (e.g."Lukoil Bulgaria" is officially a Dutch investment).

The majority of the Italian investments are in the food industry, as well as in textile, clothing and footwear. After operating on the clothing market with Italian luxury clothing, "O.M.S. Saleri" decided to diversify its business by starting operations in a completely different industry - production of ball valves. The premises of the plant are designed to take up further expansion of the business since the beginning of the production is not large, but it is growing rapidly and this is reflected in the large revenue growth for 2014. The production of the Vratsa company is shipped to Italy, where the parent company approves and circulates spherical cranes worldwide. They are widely used in industry, including construction of oil and gas pipelines.

Until the beginning of 2015, the investments in the factory were over 4 million euro, with plans to reach 15 million euro in the following years. In the spring of 2015, the company has

employed nearly 30 people, with the intention to reach 120-130 people as a result of the production expansion. In the process of hiring new staff "O.M.S. Saleri" complained that they often have difficulty finding employees, although wages, social benefits and full insurance are well above the standard of living in the area.

#### **4.2. "Reichle & De-Massari" [19]**

The Swiss company R & M (Reichle & De-Massari) opened a factory in Sofia two years ago and continues to expand its operations within the country. It is the most dynamically developing company in the machinery and equipment sector. The investor is a family company from Wetzikon town in the canton of Zurich. It manufactures passive components, copper and fiber optic cables for all types of communication networks. Currently R & M is among the 500 largest groups in Switzerland, with annual revenues of 197 million CHF francs (163 million euros) and over 800 employees in over 30 countries - 190 of these employees are in Bulgaria. The operating revenue and the number of employees increase by 20% per year. The Group has manufacturing plants in Switzerland, Poland, India and Dubai. The Swiss company has a commercial branch in Bulgaria - "R & M Bulgaria", which covers the entire region and is responsible for Bulgaria, Greece, Turkey, Serbia, Macedonia and Cyprus. Since the beginning of 2011 the company also operates on markets in Albania, Bosnia and Herzegovina, Croatia, Kosovo, Montenegro, Romania and Slovenia. In 2011 the headquarters began to explore options to export part of their production from Switzerland because the strong franc made their production uncompetitive on the European market. The choice was narrowed down to Bulgaria and Poland where the group has already set up production premises.

In early 2012 the project began and was completed in nine months. The total planned investment of 9.7 million BGN did not include the amount of nearly 8 million BGN for the purchase of the building in the district of Sofia. The project was developed by installing epoxy coatings, antiseptic paint, new ventilation, air conditioning and electrical installations. The Swiss company bought entirely new equipment. As a result, the plant with its total size of 10 000 sq.m. is an exact copy of the one in Switzerland with the same number and type of jobs and workflow. The new production unit "Reichle & De-Massari" received a certificate for an A class investment. The company produces fiber optic components and platforms. After two years of operation the production staff now is 135 people. A small development center is also based in Sofia, which deals with the design of products for different platforms. Company employees undergo additional trainings in Switzerland and in Bulgaria.

"Reichle & De-Massari" Bulgarian production continues with the business expansion and in 2014 it made another investment of a total of 2 million BGN. As a result, the staff is expected to grow by another 50 people. The plan is for the entire line of fiber optic components to be produced in Bulgaria. In 2013 (which was the first full year of production) the company's turnover increased by over 400%, amounting to 15 million BGN, the forecasts are that the financial result in 2014 will be even higher.

The Swiss company invests in support of the Bulgarian education. A few years ago the company opened a teaching laboratory for cable systems at the Technical University - Sofia, and in 2013 donated funds to equip the laboratory at the Technical University - Varna.

#### **4.3. "Aosia"**

There is hardly any other sector in Bulgaria, which is developing more dynamically than the IT sector. Due to the huge demand globally and locally, and thanks to the relatively weak government regulation in this sector, it has become the exception in the background of the overall poor economic picture in the country. To be truly successful in Bulgaria, the

technology companies cannot rely solely on the momentum. The competition is overwhelming and any short-term delay could return the company years back in its development. What is needed is a long-term strategy, ingenuity and especially innovations. This is the case of "Aosia" LTD. The company passes through the crisis without much turbulence. Its financial statements show that despite the shrinking market, until now it has been financially stable and has not generated a loss. Moreover, by 2009 each year the company increased revenue and profit to reach a record in 2013 when "Aosia" registered 400% growth in profit, and profitability rose by more than 17 times.

"Aosia" was established in 2006 and in 2007 entered in the news once managed to build from scratch the entire communication infrastructure of four large metallurgical plants and two mines in the Rhodope Mountains. Only 10 months were needed to connect all the companies of "Intertrust Holding" JSC. The entire infrastructure was built - "the cloud" virtualization, IP telephony, the mines were wired and related to the entire network of the holding.

Having dealt with "Intertrust", the creator of "Aosia" formed a team and started to develop a new type of cloud technology - virtual based desktops. Since 2010 the company has specialized in this particular technology and offers services in the field of Mobile office as a service. By combining different software the office can be anywhere, without space and resource constraints. The virtual office is accessible from any device - PC, smartphone or tablet. The platform allows customers to have permanent access to the computer in their office - files or emails, to all software installed on the remote machine.

Thanks to the already established platform the company has managed to make telemedicine a reality in the country. So far, remote diagnostics are possible in Sofia "City Clinic", but the owner believes that after 5 years this technology will be available to the mass market. This is a platform that collects data but also binds the physician with the patient. Telemedicine is defined as the future of medicine worldwide as the number of well-qualified doctors is constantly decreasing. Also, due to the constant emigration of medical specialist, in some Bulgarian regions patients have to travel thousands of miles to get a diagnosis and proper healthcare.

The specialists of "Aosia" not only develop and build IT solutions. They start the process of consultation with customers and end with their training to work with the platform. A main problem of cloud technologies is precisely security. If the security in a cloud solution collapses, this affects all clients in the cloud. To guarantee that security to the customers, Aosia fulfills the most stringent regulatory requirements. Another success factor is the constant pursuit of the company to move forward and to invest in the best technologies, to improve them, test them and then offer them to customers.

The company's increase in its market share almost logically leads to an increase in the number of employees. As with the entire IT sector and in "Aosia" the main problem is the lack of ready-made specialists.

#### **4.4. "Go Grill" [20]**

The locations of the fast food chain Go Grill can be found in over 25 cities – from the largest Sofia, Plovdiv, Varna, Bourgas to smaller places like Provadia, Liaskovets, Svishtov, Sevlievo. The company used to make products for grilling, began the development of franchise network of its own pavilions, where it offers its products – meatballs and sausages. The business began in 2009, but only for less than five years the number of the sites increased to 66. In 2013 the company made a quantum leap, increasing its revenue by 200% to 5.752 million BGN.

The concept of Go Grill is based on a long family tradition in the meat industry. The ambition

of the owners was to guarantee that their quality products reach to the end customer with the same quality. This led to the idea of a closed business cycle - the company's products can be offered only on their own sites.

Growing the business passed through the idea of creating small grill stands. The first one was opened in 2009 in Gorna Oryahovitsa. Three years later the Go Grill chain subsequently began to develop its own franchise concept and attracted partners, initially in cities like Dobrich, Varna, Sofia, Veliko Tarnovo. The rapid growth of the business began and the company data shows that by the end of 2013 Go Grill opened 46 pavilions in the whole country. By the end of 2014 their number reached 66. The company is present in more than 25 cities, as currently most locations are in Varna - a total of 15. At present, the majority of Go Grill locations are run by franchise partners (50 out of 66).

The logical concept of Go Grill includes requirements such as who are the partners and what are the locations where new sites will open. For example, the company prefers to work with small companies who manage up to five sites of the chain, rather than large financial investors.

As suitable locations for opening sites of the network are state parks, shopping centers and supermarkets, lively boulevards and intersections, central areas with active administration, main entrances of neighborhoods. The company has a strategic partnership with the Lidl chain which allows them to open sites on the parking in front of the Lidl stores - currently the number is 24.

In the meantime the company plans further expansion. One of the projects is related to the expansion of production in order to provide sufficient products to the growing network of kiosks. The project (worth 2 million euro) includes extension of the warehouse, including purchase of new refrigeration equipment, and subsequently new equipment, thereby increasing production capacity. In parallel with this plan is the expansion of the business operations themselves. By the end of 2015 Go Grill plans to reach 70 locations, but the main focus is the capital. The company plans to enter foreign markets and the first expected contract will be with a Romanian partner.

Like any small business and chain Go Grill faces serious problems - one of the key issues is associated with the licensing of new sites. Although pavilions are temporary objects, i.e. procedure for them should be easier, it is not always quite so. In different municipalities licensing of the site lasts between 2-3 weeks and as many as 6 months. Another problem is the 20% VAT on food and essential commodities, which is often called "a killer for small businesses". The company is also experiencing difficulties with staff recruitment as they claim they lack energetic and motivated people who are willing to work with them.

#### **4.5. "Bulpros" [21]**

In recent years one of the biggest myths is that outsourcing ends with the establishment of call centers. This was the main criticism of a number of large technology companies like Hewlett-Packard and IBM, which started to establish similar activities for outsourcing services in Bulgaria. But these centers for customer service began to create clusters of Bulgarian companies to try to develop in the outsourcing industry. Such is the case of "Bulpros". The company was founded in 2010, initially focusing mainly on providing outsourcing services, but now has expanded its portfolio to activities that have a much higher added value than traditional call centers.

Before starting to work on the creation of "Bulpros" the owner has worked 18 years in Germany, then returned to Bulgaria and helped building the HP outsourcing center in the country. He claims that his experience in Germany has shown one major disadvantage when doing business. It is the lack of good partners to assist in the implementation of major projects with defined resources and skills to meet the requirements for price and quality in

order to make their customers more competitive. "Bulpros" was created exactly for this purpose - to fill the gap in the implementation of major projects of large corporations.

"Bulpros" currently provides services to companies that provide services in the field of IT technologies. In other words, it assists giants like Siemens, UniSystems, Cisco, VMware and others to better provide their products to their customers. The Bulgarian company helps them in software development, the establishment of Internet-based and mobile solutions, services in IT infrastructure and cloud solutions. Only part of its business is related to outsourcing, it is mostly associated with outsourcing of data processing and work on segments of a software project.

Outsourcing is the perfect tool for starting a business, to accumulate stability, security and scale. Subsequently, the company began to develop its own products and services.

According to the CEO what distinguishes the company from other outsourcing companies is that it not only deals with external activities but also looks for long-term partnerships and customers. This can generate growth not by amount but by quality and by seeking added value.

The results of good planning helped the company to report double revenue growth in the year 2013. Its revenues increased by 134% in 2013 over the previous two years when the company reported similar, over 100 percent results. Expectations are high growth rate to be maintained in 2014 and 2015 as well.

Like many start-ups "Bulpros" started with five or six people, but at the end of 2013 its staff was 141 people, and currently it has grown to over 300 people.

The company relies entirely on large international corporations. According to the CEO the Bulpros's customers are mainly from Germany, UK and Western Europe. Since 2013 the company prepared an active penetration on the US market. To be able to liaise with customers the company has established offices in the US and in Germany. The Bulpros management network of contacts has helped the company find long-term partners. It is already working with some of the largest companies in the country.

One of the main challenges the company faces is the management of growth, given the rate at which it increases its scale. The challenge comes from the fact that growth requires a continuous change in the structure of the company offices, distribution of tasks, internal processes, etc. Other obstacles are related mainly to the availability of highly qualified personnel, particularly in finding specialists who are specialized in specific areas. The main concern for 2015 is whether "Bulpros" will succeed with the products and services developed and marketed.

#### **4.6. "Casino Technology" [22]**

"Casino Technology" is one of the few examples of a Bulgarian company which started from scratch and established itself on the world market for just over a decade.

In 1992 the founder of "Casino Technology" was interested in slot machines, learning their structure. Once he realized that slot machines were not much more complicated than a computer, he decided to shift to production as at the time demand was great. The introduction of the Gambling Act in 1999 and the possibility of any manufacturer of gaming equipment to obtain a license for their activity allowed the owner to establish the company "Casino Technology" which became the first ever licensed company in Bulgaria.

The business grew rapidly as well as innovation. In 2000 "Casino Technology" created a product which was an absolute bestseller - the first multi-game called Mega Jack. Multi-game represents several games in a gaming machine. Once Mega Jack witnessed a great success in Bulgaria, the company began to offer it also on foreign markets mainly in Eastern Europe. Since the activity of the company includes also maintenance of the proposed gaming facilities, "Casino Technology" opened offices in countries where they have installed their

products. The Bulgarian company has customers all over the world - Europe, North and Central America, Africa and Asia. For this reason the majority of its revenues for 2013 come from foreign markets - 14 million BGN, compared to 8.3 million BGN from the internal market. Behind these figures stand hundreds of skilled workers that operate worldwide. Despite its good performance the company faced difficulties in the crisis years of 2009-2010. Their revenues fell more than double, the market was stagnant and they decided to head to places where they knew the crisis - the countries of Latin America. After yet another expansion and taking new products to new markets, in the past two years (2013-2014) "Casino Technology" marked more than 20% growth in revenue.

Along with the development of the technology, the gambling business also develops. One of the innovations is the so-called online gaming, which allows access to various games not through the gaming machines but through online and mobile devices. "Casino Technology" decided to go one step further and to combine traditional gaming facilities with online gaming. This is how the company created THE BIG 5 (big five are the most typical large animals in Africa: rhino, buffalo, elephant, leopard and lion). This is a system of five products that are interrelated but may exist individually. The package includes system management game room and casino jackpot universal server, remote game server, online gaming and system for cash transactions. The company claims that they were able to make a product that appeals to their customers all over the world who want to smoothly switch from traditional to online gaming.

"Casino Technology" focused on users who are established in countries with better regulation of gambling business. These include Chile, Macau and the Philippines.

#### **4.7. "Shoelly Optics" [23]**

Ten years after the creation of "Schoelly Optics" - a joint venture between the German and Bulgarian "Schoelly Optics", the company sells 98% of its production abroad.

The company specializes in the manufacture and assembly of endoscopes and endoscopic systems for medical and technical needs. For the first half of 2014 the it had revenue from sales of almost 10 million euro and profit of 400 000 euro. The company currently employs 90 people, while in its launch in 2004 they were only four. The equity ownership of the company is 60% German and 40% of "Optics". They started with an initial capital of 200 000 euro, and today the value of the company is 4 million euro. Approximately 60% of the production is for the US market, 29% for the European and 1% for the Bulgarian market.

In 2014, "Schoelly Optics" has already achieved a price that cannot be seen even on the Chinese market. Endoscopic systems technology requires very high professional qualities of the people who create and produce, which is costly in China. Also the price of qualified labor in China is growing much faster than in Bulgaria.

The available equipment of "Schoelly Optics" will probably be used for another ten years. This means that it will be paid followed by better gains and higher profitability. This is important because the newest equipment cost of materials is higher than the value to be added. When one of the new endoscopes is sold for 10 000 euro, the materials used are 8 000 euro. The company tries to expand opportunities for adding value on more things - not only to produce endoscopes but complete endoscopic systems.

The latest investment of the company is in equipment and technology to produce one-time-use endoscopes protectors. This technology created a "clean room" that protects the endoscopes of powder and biological contamination. The "Clean room" is Class 10 000, which means that it is maintained ultra clean, measurable with 10 000 particles in 1 cubic meter of air. This is a high purity grade of total production related to the medical industry.

The production of "Schoelly Optics" for the local market is relatively small for several reasons. In Bulgaria there are only three medical robots (2 in Pleven and one in Plovdiv)

which could buy and use 3D endoscopes. The relatively small private clinics have no capital accumulation to be able to afford the best technique “Schoelly Optics” offers.

#### **4.8. Apex Solar [24]**

Apex Solar Ltd. is a leading engineering small enterprise in Bulgaria, which develops and manages new technologies and standards on systems utilizing solar energy. Since its establishment in 1993 the Apex Solar has implemented more than 300 projects with a total capacity of 40 MW (thermal and photovoltaic solar systems). Their expertise falls into residential, agricultural, industrial and hotel projects.

Through their solar energy systems Apex Solar save annually over 85,000 tons of harmful emissions of CO<sub>2</sub>. It is their mission to contribute to the environmental protection and to a better world for the future generations.

The reason to include this organization as a case of innovative SME is because Apex Solar have developed an educational program designed to promote technical excellence among Bulgarian installers of photovoltaic systems for own consumption. The program aims to develop not only a network of “Apex Installers” but to educate a larger number of people on the benefits of photovoltaic installations and the ecological impact they have on the environment. The product range of inverters which Apex Solar offers is specific and correct installation requires special knowledge.

The program is free of charge and consists of a half-day and full-day courses held in the company’s premises in Sofia. The successful completion (after a brief examination) will award the participant the status “Apex Installer”. According to the company the benefits from being an “Apex Installer” are numerous. The graduates are included in the map of installers of different series inverters branded under Apex Solar in Bulgaria, where users from different areas can find and contact them. The graduates can use the logo of the company’s products online and can take advantage of special discounts on products. In addition, when the company gets inquiries from end users of the area in which the graduate works, the “Apex Installer” contacts them.

This is an innovative strategy where innovation, education, environmental care, and eco policies combine to introduce a different approach to doing business in Bulgaria.

### **5. Conclusion**

The Bulgarian SMEs are currently undergoing a process of transformation through implementation of innovative practices which contribute to their sustainable development and bear the potential to assure the economic development of the country. It introduced a model of five key sustainability aspects and emphasized on the importance for the successful management of SMEs to ensure the proper application of social and environmental standards in the production processes.

In support of the theoretical model, the analysis examined several examples of sustainable enterprises which have successfully implemented innovation policies and practices and have promoted sustainable development of entrepreneurship on a regional level in Bulgaria. The companies have imported international know-how and skills which have not only provided for the increase in their annual revenues but have also improved the social development of the regions through employment opportunities and career development. The foreseen impact of the Bulgarian SMEs will be their contribution in solving social and environmental problems on a local and national level in the long run.

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# **New spaces for supporting entrepreneurship? Co-working spaces in the Welsh entrepreneurial landscape**

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**Co-working is a broad term that has been rapidly expanding in recent years. The term refers to the practice of working “alongside each other” in a flexible and shared office environment where desks can be rented on a different basis and where like-minded professionals form a community. In recent years co-working spaces have been successfully developed in cities such as London and New York to encourage collaboration, creativity, idea sharing, mentoring, networking, socializing and generating new business opportunities (as well as keeping costs to a minimum level) for small firms, start-up companies and freelancers who typically lack the resources of large organizations. However, co-working spaces are relatively new in South Wales and not well established yet. Little is known about how these spaces actually work to support the entrepreneurial activities of their member businesses, what potentials they might have to support graduate entrepreneurship and to what extent they can be considered as policy interventions in the Welsh context. In this paper, the underlying idea is that co-working spaces can support member businesses in their development processes by helping them to build networks and create synergies through collaboration in a creative work environment. The main aim of the paper is to provide an empirical illustration of how co-working spaces can stimulate the soft aspect of entrepreneurship (e.g. collaboration, interaction and networking) that support the activities of their members in South Wales. Employing a combined methodology of secondary data gathering, site visits and semi-structured interviews along with questionnaire survey, the paper evaluates two Welsh co-working space models. The results imply that the selected spaces represent different configurations in terms of community support, organizational purpose and target audience. However, both models provide favourable environment for business to flourish.**

## **Keywords**

Co-working, entrepreneurship, networks, South Wales

## **1. Introduction**

Entrepreneurship is viewed as a major contribution to economic growth and employment creation (1). Lee et al. (2) noted that entrepreneurial activity not only requires both a supportive and productive business climate but also needs a physical environment where creativity and innovation can flourish. Having a strong and diverse knowledge base, well developed business and social networks and an ability to identify opportunities also

contribute to successful entrepreneurial behaviour (3–6).

One of the most recognized tools for helping entrepreneurs to create networks and develop their firms are business incubators (7). However, besides public sector models, there are now many examples of private sector managed workspaces that support successful business operation (8). We can find serviced offices such as `Regus` and `Office Space in Town` that provide flexible and fully equipped office environments and infrastructure for entrepreneurs and businesses to flourish. However, these offices do not support the soft aspects of entrepreneurship (e.g. interaction, collaboration and networking) and do not necessarily promote creative environments, rather, focusing on providing affordable workspaces for their clients.

In recent years new “third (collaborative)places” have emerged to provide fundamental conditions to support the soft aspects of entrepreneurship through more mobile and flexible ways of working. Third places serve as focal points of community life, and combine a number of conditions that make informal meetings possible, and enable the creativity of social interactions through openness, flexibility, viability, conviviality and accessibility (9–11). As Oldenburg (10) describes, to become a successful third place, they must be locally owned, independent and small-scale, and be based on steady-state business. Furthermore, the places should be highly accessible, within walking distance, free or cheap and involve regularity. Co-working spaces are one type of “third” collaborative workplaces, typically designed to stimulate creativity, where serendipitous interactions might happen between a multitude of businesses and professionals while “working along together” in flexible and shared work environments (12,13).

Co-working spaces are new generation workplaces that provide flexible, rentable and cost-effective community-oriented workspaces for freelancers, entrepreneurs and small businesses from different sectors (high-tech, creative and knowledge intensive), and also facilitate collaboration, interaction and networking between their members.

As being an urban phenomenon, co-working spaces have been developed mainly in cities to encourage collaboration, creativity, idea sharing, mentoring, networking, socializing and generating new business opportunities for small firms, start-up companies and freelancers. However, little is known about how these spaces support entrepreneurship in sparse regions and smaller cities.

Thus, the paper aims to explore the co-working phenomenon in a smaller city context. The primary aim is to provide an empirical illustration about co-working practices in South Wales by examining the people using co-working sites, their motivations, expected outcomes and perceived benefits, in contrast with founders` view.

The paper is divided into four sections. The first section introduces the co-working phenomenon, followed by the methodology used for the paper. The empirical findings offer an overview about the co-working practices in South Wales; and finally, wider implications for policy makers and academics will be provided.

## **2. Co-working spaces**

Co-working is an expanding global phenomenon mainly in urban areas and typically refers to the new alternative workspace of the “freelance economy”. According to recent statistics published by Deskmag (14), the number of co-working spaces grew every workday on average by 4.5 spaces. Today, there is 5,780 co-working space with about 295,000 co-workers worldwide (15).

There are many trends behind its successful expansion around the world. In the wake of the 2008 crisis more and more people have left the traditional workplace (either by choice or otherwise) and have started a professional life on their own. Another parallel trend has been the rapid rise of internet communication technologies (ICT). ICT has made work more mobile

and less geographically dependent (16). Toffler's (17) "electronic cottage", in which workers could do work at home by using their personal computers, has come into existence. People "no longer need a huddle", mobile phones and laptops have replaced their immobile ancestors (18), thus, workers are no longer bound to a single desk to operate the technology: they can create, analyse and transform texts in the comfort of their own homes or from other remote "third place" locations. There is also a financial and economic reason that made entrepreneurs join co-working spaces. Entrepreneurs making the decision to join co-working spaces are doing so for rational economic reasons (i.e. it saves money or has some other benefit). Working in a shared space has obvious cost-savings: cheap work arrangements through shared equipment and rent. The nature of work is also changing which is also an important driving factor for current office evolution (18). Key to this evolution is the continued growth of knowledge working, both as a percentage of the economy and of the labour force (19). Knowledge workers frequently undertake a range of tasks and those tasks can be done in different work spaces (20). Work has become more dependent on knowledge and creativity. This highly skilled creative knowledge work is far more collaborative; more and more people tend to work from remote locations where work is cooperative rather than collocated.

Co-working is a broad term that has been rapidly expanding in recent years. A huge number of quotes are available from the current literature but each co-working space has its own definition of the term: they have significant differences in organizational purpose, service, culture, field of work, size and business model amongst others depending on the .

Originally, the term refers to a collaborative work environment that provide support (moral, emotional, professional, and financial), shared flexible facilities (infrastructure) and access to a broad business and social network for a diverse group of professionals and entrepreneurs to start and grow their businesses while working "alone together" or "alongside each other" (21), and sharing the values of "collaboration, openness, community, accessibility and sustainability" (22).

The biggest difference between a co-working space and a serviced office space is in the amount of social interaction that takes place between the people who work there. Similarly, co-working spaces differ from incubators because incubators offer support for businesses in their start-up phase and are actively enable businesses to growth.

The intention of co-working space is to generate interaction, enhance creativity and formulate a sense of community. Co-working is seen as a solution to "professional isolation" (21): sharing the same space provides community to those workers who otherwise would not enjoy relational component while working from home. Amongst other benefits (flexibility, being able to mingle and work with like-minded individuals, better work-life balance, greater job or career satisfaction), community, a sense of belonging, is also found in other contributions as key in stimulating business development and networking (12,21–26).

Members are looking to increase profit through a managerial cultivation of social relationship and a combination of complementary skills (21). They "strive for independence in the way they make use of time, space and talent, yet long to be connected to other like-minded people – and not only on a virtual basis but in spaces of everyday physical encounter. They want to break out of the restricted and often solitary working conditions of office spaces or private homes and instead establish models that foster professional activities in a leisure-like atmosphere; they want maximum global flexibility including spending time in other creative cities (where similar co-working spaces exist) without being cut off from the local community sharing their mind-set" (27).

A number of activities and processes take place in co-working sites that stimulate different kinds of entrepreneurial activities. Co-working spaces intentionally place diversity at the heart of their culture in order to promote "organized serendipity" and ensure culture of learning from different perspective. Co-working gives people more social interaction that is a necessity for businesses in the creative field. Being surrounded by entrepreneurs on a daily

basis, co-workers are constantly learning and growing (12). Knowledge sharing through networks is one of the key features of co-working spaces and one of the biggest benefits for members (28). This can take both formally and informally: participating in professional workshops, attending social events, etc. In addition, co-working spaces connect their already strong internal community with an extensive external network (29).

The professional environment also contributes to business creation and development due to the tangible and intangible benefits. Entrepreneurs and businesses are provided access to other professionals doing related or complementary work that lower barriers to trying out new ideas, and their transaction costs through reducing resource and information expenditures (30). Co-working spaces help their members to find solution to problems that they cannot necessarily easily solve or afford by themselves with the minimum of fuss.

Office layout and design also helps members to develop collaborative relations and facilitate interactions between them. Members are free to decide how they prefer to use the space and its features which facilitate the spirit of sharing and cooperation (26).

In some cases communities are stimulated by “community managers”: they host and look after members, organize professional and social events, ensure that comfort and trust are built amongst members, and create an environment where members share thoughts, ideas and experience in order to help each other. Moreover, most of the spaces use virtual platforms and real-time dashboards to support serendipity and collaboration: they list the registered users and organize their skills in a cloud, and enable users to decide - based on the skills of people available - whether to work from the co-working space or not.

Statistics, such as the global Deskmag survey (31) shows that 66% of co-workers decided to start co-working because of the atmosphere in the space, and 57% goes to interact with others (31). In addition, according to a more recent research conducted by Colleoni and Arvidsson (32) amongst Milanese co-workers, most of the members joined the spaces to get a sense of community (48%), to entertain networking activity (34%) and to break isolation (55%).

Moreover, being present in a co-working space environment can positively influence one’s own productivity, creativity, wellbeing and social embeddedness. For example 85% felt less lonely and 75% reported to be more productive (31) since joining co-working spaces. Similar results can be found in Colleoni and Arvidsson’s (32) report where 61% of co-workers expanded their network of client and 62% their collaborators since accessing a co-working space.

To conclude, these different contributions from academia and practice confirm that co-working spaces provide supportive environments for diverse groups of businesses to flourish through flexible and shared work settings. Co-workers join the spaces to bring “the social” back into their working life and to operate complementary figures (32). Co-working spaces are not only hubs but also seem to function relational milieus providing members with an intermediate territory to enact distributed organizational practices made of continuously negotiated relationships in the context where professional social interactions is simultaneously physical and digital (32).

### 3. Methodology

Based on the existing literature on the topic and under the wider definition of co-working spaces, IndyCube (18 office spaces across South Wales) and the Welsh Innovation Centre for Enterprise (Welsh ICE) in Caerphilly have been identified as the only significant co-working spaces in South Wales, and therefore are the spaces considered in this paper.

The primary research conducted included a combination of qualitative and quantitative research methods. Qualitative research methods included user participation in the co-working spaces, semi-structured interviews with founders/owners, informal conversations

and observations in the different IndyCube spaces across South Wales (Cardiff Castle Quarter, Cardiff Bay, Cardiff Trade Street, Business Loft Newport, Swansea and Cwmbran) as well as at Welsh ICE in Caerphilly.

Based on the initial findings from the qualitative research an extensive questionnaire (36 questions) was developed for co-working members of IndyCube (Cardiff, Newport and Swansea) and Welsh ICE to understand their motivations for joining, the benefits of being a member, the areas that could be developed further, and to explore what services provided by managers affect positively their entrepreneurial activities. 46 completed questionnaires (Table 1) were used to illustrate co-working practices from member's point of view.

**Table 1** Number of respondents by location

<b>Name of the space</b>	<b>Number of respondents</b>
Cardiff Bay	19
Cardiff Caste Arcade	1
Swansea	3
Business Loft Newport	5
Welsh ICE	18
<i>Total</i>	<i>46</i>

During semi-structured interviews, three founders (two IndyCube and one Welsh ICE founder) were asked to provide information about their motivation, philosophy and model as well as the tools used to support member companies to flourish, interact and collaborate.

#### **4. Empirical illustration: co-working practices in South Wales**

The findings reveal that the two co-working space models, IndyCube and the Welsh ICE represent two different approaches and philosophies, and have different target audience and organizational purpose as summarized by Table 2.

**Table 2** Key characteristics of ICE and IndyCube

	<b>Welsh ICE</b>	<b>IndyCube</b>
Location	Caerphilly	18 spaces across South Wales
Personal motivation	Learning from personal experience of how a community of young entrepreneurs can offer support for each other	"Changing the world of entrepreneurs" by providing spaces where they can grow their businesses
	Helping businesses to start and grow	Not creating businesses rather supporting them to grow
Focus	Providing creative environment for entrepreneurs with a sense of community belonging	Providing high-end office spaces and infrastructure where communities can form naturally
Number of members	150	200 in a given months
Tenants by	Mainly entrepreneurs and start-ups	Mainly entrepreneurs and start-

professional activity	(in early and mature stages), youth start-ups	ups (in mature stage)
Tenants by sectors	`Professional, scientific and technical activities` (33%) `Information and communication` (33%)	`Arts, entertainment and recreation` (48%)
Type of memberships	Varied	Varied with the opportunity to use any IndyCube site across South Wales
Workspace layout	Open-office Private offices Meeting rooms Canteen Coffee shop	Open-office Meeting room Coffee corner
Design	Modern, creative, colourful but balanced	Plain office design (white walls, modern office furniture)
Services	Business address Reception – front-office services Use of printer, scanner, copy machine Broadband Discount in Canteen and in Coffee shop Mentoring, training, coaching Professional events (organized by staff)	Business address Use of printer, scanner, copy machine Broadband Professional events (provided by IndyCube Venture)
Types of support	Financial – Government, funding trust , public and private sector Moral, emotional Trainings Social and professional events	Financial support through IndyCube Venture
Model	Unique mix of incubator, accelerator and co-working space	Accelerator and co-working space

#### 4.1 IndyCube

IndyCube is a co-working space provider with 18 co-working sites across South Wales. At present more than 200 workers operate out of IndyCube's sites in any given month. Each of the co-working spaces provides fast Wi-Fi, meeting rooms and high-end office infrastructure. They also run events to bring together members from the different co-working spaces. Moreover, members have the opportunity to work in any co-working site across South Wales. This philosophy allows members to integrate in other local communities, share knowledge, socialize and build up networks. Via IndyCube Venture, which operates as an accelerator "arm" for IndyCube, management expertise, mentoring and support from industry-specific specialists are accessible.

Semi-structured interviews with founders highlighted that IndyCube's mission is to help established enterprises to flourish by creating spaces where people could work alongside each other, for the benefit of themselves and their fellow co-workers. Co-workers are encouraged to make the offices their own; therefore each location's 'character' is created by the people who work there. Founders believe that members do not need to be "managed" by

hosts or community moderators; their experience is that the majority of collaboration and community feel tends to happen within the office facilitated by members. One example is the `Fresh Air Fridays` organized by a member of IndyCube Ferndale with the aim of providing coaching to help to achieve a more positive outlook in every sphere of life.

However, results of the questionnaire survey revealed that `getting a community spirit` is not the number one driving force of most people to access IndyCube. The main reason members gave for joining was the opportunity to meet potential investors, and because IndyCube provides high-end office infrastructure. The qualitative research findings revealed that the level of collaboration, community activity and social events within the IndyCube spaces was quite limited. This was supported in the findings of the questionnaire where 90% of members said that they would be interested in more events (social, networking, professional) and 75% said they have not started collaboration with a fellow co-worker. Other findings revealed that 70% of members would be interested in mentoring, administrative/reception and professional support to further develop their entrepreneurial skills.

IndyCube sites in most places consist of open offices and coffee corners. However members generally agreed that the shared office environment helps co-located entrepreneurs to overcome the loneliness, the research also found that members wanted more space for socialising as well as more space for privacy and self-reflection that would help to develop particular skills and activities.

Members also highlighted the diverse member mix and the possibility to use all co-working sites across South Wales as strengths of IndyCube because it enables them to connect people from diversified lines of businesses and other communities as well. 80% of members did report an increase in income and 60% said they felt more productive since working in IndyCube.

## **4.2 Welsh ICE**

Welsh ICE is home to more than 85 companies and more than 150 employees at its Caerphilly centre. Half of ICE`s members are funded by the Welsh Government, and the staff can also assist members to reach other kinds of financing through Fairwood Trust. ICE also hosts projects in conjunction with Business Wales, The Prince`s Trust, Cardiff Start, Cardiff Metropolitan University, UnLtd and many others.

Welsh ICE is a creative environment for new entrepreneurs who are interested in feeding off each other`s ideas and enjoying a high level of practical support from experienced business owners acting as mentors. Welsh ICE was born as a co-working space aimed to foster connections and synergies among member businesses. It has an organizational platform composed of events designed to create connections among members; newsletter with information and news about the co-workers and the activities organized in the space; and staff who deal with the management and organization of the space and with the facilitation of the interactions and relationships between members.

Welsh ICE is a space where community building is a conscious process; the management ensures that the newcomers fit into the community in terms of mind-set and professional activity. Apparently, a natural selection also applies from a community point of view: like-minded, open, creative people whose personality fits to the ICE`s philosophy join the community. The positive attitude, the sociable and enjoyable atmosphere, and the opportunity of personal and professional development attract the people to work at ICE.

One of ICE`s missions is to create a more accessible, network of pathways to entry for would-be entrepreneurs with the support they need, from the first moment their ideas comes into being. In additional, Welsh ICE supports graduate entrepreneurship in two ways: it helps talented young people to kick start their businesses through funds and mentoring, and encourages member companies to hire youngsters.

Based on the findings, more than 60% of ICE population belongs to age group 21-26. ICE is mainly rented by start-up companies: 38% of the members are entrepreneurs and 38% works for small companies with less than 5 employees. 75% of those who work for small companies with less than 5 employees belong to age group 21-26. This finding further confirms the success of Welsh ICE in terms of supporting youth employment and entrepreneurship.

The presence of “fun, loving and mutually supportive ” community of people is confirmed by the results of the questionnaire survey. The main reason members gave for joining ICE was that ICE provides a social and enjoyable atmosphere (70%) and a vibrant community (50%). Other findings revealed that 44% of members have started collaboration with a fellow co-worker. Events play a major role in the everyday life of ICE member. ICE offers opportunities to co-workers to get to know each other, and to get in contact with the public, and ensure the inflow of external knowledge. Moreover, social and professional events organized by members are also popular networking options.

Besides the importance of events, members highlighted the supporting role of common areas (coffee shop, canteen) because it enables them to meet other like-minded people. They are generally pleased with common spaces and experience those spaces as stimulating for discussion and networking. Those are good places to catch up with other co-workers and discuss relevant matters on a daily basis. However members believe that being located under the same roof is only one condition to networking and collaboration. The staff is seen as a central figure in supporting trust that enables networking and social interactions among members.

## 5. Conclusion

In co-working spaces the emphasis is on intangible factors and social aspects such as entrepreneurial networking, mentoring (both from fellow members, hosts and from the social and business network) through flexible, informal settings, which enhance possession, access and use of different forms of capital (social, human and financial) in a creative environment. In addition, the space itself (layout and design), the operating mode (supporting tools), and the diversity and mentality of professionals who form communities also stimulate entrepreneurial activities and internal dynamics.

This paper illustrated co-working space practices in terms of supporting member businesses in South Wales. The key difference between the two models can be attributed to the operating mode, the management style and the target group of the space. Welsh ICE is a co-working space particularly designed to support networking and facilitate relationships, and where members do not just interact but also exchange information and engage with each other on fields of interest. IndyCube believes the power of self-managed autonomous communities; founders provide sites across South Wales and let people to use the spaces that facilitate “natural” relationships and interactions among fellow co-workers.

It can be concluded that the simple co-location of member businesses do not facilitate collaboration and interaction in co-working spaces. However, there are particular tools that can be used as in the case of Welsh ICE: community facilitators (the staff) play a key role in stimulating interactions among member businesses through the creation of trust-based environments. This underlines the importance of the organization style and platform in fostering the soft aspects of entrepreneurship.

This paper looked at IndyCube sites only in cities (Cardiff, Newport and Swansea). A comparative research of IndyCube sites in smaller towns would allow to understand the role of context factors that shape co-working practices in the less urbanized areas of South Wales. This would give a profound picture how co-working spaces differ from each other, how their presences influence local communities and `to-be` entrepreneurs, and the

everyday life of their current member businesses. Moreover, this might give an understanding of how co-working spaces might contribute to economic regeneration in a sparse region.

Of particular concern is the extent to which the public sector should contribute to financing co-working spaces in a sparse region. Due to their spontaneous and flexible aspects, public authorities would need to find new funding tools that are adaptable to the entrepreneurial and co-working mind-set. One possibility might be to provide funding for entrepreneurs to be based in co-working spaces that would enable them to work in a more community oriented manner. Other option might be co-operation between universities and co-working sites in order to support graduate entrepreneurship.

Co-working spaces might be used as educational spaces: as part of the entrepreneurship curriculum, universities could offer opportunities for students to experience what is like being an entrepreneur, as well as provide support to set up businesses and enhance their social capital in co-working space environments.

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# Place-based innovation ecosystems? Insights from a nascent ecosystem in the Liverpool-City Region

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Despite the increasing popularity of the innovation ecosystem concept in academic, policy and practitioner circles, there exists very little empirical work on the concept. Our study aims to fill this gap by investigating a nascent innovation ecosystem in the Liverpool City Region. Interview data and documentary evidence were collected from the primary triple-helix actors, namely Unilever PLC, The University of Liverpool and The North-West Development Agency. This data allowed us to construct a narrative detailing the formation of a nascent innovation ecosystem and identify some of the critical success factors which contributed to ecosystem development. The insights from this research suggest that the formation of innovation ecosystems may be influenced by geographical and social factors, both of which are largely unaddressed by the extant literature regarding innovation ecosystems. Insights from this research also highlight the multitude of ways in which small firms may benefit through engagement with foundational technological platforms which underpin innovation ecosystems.

## Abbreviations

**CMD**- Centre for Materials Discovery

**ERDF**- European Regional Development Fund

**HT**- High Throughput

**NIS**- National Innovation System

**NWDA**- North West Development Agency

**RIS**- Regional Innovation System

**UoL**- University of Liverpool

## 1.0 Introduction

In recent times, large firms have attempted to establish interconnected networks of organisations that "co-evolve capabilities around a shared set of technologies, knowledge and skills" for the purposes of developing new product and service offerings [1], [2]. This emerging approach to the organisation of innovation activity has been predominantly adopted in digital industries by organisations such as Google and Apple, who establish a technological platform and allow other firms to engage with this platform [3], [4]. This has benefits for both Google and the partner firms as both can appropriate value through the utilisation of the shared technological capability [4], [1]. The innovation ecosystem concept

has, thus far, been considered with scant regard to geographical and social aspects of innovation, rather, ecosystems are generally perceived to be *aspatial* and *asocial* [5]. However, innovation has long been considered as a territorial and social phenomenon, primarily due to the overwhelming success of specific industrial agglomerations such as Silicon Valley and the Cambridge Bio-Medical cluster [6], [7]. Subsequently, innovation has been analysed through geographically bounded frameworks such as the National Innovation System (NIS) [8], [9] and the Regional Innovation System (RIS) [10]. Furthermore, as innovation is perceived as a territorial phenomenon, it has become increasingly important to policy-makers at all levels (from supra-national to regional). The dominant policy paradigm is that innovation should lead to the creation of new jobs, new businesses and potentially new industries, all of which contribute towards enhanced productivity and economic growth [9], [11], [12], [13].

There appears to be a gap between emerging ecosystem perspectives on innovation, which are becoming increasingly adopted by policy-makers [11] and the more traditional, geographical perspectives on innovation. Specifically, current conceptualisations of innovation ecosystems pay scant attention to the geographical and social aspects of innovation that are emphasised in territorial systems approaches. Therefore, this research aims to generate initial insights into how nascent innovation ecosystems are formed and how they function. The paper attempts to achieve this aim by exploring the development of the Centre for Materials Discovery (CMD) in the Liverpool-City Region (UK). The CMD represents an advanced technological platform established through collaboration between Unilever Plc and the University of Liverpool (UoL). The project has received significant funding from both UK and EU sources and comprises of a multitude of stakeholders, forming a nascent innovation ecosystem.

The paper is structured as follows; the first section provides an interdisciplinary literature review that outlines the territorial systems perspectives on innovation as well as emergent ecosystem approaches. The influences of geographical and social proximity on innovation are also considered in this section. The second section presents a brief overview of the methodological approach utilized in this research. The third section presents a discussion of the main findings from the CMD case. Concluding remarks are presented in the final section.

## 2.0 Innovation Systems

One of the most commonly adopted approaches for the analysis of technological and economic change is the systems of innovation (IS) approach [14], [15]. Systems of innovation have been defined as "networks of organizations that develop, diffuse and use innovations" [16], [17], [18]. Geographically bounded variants include the national innovation system (NIS) [8], [9] and regional innovation system (RIS) [10], which consider the geographic influences on innovation at national and regional level respectively.

Regional innovation systems (RIS) are "interacting knowledge generation and exploitation subsystems, linked to global, national and other regional systems" [19], [20]. In this framework, the region is considered as a meso-level political unit which has some authority for the provision of support for economic development and innovation [21]. The RIS consists of two subsystems that are embedded within a region; the knowledge generation and diffusion subsystem and the knowledge application and exploitation system [21], [22], [23]. The knowledge generation and diffusion subsystem consists of actors that are involved in the generation and diffusion of knowledge and skills [22], [23]. They include actors such as universities, public research organisations and incubators. The knowledge exploitation and application subsystem consists of actors that actively exploit and apply knowledge, such as organisations, their suppliers, their customers, their competitors and their co-operative partners [23]. It is also suggested that regional political systems are influential within the

regional innovation system [21], [23]. Ideal RISs are characterised by intense interaction amongst the three subsystems, which ensures a substantial exchange of knowledge, resources and skills amongst actors within the RIS [23].

## **2.1 Innovation Ecologies and Ecosystems**

Recently, there has been a shift in academic and policy debates on innovation. Discussions have started to move away from the RIS approaches to innovation found in the economic geography literature, towards discussions about innovation ecologies and ecosystems, which are found predominantly within the fields of economics, management and engineering [3], [5], [24]. This transition is highlighted by the use of the innovation ecology concept by supra-national policy organisations such as the European Commission and the OECD [5], [11]. Innovation ecosystems are groups of individuals, firms and other entities, which interact and share a set of dependencies as they produce new goods, services and technologies [24], [25], [26].

The concept is usually applied at firm level, whereby ecosystems consist of large and small firms [25]. The most common conceptualisation of a firm-level ecosystem is the hub-based ecosystem, or the orchestra model [1], [25], [26], [27]. This ecosystem model consists of a group of organisations which congregate to exploit a potential market opportunity, based on a specific innovation architecture or platform; which is defined by a dominant leader firm [25], [28]. Examples of this type of ecosystem are derived from the digital sector and focus on organisations such as Google, Facebook and Apple [3], [4]. The 'keystone firm' [28] coordinates smaller organisations within the ecosystem by clarifying the innovation platform and determining the overall direction for the ecosystem. Small firms in the hub-based innovation ecosystem add value to the dominant firm's product offering by creating complementary products or services, alternatively, small firms may offer products that exist on the base of the hub-firms offering which adds value to the overall offering [25].

The hub-based ecosystem overlaps in some regards with the Technological Innovation System (TIS) concept proposed by Carlsson & Stankiewicz [29] in that both of these concepts propose that networks of organisations linked by a common technical platform may contribute towards innovation. Furthermore, the TIS concept is characteristically unrelated to specific geographical localities [14] although the influence of geographical proximity between innovation ecosystem actors remains unclear.

## **2.2 Geographical proximity and innovation**

Innovation has been considered as a territorial phenomenon because of the success of some specialised industrial agglomerations and clusters [6] such as Silicon Valley [7]. Through clustering production activities in specific geographic areas, vertical linkages may develop, whereby supplier firms locate in the same locality, reducing transaction and transportation costs [30]. Furthermore, it is suggested that a concentration of similar firms in certain localities will mean that firms are more informed about the actions of their competitors, this raised awareness means that there is enhanced rivalry amongst firms and therefore a greater commitment to differentiation and innovation [30], [31]. Some have suggested that these economic benefits alone do not fully capture the influence geographic proximity has on innovation [31]. It has been suggested that in order to fully appreciate the impact geography has on innovation, the socio-institutional settings and inter-firm collaboration processes, which are heavily influenced by geographical proximity need to be acknowledged [31],[32],[33],[34]. The fundamental argument is that co-located firms will benefit from an information and communication ecology, a so called 'local buzz' [31] which arises from frequent face to face contact between people and firms in the same industry in a

certain locality [31], [35].

Firms may experience several benefits from locating in a locality where a relevant 'local buzz' is prevalent [35]. It is argued that a prominent 'local buzz' enhances the potential for knowledge exchange and interactive learning, both of which are crucial for innovation [31], [35]. A 'local buzz' also leads to the establishment of a shared knowledge base, whereby participants can work together to configure and re-configure their resources to produce new knowledge [31], [33]. Despite the advantages of geographic co-location, it is recognised that a 'local buzz' may not always manifest, due to differing social structures and hostile previous interaction between actors [32].

The 'local buzz' concept highlights the importance of geographical proximity between actors for innovation [19]. It is argued that tacit knowledge is knowledge that is difficult to codify and articulate, therefore it is best shared through demonstration and practice [35], [36], [37]. As a result, tacit knowledge may be considered context-specific and spatially 'sticky' [35]. It may be considered an important factor in innovation because codified knowledge is much more widespread and accessible, therefore unique capabilities and products may be dependent on the production and application of tacit knowledge [33], [35]. This means that geographic proximity may have a significant influence on innovation, as tacit knowledge is most effectively disseminated through interpersonal interaction [35], [38]. This argument has been supported by empirical studies which have indicated that knowledge externalities tend to be geographically bounded [34], [39], [40].

Here it is important to note that geographic proximity has been considered particularly influential in the effective transfer of knowledge and technology between universities and businesses [41]. This is because university-business collaborations are characterised by bi-directional knowledge flows, basic research and enduring social relationships between partners [41], [42] all of which may be facilitated by face-to-face communication [41].

This reflects the influence of a related dimension of proximity called social proximity [34], [43]. Social proximity refers to the degree of trust and shared experience between individual agents [34]. Simply, the argument is that social proximity facilitates the transfer of tacit knowledge [34], [35]. It is suggested that this dimension of proximity is related to geographic proximity due to the impact that face-to-face communication has on the establishment of trusting relationships between individuals [43]. These proximity dimensions have yet to be investigated empirically with regard to the innovation ecosystem concept.

### **3.0 Methodological Approach**

As this study adopts a social constructivist perspective, there will be no attempt to provide generalizable findings about the emergence and functioning of innovation ecosystems. Furthermore, there will be no attempt to test or validate any theory in relation to the emergence and functioning of innovation ecosystems. This study instead, seeks to provide insights into the concept of innovation ecosystems, with the hope of extending understandings [44] of how nascent innovation ecosystems are formed. Consequently, a single case design is employed, as the focus on a single case allow for detailed exploration of contexts and events, which may yield deeper insights [45], [46], [47]. The study focuses on the triple-helix interactions between Unilever Plc and The University of Liverpool and the North West Development Agency in that led to the emergence of a nascent Innovation Ecosystem in Materials Chemistry in the Liverpool City region.

#### **3.1 Case Selection & Research Setting**

The selection of the Liverpool case was informed by the concept of theoretical sampling [48]. This case represents an unusual example of a 'tangible' innovation ecosystem, as the bulk of

empirical work on Innovation Ecosystems draws primarily upon exemplar cases of 'digital' ecosystems [3] which are characteristically aspatial [5]. As the aim of this research is to provide insights into the development of innovation ecosystems, a purposive sampling approach was also pursued [49]. Purposive sampling in this study took the form of snowball sampling, whereby contact was made with one key informant who was able to identify other key participants.

This sampling method was utilised for two reasons. First, this method of sampling was consistent with the aim of this research, which is to provide an enhanced understanding of the innovation ecosystem concept within the context of the Liverpool City Region. Second, this approach was adopted due to the dynamic nature of innovation ecosystems [1], [2]. It would have been very difficult to generate a sample that consisted of all organisations and individuals that are active within the ecosystem as the ecosystem spans a multiplicity of organisations, which engage with the platform in various different capacities. Therefore, it appeared that the most reasonable approach would be to use a key actor within the ecosystem to identify other key actors that would be willing to participate in this study.

The Centre for Materials Discovery (CMD) is the shared technological platform on which the innovation ecosystem is based. The main purpose of the CMD is to utilize 'High-Throughput' technologies to enhance the process of materials discovery. The High-Throughput technologies located at the CMD include robotic synthesis platforms, liquid formulation and handling platforms as well analytical technologies such as spectroscopic plate readers. CMD contains what has been termed, 'generic radical technology' [50] as the technology has potentially useful applications across a broad range of economic sectors as well as the potential to dramatically enhance the process of new materials discovery. The concentration of High-Throughput technologies in the CMD would require significant capital expenditure, even for large multi-national organisations such as Unilever. As a result, funding for the CMD was generated through interaction between several partners, namely Unilever, The University of Liverpool, The North West Development Agency (NWDA) and the European Regional Development Fund (ERDF)

Unilever are a multi-national fast moving consumer goods organisation with annual revenues of approximately €50Bn [51]. Innovation is a strategic priority at Unilever, highlighted by their significant R&D expenditure of approximately €1Bn [51]. The organisation was quick to adopt the principles of open innovation and still actively seeks to develop new innovations from open innovation sources. The University of Liverpool is a research university based in the Liverpool City region, with a research income of over £70million. The chemistry department is had an external research income of over £6.1million according to latest available figures (Research Assessment Exercise (RAE) [52] and over 70% of its outputs were deemed as internationally leading or excellent [52]. The NWDA is a now defunct government agency that was responsible for developing the economic prosperity of the North-West of England. The CMD is located in the centre of the Liverpool City Region, an economically challenged region of the UK characterised by low levels of wealth, productivity and skills. Although, this region enjoys the presence of several multi-national organisations and a number of higher education institutions.

### **3.2 Data Collection**

This study draws exclusively upon qualitative data, primarily because the study aims to generate a comprehensive understanding of a phenomenon in a particular context, therefore it was decided that the 'richness' [49] that qualitative data provides would be most useful to serve this purpose.

The empirical research presented in this research is based on multiple different sources. The primary source of data is in-depth interviews with four of the people who were instrumental in

the establishment of the CMD. These individuals were identified through consultation with a senior R&D manager in Unilever who was able ensure access. The advice of the senior R&D manager was deemed reliable as he was active within Unilever's R&D department during the time the CMD was established.

The initial interview guide was based on a review of the literature that had been conducted on innovation systems and innovation ecosystems. The guide was built progressively, after a pilot interview with a key informant highlighted some of the pertinent issues that were key to the development of the CMD. The final interview guide focused on three broad themes: 1) general description of the CMD 2) the development of the CMD and 3) the contribution of the CMD to a broader innovation ecosystem. The interviewees were asked the same set of open questions to enable them to share their personal narrative of the establishment of the CMD. As a result of their various backgrounds and organisational roles, interviewees highlighted different aspects of the establishment of the CMD. This enabled the construction of a holistic narrative account of the development of the CMD. All interviews were undertaken by the same researcher and took place in the summer of 2014, each lasted between 45-120 minutes.

Data also included detailed documentary evidence including internal reports from both The University of Liverpool and Unilever. Several of these reports are based on extensive interviews with key stakeholders from both The University of Liverpool and Unilever, who are active in promoting industrial engagement. We were also able to access NWDA funding proposals and ERDF performance reports which contained detailed information on the contribution of the CMD to the development of the (sub-) regional economy.

### **3.3 Data Analysis**

Data from interviews and documentary sources were used to construct a narrative account of the establishment of the CMD, which illustrated how triple-helix interaction [53] contributed towards the development of an open innovation ecosystem. Following the construction of this narrative data were coded to identify the most salient factors that were instrumental in the establishment of the CMD. Codes were devised retroductively, in that they were based on a review of the literature and on close consideration of the data itself. All coding was completed by one researcher, although codes were discussed amongst the research team until consensus was reached. Coding resulted in four key themes that were instrumental in the establishment of the CMD: 1) geographic proximity between actors; 2) social proximity between individual agents; 3) public policy support and 4) presence of an orchestrator firm [26]. Data was also arranged into tables in order to highlight how different actors perceived the important factors in the establishment of the CMD. The next section discusses the empirical findings in more detail.

## **4.0 Findings**

In the early 2000s Unilever began to embrace the principles of open innovation whereby R&D managers were encouraged to look for solutions to R&D problems from sources outside of the firm. During this time the issue of how synthetic chemistry was conducted at Unilever was subject of serious debate; Unilever were seeking radical new ways to conduct synthetic chemistry in order to accelerate the pace of R&D. The favoured approach adopted by Unilever was the High-Throughput Screening approach, which accelerates the process of materials discovery as it enables the production and analysis of large numbers of materials in parallel.

As a result Unilever sought to outsource synthetic chemistry research to HT screening organisations based in the US, although the utility of this approach was limited, as

highlighted by the head of one of the synthetic chemistry research groups:

*"Large amounts of money were paid by Unilever to a company [SX] that had no real understanding of Unilever's needs, no history of what worked and didn't work in the past, that just screened looking for answers and threw things back over the fence to Unilever when it thought it had found something..."*

During this time, a manager in the measurement science group within Unilever attempted to implement open innovation by establishing a collaborative partnership with a University in the Northwest region. The project focuses on shared research outcomes and required a significant investment from Unilever. Ultimately the project failed to deliver, as the geographic distance between Unilever's R&D labs and the HEI meant that staff found it difficult to meet regularly. The alignment around research outcomes also became difficult to maintain, which contributed towards the failure of the project.

Subsequently, the head of one of Unilever's synthetic chemistry groups sought to address some of the problems facing the synthetic chemistry group by engaging with the UoL, which was local to the company. He began talking to a research chemist at the UoL with whom he had ongoing collaborative projects. In fact, this was the catalytic event that led serendipitously to the establishment of the CMD. The two scientists - one from Unilever and one from the UoL - met regularly to discuss shared scientific issues and problems including the limitations of the HT screening approach to materials discovery that Unilever had adopted. Such discussions ultimately led to the development of a new approach for the application of HT technology for synthetic chemistry. This involved using applied conventional chemistry, which also enabled the production of substantial volumes of new materials, but speeding up the whole process by utilising HT technologies. This is fundamentally different to the screening approach which produces hundreds of materials in insufficient quantities that cannot be chemically tested. Collectively the two scientists believed that an increase in the speed of experimentation, which produced better and more insightful results, was much more beneficial than simply increasing the number of experiments from which the results were of limited utility. This quote from the Unilever research scientist illustrates the point:

*"And what we said was "we would like to build a platform, that did HT research, not HT screening, which was what SX was doing, apply conventional chemistry but quicker, making multiple grams of materials, you could analyse; you knew what the material was and then you could do rapid analysis on how well it worked..."*

Following this, the two scientists made an application to the Department of Trade and Industry (DTI) for funding for the HT Technology Centre. The bid was unsuccessful as it was suggested that the funding that could be provided was not enough to cover the cost of the project. Subsequently, the centre was reconceptualised as an open access facility which provided a *capability* to do advanced robotic synthesis enabled by a full time staff of experimental officers. The alignment around a technological capability, as opposed to research outcomes was a completely novel approach to university engagement. It also proved to be critical to the success of the project.

The two scientists sought to achieve senior buy-in within their respective organisations; the head of the chemistry department at the UoL was a keen supporter of the project as it increased the floor-space for chemistry research. His support was followed by the support of the pro-vice chancellor and the University agreed to support the project in principle. Once the UoL had given its support to the project, it became easier to achieve buy in in Unilever. This was highlighted by one scientist who pitched the project within Unilever as:

*"a complementing activity close by that we [Unilever] become the prime customer of and probably design from the ground up, a willing partner in that creation and a partner that was keen to engage, access to funds which Unilever couldn't get access to normally....A capital*

*base that wasn't ours, that didn't depreciate, we didn't own it, we just used it and not a single penny until it was built... but also without losing the skills and training and the input from Unilever scientists."*

This pitch was successful within Unilever as it complemented the strategy of open innovation that was being pursued by the organisation.

After the industry and academic partners had an 'in-principle' agreement on the project, funding was sought from the NWDA and the ERDF. The proposal for public funding support was successful and the project commenced in June 2005 and the centre opened in April 2007. The cost of the CMD exceeded £8million, of which, 24% was provided by the NWDA, 24% by the ERDF, 27% by the UoL and 25% by Unilever. Unilever's contribution also included the provision of software and training.

#### **4.1 Key Factors in Nascent Ecosystem Formation**

Individual agents within Unilever and the UoL were key in driving the development of the CMD. It was the shared concern about the existing application of HT technology that instigated the development of the CMD. Furthermore, key individuals took responsibility for driving the project upwards in their respective organisations. The CMD was not a project that was set up strategically at senior management level, but rather an organic project that was conceptualised, presented, pursued and developed by individual scientists operating at middle-manager level, who could see the potential for the development of an open innovation ecosystem. This was highlighted by one interviewee who suggested:

*"they agreed on a vision and worked on it so the four years they were working on it they were both trying to convince seniority at different levels in both institutions that this was the way to go forward and that it was the right thing..."*

Unilever and the UoL are both located in the Liverpool City Region, it was suggested that the geographic proximity between these two actors was "essential" to the establishment of the CMD. First, geographic proximity enabled regular face to face contact between the key individuals that conceptualised the CMD. It also ensured that contact between senior managers was straightforward and easy to maintain. The geographic proximity between these two partners ensured that any potential issues could be addressed quickly and facilitated mutual trust. Secondly, the HT platforms that the CMD contained required the physical presence of research staff. It was highlighted that geographic proximity between the UoL and Unilever ensured it was much easier for managers in Unilever to mobilise their research staff to engage with the CMD, had the CMD been located elsewhere, this task could have been much more difficult and would have posed a serious threat to the viability of such a platform. The Liverpool City Region itself had an influence on the development of the CMD, as the area was considered a high priority funding target by the ERDF, which enabled access to significant volumes of public funding. Furthermore, the academically leading chemistry department at the UoL ensured sufficient scope for collaboration.

The CMD was largely funded by government organisations, as highlighted above. It is apparent that the funding from public organisations was "critical to the success" of the CMD. The CMD business plan highlights that NWDA funding in particular was crucial, as this funding ensured a match from the ERDF. The report also details that the funding from public organisations was crucial as there was a paucity of alternative funding options. The most viable alternate option was a joint-investment from Unilever and the UoL, although this would have meant the facility would have been 50% smaller and would therefore have been of little interest to Unilever. Public funding also meant that the UoL became more committed to the facility, this was highlighted by one senior manager who suggested:

*"I just needed some leverage on some funds and so as soon as we got the RPFA and the*

*EPFA we lined up the funding package, it was then quite straightforward for me to talk to the Dean and get the Dean involved in the discussions".*

In sum, funding from public organisations ensured that the facility desired by Unilever could be constructed and ensured commitment from the UoL as it meant that the capital investment required was lower which decreased the risk associated with the project.

The fourth factor that was critical to the establishment of the CMD is the support of a large multi-national organisation. The support of Unilever was critical for the establishment of the CMD as it ensured that public funds could be accessed. This was because public funding was contingent on a match from industry. Unilever, as a large MNC was able to afford to commit to the project, which meant that the industry match required by the ERDF and NWDA was met instantly. This was highlighted by one interviewee who was responsible for the management of the CMD:

*"we had an anchored-tenant. So our industrial match, we met straight away, so we weren't chasing around to get cash in, so we were secure in that ... If Unilever went away we could lose ERDF and NWDA, it was like a house of cards....It was a bit of a risk but we knew we could bring in the money"*

Unilever were not only influential in securing funding, they played a significant role in the design of the CMD, by adopting the role of a 'lead user' [55]. Without Unilever support the project would have never received public funding and the CMD, as it exists today, would not have been established.

## 5.0 Discussion

The CMD case provides some interesting insights into nascent innovation ecosystems. These insights are predominantly related to the influences of social and geographical factors on ecosystem formation. However, the case also generated some interesting insights pertaining to SME engagement in innovation ecosystems. These insights are explored in more detail below.

Papaioannou *et al.* [5] highlighted that the extant innovation ecosystem concept [27] appeared to be characteristically aspatial and asocial. Contrary to this, the CMD case suggests that geography and 'physical space' [31], [34] had a significant influence on the formation of an innovation ecosystem. Geographic proximity was important in this case as it facilitated the exchange of tacit knowledge; it also facilitated interpersonal trusting relationships and it enabled engagement with the technological platform. As scientists from Unilever and the UoL were co-located at the CMD, the exchange of tacit knowledge became common. For example, scientists would share knowledge about the how best to configure the HT technologies for certain purposes. The close geographic proximity between Unilever and UoL also meant that key personnel could be called upon when needed, which meant that any concerns could be addressed quickly, minimising the risk of project failure. As the high throughput technological platform requires physical user engagement, the close geographic proximity has a direct effect on the user's ability to engage with the platform. It is suggested that the geographic proximity between Unilever's Port Sunlight facility and the CMD meant that research staff from Unilever were more willing to engage with the UoL and the CMD. As location appears to be important in ecosystem development and functioning, it is suggested that location specific factors; such as regional knowledge bases and supporting knowledge infrastructure may determine the viability of an innovation ecosystem [5].

The proposition that geographic proximity between innovation actors is important is far from revolutionary. The regional innovation system concept emphasises that innovation is inextricably linked to the supporting infrastructures of geographical areas, such as the knowledge generation subsystem, the knowledge exploitation subsystem and the regional

political subsystem [21],[22],[23], [31]. Although place is recognised as an important factor in other concepts, the innovation ecosystem concept fails to adequately address the role that place plays in the formation of innovation ecosystems.

If 'place' plays an important role in the formation of nascent innovation ecosystems, regional policy-makers can play a critical role in promoting the appropriate conditions for the establishment of innovation ecosystems. Policy interventions and public support played a critical role in the development of the CMD and the subsequent development of a nascent ecosystem. First, public support was directly involved in the establishment of the technological platform on which the ecosystem is based, as 50% of the funding for the technology was supplied by public organisations. Second, as a consequence of public support, the other organisations involved in the establishment of the CMD became more committed to the project, as the financial investment required from them was lowered; this reduced the risk of the project for these organisations. Thirdly, support from public organisations was critical as the conditions attached to the funding ensured that smaller firms became engaged with the technological platform, contributing towards the development of a broader materials chemistry ecosystem in the Liverpool City Region.

Despite the lack of attention to the role of policy-makers in the innovation ecosystem concept, such interventions are acknowledged as a key driver of innovation in other related concepts. For example the regional innovation system approach emphasises the important role that regional political subsystems play within the larger context of the regional innovation system [21], [22]. Furthermore, the triple-helix approach emphasises the roles that public policy and public organisations play in facilitating and instigating relationships between industry and academia [53].

Consequently, it is pertinent to suggest that policy makers should consider much more a focus on 'platform policies' as opposed to more traditional cluster policies [12], [53]. Cluster policy attempts to support a specialised concentration of knowledge and expertise within a specific geographic area [30], [54]. Platform policies, on the other hand, aim to support more complex arrangements of organisations that operate in fields of "related variety" [54 p.1419]. Similarly, local and regional agencies can play an active role in organising diverse firms to operate on certain technological platforms by, for example, co-ordinating events with organisations that share an interest in a technological capability to explore the potential capacity for the application of novel technologies [54]. Alternatively, public agencies may wish to consider direct funding initiatives for the development of platform technologies, which have a wide range of applications across various industries and clusters [54], as was the case with the HT technology in Liverpool. These types of 'platform policies' may be particularly useful in stimulating local and regional economic development in areas that are economically challenged due to the decline of traditional industry clusters [12], [54].

Social influences on innovation ecosystem formation are also highlighted by this case. Specifically, the Liverpool case illustrates that individuals play a critical role in the interactive innovation process as it is the creation of trusting relationships between individuals within different organisations that drive and support interaction and knowledge exchange. Furthermore, it was the common concerns shared between individual scientists that lead to the development of novel applications for High Throughput technology. It is therefore suggested that social proximity [34], [43] was one of the key drivers in the development of the Liverpool Open Innovation Ecosystem. This insight has implications not just for the innovation ecosystem concept, but for the broader systems approaches to innovation as well. Ylinenpaa [56] highlights that, although the systems approaches conceive innovation as a social and interactive process [8], [12], [15], [21], they fail to fully understand the roles that individual actors play within that interactive innovation process.

## **6.0 Conclusion**

The aim of this study was to generate insights into the emerging innovation ecosystem concept [1], [26], [27] by exploring the emergence of a nascent innovation ecosystem in the Liverpool City region. The insights generated through exploring the CMD case suggest that the formation of innovation ecosystems may be influenced by geographical and social dimensions of proximity [34]. This insight is interesting because the innovation ecosystem concept primarily emphasised the importance of technological factors and largely disregards the geographical and social aspects of innovation [5]. This research also suggests that the social relationships that exist between individual agents may provide the catalyst for technological development and ecosystem formation. Again, the extant literature on innovation ecosystem pays little attention to social relationships between ecosystem members and the influences of these relationships on the ecosystem. The potential influence of policy and policy-makers on ecosystem formation is also highlighted by this research. Again the extant innovation ecosystem literature remains unclear on the influence of public bodies on ecosystem formation and functioning.

These three conclusions are only initial insights into the innovation ecosystem concept, there remains a need to conduct much more empirical investigation on this emergent concept. This study highlights several potential avenues for future enquiry. Based on the first conclusion, that geography is an important factor in the development on innovation ecosystems, future studies may wish to investigate how firms attempt to create and manage innovation ecosystems in a variety of geographical contexts. Some preliminary work has already been conducted to this end, primarily within the context of open innovation, however the need for further investigation remains [59]. Alternatively, future studies may wish to explore the impact that innovation platforms have on their geographic locality with regards to economic and social impacts in particular. These future investigations could draw somewhat on regional innovation systems for theoretical underpinnings.

The second conclusion, that individual social relationships play a role in the formation of innovation ecosystems, also highlights areas for potential future research. Specifically, future studies could consider the processes of ecosystem creation. Again, this issue has been identified as an important area of research within the context of open innovation [59]. However the role of individuals and how they mobilise social capital in innovation ecosystems remains under-explored.

The final conclusion, that public policy plays an important role in the establishment of nascent innovation ecosystem, also highlights potential for further investigation. Specifically, future research may wish to explore what policy levers drive the formation of innovation ecosystems and by what means. Furthermore, future studies may attempt to evaluate the effectiveness of so-called 'platform policies' [54] in stimulating the development of innovation ecosystems, given their overlapping dependency on generic technological platforms.

Whilst this study provides interesting insights into previous underexplored facets of the innovation ecosystem, it is important to consider that these insights are based on the analysis of a single case, from which no generalisations can be drawn [59]. However, the aim of this research was not to provide broad generalisations, but to provide a deeper understanding of the ecosystem concept. Much more empirical work is required in order to fully understand the mechanisms that underpin the formation and functioning of innovation ecosystems. This research represents a tentative attempt to empirically investigate innovation ecosystems, highlighting possible areas for future investigation.

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## **Students as Innovation Partners – Company Insights from South-East Europe**

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**Having in mind the concept of open innovation and its huge potentials, the purpose of this paper is to discuss possibilities of industry-university collaboration through direct engagement of students as creative innovation partners within company innovation projects. The concept of collaboration between companies and students is explained in this paper in accordance to its basic principles and described through three successful examples of such collaboration. This paper provides the answers to general questions on open innovation, current companies' experiences and practices in collaboration with universities, as well as potentials of students' inclusion into companies' innovative projects in three West Balkan countries - Serbia, Bosnia and Herzegovina, and Montenegro. The overall results show that the current state of industry-university collaboration offers the space for improvements. Even though companies cooperate with universities to some extent, they rarely engage students. Innovation labs are identified as an interesting context that would bring students and companies together: they provide the co-creative environment and allow solution seekers and problem solvers to fulfil their own assignments. All parties involved (companies as solution seekers, students as problem solvers and higher education institutions - HEIs as intermediaries) have benefits from the collaboration within innovation labs - students gain relevant experience, improve their own employability and career perspectives; HEIs create distinctive learning experience for their students and reinforce their relationships with companies, and companies get opportunity to access new ideas, creative resources and potential collaborators. Previous practices show good results in this kind of students' activation, and may be described as a win-win-win situation, as it offers benefits to all involved parties – companies, students and HEIs. Therefore, it is indicated a pattern that is good to follow.**

### **Keywords**

companies-students collaboration, innovation labs, open innovation

## **1. Introduction**

To overcome limitations of closed innovation processes, such as increasing R&D costs, insufficient resources and unsatisfactory level of competences, companies may choose to outsource their innovation work and invite external contributors to develop ideas or solutions to specific, pre-defined problems [1]. Companies are increasingly aware that they need to tap into both internal and external knowledge sources to accelerate innovation and adopt open innovation as an organizational strategy to broaden innovation boundaries [2].

Adoption of open innovation is a recognition that innovation performance can no longer be exclusively defined within organizational boundaries and internal R&D functions, but moreover depends on the contributions of a expansive array of external actors with fresh innovative ideas [3], who may come from diverse areas of society, from the market, from the industry or from academia [4].

Companies have started to delegate problem solving to larger groups of individuals, to supply collective intelligence from multiple sources, assess quality and process work in parallel [5]. Instead of limiting innovation to what companies can devise within their own borders, pull systems open the process to many diverse participants, whose input can take innovation in unexpected directions that serve a much broader range of needs [6]. The Internet as a powerful platform for collaborative innovation [7] enables companies to gain more ideas for innovation, opening their innovation funnel through crowdsourcing and widening the scope for screening ideas [8].

The purpose of this paper is to discuss possibilities of industry-university collaboration through direct engagement of students as creative innovation partners within company innovation projects. Also, this paper aims to describe current companies' practices and to measure potentials for collaboration in three West Balkan Countries.

Having in mind the concept of open innovation explained in this section, the second section deals with companies-students collaboration within innovation labs at university setting, explains its basic principles, and describes three successful examples of such collaboration. Benefits for all parties involved (companies as solution seekers, students as problem solvers and higher education institutions - HEIs as intermediaries) are defined in the third section. After the review of methodology and sample used given in the fourth section, the fifth section offers the results of this research and provides the answers to questions on general open innovation, current experiences with university collaboration, as well as inclusion of students into companies' innovative projects.

## **2. Companies-students collaboration**

Level and quality of university –business cooperation are among the key factors and indicators of the technology and knowledge transfer process in one society. The cooperation plays a significant role in busting regional development and innovativeness because the main outcomes are enhanced innovative capacities of the enterprise, improved skills of students relevant to the labour market and more efficient usage of available resources (e.g. human, financial, R&D laboratories). Recent research conducted in several European countries showed that main drivers of this cooperation are [9]: existence of mutual trust and commitment; existence of shared motives and previous relationship; geographical proximity; HEIs interest in accessing practical knowledge and companies' interest in accessing HEI's R&D facilities. The same research showed that companies identified bureaucracy (within or external to the higher education institutions), different time horizons and different motivations and values between HEIs and business as the main barriers they are facing with when it comes to the cooperation with the higher education institutions. Although universities are unions of students and academics, dominant focus of university –business cooperation is on academics. Students, as a pool of talent with specific motivation and priorities can offer much more. Namely, considering that students of most universities are passive consumers of

knowledge deliver service, provided by the teaching staff, it can be of great benefit to adopt the concept of open innovations in curricula to take advantage of students' potential [10]. Through the outside-in open innovation process new ideas may be acquired from students and brought into the companies' innovation pipeline. On the other hand, through practical work within open innovation environment students get an opportunity to apply their knowledge and skills and get ready for their future careers.

### **2.1 Innovation labs as a context for collaboration**

To support companies-students collaboration, it is necessary to establish innovation markets – an environment where innovation supply and demand meet [11]. Innovation labs provide this sort of environment and allow solution seekers and problem solvers to fulfil their own assignments. The concept of innovation labs is based mostly upon the concept of living labs, which are defined as interaction spaces, in which stakeholders form public-private-people partnerships (4Ps) of companies, public agencies, universities, users, and other stakeholders, all collaborating for creation, prototyping, validating, and testing of new technologies, services, products, and systems in real-life contexts [12].

Innovation labs are based on a highly multi-dimensional concept and host several groups of actors [13], such as students, lab staff, university staff, university students enrolled in relevant courses (subjects), external mentors and experienced practitioners, companies representatives, samples of end-users. However, there are three main groups of actors in innovation labs within a university setting - companies as solution seekers, students as problem solvers and HEIs as intermediaries. As solution seekers, companies should propose a specific task to be solved and give a support for an interesting solution. They should also provide a financial compensation for solvers in return for solutions in order to retain the IP rights to them [14]. The role of students as problem solvers is to solve tasks on a specific challenge, to give their opinion on a specific challenge, to propose ideas, business models or concepts [15]. HEIs as intermediaries in innovation lab should support this collaboration by organizing innovation contests, providing the space, hardware and software, trainings and mentorship for students. They should also provide structure and governance to student participation in the open innovation projects.

Key activities in innovation labs are the following [16]:

- individual, group and hybrid idea generation activities, whether in virtual or physical space;
- trainings that help students to obtain necessary knowledge to understand open innovations and acquire skills to participate in open innovation projects;
- mentorship (1:1 mentoring, giving talks, and advising) of professors, assistants and companies' representatives to help students to work on their solutions;
- networking events (with other students, professors, assistants and companies' representatives) as the basis for new connections and collaborations between lab users who do not know each other;
- practical realizations, like creation of multimedia content, development of apps for mobile and tablet devices, simple prototyping, simulation and testing of new services, software testing, lead-user and ordinary-user testing, service providing and many others as the core of the innovation lab concept for developing an idea into innovation.

### **2.2 Basic principles of the collaboration**

Collaboration between students and companies should be supported by HEIs. To connect students' creative minds and engage them in open innovation projects with companies, HEIs usually organize contests, as a historically important and increasingly popular mechanism for

encouraging innovation [17]. Students are asked to submit their solutions for a specific contest challenge that satisfy certain criteria within a defined timeframe [5]. The rationale behind innovation contests follows the logic that the collective intelligence of a crowd produces better results than that of a small group of individuals [18]. An increasing number of organizations have adopted innovation contests as a means to realize innovative product or service solutions [19]. They are the right choice when it is not obvious what combination of skills or even which technical approach will lead to the best solution, when the problem is complex or novel and when it comes to design problems, where creativity is crucial [20]. In order to increase the efficiency and effectiveness of student innovation, HEIs organize multiround contests, in which the first round is played with a large pool of contestants who make relatively little investment in the idea generation phase [21]. In the second round, after the submitted ideas are evaluated and the promising ones are selected, the limited pool of students work on the idea development and refinement in closer contacts with the contest organizers in innovation lab setting, focusing on the concept development [15].

### **2.3 Successful examples of collaboration**

There are successful examples of collaboration between universities and companies in dealing with innovation challenges. For example, International Innovation Labs (IILs) were organized in order to bridge the gap between HEIs and SMEs to stimulate business innovation. In this case International student teams from three HEIs (Belgium, Finland and Latvia) were formed to come up with creative solutions for genuine business problems posted by the SMEs. Innovations were focused on online communication strategies and new markets approaches [22]. Ten participating SMEs involved in this IILs were generally very satisfied about their participation with mostly a score of 8/10.

Since the academic year 2007-2008, each winter semester first-year bachelor students are involved in an open innovation contest in the class “Basics of e-Business” in the School of Business and Economics of the University of Erlangen-Nurnberg in Germany. This contest is set up on IDEANET open web-based platform for crowdsourcing, developed by HYVE AG. In the winter semester of 2009-2010 students had a task to create and submit business concepts for service innovations based on smartphones in the context of leisure and entertainment, fitness and healthcare, or education. Working in teams, 1198 students developed 265 concepts during six weeks. These concepts were evaluated by experts in the field, from the faculty as well as corporate partners [23].

Similarly, there was an innovation contest organized by the Faculty of Technical Sciences of the University of Novi Sad in Serbia in cooperation with and Subotica Tech – College of Applied Sciences and company Zwei plus Zwei GmbH from Cologne in Germany. To collect fresh ideas and functional solutions of identified problems in its product development processes, Zwei plus Zwei relied on skills and competences of young students from these two HEIs and outsourced its product development projects, focusing on the improvement of child carriers of one of its brands. This innovation contest was organized in the summer semester of 2012/2013. It was run offline, through personal contacts among students, assistants and professors. The tasks were highly specific and called for elaborated concept solutions. This innovation contest targeted about 80 students with the background in Mechanical engineering. More than 50 students took part in the projects, suggesting 56 solutions in total, of which 22 fulfilled all criteria and were accepted for further consideration. Submitted solutions were evaluated by the jury, consisted of the company’s CEO and the faculty [24].

## **3. Benefits of companies-students collaboration**

Billy Joy, a founder of Sun Microsystems, once said: “No matter who you are, most of the

smart people work for someone else ” [25]. However, it is even probable that these smart people are still students and wait for an opportunity to use their knowledge and skills in non-academic environment. In addition, the employment of graduates without any practical experience causes high costs for the companies, because they have to introduce them to every single process. These are reasons which motivate companies to engage students in innovative contests and collaborations. On the other hand, real world experience, through problem-based learning and hands on experience in the workplace help facilitate students transition from learning to work [26]. However, only a small percentage of young people in Western Balkan countries get practical experience while studying.

Bearing in mind all these, successfully organized collaboration between companies and students may be described as a win-win-win situation, as it offers benefits to all involved parties – companies, students and HEIs [16].

### ***3.1 Benefits for companies as solution seekers***

In search for innovative solutions it is more effective to involve a diverse group of individuals outside the company, or the discipline [14]. Therefore, companies as solution seekers turn to contributors with different background. Even though, it is very difficult to find them, since they come from different areas of society, they actually exist on one place – university. There are students are young, creative and usually quite motivated to show what they can and learn from their own experience.

Collaborating with students, companies open the way to involving new and relevant resources, they can do business on the basis of new ideas and in this way improve their success rates [27]. They get access to unbiased knowledge and insights into opportunities that lie beyond their immediate field of view [28]. Involving students as co-creators in innovation produces ideas that are more creative, more highly valued by customers, and more easily implemented [29]. Recent research at several European countries [9] showed that employers ranked students ability to come up with new ideas and solutions as third most important ability (after abilities to acquire new knowledge and to work in a foreign languages). This sort of collaboration increases speed to market, lowers costs, improves product quality and reduces risks in innovation processes [24], but in the same time, it asks for new management skills, different management styles, and information confidentiality [30].

### ***3.2 Benefits for students as problem solvers***

In student innovation contests, apart from finding the solutions for a company's problems, the development of students' skills and competences is another main objective of these contests and also represents direct benefits for students. In open innovation projects, students develop their specific cognitive, emotional and operational skills. They get the experience of collaboration with unknown individuals, who have different technical background and, sometimes, different interests, which is a real business environment that expects them after studies. Facing operational problems that appear in organizing the work with team members, who have different obligations and schedule at university, and often live in different cities, students become capable to recognize skills and needs of their team members, create the environment that values diversity, adapt their own behaviour, and even organize virtual community [23]. All these activities will enable students to enhance their own employability. Additionally, students start to see themselves as innovators, who come to solutions of certain problems together with their team, making an effort to attract the attention of evaluating jury and other students [10].

Even though innovation contests ask for considerable time and effort, students are usually highly motivated to get involved and participate. However, there should be a successful

stimulation for both intrinsically and extrinsically motivated students. The incentive structure needs to be attractive for the students and appropriate for the company [8]. Some students see benefits in monetary prize (cash, scholarship, etc.), while others expect positive feedback, reputation among relevant peers, professors and company representatives, self-realization, as well as potential recognition for future internships or jobs.

### 3.3 Benefits for HEIs as intermediaries

As intermediaries in collaboration between companies and students, HEIs get the range of benefits. Two the most important are: enriched educational and learning experience for their students and reinforcement of its relationship with industry. Besides serving as a cross-disciplinary platform for collaboration with companies, students' involvement in innovation process will offer a unique environment for problem- and work-based learning and improve educational experience for students and prepare them for active role at labor market. Also, HEIs can easier explore unexplored talents of their students and offer them research internships or keep them as young researchers [15].

## 4. Methodology and sample

Since the goal of this research was to assess companies' perspective and potentials for collaboration with students in innovative projects, a survey was conducted to obtain data needed to make this assessment. Due to the novelty of this subject, the authors were not able to find a measuring instrument that was already used for this purpose. Therefore, a new questionnaire was constructed that quantified relevant issues (presented in Appendix 1).

First, a few general questions about being opened for innovation were constructed. Second, a few questions were constructed about companies' current experiences with university collaboration. Third, a set of specific questions about including students into companies' innovative projects was created. Most of the questions were closed-type questions, while three questions were open-ended and dealt with nature of company-university collaboration. Some closed-type questions were designed with a 5 point scale indicating frequency of the phenomena within the company. Others were designed with a 4 point scale, indicating the amount of willingness for certain action, where the fifth point would be superfluous.

The questionnaire was pretested on a pilot sample of 12 companies, all SMEs, which resulted in minor adjustments about wording and in suggestion to leave some questions open ended. The questionnaire was posted in both forms of an online survey and of a printed survey, since the responses were collected via internet and standard postal shipments. The questionnaire was distributed to a number of companies in Serbia, Bosnia & Herzegovina and Montenegro, using local partners in a European Commission financed project. The response rate was approximately 30%, with a similar response rates in both online and printed forms of the survey. There were no significant differences between early respondents and late respondents in any question.

**Table 1** Structure of the company sample, regarding number of employees and annual income

	Annual income				Total
	less than 2 million €	between 2 and 10 million €	between 10 and 50 million €	more than 50 million €	
<b>Number</b>					

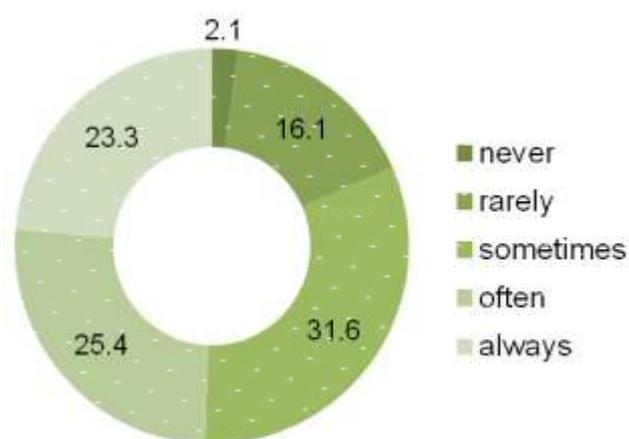
Number of employees	less than 10	99	8	0	0	<b>107</b>
	between 11 and 50	24	13	5	0	<b>42</b>
	between 51 and 250	10	14	3	2	<b>29</b>
	more than 250	2	5	7	1	<b>15</b>
	<b>Total</b>	<b>135</b>	<b>40</b>	<b>15</b>	<b>3</b>	<b>193</b>

After the initial screening of responses, there were 193 questionnaires that formed the final sample. The sample was mostly consisted of micro and small enterprises, as presented in table 1. The companies in the sample were approximately equally distributed across seven main activity groups frequently used in local nomenclature. There were 55.4% of companies that were 0 to 10 years old. Roughly one half of the companies (55%) in the sample stated that their dominant market is local or national, while 11.4% mostly deals with export and 33.7% works on mixed markets, both local, national and international. Also, a scale reliability test was conducted, observing only closed-type questions, which indicated a satisfying Cronbach's Alpha of .879 with 12 items.

## 5. Results

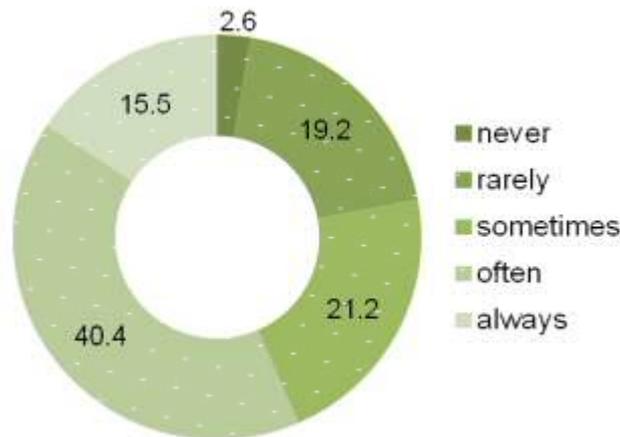
### 5.1 General open innovation

By observing answers for question iD11, it can be seen that around half of the companies from the sample would often or always share their problems and challenges with anyone who is able to help (Figure 1), with additional 31% of those who would sometimes be willing to share their problems with others. This shows a big potential to include companies in the IDEALab activities, as companies have no manifest barriers to include external partners in their innovative processes. This finding is supported by companies' perception that external partners possess ideas and knowledge that could be valuable for business improvement (question iD13), where 54.4% of the respondents answered with "often" or "always".



**Figure 1** Distribution of answers on question iD11 – We would gladly share our problems and challenges with anyone who is able to help (% of total)

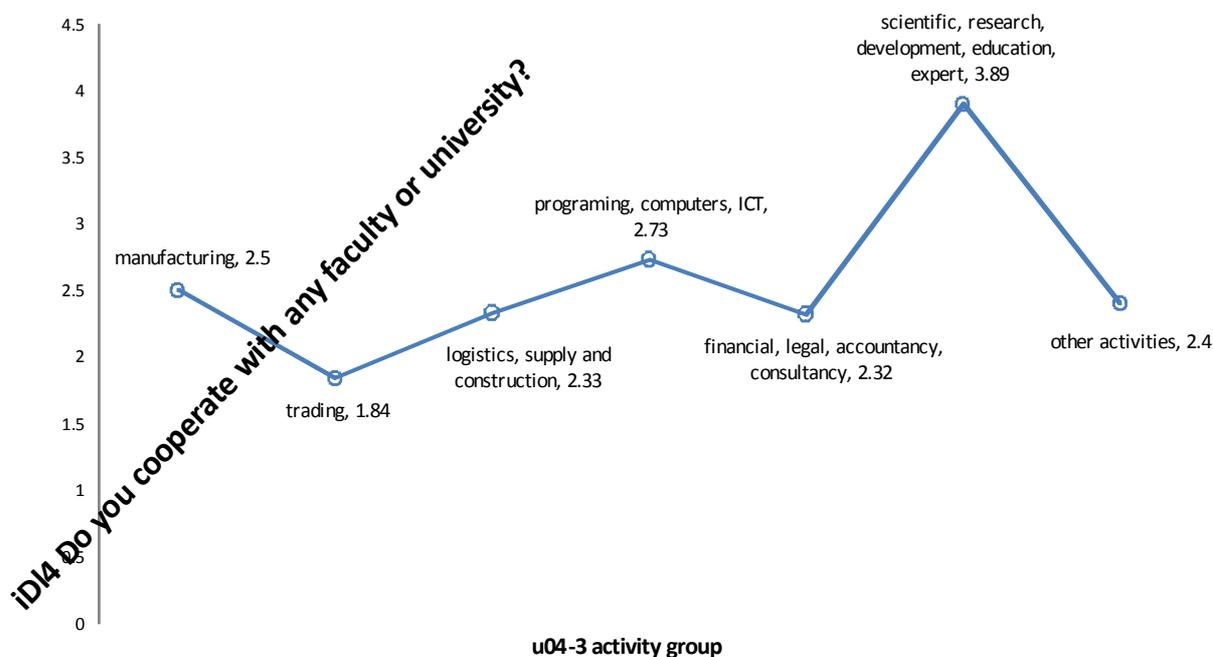
As the answers in question iDI1 took a form of a general statement about future possibilities, one must be aware of socially desirable answers that may affect these results. Therefore, a second question was posted about practices that companies already realize. From these answers (Figure 2), it is interesting to see that biggest percentage of the companies have answered with “often”, and that overall cooperation with external subjects is even greater than the one indicated in question iDI1. The reason for this unexpected rise may be that some companies probably ask external partners for help with difficulties and challenges, where they haven’t originally planned to involve these partners.



**Figure 2** Distribution of answers on question iDI2 – When we have some difficulties or challenges in work, we also ask people who are not our employees for their input (% of total)

## 5.2 Current experiences with university collaboration

Regarding the companies’ cooperation with universities (question iDI4), it was found that 12.4% of the companies always cooperate with some university, 16.2% often, 16.1% sometimes, 18.1% rarely and 35.2 never. This question needed further clarification, so it was cross tabulated with some general properties of the company. This analysis showed that companies that cooperate with universities more often than the others are the ones from activity group “scientific, research, development, education, expert” (as depicted in Figure 3), the ones that have more than 50 employees, and the ones that are export-oriented. On the other side of the spectrum were mostly companies from the trading sector, companies that have less than 50 employees, and companies that combine business on both local, national and international markets. These companies score low on university cooperation, and here lies a potential that is currently untapped.



**Figure 3** Cooperation with universities in different activity groups

Structure of the current collaboration was described with answers to question „iDI5 In which way do you cooperate with them (universities)? “. Most of the companies who state that they cooperate with universities actually just accept students as interns or for volunteering activities, or by awarding them scholarships, which is a very limited cooperation. Also, a few companies stated that students help them to write project proposals and to realize some projects, as junior staff. On the other hand, a few companies stated that they receive advices and consult with university staff, while some boast with giving professional services to the university. Finally, only three companies stated that they cooperate with universities in order to get good business ideas, in the following manner: “We award scholarships to students, and thus invest in ideas”; “We support students and receive business ideas”; “We collaborate with a design college, and get ideas on how to improve our product design

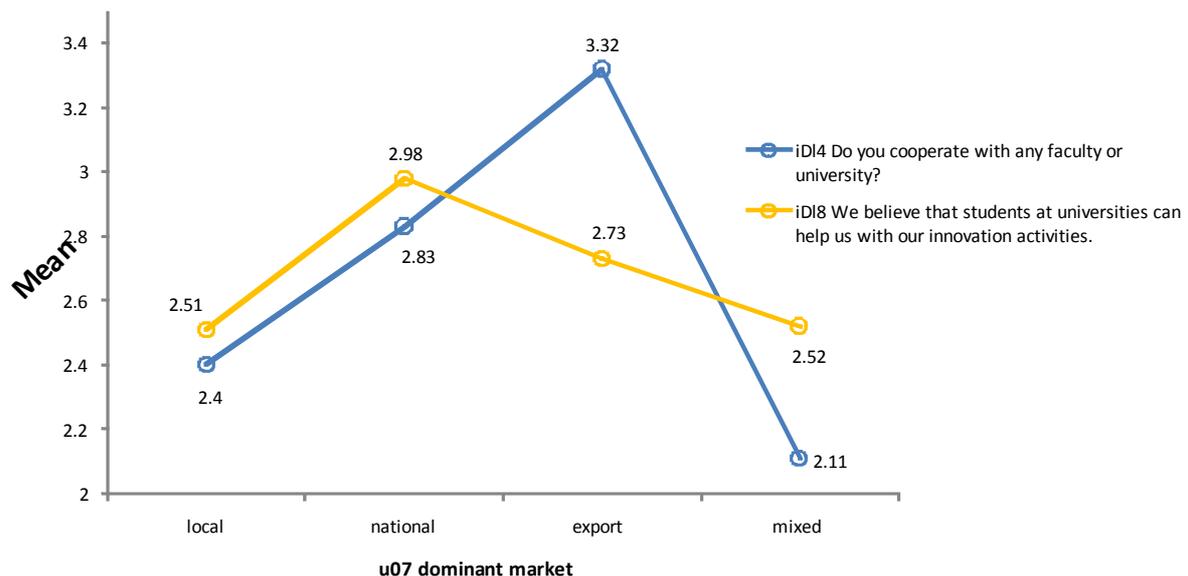
Reasons for the lack of collaboration with universities were identified with question “iDI6 If you do not cooperate with faculties and universities, what is your main reason for that? ” Explanations were more or less uniform, mostly in the following range: “There was no need for that ” (by far the most frequent answer); “Students do not have enough applicable knowledge to help us ”; “No interest was shown from their side ”; “Universities nurture only theoretical knowledge ”. Also, a few companies stated that their business is too specific/narrow/confidential that they cannot find relevant university partners.

Means of cooperation were also observed in this step, for the companies that stated to have good cooperation with universities. This was observed with the question “iDI7 If you cooperate with faculties or universities, what is your main reason for that?” Some of the most frequent answers were in the lines of: “To invest in new human resources ”; “To exchange experience, knowledge, ideas and to solve problems ”; “To recruit new staff, to attract talents”; “To train students”; “To improve our service”.

### 5.3 Including students into companies' innovative projects

Somewhat surprisingly, almost half of the companies doubt that university students could significantly help them in their innovation activities (question iDI8), where just over 16% of the companies believe that students could help their innovation activities to a great extent, and 39.4% to some extent. This finding could be explained with already mentioned answers to the question iDI6, where some specific answers related to students mostly were: “Students do not possess necessary experience”; “Students do not have practical knowledge that we need”.

It is therefore evident that companies doubt that students have potential to be anything more than a free/cheap workforce inside the company, since companies ask only for ready-made solutions that could fix their problems in short time. While company size was not found to be a significant variable in answering this question, company's activity group was found to be a significant factor of believing in students as partners in innovation activities. The lowest acceptance of students as innovation partners could be found in trading companies, as well as in logistics, supply and construction companies. On the other side, companies from IT sector and scientific, research, development, education and expert companies have the firmest belief in partnering with students. When answering this question, companies also differ significantly regarding their dominant market orientation: companies oriented towards national market show the highest belief in partnering with students in their innovation activities. There is an interesting difference between answering questions “iDI4 Do you cooperate with any faculty or university?” and “iDI8 We believe that students at universities can help us with our innovation activities.”, regarding companies' dominant market orientation. As it can be seen in Figure 4, companies that are oriented towards international market have a big difference between their current level of cooperation with universities and their belief in students as innovation partners. Probably, these companies are currently partnering with other individuals in universities other than students, such as researchers and specialists.

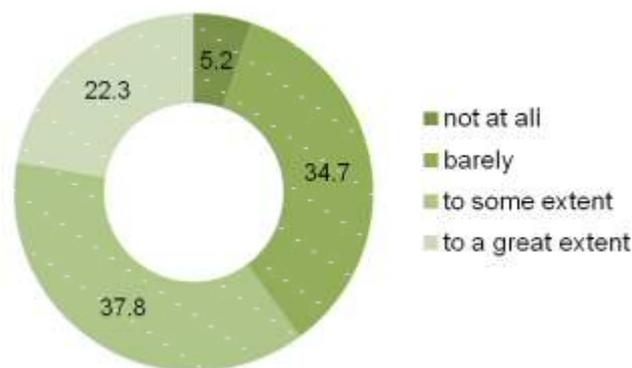


**Figure 4** Comparing companies' current cooperation and perspectives for cooperation, relative to their dominant market

Similar to the previous question, companies do not look too keen to actually engage students

in improving their work (question iDI9). There are 15% of the companies that would like to engage students in company's improvement to a great extent, and additional 32.6% of companies who would like to engage students to some extent. Once again, these companies are mostly from activity groups "scientific, research, development, education, expert" and "programming, computers, ICT". That leaves 52.4% of companies that are reluctant to include students in their improvement and innovation activities, mainly from activity groups "trading" and "logistics, supply and construction companies". This finding may be a serious problem for future industry-university collaboration, as half of the companies look sceptical towards this kind of arrangement. It is therefore crucial to: (1) find evidence that students are capable of helping companies in their innovative projects; (2) disseminate evidence found in (1) within the population of companies, in order to convince them to allow students an opportunity to be included in their innovative projects.

However, the companies would take it more seriously if the students were organized in some form of work teams (Figure 5). The combined percentage of companies that stated "to some extent" and "to a great extent" rises from 47% in answering question iDI9 to 60%



**Figure 5** Distribution of answers on question iDI10 – If the students are organized in some forms of work teams, we will engage them in solving problems in our company (% of total)

## 6. Conclusion

The presented results show that the current state of industry-university cooperation is less than perfect. While companies do team up with universities to some extent, it is rarely to the students' benefits. Most of the companies from the sample observe university students as a working force that does not have significant experience or critical thinking to be included in innovative projects. Companies often observe students as results of university's theoretical and non-applicable transfer of knowledge. They also believe that students' lack of work experience is rendering them incapable of producing creative inputs that could be used in innovative activities.

The situation gets a little better if companies are offered to engage students in forms of work teams. Probably, if this is the case, the structure and formality brings some trust to this kind of cooperation. Since companies show reserve with engaging students inside their premises, these results advocate for some sort of formal place where the students could collaborate with companies, but independently. This separation between students and companies, if done right, could be a factor that would help companies to observe students in another light: not as a trainee, but as an external (junior) partner.

Therefore, innovation labs look like an interesting context that would bring students and companies together: they are external and independent from the companies, they are comprised of organized teams and they are specially aimed at innovative projects and activities. In this way, everybody wins: students gain relevant experience, improve employability and start up their career; HEIs are in position to provide unique learning possibilities for their students and reinforce their relationships with companies; companies get opportunity to access new ideas, creative resources and potential collaborators. Previous practices show good results in this kind of students' activation, and may indicate a pattern that is good to follow.

## Acknowledgement

The data used in this research are collected through TEMPUS project *Fostering students' entrepreneurship and open innovation in university-industry collaboration – iDEALab* (544373-TEMPUS-1-2013-1-RS-TEMPUS-JPHES). The authors of the paper are grateful to the project consortium for making the data available.

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## Appendix

Questionnaire used to collect data from the companies.

•	<i>General open innovation</i>	•
	<b>iDI1</b> We would gladly share our problems and challenges with anyone who is able to help.	•
	1. never • 2. rarely • 3. sometimes • 4. often • 5. always	•
	<b>iDI2</b> When we have some difficulties or challenges in work, we also ask people who are not our employees for their input.	•
	1. never • 2. rarely • 3. sometimes • 4. often • 5. always	•
	<b>iDI3</b> We believe that people outside the company possess ideas and knowledge that could be valuable for our business improvement.	•
	1. never • 2. rarely • 3. sometimes • 4. often • 5. always	•
	<i>Current experiences with university collaboration</i>	•
	<b>iDI4</b> Do you cooperate with any faculty or university?	•
	1. never • 2. rarely • 3. sometimes • 4. often • 5. always	•
	<b>iDI5</b> In which way do you cooperate with them?	•
	<b>iDI6</b> If you do not cooperate with faculties and universities, what is your main reason for that?	•
	<b>iDI7</b> If you cooperate with faculties or universities, what is your main reason for that?	•
	<i>Including students into companies' innovative projects</i>	•
	<b>iDI8</b> We believe that students at universities can help us with our innovation activities.	•
	1. not at all • 2. little • 3. to some extent • 4. to a great deal	•
	<b>iDI9</b> We would like to engage students to help us solving some problems inside the company.	•
	1. not at all • 2. little • 3. to some extent • 4. to a great deal	•
	<b>iDI10</b> If the students are organized in some forms of work teams, we will engage them in solving problems in our company.	•
	1. not at all • 2. little • 3. to some extent • 4. to a great deal	•
	<b>iDI11</b> We already engage students to help us in innovation activities in some way.	•
	1. not at all • 2. little • 3. to some extent • 4. to a great deal	•
	<b>iDI12</b> Our company would be ready to independently consider students' innovative ideas.	•
	1. never • 2. rarely • 3. sometimes • 4. often • 5. always	•
	<b>iDI13</b> We are interested only in students' creative ideas, and we would start with their realization on our own.	•
	1. never • 2. rarely • 3. sometimes • 4. often • 5. always	•
	<b>iDI14</b> If students have good innovative ideas, we will engage them in their realization in our company.	•
	1. never • 2. rarely • 3. sometimes • 4. often • 5. always	•
	<b>iDI15</b> We believe that authors of creative ideas should necessarily be involved in their realization.	•
	1. never • 2. rarely • 3. sometimes • 4. often • 5. always	•

# The Difference that the Membership Makes: Analyzing the Impacts of EU Accession on Cross-Border Scientific Collaboration

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**This paper aims at providing new insights on the effects of the EU enlargement and European integration. Specifically, the issue of scientific collaboration among the new EU member states (NMS-12 – “new”) *vis-à-vis* the old EU member states (EU-15 – “old”) is brought to the fore by investigating whether the EU membership following the two enlargement waves 2004 and 2007 has significantly increased the co-publication intensity with other member countries based on data collected from the Web of Science database. The empirical results, based on Difference-in-Difference estimations, presented here point towards a conclusion that joining the EU indeed has had an additional positive impact on the co-publication intensity between the new and the old member states and, in particular, between the new member states themselves, giving tentative support for the successfulness of the EU in achieving a common “internal market ” in research. We also find some evidence for early anticipation effects of the consecutive EU accession, especially among the co-publication intensity of the EU-15 and the new EU members of the first enlargement wave in 2004.**

## **Keywords**

Co-publications; Difference-in-Difference; European Union; Science and Technology Policy; Scientific Collaboration

## **1. Introduction**

The importance of achieving highly collaborative (regional, national or continental) science systems has been discussed in academic literature for decades [1]. It seems that today the issue is increasingly topical in the context of the European Union (EU). The EU is aiming to develop its scientific and research system towards a high degree of integration by promoting scientific collaboration between the different EU member states. However, the continuous expansion of the EU sets obstacles and challenges to this integration process. Evidently there are huge differences in the scientific collaboration patterns between the established EU countries (EU-15) and the new member states (NMS-12) of Eastern and Southern Europe. It is suggestive to think that these differences between the new and the old member states would converge as time passes by, however no statistical evidence conclusively verifying this kind of development exists: the impact of the EU membership in the scientific

collaboration patterns of the NMS-12 is an issue rarely discussed in the academic literature [2]. Rather, the existing empirical literature either assumes that this is the case or shows only partial evidence of homogenization or convergence, whereas countering arguments and serious doubts of the possibilities of achieving an integrated domestic (EU) market for research have also been stated.

The above controversy acts as the motivation behind our empirical approach. We address the discussed knowledge gap by formulating the following two research questions addressed with straightforward statistical tests (Difference-in-Difference estimations) based on data from the Web of Science database:

- Did the EU membership inflict a significant change in the co-publication patterns between the NMS-12 and EU-15 *vis-à-vis* the benchmark of co-publication patterns among the EU-15?
- Did the EU membership inflict a significant change in the co-publication patterns among the NMS-12 *vis-à-vis* the benchmark of co-publication patterns among the EU-15?

## 2. Cross-Border Scientific Collaboration in the European Union

Scientific collaboration and knowledge flows are persistent and recurrent themes in EU policy concerns and documentation for “borderless Europe”. In particular, a borderless Europe is designed in part to enable scientific collaboration, researcher mobility as well as knowledge transfer and flows between EU nations and regions for the benefit of European national and regional innovativeness. This strive towards a greater collaboration and mobility of researchers has been particularly evident in the strategic documents “*Europe 2020*” [3] and “*Lisbon strategy*” [4] of the EU.

Already in the Lisbon strategy the EU set goals for becoming the world’s leading community in terms of innovation by building this strategy around the concept of European Research Area (ERA). The ERA concept is aimed at achieving an “internal market” in research, that is, at mobilizing knowledge, researchers and technology through the restructuring of the European research fabric [5]. Even though evaluations on the successfulness of the Lisbon strategy have concluded only on partial success of the agenda to achieve the envisioned goals [6], the ERA concept has redefined the discourse on European research policy [7]. Thus, the concept has been transformed into the current Europe 2020 strategy [8], where one of the flagship initiatives has been designated as “Innovative Union”. Within this initiative the EU has set out to enhance cross-border collaboration and to ensure the diffusion of technology across the EU territory. This is envisioned to be partly achieved by “completing the ERA”. Thus, in short, the ethos of ERA can be summarized through its goals of enabling researchers, research institutions and businesses to increasingly circulate and cooperate across borders.

However, serious doubts can be raised whether the current ERA policies are enough to create cohesive research collaboration with equal possibilities across the whole of the EU [9]. In fact, according to Ponds [10] whereas the absolute numbers of international co-publications might have increased, their share of the total publications has remained the same. This observation has led Ponds [10] to declare that “the process of internationalization has reached an end”. Accordingly, thus far no conclusive macro-level evidence has been found to support a notion that a highly interconnected ERA would have been achieved [11]. Still, an integrated and common European knowledge system appears to be emerging [12]. Moreover, earlier empirical evidence has pointed towards the “Europeanization” of shared co-authorship and contacts by academic staff within Europe rather than internationalization outside Europe [9]. Thus, it seems that the aims of achieving an internal market for research have, to some extent, been met (irrespective of whether this is a direct impact of EU strategies and ERA or a coincidence). Moreover, several studies have hypothesized on the

significance and impact of the EU-membership in boosting research collaboration of the NMS-12 with the established EU-15 [13]. It indeed seems that 1) in terms of co-publications the NMS-12 of the EU are currently catching up to the established ones at a rapid pace [9] and that 2) international collaboration among researchers from the Eastern European countries seems to have been boosted recently [14].

However, despite the positive signs of the success of the EU's policy goals for achieving a common home-market for research [15], the existing empirical literature points towards a conclusion that scientific collaboration in the EU is still most typically done in alliance with partners from a shared home country [16], even though the advancements in information and communication technologies have significantly enhanced the ease of "being in touch" with partners over great distances [17]. Thus, evidently, national borders and geographical distance—in addition to e.g. financial resources available for researchers and their individual motivation [18], technological [19] and institutional proximity [10] together with cultural, historical and language issues [20]—still have an impact on the scientific collaboration patterns inside the EU. Indeed, whether measured in patents [21], publications [9], web domains [22] or collaborative projects [23] scientific collaboration still tends to concentrate regionally and inter-regional collaboration is more prominent between regions that are geographically close *vis-à-vis* distant regions.

In addition, there is also an evident tendency to collaborate with established partners, since long traditions of collaboration and a degree of trust play significant roles in the process of selecting partners. This "path-dependency" might turn out problematic for the research institution in the NMS-12, which need time to earn the trust of the other actors as well as a tradition of collaboration before they can break into the "oligarchic" core networks of scientific collaboration of the EU [24]. In fact, already in the early phases of their transition, serious concerns on the internationalization of science in the post-communist countries was raised as the observed ephemeral nature of the collaboration networks supported only the most advanced scientists and research with a strong similarity to the "West" [25]. However, despite the ample empirical work on measuring and analyzing the trends in international scientific collaboration, in general, the impact of the EU "member state status" on the patterns of scientific collaboration remains, in particular, understudied [2] and, thus, is under empirical scrutiny here.

### 3. Data and Methods

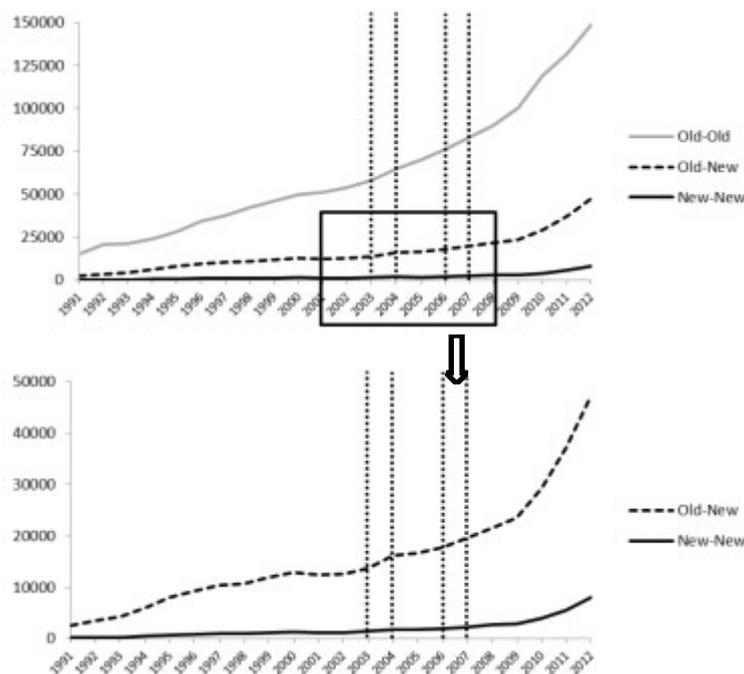
#### 3.1 Data

The data on the co-authored article publications was gathered from the Web of Science (WoS) database (during January 2014). In relation to their reliability as an indicator, it has to be noted that scientific co-authorships of publications do not measure the whole universe of scientific collaboration [26]. Moreover, the database used here covers only articles published in journals indexed in WoS leaving a multitude of scholarly journals outside the scope of this study. Additionally, there are limitations in the data gathering and processing phases of bibliometric variables, which make co-authored publications an error-prone indicator [27]. However, with proper diligence paid on the data collection phase they are arguably among the best and the most commonly applied indicators of international scientific output and collaboration and WoS among the best sources for this kind of data [28].

The data was gathered for a time period covering from 1991, signaling independence for many of the NMS-12, to 2012. The first two years of the observation period included information for the Czech Republic and Slovakia even though Slovakia gained its independence only in January of 1993. The latest EU member, namely Croatia, was left outside the analysis, since it joined the EU only in 2013. The collaboration patterns between

countries were identified by a search procedure, following the Boolean logic embedded in the WoS database, by including both countries in the address fields of the authors responsible for the publication (e.g. Bulgaria AND Austria). Thus, the numbers of joint-publications presented here cannot be considered as the sum total of scientific collaboration, as some of the publications are bound to be counted several times in our data, when the publication has authors from many EU member countries. However in the case of the UK, the countries were included separately not to overestimate the number of its publications (e.g. Bulgaria AND England; Bulgaria AND Scotland NOT England; etc.).

Similarly, a single-authored journal article by an author possessing an institutional address in two (or more) EU countries is, in fact, counted here as cross-border scientific collaboration. At the same time it has to be acknowledged that an author working jointly in two countries is expected to collaborate to a certain degree with colleagues from both home institutions [29]. In sum, the publication counts are used here to indicate the volume of change rather than show exact numbers of jointly published articles within the EU as a whole (Figure 1): for the EU-15 (“Old”), the NMS-12 (“New”), the new member states of the 2004 enlargement i.e. NMS-10 and for Bulgaria and Romania i.e. NMS-2. Additionally the total numbers of publications in WoS by countries were retrieved.



**Figure 1.** Collaboration counts in the dataset between the old and the new EU member states.

Figure 1 already depicts two apparent stylized facts: firstly, the overall level of co-publications is clearly the highest among the group of EU-15 (Old-Old), followed – but with a large intercept – by the level of co-publications between the old and new member states (Old-New), where the latter includes all 12 new members from both enlargement waves 2004 and 2007, as well as among new member states (New-New). Secondly, all three time series grow significantly over the time period considered, particularly starting in the second half of the last decade. From this visual inspection, however, it cannot be inferred with statistical precision if – controlling for the initial level differences in the number of co-publications among the three groups – one of these time trends outperforms the others. Thus, in order to shed more light on this latter issue, we apply a commonly used statistical estimation approach which allows to analyze whether EU membership has led to a statistically significant “excess” growth in the co-publication behavior between old and new member states (Old-New) as well as

among new member states (New-New) compared to the “baseline” trend in the co-publication behavior among old member states (Old-Old) or not.

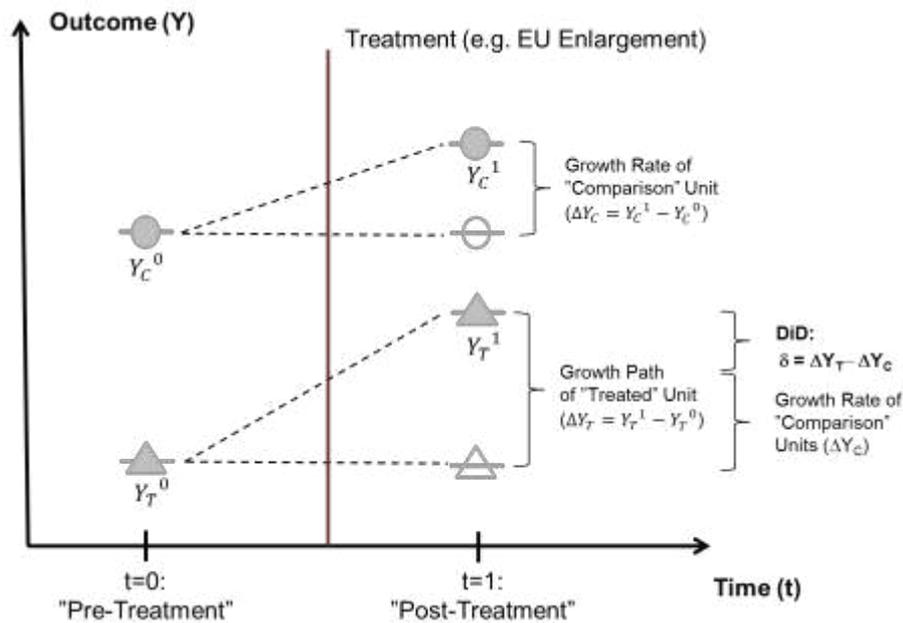
### 3.2 Methods

The Difference-in-Difference (DiD) approach is a quantitative research design for estimating causal relationships in quasi-experimental settings. It is popular, for example, in empirical economics as well as in other social sciences and commonly applied when estimating the effects of certain policy interventions or institutional changes that do not affect everybody at the same time. The great appeal of the DiD-approach is its conceptual rigor and computational simplicity: the approach consists of identifying a specific intervention or treatment (e.g. a change in the political regime, the passage of a law, etc.); and comparing the difference in outcome levels or growth rates before and after the intervention for groups that are affected by the intervention to the same difference for unaffected groups (for the purpose of this study: joining the EU) [30]. Throughout our empirical identification strategy, the collaboration counts between the EU-15 act as the baseline against which the other treatments are benchmarked. Thus, here we identify the effects of accession of new member states by isolating countries that have recently joined the EU and comparing the changes in international (intra-EU) scientific co-publishing with countries already belonging to the EU. Given the distinct nature of our underlying dyadic co-publication data among EU countries, the application of DiD-estimation can be seen as an attractive choice [30].

The basic setup of DiD-estimation thereby involves the classification of one or more treatment groups, a comparison group as well as the specification of outcome and treatment variables, where the latter divides the time dimension of the analysis into (at least) one pre-treatment and post-treatment period. The idea of the empirical identification strategy of DiD-estimation is then to compare the evolution of the mean value of the outcome variable for the treatment and comparison group over time, where the inclusion of the latter comparison group is essential to account for a common (global) time trend in the outcome variable across groups that is not attributable to the treatment. If the DiD-estimation setup, by means of the definition of the treatment, and comparison group as well as the exact timing of the treatment is properly specified, it can then be seen as an approximation of the essential but unobserved counterfactual question of “What would have happened to the mean outcome level of the treatment group if, everything else equal, the group had not been subject to the treatment?”, which is needed to make statements with regard to the “causal” impact of the treatment on the outcome variable.

Formally, the DiD-estimation approach combines cross-sectional and time series data and aims at measuring the changes in an outcome variable  $Y$  of treated units (T) and comparison units (C) before and after a treatment  $D$  has taken place. Thus, the DiD-approach conducts a joint “before–after” comparison in the change of  $Y$  for the treatment group over time together with a “cross-sectional” comparison in the levels of the outcome variable for both the pre- and post-treatment time period. The underlying logic of the DiD-approach is graphically shown in Figure 2. The figure displays the level in the outcome variable  $Y$  for a treated unit (triangle), both before ( $t=0$ ) and after treatment ( $t=1$ ). The associated outcome levels are denoted as  $Y_{T0}$  and  $Y_{T1}$ , respectively. As shown in Figure 2, the observed level of the outcome variable increases from the pre- to the post-treatment period. The growth rate in a before–after comparison can be written as  $\frac{Y_{T1} - Y_{T0}}{Y_{T0}}$ . However, not only the outcome of the treated unit, but also the output level of the comparison unit (circle) is observed vis-à-vis growth over the time period of analysis in the example of Figure 2 according to  $\frac{Y_{C1} - Y_{C0}}{Y_{C0}}$ . Moreover, in both periods the level of the outcome variable for the comparison unit is higher than the level of the outcome variable of the treatment unit (in line with the time trends shown in Figure 1). Thus, ignoring initial level differences and the existence of a common (global) time trend for the outcome variable in focus, which is not attributable to the treatment but equally present

for both the treated and comparison unit, might lead to an over-estimation of the causal effect of the treatment on the treated as shown in Figure 2. The DiD-approach controls for this source of estimation bias by calculating the difference of the two growth rates as  $\delta$ . The resulting difference in the time differences is the so-called DiD-parameter ( $\delta$ ), which can be quantified for a sample of observations in a regression approach.



**Figure 2.** Presentation of the DiD-calculation method for treated and comparison units.

Statistical inference in a regression framework is typically conducted using group averages of the outcome variable for treated and comparison units. The DiD-parameter for quantifying the average treatment effect of the treated (ATT) can then be written as

(1)

where the above parameter can be either defined as the “before–after difference” in the “cross-group difference” or the cross-group difference in the before –after differences as summarized in Table 1. One has to note that the validity of the DiD-estimation approach rests on certain assumptions. Firstly, it is assumed that the specified comparison group identifies the common time path of the outcome variable that would have happened in the absence of the treatment. In other words, the common trend assumption states that if the treated had not been subject to the treatment, both groups would have experienced the same time trend [30]. Thus, a potential estimation bias in the DiD-approach arises in situations where something else than the treatment changes in one group but not in the other at the same time as the treatment. Secondly, another important assumption of the DiD-approach is bias stability [30]. This assumption states that the treatment has no impact on the level of the outcome variable in the pre-treatment outcomes and therefore any observed difference in the pre-treatment period between groups can be used to correct the observed differences in post-treatment outcomes.

In a regression framework, we can obtain empirical estimates for the average treatment effect on the treated (ATT) from a fixed effects model (FEM) for dyadic data, which is able to control for unobserved time-fixed effects among country pairs as

(2)

**Table 1.** DiD-parameter definition based on sample averages of treated and comparison units

	Before Treatment	After Treatment	"Before-After" Difference
Average Group 1 (Treated)	$\bar{Y}_T^0$	$\bar{Y}_T^1$	$\Delta\bar{Y}_T = \bar{Y}_T^1 - \bar{Y}_T^0$
Average Group 2 (Comparison)	$\bar{Y}_C^0$	$\bar{Y}_C^1$	$\Delta\bar{Y}_C = \bar{Y}_C^1 - \bar{Y}_C^0$
"Cross-Group" Difference	$\bar{Y}_T^0 - \bar{Y}_C^0$	$\bar{Y}_T^1 - \bar{Y}_C^1$	$\delta_{ATT} =$ $\left(\bar{Y}_T^1 - \bar{Y}_C^1\right) -$ $\left(\bar{Y}_T^0 - \bar{Y}_C^0\right) =$ $\bar{Y}_T^1 - \bar{Y}_C^1 - \bar{Y}_T^0 +$ $\bar{Y}_C^0 = \Delta\bar{Y}_T - \Delta\bar{Y}_C$

where the indices  $i, j$  denotes the cross-sectional dimension of the data with  $i, j=1, \dots, N$  (in our case EU-27 countries) and  $t$  is the time dimension with  $t=1, \dots, T$ .  $y_{i,j,t}$  denotes the outcome variable of the regression equation, which is defined as the log-transformed share of pairwise co-publications ( $pub$ ) for the country pair  $i, j$  (with  $i, j=1, \dots, 27$ ) in the average total number of co-publications for both countries  $i, j$  as

Our motivation for using the pairwise co-publication intensity for country pair  $i, j$  in the two countries' average total number of intra-EU co-publication levels rather than absolute counts stems from the fact that this allows to minimize the risk of running spurious regressions for non-stationary variables as shown in Figure 1 for co-publication counts [31]. In Equation (2), the multiplicative terms  $D_{i,j}$  and  $D_{i,j,t}$  are the crucial variables in the DiD-approach for estimating the co-publication effect of EU enlargement. Thereby, the variables  $D_{i,j}$  and  $D_{i,j,t}$  are binary flag indicators, which take values of zero before 2003 and 2007, respectively, and have values of one afterwards as

and .

The purpose of these two binary dummy variables is, thus, to indicate the timing of the two EU enlargement waves 2004 and 2007, respectively. The variable  $D_{i,j,t}$  is a group variable, which assigns the  $i, j$ -th country pair to one of the following  $g=1, \dots, 6$  macro groups as  $D_{i,j,t}^g$  if both countries  $i$  and  $j$  are EU-15 member states (and is zero otherwise),  $D_{i,j,t}^2$  if country  $i$  is a member of the EU-15 and country  $j$  is a member of the NMS-10 (vice versa and is zero otherwise), ...,  $D_{i,j,t}^6$  if both countries  $i$  and  $j$  are NMS-2 member states (and is zero otherwise). The multiplicative interaction terms constituting of the resulting six group dummies together with the two specified time dummies then allow us to quantify the group-specific time trends measuring

the change in the co-publication intensity in the course of the EU accession (that is, the before–after difference according to Table 1). The parameters  $\alpha_i$  thereby measure the overall growth rate for each group before and after 2004 (up to 2012), while the parameters  $\beta_i$  estimate any additional growth effect in the period after 2007 (up to 2012). In the course of estimation, the first group ( $i=1$ ) will be used as the baseline growth scenario. We use a series of nonlinear tests for the combination of estimates based on the delta method in order to assess the null hypothesis of equal growth rates between the five treatment groups and the comparison group as

(3)

If the tests reject the validity of the null hypothesis for some of the groups against the alternative hypothesis that the difference is larger than zero, then we observe a statistically significant EU membership effect based on our underlying dyadic co-publication intensity (or in other words: a statistically significant excess growth for some of the treatment groups). Thus, the long-run average treatment effect of the treated for each of the five treatment groups can be defined as

(4)

The reader has to note that we apply a symmetric setup up for the estimation of the long-run average treatment effects. That is, we allow EU enlargement effect for the NMS-10 also to be present throughout the time period of the second enlargement wave after 2006. Our motivation for doing so is that, on the one hand, the adoption of new co-publication strategies involving the new member states in the course of EU enlargement may take some time and only gradually adjusts with a time lag. On the other hand, the late but pre-known access of Bulgaria and Romania (NMS-2) may have triggered an early anticipation behavior in co-publication patterns, which may already be visible in the course of the first wave of EU enlargement 2004. We will put an explicit focus on the role of early anticipation of EU enlargement in Section 5 by running a series of robustness checks to our overall regression approach.

Another form of symmetry applies to our general data setup. That is, given that we have undirected dyadic data at hand; the relationship  $y_{ij} = y_{ji}$  holds. Excluding intra-country co-publications, this gives us a total number of  $N*(N-1)=27*26=702$  observations. The total number of observations for all 22 sample year is  $N*(N-1)*T=15\ 444$ . However, if we do not control for the symmetric information in the dyadic data setup, we would get an over-precision in the estimation results, which would make the regression output highly unreliable. Thus, we solve this problem by deleting all double information leaving total number of observations for estimation as  $[N*(N-1)]/2*T=7\ 722$ . A further important element in the regression framework of Equation (2) is the inclusion of country-pair fixed effects  $\gamma_{ij}$ , which capture the non-random nature of the treatment by means of EU membership to countries with systematically lower average levels of the outcome variable ( $y_{ij}$ ). Finally,  $\epsilon_{it}$  is a standard *i.i.d.* error term. In a panel data setup, the inclusion of country-pair fixed effects also implies that no treatment group dummies need to be added to the regression frameworks since all-time invariant variables will be dropped in course of the FEM estimation. Thus, although typically all constitutional variables of the above defined DiD-terms should be included in the regression specification of an interaction effect model [32], the FEM setup, with the added country-pair fixed effects, makes this requirement obsolete [33].

As shown in Equation (2), we do not include time-varying covariates in the regression equation besides the time-constant country-pair fixed effects. The latter already capture all unobserved factors such as distance and common language, which do not vary over time. The inclusion of further time-varying control variables is controversially discussed in the literature and shows to have advantages and disadvantages [30]. In our specific case of

dyadic co-publication patterns it is hardly possible to find relevant covariates, which would help to control for potentially different time trends among the treatment and comparison group. That is, included time-varying covariates should not be affected by the outcome variable of interest in the post treatment period since they may lead to an estimation bias otherwise. The absence of covariates in the DiD-regression framework also has the advantage that no additional identification assumptions have to be stated.

## 4. Results

Our results of the DiD-estimation setup according to Equation (2), which include EU enlargement-related time trends for all six macro groups, are summarized in Table 2. The models are estimated by means of pooled OLS including group dummies but excluding country-pair fixed effects (denoted POLS) as well as by means of FEM estimation including country-pair fixed effects. Thereby, the columns 1 and 2 only include the group-specific time trends for the first enlargement wave *and aggregate the two sub-populations of new EU members into one new member state group for the NMS-12. The column 3 then also include the additional group-specific time trends for the second enlargement wave for the aggregated NMS-12 group. Finally, column 4 disaggregates the group-specific time trends for the five treatment groups (to and comparison group).*

**Table 2.** Estimation results for alternative DiD-model specifications.

Group (g)	Collaboration among	Estimated Coefficient	(1) POLS	(2) FEM	(3) FEM	(4) FEM
	<i>EU-15/EU-15</i>		0.732*** (0.1327)	0.735*** (0.0999)	0.482*** (0.1468)	0.481*** (0.1461)
	<i>EU-15/NMS-12</i>		1.478*** (0.1670)	1.478*** (0.1257)	1.151*** (0.1847)	
	<i>EU-15/NMS-10</i>					1.319*** (0.1906)
	<i>EU-15/NMS-2</i>					0.310 (0.3100)
	<i>NMS-12/NMS-12</i>		3.963*** (0.2136)	2.963*** (0.1608)	2.446*** (0.2363)	
	<i>NMS-10/NMS-2</i>					1.154*** (0.3654)
	<i>NMS-10/NMS-10</i>					3.085*** (0.2668)
	<i>NMS-2/NMS-2</i>					-0.476 (1.5505)
	<i>EU-15/EU-15</i>				0.381** (0.1621)	0.381** (0.1613)
	<i>EU-15/NMS-12</i>				0.492** (0.2039)	
	<i>EU-15/NMS-10</i>					0.536** (0.2103)
	<i>EU-15/NMS-2</i>					0.270 (0.3423)
	<i>NMS-12/NMS-12</i>				0.777*** (0.2608)	
	<i>NMS-10/NMS-2</i>					1.497*** (0.4033)
	<i>NMS-10/NMS-10</i>					0.473 (0.2946)
	<i>NMS-2/NMS-2</i>					0.019 (1.6611)
	<i>T (Years)</i>		22	22	22	22
	<i>N (Country pairs)</i>		351	351	351	351

Note: \*\*\*, \*\*, \* denote statistical significance at the 1%, 5% and 10% critical level, respectively.

Firstly, the results show an increasing trend in the co-publication intensity among the EU-15 (comparison group). What is marked is that (according to the regression specification in column 3 of Table 2) both the first annexation period after 2004 as well as the period of 2007–2012 were characterized by a positive growth trends of intra-EU-15 cross-border collaborations in terms of scientific articles, which grew on average by 48% over the period 2004–2012 with an additional growth impulse of 38% throughout the sub-period 2007–2012. This result signals, as expected from our literature review section above, that the trend line for growth has become steeper in the final parts (2004–2006 and 2007–2012) of the analyzed time period. In the following, the collaboration intensity between the EU-15 acts as the baseline against which the other treatments are benchmarked.

Secondly, with regard to the co-publication intensity among old and new member states, the results in column 3 of Table 2 show that the scientific cross-border collaboration trend among these countries grew even stronger compared to the benchmark group of intra-EU-15 collaborations. On average, the co-publication intensity among old and new member states grew by 115% over the period 2004–2012 with an additional growth stimulus of 49% over the sub-period 2007–2012. When breaking the overall picture into two separate annexation groups (NMS-10 and NNS-2), it becomes evident from the estimation output in column 4 of Table 2 that this effect was mainly driven by an increase in the co-publication intensity of the EU-15 and NMS-10 (with an average growth rate of 132% over the period 2004–2012 and an additional growth rate of 54% on top of the former for the sub-period 2007–2012). However, for the NMS-2 the annexation of the NMS-10 in the first enlargement wave 2004 did not have any early anticipation effect in their collaboration patterns between the established EU-15. Moreover, even in the period of the second enlargement wave starting from 2007, we do not observe a statistically significant positive growth trend for the collaboration patterns between the EU-15 and NMS-2.

Thirdly, the estimation results for the group-specific time trends in Table 2 further show that, throughout the two enlargement periods of both 2004 and 2007, we observe a strong acceleration in the collaboration intensity among the NMS-12, which strongly exceeds the growth rate for the comparison group of the EU-15. Specifically, according to column 3 of Table 2 the internal cross-border collaboration intensity of the NMS-12 grew by 245% over the period 2004–2012 and by additionally 78% over the sub-period 2007–2012. The strongest increase has been thereby experienced by the sub-group of NMS-10 (with an overall increase of 309% in 2004–2012). However, for this group we do not get evidence for an additional growth impulse over the sub-period 2007–2012 indicating that the increase in the co-publication intensity has mostly taken place in the immediate aftermath of the EU accession of this group in 2004. Accordingly, the collaboration intensity between the NMS-10 and NMS-2 did witness an additional increase of 115% when comparing the before–after 2004 co-publication intensity for this treatment group. This also holds for an additional acceleration in the co-publication intensity over the sub-period following the second EU enlargement wave of 2007. Here, the estimation results show an additional increase by 150% in the co-publication intensity for this treatment group (column 4 of Table 2). However, no significant trend growth was detected within the final treatment group of NMS-2 countries for either enlargement periods.

Although the quantitative difference in the growth trends among the different groups becomes visible from the reported  $\delta$ -coefficients in Table 2, we want to formally test for the existence of excess growth for the treatment groups *vis-à-vis* the comparison group for the time periods of EU enlargement. As the reported tests in Table 3 show, we find a positive and statistically significant excess long-run growth performance in the co-publication intensity across country pairs for three treatment groups NMS-10/NMS-2, NMS-10/NMS-10 and EU-15/NMS-10. Thereby, the statistics for the combined estimates according to Equation (3) and Equation (4) indicate that the largest average treatment effect on the treated (ATT) in the

observed co-publication patterns was achieved for the intra-NMS-10 group (270%-points), followed by an increase in the co-publication intensity of the NMS-10 and NMS-2 (178%-points) as well as an excess increase in the co-publication intensity of the EU-15 and NMS-10 (100%-points). The NMS-2 only experienced an excess growth in their co-publication intensity with the NMS-10, while the growth in the co-publication intensity with the EU-15 did not exceed the benchmark growth rate of the intra-EU-15 co-publication patterns, but rather showed a relative decline (although not being statistically significant at the 10% significance level). In sum, the general picture obtained from Table 2 and Table 3 hints at a moderate convergence tendency in the co-publication patterns towards the intra-EU15 benchmark level although level differences between these groups, which are excluded in the DiD-framework, are still large.

**Table 3.** Ranking of estimated ATT effect of EU enlargement for different treatment groups.

Group	Combined Coefficient:	Coef.	t-test	p-val.
NMS-10/NMS-2	Long-run ATT effect for 2004-2012 (in %-points)	2.695***	9.51	(0.00)
NMS-10/NMS-10	Long-run ATT effect for 2004-2012 (in %-points)	1.788***	5.22	(0.00)
EU-15/NMS-10	Long-run ATT effect for 2004-2012 (in %-points)	0.992***	4.06	(0.00)
EU-15/NMS-2	Long-run ATT effect for 2004-2012 (in %-points)	-0.282	-0.91	(0.36)
NMS-2/NMS-2	Long-run ATT effect for 2004-2012 (in %-points)	-1.319	-1.12	(0.26)

*Note:* \*\*\*, \*\*, \* denote statistical significance at the 1%, 5% and 10% critical level, respectively. Underlying model coefficients are taken from column 4 in Table 2.

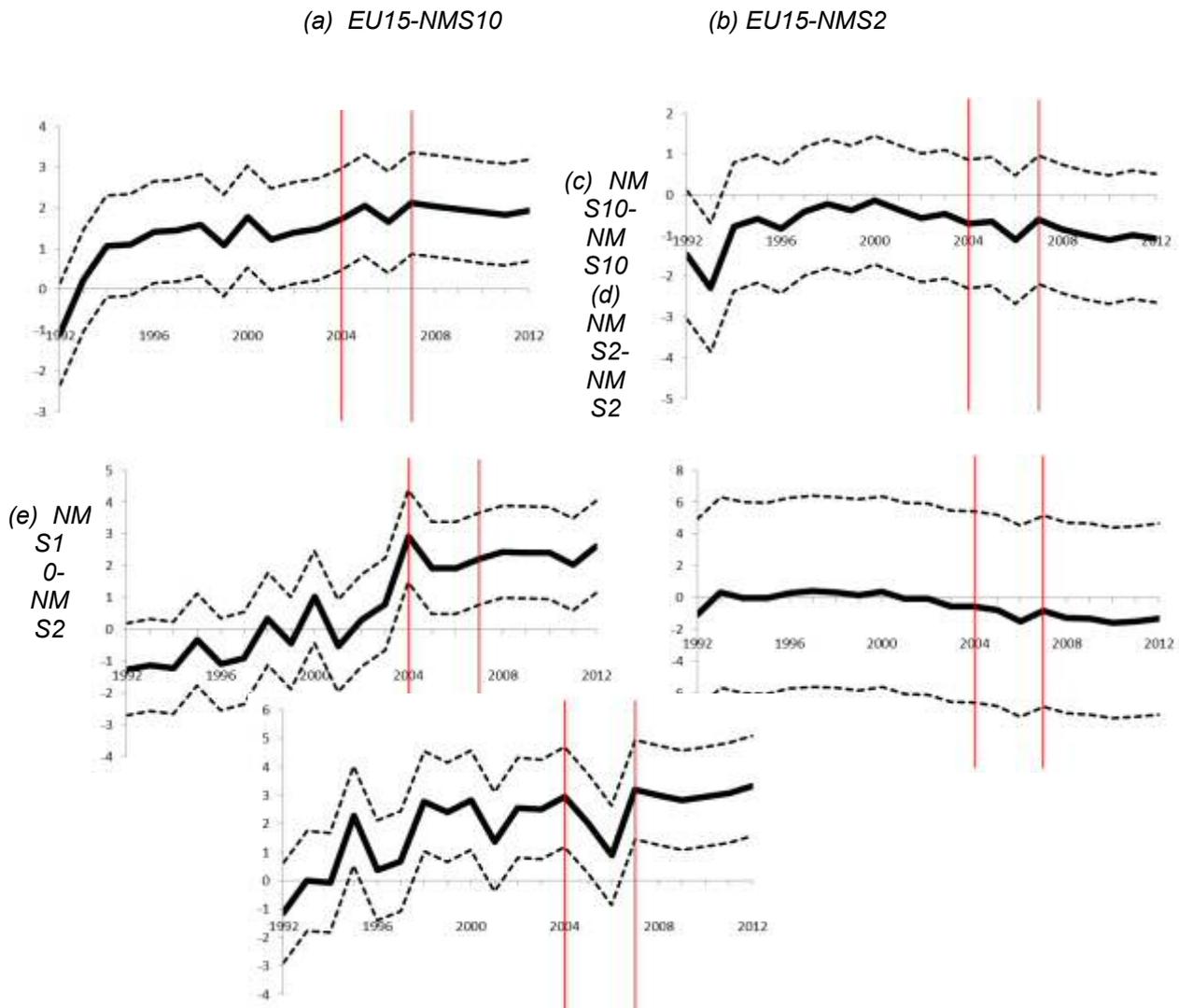
## 5. Robustness Checks

As outlined above, the common trend assumption is crucial for the reliability of the estimated DiD-parameters. Given that we have a panel data setup with several pre-treatment periods it is possible to test for the plausibility of this assumption [30]. This is often done with the help of so-called “placebo” experiments. The idea of placebo experiments is to pretend that the treatment has actually happened earlier and then measure the observed outcome difference after the “pretended” treatment, but before the treatment actually happened. If the regression output then reports statistically significant effects, the reason for this could be twofold [30]. Firstly, as already sketched above for the case of the NMS-2 throughout the first enlargement period 2004–2006, the treatment is anticipated and therefore has an effect even before it starts. This early anticipation is often also termed as “Ashenfelter’s Dip” indicating a possible link between treatment and the idiosyncratic error term before treatment [34]. Secondly, if anticipation effects can be ruled out, any estimated non-zero effect has to be interpreted as selection bias and thus casts doubt on the validity of the identifying assumptions of the DiD-approach. Taking up this idea for a robustness check, we modify our regression specification as

(5)

where we include individual time dummies for each sample year in the construction of the multiplicative DiD-interaction terms rather than the two multi-period dummies for the timing of

the two enlargement waves 2004 and 2007. The resulting regression specification is also known as incremental Difference-in-Difference (IDiD) approach and allows capturing the average growth in the cross-border co-publication intensities for the six groups relative to the initial sample period 1991 [35]. One advantage of the IDiD-approach is that it facilitates the estimation of year-on-year incremental growth effects and can thus be used for the computation of placebo experiments. As before, we are primarily interested in obtaining parameter estimates for excess growth of treatment groups compared to the benchmark group along the line of the combined coefficient test outlined in Equations (3) and (4). When applying the IDiD-approach one has to note, though, that one cannot deduce the longer-run effect of the outcome changes in the course of treatment, as shown in Equation (4), by simply summing up all the year-to-year IDiD-coefficients [35]. This is due to the fact that some additional (untestable) assumption regarding related to the interdependence of the obtained effects would be required. However, the approach still allows us to see whether there are early anticipation effects or not. The resulting IDiD-coefficients for the five treatment groups ( $g=2, \dots, 6$ ), which are defined as net growth difference relative to the comparison group as, are plotted in Figure 3 together with a 95%-level confidence interval.



**Figure 3.** IDiD-coefficients for excess growth in the co-publication intensity of treatment groups (a-e).

*Note:* The solid line show the estimated year-to-year IDiD-coefficients based on the combined estimates for treatment groups ( $g=2, \dots, 6$ ) using the delta method. Dashed lines indicate the upper and lower boundaries of the 95% confidence interval.

As Figure 3 shows, particularly for the co-publication intensity among the EU15 and the NMS10, as well as among the NMS10 and the NMS2, we observe an excess growth *vis-à-vis* the growth trend among the EU-15, which started ahead of the first EU enlargement wave in 2004. This hints at the presence of some early anticipation effects in the aftermath of the political, social and economic transformation of the Eastern and Central European countries. The boost in the co-publication intensity among old and new member states became apparent in the middle of the 1990s rather shortly after the “fall of the iron curtain” and the excess growth continued to be positive throughout the remainder years of the sample period. A similar pattern, albeit with a higher volatility in the reported year-to-year effects, can be observed for scientific collaborations among NMS10 and NMS2. While we do not find significantly positive year-to-year effects for the co-publication intensity among the NMS2, nor in the case of the EU-15 and NMS-10 (in fact, the visualizations in Figure 3 rather hint at a decline), the excess growth in the co-publication intensity among the NMS-10 is shown to have the “right timing” without any early anticipation effects. That is, only starting in 2004 the year-to-year effects for scientific collaborations among these countries can be shown to (statistically significantly) outperform the yearly growth effects in the benchmark group. This result supports the general picture drawn from Tables 2 and 3. It also strongly hints at the existence of positive outcome effects of EU enlargement.

## 6. Discussion and Conclusions

The results clearly show that the most significant impact, in terms of co-publication patterns, of the EU enlargement has been the high increase in the level of scientific collaboration that the NMS-12 have among each other (this applies in particular to the NMS-10). Additionally, the collaboration between the new and the old member states has been affected by the EU enlargement waves 2004 and 2007. Thus, the hypothesized impacts of EU-membership in boosting the research collaboration of the new member states [13] are generally confirmed. The results thus give tentative evidence supporting the success of the EU in achieving a common internal market in research. Whether or not this signals the success of ERA and/or the individual strategies and policies of the EU, however, remains outside the scope of this study. Rather, we can conclude that an EU-membership status significantly increases the collaboration with a specific new member state and the other EU member states.

In short, the increase in the collaborations between the NMS-12 and EU-15 started immediately after the dissolution of the Soviet Union in the mid-1990s, but joining the EU has had an additional positive long-run impact on the international scientific collaboration patterns of the NMS-12 (NMS-10 in particular) in terms of the rising numbers of co-publications between themselves and the established EU-15. While early anticipation effects are particularly present for the cross-border collaborations between the EU-15 and NMS-10 (most likely due to the “pull effect” of the established research market in the EU-15), especially the excess growth among the NMS-10 scientific collaborations shows to have the “right timing” underlying the existence of causal effects of EU enlargement on the cross-border co-publication intensity.

The integration of Bulgaria and Romania into the scientific system of the EU can only partially be observed. Here especially an excess growth in the co-publication intensity with the NMS-10 can be observed. The latter boost in the scientific collaboration intensity has thereby already started before these two countries actually became EU member states. Thus, it seems that even the anticipation of subsequent EU enlargement can have a positive impact on the collaboration patterns between contemporary EU and non-EU countries. This

integration, however, has neither happened between the NMS-2 themselves nor between these countries and the EU-15. Potential reasons for this partial non-integration of Bulgaria and Romania may be that not enough time has passed yet for these countries to break into the European networks of scientific collaboration, arguably due to their “weaker” similarity to the “West” than in the case of the NMS-10 [25]. Additionally, the earlier EU accession of the NMS-10 may have resulted in the creation of stable collaboration networks between the EU-15 and NMS-10, which may hinder the NMS-2 to enter the internal EU research market. At the end, it has to be noted that the applied DiD-approach and the WoS database applied here do contain limitations. Additionally, it has to be acknowledged that research funding mechanisms can play a significant part in supporting and sustaining the publication patterns in cross-border collaboration [18]. Thus, integrating panel data on joint-projects funded by the EU and applying extended econometric models for analyzing causal linkages would be interesting directions for further analysis. However, acquiring such data for the time period analyzed here and applying causality tests (other than the DiD-approach) are not without their own difficulties and limitations.

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# **The effects of knowledge from collaborations on the exploitative and exploratory innovation output of Greek SMEs**

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**There is very limited research linking the collaborations of Greek SMEs and their innovation output. This paper uses the exploitation/exploration framework and links it to the knowledge flows towards SMEs coming through their collaborations. It explores three types of knowledge, namely managerial, technological and market. It finds that the exchange of management knowledge has a positive and significant effect on exploratory innovation only, the exchange of technical/technological knowledge has a negative and significant effect on exploitative and exploratory innovation output, and the exchange of market knowledge does not have an effect on any type of innovation output. Also, partnering with same nationality firms has a negative effect on exploratory innovation and particularly for exploitative innovation the existence of a collaboration manager has a negative effect. Most of these findings are corroborated by interviews with 6 managers of Greek SMEs.**

## **Keywords**

Collaborations, innovation, exploitation, exploration, SME, Greece

## **Acknowledgement**

This research has been co-financed by Greece and the European Union (European Social Funds) through the Operational Program 'Human Resources Development' of the National Strategic Framework (NSRF) 2007–2013.

## 1. Introduction

Open innovation perspective allows penetrating novel technology, product, and market landscapes that extend beyond the actual core business of firms and that would be difficult to discover by isolated individual firm [1] (Chesborough, 2007). Collaborations are important means for open innovation [2] (Sammorra & Biggiero, 2008) because they allow firms to share knowledge and resources [3] (e.g. Bierly, Damanpour & Santoro, 2009) that firms partners may possess [4] ( Gulati, Dialdin & Wang, 2002) . Knowledge from external relationships is important, as it expands the firm 's knowledge base [3] (Bierly et al., 2009) that can be applied to commercial ends [5] (e.g. Spithoven et al., 2010), thus enhancing the development of the innovative capability of a firm [6](Li & Tang, 2010). According to Huggins and Johnston (2010) [7] knowledge is defined as "information that changes something or somebody, either by becoming grounds for action or by making an individual or an institution capable of different or more effective action ". So, according to the open innovation perspective, innovation can emerge by combining and recombining knowledge elements coming from collaboration networks ([8] Bauer & Leker, 2013; [9] Wang et al., 2014). Huggins (2010) [10] suggests that such open innovation are the very reason behind the decision of building or entering a network since they may provide a significant source of competitive advantage. The concept of "network capital" emerges concerning calculated inter-organizational relationship investments which in turn could provide access to knowledge and, therefore, economic returns to the involved members [10] (Huggins, 2010).

## 2. Theory development

According to Huizingh (2011) [11] the concept of open innovation will be gradually integrated in the innovation management practices throughout the coming years, transforming itself into the new status quo in the business way of operation. However, in the case of the Greek business environment there is clear deficit of research evidence of the effect of collaborations (as an open innovation practice) on the innovation output of firms [12] (Livieratos, 2009). Moreover, SMEs are major actors in innovation and engage in innovation practices [13] (e.g. Van de Vrande et al., 2009) and, consequently, the question arises as to the current state of Greek SMEs ' open innovation benefits in terms of their collaborations. Open innovation may provide an opportunity for SMEs to enhance their competitive advantage against larger companies [13] (van de Vrande et al., 2009) and it requires the establishment of networks with customers, institutions, and other organizational entities [13] [14] (Lee et al., 2010; van de Vrande et al., 2009) and may range from informal arrangements to strategic alliances [2].

In the literature, there are two different theories that regard knowledge as an asset in consistent with the network capital position: the knowledge-based view – which concentrates on creation and sustention of competitive advantage through an establishment of knowledge transfer mechanisms within the network in order to facilitate the conversion and the transferability of both explicit and tacit knowledge forms [15] [16] (Shu et al., 2012 ; Windsperger and Gorovaia, 2011); and the resource-based view (RBV) – which points out that competitive advantage is crucially with implementation and transferability of an organization's resources, including tangible and intangible assets that contribute to value creation [7] (Huggins and Johnston, 2010). According to Sammarra and Biggiero (2008) [2], in the broad context of KBV successful innovation is linked to three different knowledge types as far as inter-organizational knowledge transfer is concerned: 1) Technological knowledge: This type of knowledge is connected to "products, technologies, and/or processes " of an organization and, hence, the accumulation of it may broad up the horizon of potential

opportunities in relation to technological advances by fostering a more effective understanding and evaluation of them [17] (Clarysse et al., 2011). From an empirical perspective, technological knowledge refers to the required know-how throughout the procedures of product and process development [2] (Sammarrà and Biggiero, 2008). 2) Market Knowledge: Market knowledge concentrates on an organization's knowledge capital in association with customers' needs and behaviors along with competitors' behavior within the market that this organization operates [18] (de Luca and Atuahene-Gima, 2007). According to Bao et al. (2012) [19], there are two ways of collecting such information; either through a traditional marketing research or from external sources in the value chain such as distributors and/or suppliers. Due to the apparent significance of technological knowledge, though, a position which potentially overshadows other potential types of knowledge (such as market and managerial) was developed in the literature [2], [19]. 3) Managerial Knowledge: Managerial knowledge refers to every aspect of organizational management ranging from strategic planning and decision making to human-, financial-, and information-resource management as well as operations and marketing management [20] (Fu et al, 2013). In addition, Sammarra and Biggiero (2008) [2] provide a deeper insight into this type of knowledge by suggesting that the inclusion in the aforementioned organizational capabilities of strategic networking capabilities constitute as a very significant source of competitive advantage.

The purpose of this study is thus to explore the types of knowledge that Greek SMEs exchange and share with their partners in the context of three basic types: (1) technical/technological knowledge, (2) managerial knowledge, and (3) market knowledge, and their effects on a firm's innovation output [2]. The first research question is whether SMEs exchange more than one type of knowledge through their collaborations. The second research question that this paper attempts to address is the relationship between different types of knowledge acquired through collaborations and the innovation output of Greek SMEs. Furthermore, empirical contributions have confirmed that the effects of collaborations on innovation output are contingent on the type of innovation task at hand – exploratory and/or exploitative – and that a contingency research approach might be more effective [8] [21] [22] (Bauer & Leker, 2013; Hernández-Espallardo, Sánchez-Pérez & Segovia-López, 2011; Yamakawa et al., 2011). Exploratory innovation refers to the creation of knowledge that differs from that used by a focal firm in prior innovations even though this knowledge may have been in existence earlier elsewhere [23] (March, 1991). Exploitative innovation focuses on the refinement and extension of a focal firm's existing knowledge [23] (March, 1991). However, empirical investigation of the effects of collaborations on exploratory and exploitative innovation is very recent and this paper attempts to fill this literature gap for the case of Greek SMEs [3] [21] (Bierly et al., 2009; Hernandez-Espallardo et al., 2011).

Finally, another interesting approach, which along with the aforementioned evidence from Sammarra and Biggiero's (2008) [2] work attracts the central focus of the present study, is presented by [21] Hernández-Espallardo et al. (2011), who further expand the technological-managerial-market knowledge notion by creating three knowledge categories based on the argument that innovation processes are followed by organizational learning processes which are doubly embedded in the dimensions of learning mode (exploitation versus exploration) and the learning level (intra-organizational versus inter-organizational) [21] (Hernández-Espallardo et al., 2011): (1) knowledge acquisition from partners – through which an organization is able to access information in relation to product, technology, or markets while it is implied that it is possible to acquire managerial knowledge as well especially yet not solely in the strategic planning and decision making context. This point is covered by 3 variables, which are: *Exchange of management knowledge*, *Exchange of technological knowledge*, *Exchange of market knowledge*; (2) knowledge regarding learning on how to collaborate with partners – based on which certain norms are developed in the collaboration relationship with time concerning its purposes, procedures, and goals, as well as its

language, culture, traditions, its distinctive strengths or weaknesses, its resources and external and internal environment. This point is covered by variable *Number of collaborations*; and (3) knowledge about inter-organizational relationship management – referring to organizational procedures that foster the accumulation of knowledge related to past and ongoing relationship experience of an organization in order to develop collaboration management know-how. This point is covered by variable *Collaboration experience*.

### 3. Methodology

The present study acquired data from senior managers of Greek SMEs in order to obtain factual information on basic company demographics and the collaborations of these organizations for knowledge creation and innovation (e.g. [13] Van de Vrande et al., 2009). The list of candidate firms was acquired from the website of the Athens Chamber of Commerce and Industry. The sample chosen was cross-sectional and contains high-tech as well as low-tech SMEs. The interviewees completed telephone and web-based questionnaires and the response rate of 11% is considered normal for this methodology [24] (Saunders et al., 2012). The dependent variables are *Number of exploitation products* and *Number of exploration products* and the independent variables are the *Number of collaborations*; *Collaboration experience*; *Exchange of management knowledge*; *Exchange of technological knowledge*; *Exchange of market knowledge*. The control variables are *Strength of ties*; *Trust in ties*; *Social capital*; *Age of the firm*; *Number of employees*; *Number of employees in R&D*; *Number of patents*; *Collaboration manager*; *Same nationality*; *Formal collaboration*; *High tech firm*. The exact definitions are not given in this paper because of lack of space but they can be supplied by the author upon request. Since the two dependent variables, *Number of exploitation products* and *Number of exploration products* are count variables with non-normal distribution (see Figure 1) and because of fear of overdispersion in the data, Negative Binomial regression models were run using the robust option to obtain robust standard errors for the parameter estimates (Cameron & Trivedi, 2009) [25] to control for mild violation of underlying assumptions and because we need to be consistent (i.e. asymptotically unbiased) but we do not want to have to assume homoskedasticity and normality of the random error terms. Also, the distribution of some of the variables was clearly non-normal and in those cases the variables were transformed by taking the natural logarithm.

On the basis of the knowledge categories (Hernández-Espallardo et al., 2011) [21] we additionally questioned six SME managers in relation to the learning level (intra-organizational versus inter-organizational) of their firms providing a more detailed picture of the learning activities related to their firms' collaborations. The aim of these interviews was to build explanatory case studies as a way to uncover situations or phenomena (Yin, 2009) [26].

### 4. Results and conclusions

The descriptive statistics are shown in Table 1 and it is worth noting that Greek SMEs exchange of management, technological and market knowledge with their partners almost at equal levels and with similar standard deviation levels. The majority of the participating SMEs consider the relationships with their partners as a significant source of knowledge, suggesting that their partners are a “main source of knowledge” (Client Service Manager of Beetroot), “provide a rich information-versatile network” (Project Manager of Innovathens), and “are important sources of knowledge” (Head of Integrated Management Systems of Intergeo) especially for “a knowledge-intensive start-up” (Founder and CEO of Aterin), or that through a combination between “the partnerships and the human resources” (Co-Founder

and CEO of Goodvidio) they “enrich their knowledge base and expand their operations horizon” as organization relationships permit co-creation as “a crucial stage at the product or service development process” (Client Service Manager of Beetroot). In contrast to these statements, the Sales and Marketing Executive of AMD Telecom provides a different viewpoint indicating that “as far as the provided services are concerned the knowledge is created internally”.

The majority of the participants underline the importance of knowledge acquisition through collaboration as a source of competitive advantage, e.g. as the Client Service Manager of Beetroot states, it is “highly linked to innovativeness” which “plays a vital role in the competitive capacity of the firm”, a statement that is also supported by the Project Manager of Innovathens by suggesting that “competitive capacity is linked to innovativeness of a firm”. Supporting evidence comes from at least two sources:

*“As a start-up, we developed a new business model and for this very reason we receive consulting and mentoring services through which we built a network around the firm that helps in acquisition of information and knowledge. The presence of a network formed by mentors, advisors, clients, and the human resources of the firm supports the improvement of our business model and contributes to the acquisition of information. Through this network we map and track the competition. When it comes to customized services we are talking about uniqueness of course. The knowledge that derives from the clients is reflecting the needs of the market. We are a young firm and thus if we do not acquire this knowledge we will not be able to develop our innovation capacity. There are certain internal procedures for this very activity” (Co-Founder and CEO of Goodvidio).*

*“There are currently five waste management organizations established in Greece where the industry is still young and thus our knowledge base has not yet fully expanded. Therefore we aim at acquiring as much knowledge as possible from various sources in order to further develop our innovation capacity and improve our provided services. There are explicitly defined and planned procedures in the context of ISO within the firm” (Head of Integrated Management Systems of Intergeo).*

The VIF collinearity diagnostics and correlations are shown in Table 2 and the VIF coefficients are low indicating no significant problem with multicollinearity. Table 3 shows the results for the regression model for *Number of exploitation products* and Table 4 for *Number of exploration products* respectively. The results indicate that the exchange of management knowledge has a positive and significant effect on exploratory innovation only, the exchange of technical/technological knowledge has a negative and significant effect on exploitative and exploratory innovation output, and the exchange of market knowledge does not have an effect on any type of innovation output. Also, partnering with same nationality firms has a negative effect on exploratory innovation probably because it reduces the requisite variety in resources required for exploration and risk taking. For exploitative innovation the existence of a collaboration manager has a negative effect probably because exploitation requires the transfer mostly of explicit knowledge and a collaboration manager may be superfluous in this case in that s/he increases the cost of transferring explicit knowledge through collaborations. This is corroborated by the following statement:

*“There are individuals inside the organization that are entirely responsible for the collaborative relationship management. However, in reality all personnel are occupied with this process in addition to their other duties. We produce software and therefore we are constantly looking for talented engineers. If only a small team inside the organization was occupied with this duty there would be a possibility of losing some talents in the process. But now, each and every one inside the organization can contribute to this process through their network of relationships.” (GoodVidio)*

*“There are certain procedures in order to evaluate the performance of our partners and hence improve the coordination of our collaboration. In this context, there is a refinement of the interaction with each partner. More concretely, such evaluating procedures are mainly*

*established for the organizations that through our collaboration the largest proportion of our turnover is produced.” (AMD Telecom)*

The results also indicate that trust built in the collaborations promotes exploratory and exploitative innovation, which is corroborated by the following statements:

*“We aim at taking the communication one step further with each partner. We organize and proceed to visits and meetings with our partners on a regular basis. Before we establish a partnership we inform our potential partners about our policy; we tend to collaborate only with organizations that are professionally certified. This makes our choices relatively safer as far as the culture and the administrative environment of each partner are concerned. We operate on this basis in order to build an honest communication from the very beginning which is bound to help in the future as far as the enhancement of their task performance is concerned.” (Head of Integrated Management Systems of Intergeo)*

*“The more we learn about our partners the more effective the coordination of our collaborations becomes by discovering their strengths and their weaknesses as well as the different information and knowledge resources that they can provide to us. It is important to learn more and more about your partners in order to collaborate effectively by understanding their strategic context.” (Founder and CEO of Aterin)*

For exploratory innovation, the quantitative results indicate that management knowledge exchange with partners has a positive effect, probably because it saves time and resources thus reducing the risk associated with exploratory innovation. For instance:

*“Naturally access to information is very helpful in terms of increasing our market competitiveness. We acquire knowledge and information from external sources in order to become better and stronger in the market by transforming the incoming knowledge to innovation and hence value. We have to distribute internally the acquired knowledge from external sources in order to succeed. Such procedures are explicitly planned in our firm in order to further develop and grow as a firm.” (Founder and CEO of Aterin)*

*“As a small enterprise the relations with partners are not strictly professional. Thus, based on the culture that has been developed it is important for us to know the context in which each and every partner is operating in order to be aware of the value of the relationship. Generally, we concentrate on the capabilities and the constraints of our partners in the context of their strategic and administrative policy or the state of their country politics. If we do not know the gap in the operations of our partner how can we contribute in the relationship? We need to know with whom we are going to contact individually and what they want from the management perspective. Strategically, we need to know the business model of our partners in order to proceed to collaboration. Naturally, we try to be synchronized with the needs of each collaboration depending on the personality that we deal with taking always under consideration the presented capabilities and constraints. ” (Co-Founder and CEO of Goodvidio)*

*“In the framework of specific procedures that aim at the improvement of our relationships we distribute questionnaires in our partners in relation to our collaboration and based on their feedback we proceed accordingly to actions concerning the enhancement of our partnership coordination.” (Head of Integrated Management Systems of Intergeo)*

The quantitative results indicate that the exchange of technological knowledge with partners has a negative effect on exploitative and exploratory innovation, which may be an indication of a closed innovation strategy of Greek SMEs when it comes to sourcing technological knowledge through their collaborations. Finally, the quantitative results indicate that the exchange of market knowledge does not have an effect on any type of innovation output. This is not supported by anecdotal evidence by the Sales and Marketing Executive of AMD

who suggested that knowledge acquisition from partners relates “both from to the market information perspective and to the innovation capacity perspective and essentially to our market position; we employ specific personnel for this kind of research”.

Naturally, the present study has been negatively affected by standard limitations for this kind of research that include the relatively small size of the sample due to the low response rate as many organizations were unwilling to participate [20]. Future research may involve a quantitative study with a greater number of participating organizations. Also, some macro-economic factors can be taken into account. For instance, Is there a correlation between the current recessionary environment in EU and innovation? Does recession influence SMEs networking behavior?

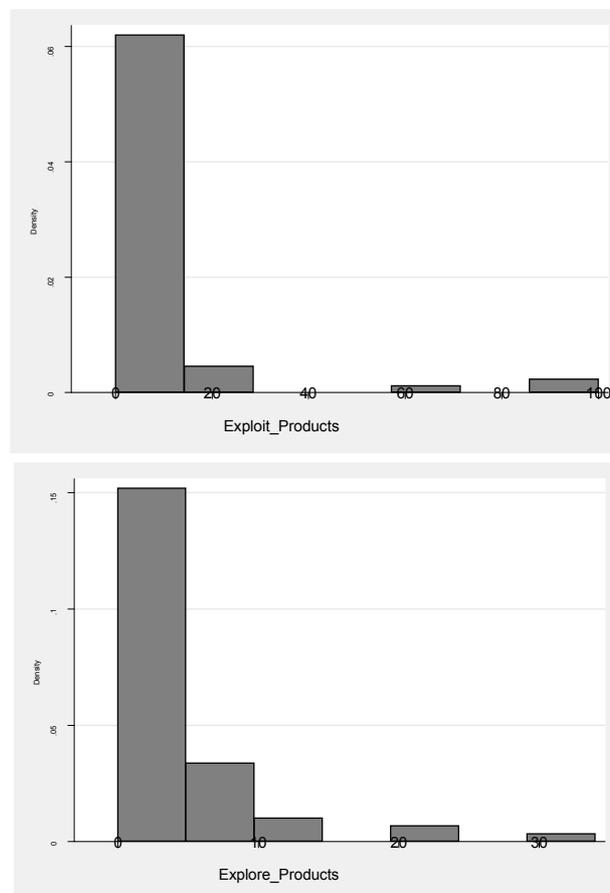
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**Figure 1** The distributions of the dependent variables



**Table 1** Descriptive statistics of all the variables

Variable (Obs=67)	Mean	Std. Dev.	Min	Max
Number of exploitation products	6.64	4.89	0	23

Number of exploration products	3.21	2.24	0	11
log(Number of collaborations)	1.25	0.86	0	3.91
log(Collaboration experience)	1.48	0.88	-0.69	3.21
Exchange of management knowledge (Likert scale)	4.31	1.45	1	7
Exchange of technological knowledge (Likert scale)	4.97	1.33	1	7
Exchange of market knowledge (Likert scale)	4.40	1.44	2.5	7
-----+				
Strength of ties (Likert scale)	5.49	1.25	2	7
Trust in ties (Likert scale)	5.63	0.75	3.67	7
Social capital (Likert scale)	5.42	0.85	1.75	7
log(Age of the firm)	2.19	1.03	-0.69	3.95
log(Number of employees)	2.34	1.10	0	5.52
log(Number of employees in R&D)	1.03	0.85	0	2.56
Number of patents	0.61	1.29	0	5
Collaboration manager (dummy variable)	0.40	0.49	0	1
Same nationality (dummy variable)	0.65	0.37	0	1
Formal collaboration (dummy variable)	0.78	0.37	0	1
High tech firm (dummy variable)	0.52	0.50	0	1

**Table 2** Correlations and collinearity diagnostics

	VIF	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
(obs=67)																			
Number of exploitation products		(1)  2.01	1.00																
Number of exploration products		(2)  1.60	0.20	1.00															
log(Number of collaborations)		(3)  1.62	0.00	0.15	1.00														
log(Collaboration experience)		(4)  2.91	0.04	-0.07	0.18	1.00													
Exchange of management knowledge		(5)  3.13	-0.22	0.01	0.00	0.08	1.00												
Exchange of technological knowledge		(6)  5.74	-0.14	-0.05	-0.02	0.35*	0.47*	1.00											
Exchange of market knowledge		(7)  1.86	0.02	0.10	0.12	0.11	0.22	0.23	1.00										
Strength of ties		(8)  4.08	-0.20	-0.04	0.09	0.26*	0.54*	0.51*	0.45*	1.00									
Trust in ties		(9)  4.34	0.20	0.08	0.17	0.12	0.12	0.44*	0.47*	0.39*	1.00								
Social capital		(10)  3.47	-0.09	0.01	0.19	0.11	0.37*	0.15	0.26*	0.28*	0.41*	1.00							
log(Age of the firm)		(11)  2.53	0.07	-0.05	0.01	0.67*	-0.04	0.19	-0.09	0.01	0.08	-0.09	1.00						
log(Number of employees)		(12)  2.71	0.01	-0.13	0.18	0.34*	-0.09	0.04	-0.05	0.08	0.25	0.13	0.38*	1.00					
log(Number of employees in R&D)		(13)  1.97	-0.17	-0.06	-0.02	0.05	0.12	0.08	0.01	0.02	0.22	0.24	-0.06	0.50*	1.00				
Number of patents		(14)  1.50	0.07	-0.01	-0.11	0.20	0.06	0.19	-0.16	-0.05	0.13	0.15	0.18	0.09	0.26	1.00			
Collaboration manager		(15)  1.92	-0.14	0.27*	0.25	0.18	-0.081	0.08	0.23	0.07	0.23	0.17	0.05	0.10	0.14	0.13	1.00		
Same nationality		(16)  2.48	0.26*	-0.01	0.10	-0.06	0.10	-0.11	0.31*	0.14	0.20	0.10	-0.16	-0.32*	-0.11	-0.02	-0.06	1.00	
Formal collaboration		(17)  2.35	0.17	-0.03	0.29*	0.18	0.21	0.24	0.06	0.40*	0.22	0.11	0.03	0.19	-0.01	-0.13	-0.19	-0.05	1.00
High tech firm		(18)  1.69	-0.14	-0.24	0.11	0.12	-0.04	-0.00	-0.23	0.06	-0.14	0.01	0.15	0.35*	0.26	0.01	-0.07	-0.33*	0.08
1.00																			
		0.27	0.07	0.39	0.34	0.72	0.97	0.07	0.64	0.26	0.91	0.26	0.01	0.08	0.90	0.55	0.01	0.53	

\*p<0.05

**Table 3** Negative binomial regression for dependent variable *Number of exploitation products*

Negative binomial regression      Number of obs = 67  
Dispersion = mean      Wald chi2(16) = 111.41  
Log pseudolikelihood = -108.35539      Prob > chi2 = 0.0000

	Robust				
Number of exploitation products	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]
log(Number of collaborations)	-.0190322	.1190789	-0.16	0.873	-.2524227 .2143582
log(Collaboration experience)	.1711528	.1354936	1.26	0.207	-.0944098 .4367153

Exchange of management knowledge		.0315134	.1002216	0.31	0.753	-.1649173	.227944
Exchange of technological knowledge		-.2585562	.1268366	-2.04	0.042	-.5071514	-.009961
Exchange of market knowledge		.0170137	.0855191	0.20	0.842	-.1506007	.1846281
Strength of ties		-.1635154	.1003059	-1.63	0.103	-.3601113	.0330805
Trust in ties		.4269292	.1769744	2.41	0.016	.0800658	.7737926
Social capital		-.1699663	.1501799	-1.13	0.258	-.4643134	.1243808
log(Age of the firm)		.0332597	.1154705	0.29	0.773	-.1930583	.2595777
log(Number of employees)		.0864875	.1001249	0.86	0.388	-.1097537	.2827288
log(Number of employees in R&D)		-.1479091	.1304159	-1.13	0.257	-.4035196	.1077013
Number of patents		-.0837913	.0812169	-1.03	0.302	-.2429734	.0753909
Collaboration manager		-.4349683	.1888792	-2.30	0.021	-.8051647	-.0647719
Same nationality		.5078014	.2759141	1.84	0.066	-.0329802	1.048583
Formal collaboration		.4048496	.2770917	1.46	0.144	-.13824	.9479393
High tech firm		.0713561	.1779437	0.40	0.688	-.2774072	.4201194
_cons		1.460261	.5530007	2.64	0.008	.3763991	2.544122
-----+							
/lnalpha		-2.449508	.8132264			-4.043403	-.8556138
-----+							
alpha		.086336	.0702107			.0175377	.4250222
-----							

**Table 4** Negative binomial regression for dependent variable *Number of exploration products*

Negative binomial regression                      Number of obs =    67  
Dispersion = mean                                  Wald chi2(16) =    78.29  
Log pseudolikelihood = -81.518936              Prob > chi2 =    0.0000

-----								
		Robust						
Number of exploration products		Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	-----	
log(Number of collaborations)		.0836248	.0986341	0.85	0.397	-.1096945	.2769441	
log(Collaboration experience)		.1441136	.1626389	0.89	0.376	-.1746527	.46288	
Exchange of management knowledge		.1889913	.0790855	2.39	0.017	.0339865	.3439961	
Exchange of technological knowledge		-.3944923	.119195	-3.31	0.001	-.6281102	-.1608744	
Exchange of market knowledge		.0434124	.0799443	0.54	0.587	-.1132756	.2001004	
Strength of ties		.1063777	.0903419	1.18	0.239	-.0706891	.2834445	
Trust in ties		.4687203	.2294665	2.04	0.041	.0189743	.9184663	
Social capital		-.4291554	.1341193	-3.20	0.001	-.6920244	-.1662864	
log(Age of the firm)		-.0307444	.1280857	-0.24	0.810	-.2817879	.220299	
log(Number of employees)		-.1821304	.1172683	-1.55	0.120	-.411972	.0477113	
log(Number of employees in R&D)		.1045432	.1363202	0.77	0.443	-.1626396	.3717259	
Number of patents		-.1097697	.0622506	-1.76	0.078	-.2317785	.0122392	
Collaboration manager		.2255168	.2120045	1.06	0.287	-.1900043	.6410379	
Same nationality		-.5644885	.2916624	-1.96	0.050	-1.136136	.0071593	
Formal collaboration		-.3227069	.3300685	-0.98	0.328	-.9696294	.3242155	
High tech firm		-.2708204	.179626	-1.51	0.132	-.6228809	.0812401	
_cons		2.064986	.5907208	3.50	0.000	.9071949	3.222778	
-----+								
/lnalpha		-16.16376	3.071424			-22.18364	-10.14388	
-----+								
alpha		9.55e-08	2.93e-07			2.32e-10	.0000393	
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## Total Quality Management (TQM), innovation and Malaysian SMEs Performance: Result from a pilot survey

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The purpose of this paper is to explore the pertinent issues of the relationship between Total Quality Management (TQM) and SMEs performance. This paper also reviews the need of other variables in the relationship between TQM and SME performance, namely innovation. This paper undertakes a thorough review of the relevant literature before developing proposition regarding practices of TQM, innovation, and performance of SMEs. This paper then presents the results from a pilot survey carried out to the Malaysian SMEs. The purpose of this pilot survey is to validate the measurement scale and understand the status of TQM, Innovation and performance of SMEs. The scales for measuring TQM practices implemented, innovations and performance of SMEs were verified in this study with 35 companies that had been certified with ISO 9001 and ISO/TS16949 in Peninsular Malaysia. The measuring scales were assessed through the Cronbach's alpha and item-total correlation coefficient. The pilot survey revealed instrument developed for measuring TQM, innovation and SMEs performance constructs that was believed as passably reliable. Future research should undertake a large number of samples in an empirical analysis to validate and/or modify the propositions presented in this paper.

## Keywords

Innovation, Malaysia, Small-Medium Enterprise (SME), TQM

## 1. Introduction

Small and Medium Enterprises (SMEs) play an essential role at the development connected to the economy. Most of the countries nowadays consider SMEs as a national wealth and many countries around the world including developing countries understand the necessary contribution throughout economic development [1]. For instance, most of the previous researchers suggest the vital contribution of SMEs towards employment [2], [3] Gross Domestic Product (GDP) [4] rural development [5], [2] and overall economic development [6], [7]. Apart from this contribution to the global economy, SMEs also contribute to the economic development in developing countries by posing a significant contribution to the total industrial production, creating employment, as well as reducing poverty [8]. It is also significant for Malaysian economy in shaping its positive movement towards the aim of achieving a high-income nation status in the year 2020. The contribution of SMEs towards the economic development in Malaysia for the year of 2020 is projected to generate more than 99.2% of total business establishments in Malaysia, with 41% share of GDP, 62% share of employment and 25% share of total exports [9]. With this positive impact, the Malaysian government has acknowledged quite a few initiatives in order to raise vision with the establishment associated with several programs such as New Economic Model (NEM), Economic Transformation Programme (ETP), National Key Economic Areas (NKEAs), Strategic Reform Initiatives (SRIs), National SME Development Council (NSDC), SME Master plan 2012-2020, 10th Malaysian plan, with the aim of providing total supports and opportunities for SMEs to develop either domestically or perhaps the global market. Nowadays, there is a fierce competition among SMEs especially to gain sustainable competitive advantages through implementing unique ways or methods to improve performance. There is a way to establish and enhance the competitive advantage among SMEs. This can be done through producing quality products as demanded or required by large companies and enhancing the innovativeness of the SMEs. This is supported by Flynn et al., 1994 [10] where they mentioned that TQM practices as input to quality and TQM as source of competitive advantage due to satisfaction of customer and continuous improvement capability. Even though much attention given by business entity regarding the two different strategies, namely TQM and innovation, not many of them are actually

successful in adapting these strategic factors to enhance organization 's performance. Thus, it is essential and crucial to determine and investigate the relationship between these factors and how the factors can benefit SMEs. In addition, some empirical studies previously underline the role of Total Quality Management (TQM) [11]-[16] and innovation [17]-[20] in improving the development of organizational performance. However, few studies have examined the influences of TQM on organizational performance through the mediating effect of different strategic variable such as innovation and thus inspire the researchers to deliberate on this research as a central focus. Thus, this research aims to fulfil the following objectives; 1) to establish propositions of TQM and innovation of Malaysian SMEs, 2) to assess the current level of TQM and innovation of Malaysian SMEs, and 3) to examine the instruments developed for measuring TQM and innovation of Malaysian SMEs.

## **2. Literature review**

### **2.1 Total Quality Management (TQM) and SMEs performance**

Huge benefits and advantages of TQM to organizations invited most of the scholars which resulted in the increasing number of studies in this area. For instance, Mar Fuentes-Fuentes et al., 2004 [21] examined the relationship between TQM and performance of organization using 273 samples including manufacturing and service firms in Spain. They found that TQM influenced performance resulting from the impact of customer focus and continuous improvement that led to improving financial performance of organization. While Kaynak & Hartley, 2005 [22] suggested that organization which implements successful TQM practice performs better as compared to those companies that do not extensively practice TQM practices. Tarí, Molina, & Castejón, 2007 [23] also agreed upon the quality performance of organization has been affected by TQM and urged leaders to play a strong role as a driver of TQM implementation in organization. There are a number of studies concerning TQM and SMEs performance. For instance, Gadenne & Sharma, 2009 [24] examined the impact of TQM and performance of SMEs in Australia. With 871 samples including 67% had ISO certification; they found that TQM gives a positive impact to performance measured by return on assets, market share, customer satisfaction, overall performance. Anderson & Sohal, 1999 [25] examined the six practices of TQM namely leadership, strategy, policy & planning, information & analysis, people management, customer focus and quality of process, product & services. They found that there was a significant relationship between TQM practices & performance which were customer focus, quality system or good information management that provided huge impact on quality.

As one example in the Malaysian context, Zadry & Yusof, 2006 [26] conducted a study related to TQM practice by using theory of constraints and found that TQM improved quality and performance. However, Malaysian SMEs are still problematic and slow to adopt and implement TQM extensively. Considering the above evidence, it is proposed that:

*Hypothesis 1: TQM will be positively related to SME performance*

### **2.1 TQM and Innovation**

The link between TQM and innovation has increased a massive interest among researchers in the management field [14] and there are different thoughts relating to the link between TQM and innovation [27]. Although studies have been conducted by previous scholars to scrutinize the relationship between TQM and innovation performance around the globe, especially in the Western countries [28], [29], there are dearth studies on the influence of TQM practices on innovation performance in the developing countries such as Malaysia, especially within the context of the manufacturing sector [30]. Mcadam, Armstrong, & Kelly, 1998 [31] revealed the influence of TQM and innovation with the study covering small firms

in Ireland. It was also shown that continuous improvement (one of the TQM practice) influenced innovation culture. In addition, a study related to TQM and innovation performance was conducted by Ooi et al., [30] focusing on a sample of 206 managers working in the ISO 9001:2000 certified manufacturing firms in Malaysia. This study used six dimensions of TQM based on the Malcolm Baldrige National Quality Awards (MBNQA), namely leadership, customer focus, strategic planning, people management, information analysis, and process management. The results of this research showed that TQM had a significant, positive relationship with innovation performance. In particular, the findings of the study indicated that process management, strategic planning, people management, and customer focus had positive relationships with innovation performance of firms surveyed in Malaysia. Therefore, both researchers and practitioners are recommended to deliberate these significant TQM practices when considering the innovation performance of an organization. Considering the above statement, the following proposition is suggested:

*Hypothesis 2: TQM will be positively related to innovation*

## **2.2 Innovation and SMEs performance**

Innovation has a considerable effect on organization performance by generating an improved market position that delivers competitive edge and superior performance. A large number of studies focusing on the innovation and performance relationship deliver a positive assessment of higher innovativeness resulting in increased organization performance [32]. Previous studies discovered the relationship between innovation and performance in terms of customer or market results [33];[19];[34] and some past studies concentrated on the relationship between innovation and performances in terms of organizational effectiveness, for instance firm productivity, working environment, sales turnover, production efficiency, product or quality of service, innovativeness, production capacity and overall performance [17];[18];[35];[33];[34] and performances in terms of financial results such as return on sales, return on asset, profitability, return on investment, cost efficiency, net profit before tax, sales growth and cash flow [18];[35];[19];[20];[34]. Oke et al., [18] conducted a study focusing on a sample of UK SMEs in manufacturing, engineering, electrical, and information technology and telecommunications industries. The outcomes exhibited that the SMEs inclined to focus more on incremental rather than radical innovations and the findings disclosed that the relationship between innovation and sales turnover growth in SMEs was an essential contribution and had important implications. It confirms the prominence of innovation and provides support for the encouragement of innovation in SMEs. Meanwhile, Lin & Chen [17] studied four different types of innovation, namely technological, marketing, administrative, and strategies which covered 877 firms focusing on SMEs in Taiwan. Among these four types of innovation, 80% of the surveyed companies applied technological and marketing innovation, whereas administrative innovations appeared to be the most vital factor in clarifying sales rather than technological innovations. Considering the above, it is proposed that:

*Hypothesis 3: Innovation will be positively related to SME performance*

## **2.3 Innovation mediate TQM and SMEs performance**

There is a need to include other variables as a mediator to determine the relationship between TQM and performance of SMEs. It is due to a mixed and varying result from previous studies and thus many researchers make some assumptions to take into account of other variables as a mediator to the relationship (TQM-organization performance) [36]. From the search of earlier literature and to the best of the researchers' knowledge, limited studies have examined the mediating effect of one type of performance measure on the relationship between TQM practices and other types of performance measured [37];[38];[39]. Some

scholars proposed that future studies should investigate the direct and indirect effects of TQM practices on the level of innovation (e.g., [14], and on various performance measures (e.g.,[38]). There is one study that focuses on the effect of innovation as a mediator to the relationship between TQM and performance. This empirical study was conducted by Sadikoglu & Zehir [33]; covering 373 selected ISO 9001 companies in Turkey. The results supported the anticipated hypothesis that employee performance and innovation performance mediated the relationship between TQM practices and organization performance. If this argument holds true, then it is claimed that:

*Hypothesis 4: Innovation will mediate the relationship between TQM and SME performance*

## 2.4 Research framework

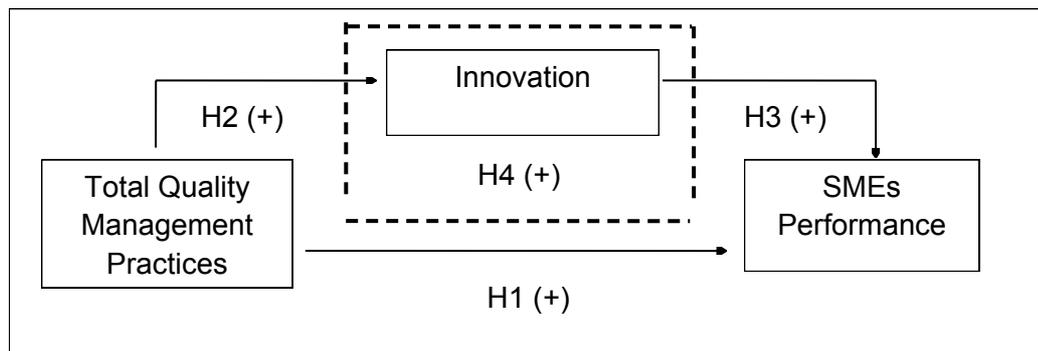


Figure 1: The research framework. Source: Developed for the study.

## 3. Methodology

### 3.1 Sample and data collection procedure

The population of this study was the Small and Medium Enterprises (SMEs) community which focused on manufacturing and registered in the directory of Federation of Malaysian Manufacturers (FMM Directory 2014). The key respondents were managers or key decision makers of SMEs. All manufacturing companies included in the survey have been certified with ISO 9001 or accredited by any other Quality Management Systems. These companies were sampled for the questionnaire survey because of their managers' knowledge of the subject matter, especially pertaining to quality management practices. A total of 160 questionnaires were randomly distributed to the respondents via online survey software namely Survey Monkey. After two reminders were sent to the participants, the researchers successfully collected 37 responses; however, only 35 were considered usable for further analyses. As such, the response rate was 21.87%. It is worth declaring that the data collection process is still on-going at the point of time this paper was written.

### 3.2 Questionnaire design

This study used survey method to collect the data. A self-administered questionnaire via online survey consisted of five sections (Sections A, B, C, D and E) and 41 items were developed for this purpose. 32 items were designed in 5-point Likert-type rating scales to ease the respondents in making their choices by simply rating "out of five". Specifically, 1 represented "strongly disagree", 3 meant "neutral", and 5 represented "strongly agree". Another 9 items were also designed in 5-point Likert-type rating scales, 1 indicated "greatly

decreased”, 3 meant “no change”, and 5 represented “greatly increased”. All items were adapted from previous established studies to guarantee their reliability and validity. Table 1 summarizes the information used in the questionnaire for this study.

**Table 1** Information of questionnaire

Variable	No. of Item	Source
<b>Section A</b>		
Leadership	5	[40]
Strategic Planning	5	
Customer Focus	5	
Information & Analysis	5	
<b>Section B</b>		
Organizational Innovation	6	[20]
Technological Innovation	6	[41]
<b>Section C</b>		
Human Resource Result	2	[15]
Market/Customer Result	2	[42]
Organizational Effectiveness	1	[43]
Financial Result	4	
<b>Section D</b>		
Personal background	6	Designed by researchers
<b>Section E</b>		
Organization Information	10	Designed by researchers

## 4. Result

### 4.1 Profiles of respondents and company

Table 2 summarizes the respondents’ profile and SMEs background information. More than half of the respondents were managers (65.7%) and most of them had 6-10 years of working experience (45.7%) in the organization. The dominating business category of the SMEs was food and beverages, electrical and electronics and machinery and equipment (17.1%). It was also found that about half of the SMEs employed 76-200 employees (54.3%) and have been established for more than 15 years (54.3%). For the business status, most of the SMEs are owned by Chinese (37.1%), followed by Malay (34.3%) and others (28.6%). With regards to TQM implementation, most of the SMEs had implemented TQM for more than 6 years (48.6%) and a majority of them were ISO 9001 certified companies (80.0%).

**Table 2** Demographic breakdown of the sample (n=35)

Characteristics	Description	No. of Respondents	Percentage (%)
Respondent's position	Manager	23	65.7
	Senior manager	6	17.1
	Director/CEO	6	17.1

Working experience	5 years and below	11	31.4
	6-10	16	45.7
	11-15	3	8.6
	16-20	1	2.9
	21 years and above	4	11.4
Business category	Food & beverages	6	17.1
	Electrical & electronics	6	17.1
	Wood products	2	5.7
	Paper & printing	2	5.7
	Petroleum & chemical	2	5.7
	Pharmaceutical product	1	2.9
	Rubber & plastic	4	11.4
	Furniture product	2	5.7
	Basic metal/fabricated	3	8.6
	Machinery/equipment	6	17.1
	Others	1	2.9
No. of employees	Between 5-75	16	45.7
	Between 76-200	19	54.3
Establishment (Year/s of)	Less than 5 years	1	2.9
	5-10 years	7	20.0
	11-15 years	8	22.9
	More than 15 years	19	54.3
Business status	Malay	12	34.3
	Chinese	13	37.1
	Others	10	28.6
TQM implementation (Number of year/s)	1-3 years	9	25.7
	4-6 years	9	25.7
	More than 6 years	17	48.6
Types of QMS	ISO 9001	28	80.0
	ISO 22000	3	8.6
	ISO/TS16949	3	8.6
	ISO 13485	1	2.9

## 4.2 Reliability analysis

The instrument for this study was tested for scale reliability where the coefficient reliability for each of the variables in the study is as stated in the table 3 below. Generally, variables which have items with a total correlation below 0.3 are excluded, while a reliability coefficient of 0.7 or more is considered good [44]; [45]. The Cronbach's alpha of all TQMs, innovation and SMEs performance constructs were well above 0.7, and all the item-total correlation coefficients exceeded 0.3, except for the Strategic Planning construct and Technological Innovation. After deleting two items of Strategic Planning with an item-total correlation coefficient of only 0.14 and 0.12 and also two items of Technological Innovation with an item-total correlation coefficient of only 0.03 and 0.28, all remaining items had the item-total correlation coefficients greater than 0.3, and the Cronbach's alpha increased from 0.655 to

0.736 for \*Strategic Planning and increased from 0.540 to 0.791 for \*Technological Innovation. Therefore, the measurement for the final large survey consisted of 4 TQM constructs with 18 items, 2 Innovation constructs with 10 items and 2 constructs with 9 items for measuring the performance of SMEs in Malaysia.

**Table 3** Reliability analysis (Cronbach Alpha)

Construct		No. of Items	Cronbach's alpha
<b>TQM</b>	Leadership	5	0.833
	*Strategic Planning	3	0.736
	Customer Focus	5	0.817
	Information & Analysis	5	0.724
<b>INN</b>	Organizational Innovation	6	0.731
	*Technological Innovation	4	0.791
<b>PERF</b>	Non-financial Result	5	0.759
	Financial Result	4	0.881

### 4.3 Mean and standard deviation analysis

Table 4 illustrates the values of means and standard deviations for TQM. This variable was measured by 18 items. All items recorded a mean value of greater than 4.00 (agree) except for item CF2 “conducts a customer satisfaction survey every year” (3.94) and item IA4 “undertaken benchmarking of other firms’ product quality” (3.91). The overall mean was 4.24 and standard deviation was 0.64. There were two items found to have a mean close to 5.00, they were item L5 “top management pursues long-term business success” (M=4.60; S.D. =0.55) and item CF1 “quality-related customer complaints are treated” (M=4.54; S.D. =0.51). The results showed that respondents generally agreed with the TQM implementation in their organization.

**Table 4** Mean and standard deviation for TQM

Item	Description	M	S.D.
L1	Participates in quality and improvement process.	4.34	0.68
L2	Encourages employee involvement in quality.	4.49	0.66
L3	Top management learns quality-related concepts.	4.11	0.72
L4	Top management discusses quality-related issues.	4.31	0.72

L5	Top management pursues long-term business success.	4.60	0.55
SP1	Comprehensive and structured planning process.	4.31	0.53
SP2	Inclusion of continuous quality improvements.	4.37	0.55
SP3	Believes that strategic plans are linked to quality values.	4.17	0.57
CF1	Quality-related customer complaints are treated.	4.54	0.51
CF2	Conducts a customer satisfaction survey every year.	3.94	0.84
CF3	Conducts market research for improving our products.	4.00	0.69
CF4	Has precise knowledge of customer expectations.	4.34	0.76
CF5	Collects extensive complaint information from customers.	4.17	0.79
IA1	Regular reviews on organization's quality performance.	4.29	0.52
IA2	Availability of key performance figures for analysis.	4.23	0.60
IA3	Our organization analyses all work processes.	4.23	0.49
IA4	Undertaken benchmarking of other firms' product quality.	3.91	0.78
IA5	Knowledge, availability, access and collection of data.	4.03	0.57
<b>Overall value</b>		<b>4.24</b>	<b>0.64</b>

Table 5 depicts the values of means and standard deviations with regards to innovation. This variable was measured by 10 items. Item OI2 “implements practices for employee development” recorded the highest mean value (M=4.11; S.D. =0.68). While item OI3 “use decentralization in decision-making” obtained the lowest mean (M=3.54; S.D. =1.07). The overall mean was 3.85 and standard deviation was 0.75. Based on this result, it indicated that respondents were neutral to agree with the statements regarding innovation in their organization.

**Table 5** Mean and standard deviation for Innovation

<b>Item</b>	<b>Description</b>	<b>M</b>	<b>S.D.</b>
OI1	Uses databases of best practices and other knowledge.	3.77	0.81
OI2	Implements practices for employee development.	4.11	0.68
OI3	Uses decentralization in decision-making.	3.54	1.07
OI4	Our organization has used inter-functional groups.	4.03	0.62
OI5	Our organization has flexible job responsibilities.	3.91	0.92
OI6	Has implemented outsourcing of business activities.	3.60	0.85
TI1	New products increased over the last 12 months.	3.66	0.68
TI2	Our organization frequently tries out new ideas.	4.00	0.59
TI3	Our organization seeks out new ways to do things.	4.09	0.61
TI4	Our organization is creative in its methods of operation.	3.83	0.66
<b>Overall value</b>		<b>3.85</b>	<b>0.75</b>

Table 6 shows the distribution of means and standard deviations for SMEs performance. This variable was measured by 9 items. Item MR1 “market development” recorded the highest mean value (M=3.97; S.D. =0.45). While item FR3 “return on assets” obtained the lowest mean (M=3.37; S.D. =0.60). While, the overall mean was 3.76 and standard deviation was 0.50. Therefore, it indicated that respondents perceived their organization had no change to increase with the performance of their organization.

**Table 6** Mean and standard deviation for SMEs performance

Item	Description	M	S.D.
HR1	Employee's satisfaction.	3.89	0.47
HR2	Employee's Morale.	3.83	0.38
MR1	Market development.	3.97	0.45
MR2	New product development.	3.89	0.40
OE1	Improving quality of products.	3.86	0.36
FR1	Revenue growth.	3.77	0.55
FR2	Net profits.	3.63	0.69
FR3	Return on assets.	3.37	0.60
FR4	Profit to revenue ratio.	3.66	0.64
<b>Overall value</b>		<b>3.76</b>	<b>0.50</b>

## 5. Discussion and conclusion

The suggested framework focuses on investigating the mediating effect of innovation on the relationship between TQM and SMEs performance. The mediator variable of this study, namely innovation, hopefully will contribute a positive and indirect impact between TQM and business performance, and can serve a new theoretical contribution. Result of this pilot survey indicated the level of implementation of TQM and innovation of Malaysian SMEs. TQM implementation of Malaysian SMEs was considered as satisfactory and this result hope to benefit SMEs through implementation extensively of TQM practices in enhancing the success of innovation capability, thus having a positive impact on performance. However, the levels of innovation among SMEs showed mixed results ranging to neutral and agree with the statements. This is due to several reasons that were supported by previous scholars. Among the reasons are the SMEs are having deficiency of managerial skills and technical expertise [46], low levels of research and development [47] and the absence of information on technology [48]. With regards to this resistance, the SMEs need to reconsider innovation capability and seek for assistance in order to overcome this challenge since it can create high and continuing impacts especially in terms of technological innovation in improving and nourishing the performance of SMEs.

In addition, the measurement of this study can be enhanced for actual data collection with larger samples due to the tested constructs were believed as passably reliable. This paper had several limitations. For instance, only descriptive analysis and reliability analysis were presented since the aim of this paper was to test the measurement used for larger sample in the future. Thus, future studies should attempt to establish a model and investigate the relationships between TQM and SMEs performance in Malaysia as well as to determine the mediating effects of innovation into this relationship. The future analysis of this study also can be replicate for neighbouring countries such as in ASEAN countries in addition to draw a comparative analysis between those countries.

### Acknowledgments

The authors would like to thank several organisations for the assistance concentrated in the research. First is the Ministry of Higher Education, Malaysia (MOHE) for awarding the fund to conduct the research. Secondly is Universiti Teknologi MARA Malaysia and Universiti Sains Malaysia, for the assistance and support.

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## **Tackling enterprise in the informal economy**

### **Determinants of the informal economy of an emerging economy: a multiple indicator, multiple causes (MIMIC) approach**

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The debate about the best way to tackle the problems (both perceived and real) in the informal economy is on-going. In this study, we argue that, if the informal economy is to be tackled successfully, policies should focus on evidence-based factors that influence participation in the sector. We posit that although several factors have been identified in the literature as determinants, not all are relevant in every economy. This underscores the need for country-specific studies. In this study, we focus on Nigeria. To identify and/or confirm the determinants specific to the Nigerian informal economy, our paper employs, in a novel way, the multiple-cause, multiple-indicator model, and primary data. Building on previous literature[1,2], relevant determinants of the informal economy were constructed from participants' responses to questions designed to solicit such information. While all literature-defined determinants were included in the questionnaire, not all were identified as important by participants in our survey. Particularly, we found the factors that determine the origin and expansion of the Nigerian informal economy to include: unemployment, need to be autonomous/self-employed, corruption of government officials/agencies, participants' desire to pay less tax, and participants' need to survive. The greatest influence, in terms of magnitude and impacts, comes from the 'participants' need to survive' factor. This is followed by corruption. Our policy recommendations follow these identified factors, and recognise the positive important role played by the informal economy in emerging economies. Also, there are suggestions that, though country-specific, findings and recommendations from this study may be used to inform policy in other countries with similar economic structures as Nigeria. However, the differences in magnitudes and impacts of the reported determinants of the Nigerian informal economy strengthen our assertion that a country-specific study is necessary, if the most appropriate policies are to be implemented.

## Keywords

Determinants of the informal economy, Emerging economy's informal sector, MIMIC approach, Policies for tackling the informal sector, The Nigerian informal economy

## 1. Introduction

In recent years, the size of the informal economy has expanded globally. This has generated increasing debates about the best way to tackle the sector. In this study, we assert that the informal economy will best be tackled if policies implemented are evidence-based. This underscores the need to examine, in detail, a country's specific factors that (potentially can) influence the expansion of the informal economy. In this paper, the focus will be on the Nigerian informal economy. Considering that Nigeria is the most populous country, and largest economy, in Africa, focussing on it is hugely justified. Additionally, there is arguably a large and dynamic informal economy, which plays a key role in the Nigerian economy. Clearly, implementing the right policies on the sector will positively impact the Nigerian economy. Finally, the history of the country justifies its use for this study. For example, the

government of Nigeria implemented a structural adjustment program (SAP) in the 1980s and studies have linked the growth of the informal economy to the SAP[3]. It is the need to have an empirical study which streamlines policy-recommendations for the informal economy in Nigeria, and other countries with similar size and structure, which gives an overwhelming justification for this study.

This paper defines the informal economy as *informal employment* (i.e., the population doing informal types job, regardless of the location or enterprise of operation), *employment in the informal economy* (i.e., the population working in informal sector enterprise, regardless the type of job done), and all legal activities that contribute to GDP but not-captured by official statistics due to one or a combination of the factors discussed in Section 2.

The remainder of the paper is structured as follows, Section 2 reviews relevant literature, whilst Section 3 discusses methods. Then, results are presented and discussed in Section 4, and Section 5 concludes.

## **2. Literature review**

There is a high volume of literature that has discussed the determinants of the informal economy. These determinants are burden of government regulation, burden of taxation and social security contribution, state of public services, social transfer, and labour market regulations[4-8,2]. Others are limited absorption of surplus labour, barriers of entrance to the formal economy, weak institutions, redundancies, increasing use of capital instead of labour, demand for low cost goods and services, uncommitted or unaware government, economic hardship and poverty, and more women entering the labour market[9].

### **2.1 Government Regulations**

Government regulations have been found to have significant effects on the size of the informal economy[10,2]. Such regulations as excessive labour market regulation, social security legislation, and other legislation which creates bottlenecks in a firm's recruitment and operational processes, are key determinants of the size of the informal economy. For example, excessive regulation of the labour market can be in the form of fixing wages or reducing official working hours. Results from OECD studies show that fixing minimum wages, a price floor above the market equilibrium wage rate, increases the level of unemployment and size of the informal economy[10,4].

Also, an emphasis on *social security contributions* tends to increase the cost of labour, and hence the size of the informal economy[2]. Particularly, it increases the costs of production and reduces the profit margin to the employer if he is unable to shift the burden to the employee. However, if the cost of social security is successfully shifted by the employer, it reduces the actual wages of the employee. The channel of impact is twofold: if the cost of labour becomes too high and profit margins become too low, employers are forced to look for alternative ways of reducing costs, hence, they turn to the informal economy to drive down the cost of production in order to shore up their profit. Conversely, if the effect of social security contributions is shifted to employees, they are forced to seek ways of earning extra income from the informal economy.

### **2.2 Tax Burden**

A rising tax burden can initiate an expansion in the size of the informal economy, as individuals and/or firms are compelled to seek alternative sources of income from that sector[12,13]. For its part, a growing informal economy places further pressure on the government to increase taxes, which in turn, encourages more economic agents to informalise. Additionally, there is an incentive to participate in the informal economy if, in the official economy, the difference between the total cost of labour and after-tax earnings is

high, as individuals would seek to avoid the difference and participate in the informal economy[4]. Arguably, reducing the tax rate, which by extension reduces the tax burden, will of necessity be accompanied by a reduction in the size of the informal economy. However, evidence from Austria studies suggests that the size of the informal economy did not experience a significant reduction despite a huge fall in the direct tax burden[14,15]. Also, decreases in tax rates lead to increases in income inequality, but decreases in entry cost bring about decreases in both the size of the informal economy and income inequality[16].

### **2.3 State of public services, weak institutions, and unskilled-population growth**

Arguably, falling tax revenues and growing informal sector have reduced the capacity of many governments to provide a large quantity and quality of public goods. In response to this, individuals operating in the formal economy can also begin to take up activities in the informal economy, which further increases the size of the sector[4]. Similarly, the “weak capability of formal institutions to provide education, training and infrastructure as well as other incentives for structural reforms has contributed to the growth of the informal economy”[9:p.11]. Particularly the inability of the formal economy to create and provide sufficient jobs for a growing unskilled-population has been the main cause of expansion in some countries’ informal economy over the past four decades[9,17]. In turn, a relatively large informal economy reduces state revenue and its ability to provide public goods and services. Any attempt by the government to stem the tide by raising tax rates for individuals and firms operating in the formal economy will only exacerbate the economic situation, as this will provide incentives for the operators in the formal economy to move over to the informal economy.

### **2.4 Entry Barriers and Uncommitted Government**

Individuals trying to start up businesses or obtain business licence/permits, and land titles, have had to confront such issues as excessive costs, government regulations, and corruption. This encourages participation in the informal economy. The World Bank doing business database, for example, shows that the process of establishing a new business in sub-Saharan Africa (SSA) takes over 63 days, costs about 215.3% of GNI per capita, and requires the completion of 11 procedures on average[3]. In fact, “informality was observed to be more pervasive in countries requiring entrepreneurs’ compliance with a large number of procedures to start a business and in those in which the time and cost associated with business entry were high”[18:p.6]. Similarly, inadequate commitment from many governments is another factor that influences the informal economy. The result is that the informal economy is left unattended since its potentials, contributions and problems are unknown to the government. Hence, no action is taken to intervene in the sector, albeit, many of these governments believe that the informal economy will die out as a passing phenomenon[9].

### **2.4 Time Allocation**

Generally, the efficient allocation of time determines different occupations[13]. Arguably, time is a scarce commodity and has to be optimally distributed between work and leisure on the one hand, and between the informal sector and household-related work on the other. Similarly, there are multiple activities that can be carried out by individuals/firms, but the latter would have to do so within the space of time available to all economic agents. For example, individuals who have a formal employment can choose to combine it with activities in the informal economy, but can only do so if they have spare time from their formal job, and/or are willing to trade off their leisure time for these informal activities. Although some results[19] suggest a seamless movement of individuals between the two sectors, other

empirical results tend not to support this hypothesis. For example, a negative relationship was reported between the formal economy and time spent in the informal economy[20], and marginal evidence in favour of time spent in the formal and the informal economy was reported for Trinidad and Tobago[13].

## **2.5 Socioeconomic and Demographic Considerations**

Such socioeconomic factors as level of education[21], area of residence[22], income level, number of dependents[23], skills acquired, and training undergone[9], and demographic factors, such as marital status[23], age and sex[9,5] tend to affect the size of the informal economy. For example, sectors dominated with ease of employment, particularly employment without documentation, low-wage, low income, low-skills, and labour-intensive jobs, have a relatively larger share in the informal economy[13]. Also found is the prevalence of the informal economy in manufacturing[24,25] and construction[26,27] sectors. Again, the growing number of women going into the labour market contributes to the growth of the informal economy, as these women do not have the right to own property/land in some countries, hence cannot operate formally[9]. Also, the kind of activities engaged in by participants tends to split along gender lines, as more men than women participate in the sell side of the informal economy[28], and more women than men participate in the informal economy as clientele[13].

## **2.6 Corruption**

Some studies[4,29] have observed that the size of a country's informal economy increases with corruption, as entrepreneurs deliberately informalise in order to avoid the high costs associated with bureaucracy and corruption. Conversely, other studies[30] do not consider corruption to be a drawback, and if anything, is beneficial to economies with large size of informal sector and weak institutions. Similarly, it has been argued that the informal economy reduces the levels of corruption[31,32], as the bids to collect bribes from entrepreneurs in the official economy, as a matter of fact, pushes entrepreneurs from the formal economy to the informal economy. To avoid this, corrupt bureaucrats are forced to abide by the rules of not collecting bribe[31].

## **2.7 Migration**

Migrants may contribute to the growth of the informal economy as they make labour available in large quantities and at low cost. However, the impact of migration on the economy is not as straightforward as the latter suggests, rather, it is multifaceted. Specifically, migrants can bring about both positive and negative effects on an economy's employment, production and growth[33]. In the early debates, the informal economy and migration were seen as complements[17,34,35]. By this thinking, the informal economy represents the starting point for migrants.

An alternative view is that the relationship between migration and the informal economy can be one of substitution[36]. It is complementary if new migrants, at first, find it difficult getting formal jobs and start off in the informal economy. Conversely, it is more likely to be a substitute if new incomes earned by migrants from the informal economy are an imperfect trade-off with the earned income from their home informal economy. When this is the case, the informal economy and migration become viable options for the household, as both the informal economy and migration effectively become substitutes for each other.

## **2.8 Structural Adjustment Programmes (SAP)**

The SAP is often characterised by caps on wages, mass retrenchment of public and private sector workers, successive and sharp currency devaluation, and underemployment and disguised unemployment of the workforce. By its nature, objectives and modus operandi, the SAP created many redundant workers in every country where it was implemented, and the natural destination of these displaced workers is the informal economy. Suggestively, there was a decline in the overall conditions of, and capacity to employ and/or retain a good number of employees by, the formal economy in countries where the SAP was implemented, which clearly explains the growth in the informal economy[37,38].

## **2.9 Globalisation, Demand for Low-cost Goods, and FDI**

Globalisation has made the mobility of factors of production, goods and services possible and easy; hence, available in abundant supply are low cost goods and services which are accessible locally and across borders, albeit in abundant supply in the informal economy. This suggests that consumers patronise the informal economy in some countries because it offers the cheapest goods and services that are readily available. For its part, firms tend to employ informal workers and patronise the informal economy in their bid to drive down costs of production for profit maximisation[9,38,39]. Particularly, economists often “claim that the low cost service provided by the informal sector enables modern industries and export-oriented activities in developing countries to obtain supplies at minimal costs, continue to pay low wages and, thereby, remain competitive”[38:p.11-12].

Also, globalisation tends to influence the size of the informal economy through its impact on the structure and allocation of resources in an economy[3]. Similarly, the content and pattern of Foreign Direct Investment (FDI) flows can either increase or decrease the size of the informal economy[40], though FDI flows are key determinants of economic growth. For example, the export and use of capital-intensive means of production in relatively labour abundant states, and/or an increasing FDI flows to capital intensive sectors in developing countries, has created a situation where there is an abundant labour supply which the formal economy does not have the capacity to absorb[40]. Hence, the active labour force that could have been employed by these capital-intensive firms will find their way into the informal economy, especially if they are not able to find other, formal, jobs.

## **2.10 Informal Entrepreneurship**

Arguably, participants in the informal economy are entrepreneurs, who engage in the sector based either on need or opportunity[41], and display such entrepreneurial traits and attributes as: innovativeness, autonomy, ability to identify opportunities, determination, creativity, dynamism and risk-taking[42,41]. Also, some economic units engage in the informal economy because of their desire and decisions to become self-employed and avoid the high cost of labour, burden of taxation, corruption and bureaucratic costs[39] and burden of state overregulation[43].

According to the early debates, informal entrepreneurs are motivated by necessity, adopting a last resort strategy[24,44] hence, it was described as involuntary, forced, reluctant, or survivalist[45,46,41]. In contrast, the new thinking argues that informal entrepreneurship is based on choice. In particular, the new school of thought argues that individuals engage in informal activities because of the relative “autonomy, flexibility, and freedom ”[47:p.6] they enjoy in the sector over the formal economy. For example, evidence shows that informal entrepreneurs in New York City’s East Village carry out their activities on the basis of choice, as they want to reinvent their careers; in terms of work, their identity or show their true-self-identity[48]. Similar results have been reported for Latin American street vendors[49]

## **3.0 Methods**

This paper employs the direct methods to investigate the determinants of the Nigerian informal economy. Direct methods involve the use of designed instruments, interviews and observations to obtain information about the participants and activities undertaken in the informal economy [50,13,51]. It contrasts with the indirect methods, which do not suit this study and are based on the discrepancy between national income and expenditure, discrepancy between the official and actual labour force, transactions carried out in the economy, the amount of currency demanded in the economy, or electricity consumption [4]. However, the direct methods are often critiqued for producing only point estimates, which may not be useful when estimating trends and growth of the informal economy [52], but it best suits this study since the focus is on the determinants of the informal economy.

Also, the direct- *survey methods* can arguably be influenced by the way survey instruments are designed, and could suffer from imprecision and unhelpful responses from unwilling and un-cooperative respondents, which could negatively impacts findings. Similarly, the difficulties associated with accessing informal activities through direct questionnaire, non-reliability of responses as participants do not often confess fraudulent activities and behaviour, and the difficulty associated with having the actual monetary value of activities carried out in the informal economy are the other criticism the survey method has attracted in the literature. These challenges were effectively mitigated in this paper by the way the survey instrument was designed (see Section 3.1). It is also worth reiterating that only the direct method can generate relevant information when the focus of a study, as it is here, is on obtaining detailed information about the characteristics of the individuals, households and firms operating in the informal economy.

For data analysis, this paper employs the multiple cause, multiple indicator (MIMIC) method, a model-based method, which involves the use of models to investigate the possible causes and effects of the informal economy (Section 3.2).

### **3.1 Data sampling & questionnaire design**

To collect data used for analysis in this paper, we combined two methods that have been employed in the informal economy literature: “street-by-street survey”[53:p.137], and the spatial random sampling method[54]. While the former involves administering a survey instrument to members of the public who cooperate, the latter involves selecting every alternate location and participant for sampling. Thus, we went to public motor parks/garages, open-street markets, business premises, vendors on the street, and kiosks/workshops to select every alternate adult/owner of a business outfit that was willing to complete our questionnaire, and in instances where an individual declines, the next person is sampled and the one after is skipped. The data gathering exercise took place between May 2012 and March 2013 across 5, out of the 6, regions (covering 23 of the 36 states) in Nigeria. Overall, we administered about 1200 questionnaire, and achieved a success of 647 responses.

Questionnaire design: Two factors: the need to design a questionnaire that is able to solicit information capable of fulfilling the goal of this study, and an attempt to be consistent with existing literature, influenced the choice of questionnaire. Thus we designed questions that could reveal information about the main determinants of the Nigerian informal economy, then, employed previous studies to refine the questionnaire in order to ensure reliability and consistency with existing literature[55-58,9]. To capture all aspects of the informal economy in Nigeria, as well as generate statistics that are internationally comparable[57], sufficient questions were built into the survey instrument. For example, the important variables that represent different definitions and survey approaches of the informal economy are provided in the literature[9,55,56]. Our survey instrument was designed to ask questions about these variables. The strength of our method is that it covers all aspects of the informal economy (as severally defined) in Nigeria, considering that a single Nigerian government definition of the informal economy, to the best of our knowledge, does not exist. Finally, to mitigate problems associated with surveying the informal sector, our questionnaire was designed to ask several questions in different ways, which serve as check on each other.

### 3.2 Model Specification: Multiple-Cause, Multiple-Indicators (MIMIC) model

The MIMIC model, “a particular type of a structural equations model (SEM)”[2:p.10], is based on the statistical theory of latent variables, which considers multiple causes and indicators of the informal economy[59]. It is arguably the most robust technique theoretically. The method defines and depicts the association between the observed causes and effects of the informal economy, which is the unobserved variable, to compute the unobservable factors of the informal economy. The MIMIC model is a combination of two models: the measurement or confirmatory factor analyses (CFA) model and the structural model (SM), and are specified concurrently. The process begins with the CFA model, which defines the links between the unobserved variable and the observed-indicator variables. It can also be specified to define the links between the latent variable and the observed-causal variables[60]. Following the specification of the CFA model is the SM, which defines the relationship between the unobserved variables. Effectively, the SM represents the bridge between the latent variable and its causal factors, and the latent variable and its indicator-factors. MIMIC models mainly confirm structural theories. They are designed and used as confirmatory techniques, as they primarily test, with actual data, the representativeness and consistency of the structural model. In doing this, they fulfil two objectives; estimate parameters, and gauge the fit of the model[2]. Thus, the SM part of the MIMIC model for this paper is specified as:

$$M = Df + E \dots\dots\dots(1)$$

Where  $f = (f_1, \dots, f_k) = (1 \times k)$  vector, and potentially, each  $f_i, i=1, \dots, k$  can cause the latent variable  $M$ . The vector of coefficients is represented by  $D = (d_1, d_2, \dots, d_k)$  is a  $(1 \times k)$  and it describes the relationship which exists between the latent (unobserved) variable and its causes. This implies that a combination of exogenous causes determine the latent variable  $M$ . It is assumed that the explanatory factors specified in the model may not explain all the variations in the latent variable,  $M$ . Hence, an error term  $E$  is added to the equation in order to account for the unexplained part.  $H$  represents the variance of  $E$ , and  $L$  defines the  $(k \times k)$  covariance matrix of the factors which determine  $f$ .

The connection between the unexplained factors and their indicators is defined by the measurement model; specified as:

$$D = gM + U \dots\dots\dots(2)$$

Where  $D = (d_1, d_2, \dots, d_t) = (1 \times t)$  vector of the multi-indicator variables,  $g$  represents the vector of the regression coefficients,  $U$  represents the  $(1 \times t)$  vector of the white noise disturbances, and  $Q_U$  is the  $(t \times t)$  covariance matrix.

Combining Equations (1) and (2) will generate Equation (3), which is a “reduced form [of] multivariate regression model”[2:p.12]. Equation (3) is defined by  $d_n, n=1, \dots, t$  (endogenous variables), which are the indicators of the  $M$ ’s unexplained variables, and  $f_i, i=1, \dots, k$  (exogenous variables) which are the causes of the  $M$ ’s latent variable:

$$d = Pf + V \dots\dots\dots(3)$$

Where  $P=gD$ , a unit-ranked matrix, and  $V=gE+U$ .  $V$ , the error term, is a  $(t \times 1)$  vector which combines the white noise error terms of the structural model ( $E$ ) and measurement model ( $U$ ). Particularly,  $V \sim (0, N)$ .  $N$ ’s covariance matrix is unit-ranked, and is defined as:  $cov(V) = Z(gE+U)(gE+U)' = gg'H + L$ . For the model to be identified and estimated, one of the components of vector  $g$  must be normalised to an exterior or fixed value[61,2]. Also, the covariance matrix of the MIMIC model ( $L$ ) defines the co-varying relationships between the observed variables, and is derivable from Equations (1) and (2). Finally, the latent and observed variables’ structure of the MIMIC model emerges when the resulting matrix from Equation (1) and (2) is decomposed. Thus:

$$(L) = \begin{pmatrix} g(DqY + h) + L_U & gDq \\ qYg & q \end{pmatrix} \dots\dots\dots(4)$$

Where (L), the covariance matrix, depends on the parameters of g and Y, as well as the covariances contained in q, L<sub>U</sub>, and H. Generally, the estimation of the hypothesised model would yield exact results as that of the population's covariance matrix (L), that is, L = (L), if the former model's parameters are known, and is correct. However, this is not the case in practice, as the parameters, variances and covariances of the population are never known; Only those of the samples are known. Hence, what is available for use, for the estimation of the model, are the observed variables' sample covariance matrix, which are the d (vector of indicators) and f (vector of causes), and the estimates of the unknown sample parameters. Overall one aims, as much as possible, to produce the closest possible parameter and covariance estimates to the sample covariance matrix, that is, L\* = (L\*), of the observed causes and indicators. "The function that measures how close a given [population covariance matrix] L\* is to the sample covariance matrix S is called fitting function F(S; L\*)" [2:p.13]. For most SEM users, the Maximum Likelihood (ML) estimation technique is the most popular fitting function, and is given as:

$$F_{ML} = \log |L| + n[\text{tr}(S^{-1}L)] - \log |S| - (t + k) \dots\dots\dots(5)$$

Where log|L| represents the log of each matrix's determinants, and the number of observable variables is (t+k). The application of the dynamics of Equations (1) to (5) leads to the computation of the coefficients of the explanatory variables, loosely termed MIMIC results, which is depicted in Table 2.

## 4.0 Results presentation

### 4.1 Descriptive statistics

Table 1 depicts the information about respondents' marital status, sex, and age statistics. It is clear from the table that over two-thirds of participants are male (68.7%) and married (74.2%). With an estimated 51% male and 62.7% married Nigerian population[62], participants' marital status depicts a closer proximity to the true population than participants' sex. These statistics suggest high participation rate for male and married Nigerians in the informal economy. Table 1 also shows that respondents' mean and standard deviation ages are 40 and 11 years respectively. The low standard deviation from the mean age is indicative of an evenly distributed sample.

**Table 1** Respondents' marital status, sex, and age statistics

Marital status	%	Sex	%	Age Statistics	
Married	74.2	Male	68.7	Mean	40
Separated/divorced	.2	Female	31.3	Median	40
Widowed	2.1			Std. Deviation	11
Not married	23.4				
Total responses (%)	100		100		

For its part, Table 2 shows the reasons for engaging in a job or business activity in the informal economy. It is clear from the table that, while respondents engage in the informal economy for many reasons, the need to survive and high levels of unemployment appear to be the dominant reasons for doing so in Nigerian. However, operating in the Nigerian

informal economy is without challenges, as participants are confronted with inadequate finance, high interest rates, and inaccessible loans (Table A2).

**Table 2** Rankings of the reasons for operating in the informal sector (%)

	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>	5 <sup>th</sup>	6 <sup>th</sup>	7 <sup>th</sup>	8 <sup>th</sup>	9 <sup>th</sup>	No.1
Unemployment/No other job	53.9	15.6	7.1	5.0	2.1	3.5	2.8	2.1	7.8	24.7
Autonomy/Want own biz	27.9	13.6	17.7	11.6	8.2	7.5	4.8	5.4	3.4	13.9
Difficult to reg biz	5.5	8.3	3.7	4.6	7.3	21.1	19.3	15.6	14.7	2.7
Tax avoidance/Less tax	4.7	5.7	8.5	10.4	6.6	11.3	14.2	17.9	20.8	1.7
Survival	59.1	20.2	7.7	2.9	2.9	2.9	2.4	1.9		42.4
Not costly to start/operate	9.2	13.4	16.0	12.6	18.5	10.9	8.4	8.4	2.5	3.7
Less regulations	4.8	6.7	5.8	9.6	21.2	18.3	14.4	11.5	7.7	1.7
Easy entrance	13.3	12.5	23.4	19.5	10.9	4.7	4.7	4.7	6.3	5.8
More profitable	7.8	6.9	7.8	15.5	11.2	5.2	12.1	16.4	17.2	3.4
Total	100	100	100	100	100	100	100	100	100	100

Finally, a preliminary analysis of respondents' demographic and socio-economic factors shows that religion, age, marital status and level of education influence the size of the Nigerian informal economy (Tables 3; 4). Specifically, the results suggest that more Muslims than Christians, more married than not-married, and older than younger, Nigerians engage in the informal economy. The results also suggest that people with lower educational qualifications are more likely to participate in the informal economy than their counterparts with higher qualifications.

**Table 3** Participants' main job or business VS. sex, religion & marital status.

		Sex			Freq.	Religion			Freq.
		Male	Female	Total		Christian	Muslim	total	
Self-employed	%within MAINJ	69.1	30.9	100	191	79.6	20.4	100	191
	%within variable	47	46.5			43.2	69.6		
Govt. employee	%within MAINJ	67.3	32.7	100	165	92.7	7.3	100	165
	%within variable	39.5	42.5			43.5	21.4		
Corporate employee/students/applicant	%within MAINJ	73.1	26.9	100	52	90.4	9.6	100	52
	%within variable	13.5	11			13.4	8.9		
Total		68.9	31.1	100		86.3	13.7	100	
Total responses					408				408
Chi square	Phil (nom dich)	.039 (.73) - Not sig				.184***			
Pearson		-.013(.79) -Not sig				-.167***			
Kendal's tau-c		-.008(.876) - Not sig				-.121***			

Where: MAINJ = main job or business, \*\*\* = significant at 1%, ( ) = p-values

**Table 4:** Participants' main job/business activity VS. level of education & age group.

	Level of education				Age group	
	High school	Below high school	Secondary	Total	17-25	26-

Self-employed		31.9	26.2	41.9	100	7	16.2	27	25.9	23.8	100	
	%within variable	30.0	50.5	75.5			46.4	46.9	42.7	52.7	51.8	
Govt. employee		69.7	25.5	4.8	100		2.6	15.6	35.1	27.3	19.5	100
	%within variable	56.7	42.4	7.5			14.3	37.5	46.2	46.2	35.3	
Corporate employee/ students/applicant		51.9	13.5	34.6	100		23.9	21.7	28.3	2.2	23.9	100
	%within variable	13.3	7.1	17			39.3	15.6	11.1	1.1	12.9	
Total		49.8	24.3	26	100		7.3	16.6	30.4	23.6	22.1	100
Total responses						408						385
Chi square	Cramer's V		.307***				.216***					
Pearson			-.258***				-.12**					
Kendal's tau-c			-.257***				-.089 (.07)					
Spearman			-.303***									

Where: MAINJ = main job or business, \*\*\* & \*\* =significant at 1% & 5% respectively, ( ) = p-values, HI=higher institution

## 4.2 MIMIC analysis

Employing Equations 1-5, relevant variables in Sections 4.1, 4.2.1, and existing theories of the informal economy, we build a model of the determinants of the Nigerian informal economy. As explained in Section 3.2, the first task in a MIMIC/SEM analysis is to achieve a best-fit model, which, for its part, is built on the basis of existing theories. Thereafter, any variable in the chosen (best-fit) model which meets the MIMIC diagnostic criteria: *NFI*, *CFI*, and the *RMSEA*, is considered important, hence, included in the final model, and are accepted, in this study, as important determinants of the informal economy in Nigeria.

### 4.2.1 Important Variables: causal and indicator factors

#### 4.2.1.1 Causal factors

*Regulatory burden (REGB)*: The literature on the informal economy is very clear on the major role played by government regulatory burden in encouraging informal economic activities (Section 2). Additionally, participants in our survey think regulation influences the size of the Nigerian informal economy (Table A1). The proxy for regulatory burden is participants' responses to the statement, 'government regulation of the informal economy is too much'. It is a five-scale response question, and a positive sign is expected.

*Unemployment (UNEMP)*: Unemployment was a key causal factor of the informal economy in early debates. Evidence from our data (Table 2) suggests the factor still influences the size of the informal economy. Particularly, the table shows that unemployment and survival are the main

reasons for taking up a job/business activity in the informal economy in Nigeria. The proxy for unemployment is the participants' ranking of the reasons for engaging in the informal economy, which has been recoded into scale-data, ranging from 1 to 10, where each of 10, 9 ... 2 takes the place of 1<sup>st</sup>, 2<sup>nd</sup> ... 9<sup>th</sup> ranks respectively. Generally, scale data are more suitable for the type of analysis carried out in this section, especially as data for the other factors in the section are scale data. A positive relationship between the Nigerian informal economy and unemployment is hypothesised.

*Autonomy/self-employment (AUTO)*: Analysis of individuals' desire to own their businesses or have working-flexibility and autonomy has recently emerged in the literature, as a factor which has led many to undertake business activities in the informal economy. Our data tends to support this. Suggestively, not all participants engage in the informal economy because there are no alternatives (Tables 2; A1); rather, some participate in the sector by choice. The data used as a proxy for autonomy were constructed in a similar process to that described for unemployment above. A positive relationship between the informal economy and autonomy is hypothesised.

*Corruption or Business freedom (BF)*: Business freedom measures the kind of environment participants operate in. The responses to the statement, 'it is very difficult to operate in the informal economy without giving bribes to some law enforcement agencies' was used as a proxy for BF (Table A1). Thus, BF measures the level of corruption in the Nigerian informal economy. Corruption is a key determinant of the informal economy, as shown in Section 2. BF is derived from scale data with five points, ranging from strongly agreed to strongly disagreed; a positive relationship is expected between this factor and the informal economy.

*Tax burden (LTAX)*: One factor which has been investigated extensively in the informal economy literature, as a key determinant of the informal economy, is tax burden. Used in this section as a proxy for tax burden is 'less tax', which is one of the ranked-reasons for engaging in informal activity (Table 2). The data computation is similar to the process for computing unemployment, described above. A positive relationship is hypothesised between LTAX and the informal economy.

*Survival (SURV2)*: The need to survive is another factor that is arguably responsible for a large informal economy (Section 2). The data in Table 2 tends to support this. Particularly, most participants ranked survival as the main reason for engaging in the informal economy. Survival is represented by participants' responses to the statement, 'if government can provide jobs for all Nigerians, nobody will operate in the informal economy'. The data is constructed following the process for computing BF. A positive relationship is hypothesised between survival and the informal economy.

#### **4.2.1.2 Indicators**

The activities of the informal economy may not be captured officially, but they manifest in a number of ways. To unravel the relevant indicators for the Nigerian informal economy, participants were asked to rate the following statements from strongly agreed to strongly disagreed, which were later computed into scale data:

*Government should discourage the informal economy as it is harmful to the Nigerian economy (HPF)*: Respondents overwhelmingly refuted this statement (Table A1, Column D). Suggestively, an opposing statement is possibly true. This assumption is based on the consistency of participants' responses to questions on such variables as wealth (WTH), growth (GROT) and overcome poverty (OPOV). Thus, it can be inferred from these responses that the informal economy in Nigeria is economically useful (HPF) to its participants and the Nigerian economy, hence, should not be discouraged. Accordingly, HPF was constructed as an indicator factor to enable us to carry out a MIMIC analysis.

*People are poor because they work or do business in the informal economy as they are disadvantaged (WTH)*: Similar to the responses on the HPF indicator, respondents also disagreed with this statement (Table A1, Column E). A contrasting statement is arguably

correct; particularly, people are able to build up wealth (WTH) by working or doing business in the Nigerian informal economy. Thus, we construct WTH as a wealth indicator for the informal economy.

*Informal sector activities are good for Nigeria's economy (GROT)* : This statement is straightforward and gained overwhelming acceptance from participants (Table A1, Column F). We have constructed the GROT indicator to represent these positive economic (e.g., economic growth and income generation) effects of the Nigerian informal economy.

*Government does not have sufficient revenue as participants in the informal sector do not pay tax' (TAXR)*: Respondents tend to disagree with this statement (Table A1, Column G). Suggestively, the opposite of this statement is possibly true. Again, as argued under HPF, our assumption is based on the consistency of participants' responses to other questions that are related to TAXR. Hence, TAXR is constructed as an indicator of an informal economy which generates tax revenue through levies, taxes and ticket fees to the Nigerian government.

*Informal sector helps people who are poor to overcome poverty in Nigeria (OPOV)* : Also, respondents tend to agree with this statement (Table A1, Column H). OPOV was constructed to capture how poverty reduction is an indicator of the informal economy.

*Proportion of income from main job (PYMJ)*: The PYMJ was constructed from participants' responses to the question, what proportion of your income is earned from main job?

#### 4.2.2 MIMIC results

**Table 5** MIMIC results

Path	Model D
UNEMP → INFEC	.077**
AUTO → INFEC	-.109**
BF → INFEC	.181**
LTAX → INFEC	.080**
SURV2 → INFEC	.196**
INFEC → HPF	1
INFEC → WTH	.500**
INFEC → GROT	.627**
INFEC → TAXR	.496**
INFEC → PYMJ	-.051 {.052}
CMIN {P-V}; NFI; IFI; CFI	41.9 {.137}; .8; .95; .94
RMSEA (L-H); AIC (D; S; I)	.025 (.00-.046); 106; 130; 227
Total responses	418

Note: { } = p-value; \*\*= sig at 5%; INFEC=informal economy; p-v=p-values; L-H=lowest-highest; DSI=dependent, saturated and independent; others are as defined.

Table 5 depicts the results of the MIMIC model. The important diagnostic statistics for this model: the IFI, CFI, and RMSEA are good statistically, but the NFI is not very good. However, considering the influence of sample size on NFI, the CFI has been recommended as the index of choice[63]. Generally, a CFI value greater than 0.9[63] or a value close to 0.95[64] are "considered representative of a well-fitting model"[60:p.78]. The same is true for the IFI. Thus, our model meets all relevant diagnostic criteria sufficiently.

Additionally, the badness-of-fit measure is statistically significant for our model. Particularly, with a value of 0.025, the RMSEA shows that the MIMIC model is well-fitting. Finally, the AIC criterion is met, as all values of the dependent model, in all cases, are lower than both the saturated and independent models. Accordingly, we accept that the values of these indices are good and statistically significant enough, to allow us to use the model for analysis.

### **4.3. Discussions**

As can be seen from Table 5, the factors responsible for the origin and expansion of the Nigerian informal economy are: UNEMP (unemployment: no other jobs), AUTO (autonomy: need to be autonomous/self-employed), BF (corruption, particularly, of government officials and agencies), LTAX (participants' desire to pay less tax), and SURV2 (survival: participants' need to survive). However, such factors as more profit, government regulation, and difficulty in registering formal businesses (which were initially built into the model were deleted, as they did not pass the best-fit measure) are statistically non-significant, hence not strong determinants of the Nigerian informal economy.

All factors, except autonomy (see next paragraph for explanation), have the expected positive-sign. This means that an increase in the size of any of the factors, except autonomy, will lead to an increase in the size of the informal economy in Nigeria. Specifically, a unit rise in unemployment, corruption, tax avoidance, and survival triggers a respective 0.077, 0.181, 0.080, and 0.196 points expansion in the size of the Nigerian informal economy. The biggest influence, as one would expect, comes from the survival factor. This implies that many people, who do not have other options, go into the informal economy in Nigeria to engage in activities which enable them to earn a living. In terms of magnitude and influence, survival is closely followed by corruption. The implication of this is that corrupt government officials create an environment which encourages the informal economy in Nigeria.

The contrasting negative sign of the autonomy factor is a bit worrying as it suggests that an increase in the need to be autonomous or self-employed leads to a decline in the size of the informal economy. Clearly, this contrasts with the existing theory on the informal economy which hypothesises a positive relationship between the informal economy and autonomy. However, one explanation we can give about the negative sign of autonomy factor in our result is based on the fact that, relatively, the participants' ranking of the autonomy variable is more evenly shared among the '9 ranks' than the survival or unemployment variables. For example, the proportion of the first rank (as a percentage of the total ranks for each variable) of each of the unemployment, autonomy and survival variables is respectively 53.9%, 27.9% and 59.1% (see Table 2). It is clear from the last point that in the first rank alone, survival and unemployment have more than 50%, but autonomy is just a quarter. Additionally, while survival and unemployment respectively have their rankings in a descending order, it is not so with autonomy which, for its part, shows a galloping pattern in its ranking.

Also from results, it can be seen that the activities of the informal economy in Nigeria are indicated by the following factors: HPF (economically useful to participants and economy), WTH (wealth for participants), and GROT (the informal economy is good for the economy). These indicators experience an increase whenever there is an expansion in the size of the Nigerian informal economy. Specifically, a unit increase in the size of the Nigerian informal economy leads to a respective 1.0, 0.5 and 0.63 points increase in HPF, WTH and GROT. The implication of this is that the informal economy contributes positively to the Nigerian economy in total, by creating wealth for participants and contributing to GDP growth.

#### **4.3.1 Policy implications**

*Implement sound macroeconomic policies to facilitate job provision & entrepreneurial development:* Considering that unemployment and survival are reported in this paper as some of the main reasons for engaging in the informal economy, implementing policies that facilitate the provision of employment will reduce the size of the informal economy, in Nigeria. To do this, Nigerian government should *create an environment conducive* for the private sector to flourish. For example, reported in Table A2 as inhibitors of business operations in Nigeria are: inadequate infrastructures, insecurity, inadequate roads and electricity, and policy inconsistencies. The government of Nigeria should seek, and be

committed, to implementing sound economic policies which directly address these problems. Particularly, infrastructures and power sectors should be privatised in a competitive way to solve the problems relating to infrastructures, roads and electricity. Similarly, the Nigerian government must be discipline, consistent and implement policies which create competition and stability in the exchange rates, inflation and interest rates to solve the problems of policy inconsistencies. Also, institutions and the police must be strengthened and empowered to maintain law, order and security. When these are in place, the private sector will be encouraged to participate in the economy. This, in turn, will lead to the creation of quality jobs which reduces the size of the informal economy.

Conversely, it is shown in Section 4.2 that some people participate in the informal economy by choice. However, Table 2 shows that some of these participants are with low educational qualifications, secondary school drop outs, and those without a formal education. Clearly, these categories of participants will require a system which enables them to develop job-related and entrepreneurial skills in order to achieve gainful employment. Policies which encourage the setting up of *apprenticeship systems* and *reforms in the education system* would be of great help. Those with skills ' gap can be trained, and those without a formal education can then be made to go through the apprenticeship system.

*Deal with Corruption* : Some participants in the informal economy find it difficult to register their enterprises due to the bureaucratic nature of the process of registration and government institutions, whilst some participants are mishandled and harassed by corrupt government officials (Tables 2; A2). Arguably, these government officials will prefer an imperfect system and a large number of unregistered informal participants in order for them to continue to collect bribes and levies that are not officially accounted for. To tackle the informal economy, the government should address these problems. Particularly, the Nigerian government should be committed to fighting corruption, and scaling down the negative effects of bureaucracy. This can be achieved if the government only plays the role of an umpire and allows the more efficient private sector to carry out these essential services. By so doing, levels of corruption will fall, so will the length of time and cost required to register businesses. Further, efficiency in the collection of levies/taxes will also help eliminate the problems of multiple levies/taxes for businesses; hence reduce cost of running businesses. With this in place, business start-ups and existing participants in the informal economy will be able to register their business activities and move their operations to the formal economy.

*Financial assistance and training for budding entrepreneurs in the informal economy* : While funding is germane for the success of an enterprise, inadequate access to finance/credit facility can be a constraint, and has been highlighted as one of the main problems of participants in the Nigerian informal economy (Table A2). The government can support these businesses by facilitating accessibility to finance. For example, the government can provide incentives for financial institutions to specially lend money to participants at low interest rates in the short run. (However, in the long run, the government should implement policies which promote healthy competitions in the financial sector, as this will make credit available at cheap rates to those that need it). Similarly, the government can provide guarantees for any commercial banks' scheme (e.g. a designed product which reduces the credit criteria and complexities for targeted clientele), which makes credit easily accessible to informal enterprises. With these schemes in place, qualifying informal enterprises will not be denied access to finance because of their limited initial capital outlay. Also, it will provide access for the participants who need funds for expansion, but consider the commercial banks' lending rates too high. Finally, by providing financial support through these schemes, the government can initiate a system which facilitates the formalisation of these informal enterprises and participants.

Related to finance, is the need to facilitate training for the budding entrepreneurs in the informal economy, as some of these participants who seek relevant technical, financial and managerial skills to better their business performance often do not know how and where to go for such training. Government can step in to close this gap. To begin, the education

system should be reformed to suit what the nation needs for development. For example, training in entrepreneurship should be added to the curriculum of schools and higher institutions to enable those who have the innate skills to add on formal training. Additionally, the government of Nigeria can provide a special school for the formal training of informal participants, which is akin to what it did recently for nomadic cattle farmers in the Northern region of Nigeria, when it started to provide special schools for the latter, at their various settlements. In addition, policies which make primary and secondary school education compulsory for all citizens should be enforced. Finally, if an apprenticeship system is developed, as recommended in the previous section, participants in the informal economy who do not want to attend a university, will be able to receive the training that will enable them to fully hone their entrepreneurial skills.

## 5. Conclusions

Employing primary data and the MIMIC approach, this study reports five factors, which determines the size of the Nigerian informal economy: survival, unemployment, corruption, autonomy, and less tax. Following these findings, appropriate policy recommendations were proposed. These findings and recommendations could be applicable to other countries with similar sizes and structure of informal economy since most of the factors reported have been found to be responsible for the origin and expansion of the informal economy in the literature, as discussed in Section 2. However, potential variances in magnitudes and influences could exist for these determinants for each country. This necessitates separate studies for individual countries.

Considering that no single study can cover all aspect of the informal economy, future studies could employ other methods and data to investigate the determinants of the Nigerian informal economy. There is a need to have a closer look at data from a particular state, and/or employ secondary data in a similar study. The former will enable the researcher to first carry out a household survey to identify those engaged in the informal economy, before sampling these identified groups. This, we could not achieve in the current study due to time and cost constraint, considering that our survey covered 23, out of the 36, states in Nigeria.

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## Appendix

**Table A1** Respondents' perceptions on various indicators

	A	B	C	D	E	F	G	H
Strongly Agreed	17.9	12.7	20.4	5.0	10.2	29.3	7.8	19.6
Agreed	16.4	31.3	32.7	6.9	19.4	43.7	18.0	47.5
Neither	9.5	23.9	16.3	8.9	15.7	12.2	16.7	15.0
Disagreed	32.2	26.8	18.6	27.5	31.2	9.1	35.2	10.5
Strongly Disagreed	24.0	5.3	12.0	51.8	23.6	5.7	22.2	7.4
Total	100	100	100	100	100	100	100	100
Total responses	391	377	392	597	581	583	599	592

Note: A - If government can provide job for every Nigerian, nobody would participate in informal activities; B - Government regulation of businesses is too much; C - It is very difficult to do business in the informal sector without giving bribes to some-law enforcement agents; D - Government should discourage the informal sector as it is harmful to the Nigerian economy; E - People are poor because they work or do business in the informal sector as participants are disadvantaged; F - Informal sector activities are good for Nigeria's economy; G - Government does not have sufficient revenue because informal workers do not pay tax; H - Informal sector helps people that are poor to overcome poverty in Nigeria.

**Table A2** Biggest problems & challenges of the informal economy

What do you know or think is the biggest problem faced by the informal sector?	%	Challenges confronting participants	1 <sup>st</sup>	2 <sup>nd</sup>
inadequate finance, high interests, inaccessible loans	43.2	Supply of raw materials	9.8	4.9
record keeping (poor, none), management capacity, skills gap	6	Access to land, space for business	6.2	13.4
job security, irregularity, high risk, poverty	9.3	Lack of adequate machines, equipment	4.1	18.3

government unsupportive & irresponsible	13.1	Difficult to get loan	17.5	7.3
excessive tax	6.0	Lack of customers	18	11
Corruption (employee, govt., its officials)	2.2	Too much competition	24.2	20.7
overregulation, unfriendly policies & environment,	2.2	Organisation, management difficulty	3.1	4.9
high competition, little revenue & patronage	9.8	Too much govt. control, taxes	8.2	7.3
Others (poor electricity, road, insecurity-inadequate infrastructure, mkt. access)	4.4	Too little revenue	8.8	9.8
Total	100	Others		2.4
	0	Total responses	10	100
			0	

## Generating an innovation environment in Bulgaria: barriers and opportunities to the Entrepreneurial University

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According to Ovcharova and Krachunov (2013) between 2006-2010 Bulgaria showed a high growth rate of its Gross Innovation Product as assessed by new products and services introduced; new technologies created and scientific results achieved. The country is in the “timid” innovators zone, as compared to other groups such as innovation leaders, middle innovators, innovation followers. This paper argues that this innovation environment is an area of potential growth as well as positive influence on enterprises in the informal economy on the one hand, while on the other hand the impact of low investment in science and innovation is not fully understood. This presents challenges intrinsically linked to government, business and academia interactions. This paper investigates the current state in the triad relationship and its impact on entrepreneurship in the informal economy in Bulgaria. The proposed angle of investigation is grounded in the theory of the Entrepreneurial University (Ranga and Etzkowitz, 2013) and its wider role. The author examines its potential to influence positively the issues of “informal” enterprises. Furthermore, the paper explores the emerging EU/UK model of smart regional specialisation, its potential as a key driver for economic development, and its applicability to the current socio-economic and political conditions in Bulgaria.

## **Keywords**

Bulgaria, Entrepreneurial University, Informal Economy, Triple Helix Model Replication, Innovation

## **Abbreviations**

Bulgarian Academy of Science (BAS)  
Centre for the Study of Democracy (CSD)  
Global Entrepreneurship Monitor (GEM)  
Gross Value Added (GVA)  
International Monetary Fund (IMF)  
Innovation Strategy for Smart Specialisation (ISSS)  
Knowledge Transfer Partnership (KTP)  
Ministry of Education, Youth and Science (MEYS)  
National Science Fund (NSF)  
National Investment Fund (NIF)  
Operational Programme Competitiveness (OPC)  
Organisation for Economic Co-operation and Development (OECD)  
Research Excellence Framework (REF)  
Super Absorbent Polymers (SAP)  
Total Entrepreneurial Activity (TEA)  
United Nations Economic Commission for Europe (UNECE)

## **1. Introduction**

Understanding the key characteristics of modern 21st century entrepreneurship, its interactions with government and academia and how this impacts the economies of Europe, formal and informal, is of vital importance. Entrepreneurship is a driving force in the triple helix model, and a key factor in generating an innovation environment in the EU 's innovation-driven economies. In exploring the other element of the interaction, the Entrepreneurial University and its perception as an "honest broker" in the triad relationship, we trace its impact on local and regional economic trends in the West Midlands and investigate the transferability of this to the economic conditions in Bulgaria.

We present our understanding of the innovation environment in the UK and describe a regional model, based on the West Midlands, of the triple helix actors and its potential applicability to the Bulgarian context. The model is analysed in relation to its potential positive effect on shrinking the informal economy at its core and transforming its position in the economic environment.

Following some primary research and a case study, the paper makes recommendations on the role the entrepreneurial university as a social actor of positive influence and moral responsibility

The approach of the authors is from a professional practitioner viewpoint and includes additional insights from a native Bulgarian HE professional working in the field of research funding for innovation projects in the UK.

## **2. Background and Definitions**

### **2.1 The Innovation Environment**

Through tracing old, recent and current definitions of entrepreneurship it is clear that the concept has been re-examined, re-defined and expanded numerous times in the last 50 or so years to exhibit different foci viewed from different angles. The definition has evolved from “a very important animal hunted by many individuals using various traps ” [1] to individuals acting in uncertain situations in search of higher profits and those who possess different skills that enable the coordination of rare resources, to creation of new businesses or ensuring self-employment.

According to Ramadani and Schneider [1] key elements of entrepreneurship are innovation , risk taking, production factors, creation of a new enterprise, realisation of profit , and ensuring business growth. They conclude that entrepreneurship is the process of seeking innovative opportunities in uncertain and risky circumstances, combining effectively and efficiently the factors of production in order to achieve profitability and business growth.

Bulgaria is not included in the TEA Total Entrepreneurial Activity and GEM Global Entrepreneurship Monitor reports. This presents an issue in accessing reliable up to date data and analysis from the government, other reliable sources such as local industry and entrepreneurs, benchmarking and points of reference.

It is interesting to note how other Balkan countries have performed in the GEM report [3]. In 2013 Macedonia's TEA was the highest at 14.5% compared to Croatia at 7.6%, 7.3% for the UK and 12.7% for the US. The UK compared favourably to France at 4.6% and Germany at 5%. [GEM report for UK 2013].

In the UK in 2013, 5.4% of working age adults expected to start a business within the next 3 years. Despite a fall since 2012 this rate is still higher than the longer term trend but remains lower than competitor countries, 16.6% in the US, 13.7% in France and 8.9% in Germany.

This statistic poses the question whether advanced economies are losing ground in entrepreneurship. According to a press release from Geneva, Switzerland, issued on 8 January 2015, the Global Entrepreneurship Monitor and the World Economic Forum report that “many advanced economies are missing out on the full benefits of entrepreneurship owing to insufficient ambition, innovation, or number of entrepreneurs ” Chile and Colombia score best.

It is interesting to note that the GEM 2013 Global Report [3], in the closing words by Bill Bygrave, concludes that there may be issues with the quality of entrepreneurship post-economic crisis of 2008. The concern is about the lack of quality of jobs offered as the majority tend to be part-time or low paying. The question is posed if the same applies to new businesses and what percent of new businesses are part time and located in low wages and low profit industries. The report gives as an example the USA where, although the unemployment rate has fallen to its lowest level since 2008, half of the 29 million businesses are part-time, and only 6 million of them comprise one or more employees in addition to the self-employed owner.

#### **Bulgarian trends**

The effects of the economic crisis and the current economic conditions present a number of challenges to the innovation environment in Bulgaria [1]. The main trends are an ageing population, including ageing scientists, low take up of STEM subject areas in HEIs, overall societal issues such as climate change and competition from new economic centres in the world. In addition, although the Small Business Act was introduced in January 2014, there still remains the need to revise the National Innovation Strategy and Innovation Act [4]. The country GDP is low, in 2011 it was 38,483 million euro; the economic growth was 1.7%; R&D expenditure was twice as low.

The financial crisis resulted in limited funding, delayed reforms in science and education, lack of systematic interaction between education and business and inefficient use of European funds for modernisation.

The innovation environment is affected by demographic crisis and low intensity of R&D compared to other EU countries. The main reasons are old innovation strategy from 2004, pending renewal of the Innovation Act and affected by insufficient capacity of administrative bodies to absorb the structural funds from the EU.

Gross Innovation Product is assessed by new products and services introduced; new technologies created and scientific results achieved. Bulgaria has shown a high growth rate between 2006- 2011. Currently, according to the Innovation Union Scoreboard (2010) and Ovcharova, Krachunov [5], Bulgaria is located in the “timid” innovators (other groups are innovation leaders, middle innovators, innovation followers). 40% increase annually in 2010-2011 in the number of patents issues; 70% of patent holders are individuals.

The National Roadmap for Research Infrastructure (2010) defines 5 priority areas: Energy; marine research; ICT; new materials for various applications; social studies.

The National Reform Programme (2010-2013) formulated innovation targets for investment in R&D at 1.5% of GDP in 2020. In other EU countries this target is 3%. The paper argues that investment in science and innovation in Bulgaria is below the potential of the national economy. The priorities of the innovation policy focus on the high-tech activities and services ignoring the traditional low-tech industries.

Strengthening the economic potential depends on the development of human capital. 40% of population has low literacy and numeracy. Curricula and teaching in schools and universities are not in congruence with the rising demands of the labour market for new knowledge and skills, including core competencies, ability to use IT and entrepreneurial skills.

## **2.2 Innovation- Categories of Innovators**

According to Innovation Union Scoreboard 2013, [5] based on the average innovation performance, the Member States fall into four different performance groups:

- Denmark (DK), Finland (FI), Germany (DE) and Sweden (SE) are “*Innovation Leaders*” with innovation performance well above that of the EU average;
- Austria (AT), Belgium (BE), Cyprus (CY), Estonia (EE), France (FR), Ireland (IE), Luxembourg (LU), Netherlands (NL), Slovenia (SI) and the United Kingdom (UK) are “*Innovation followers*” with innovation performance above or close to that of the EU average;
- The performance of Croatia (HR), Czech Republic (CZ), Greece (EL), Hungary (HU), Italy (IT), Lithuania (LT), Malta (MT), Poland (PL), Portugal (PT), Slovakia (SK) and Spain (ES) is below that of the EU average. These countries are “*Moderate innovators*”;
- Bulgaria (BG), Latvia (LV) and Romania (RO) are “*Modest innovators*” with innovation performance well below that of the EU average, i.e. less than 50% of the EU average

Denmark, the Netherlands, Sweden and United Kingdom reach top positions in Open, excellent and effective research systems.

Portugal, Estonia and Latvia are the innovation growth leaders. The lowest innovation growth rates were recorded in Sweden, the UK and Croatia.

## **2.3 Understanding the Informal Economy in Bulgaria**

### **2.3.1 The Informal Economy Sector in Bulgaria**

The proportion of the informal economy in Bulgaria grew in 2013 and the practice of undeclared income and tax avoidance has continued. According to data from research carried out by the Centre for the Study of Democracy (CSD) [6], which traces the dynamics

of the informal economy in Bulgaria, the high level of the informal economy is undermining the economic development of the country.

During 2013 there was a fall in the competitiveness of the country according to the Annual Global Competitiveness Report produced by the Swiss Institute for Management Development. Out of 60 economies surveyed, it was in 57th position, which is 3 points further down the list compared to 2012. Bulgaria is a fiscally stable, open and export-oriented economy but is lagging behind on all long-term competitiveness indicators.

The level of unemployment is still high, almost 13%. Although according to unofficial sources this is close to 20%. The informal economy is stimulated by the low level of productivity and the low labour market value.

The practice to hire employees without a contract and employees with contracts containing “hidden” clauses has increased. The data from the CSD shows that 13.8% of the population have received larger remuneration than the one agreed in their contracts.

Although the real income has increased by around 2.4% during the first two quarters of 2013, the labour productivity during the second quarter of 2013 decreased by 0.9%. This could be an indicator of hidden unemployment.

These factors coupled with a high level of youth unemployment are likely to stimulate the informal economy long-term. From January until September 2013, according to CSD data the budget has losses of 184.2m BGN from unpaid social security and health insurance due to undeclared income. Bulgaria in the last 5 years since joining the EU does not show a reduction in the informal economy or any normalising of the economy. 1.45bn BGN is lost annually through VAT evasion and social security contribution gaps. [6]

Some analysis from the CSD argues that sometimes the hidden aspects of business activity do not always have a negative impact. For example, there are businesses in Bulgaria which do not declare the full expenditure on their research and development. This could mean that Bulgarian business has a higher potential for growth than the official figures demonstrate.

### **2.3.2 Primary Research Findings- A Holistic View**

In order to gain understanding of some of the current issues of the informal economy and the role played by educational institutions a short survey questionnaire was designed. The representatives of educational providers based in Bulgaria were asked to give their views on the informal economy, or the grey/hidden economy as this is the popular term used in public discourse in Bulgaria to describe this part of the economy.

A senior academic, Professor at the Economic Faculty at a regional University (outside of Sofia region) (Respondent 1) and the Deputy Head of a Secondary School in the region of Sofia (Respondent 2) completed the survey. The survey contained five questions in Bulgarian Language. The outcomes of the survey are presented below for each respondent. The narrative was translated ad verbatim from Bulgarian into English from the original survey questionnaire.

Q1. What are the reasons for the grey economy being problematic in Bulgaria?

Respondent 1

I think that the grey economy is caused by a lack of solid regulation and control in the system of economic relations. In some sectors, instead of encouraging them to grow they are blocked from developing. For example, this is the case in the book printing industry, where some of the publication runs are “hidden” or some are fully undeclared due to the high VAT of 20% which make the books and publishing media very expensive. The Bulgarian intellectual community has raised this issue at a number of public fora and to the Bulgarian Parliament, asking to reduce the VAT on books but this has been rejected. This is how “the grey publishing industry” is created in our mass media and communications sectors.

Respondent 2

The grey economy is a huge problem for Bulgaria and had a negative reflection/influence in different aspects of the economic and social life here.

A great number of the SMEs hire workers on contracts which officially pay the minimum national wage of 380 levs per month, and they get paid in cash for the difference between what is agreed unofficially with the employer. **Why is this happening?** The social security deductions consist of two elements: health and pensions costs. Approximately 3% of this is paid by the employees and around 4% is paid by the employer. Gain to the employer – savings monthly from paying national insurance contributions on the minimum wage rates. Gain to the worker – exactly the same.

**What do we all lose?** – Insufficient payments into the national health fund. As a result the hospitals are struggling and are close to bankruptcy. We, who pay larger sums from our salaries every month for the health fund, are forced to pay fees again when we need the doctor. Insufficient payments to the pension fund result in lower pensions. The state policy in this respect is for the employees to report such deviations during the process of agreeing an employment contract, but nobody does this. **Why?**

On the one hand, if the employers pay social contributions based on the real amount of the salary, they have no choice but to offer lower rates of wages and this leads to insolvency. To be able to afford this the employers need to have sufficient means to innovate and modernise their production, to ensure markets for the products and services, and most importantly to ensure the prices are competitive.

On the other hand, the young people are seeking higher salaries, to be able to support their families. In an uncertain and unpredictable situation they are not interested in tomorrow .... They are only interested in today.

Unfortunately, the grey economy has another side to it. The Bulgarian state budget collects taxes and import duty. Many firms, which import cigarettes, alcohol and fuel import their goods illegally, without paying taxes and import duty. This robs our economy and for many years we have been going backwards. **Why do people buy the untaxed goods and products?** Because they are cheaper. **How does it happen that large quantities of goods and products are imported into the country without taxes?** These are questions that nobody wants to answer.

Q2. Which groups of the working population are most affected?

Respondent 1

I think that the poorest groups of the population are most affected. For example, the production and illegal sales of cigarettes and the smuggling of these goods is due to their high prices to consumers and these prices are in unison with the European rates for the same goods. This is my viewpoint, although I do not smoke. Another example is when the Bulgarian academics in the sector of book printing business actually use the services of the "grey printing houses", to be able to avoid the extremely high VAT rate.

Respondent 2

The most affected are young people and people who cannot offer higher qualifications and skills and competencies. People who are well qualified in a given area, and there is local demand in their region for their skills, earn good salaries. They do not seek illegal cigarettes, alcohol and fuel. They seek healthy foods, go to the gym and fitness and have a good work-life balance. The grey economy finds a basis to grow in social environment where there are poor and uneducated people.

Q3. What is the role of the educational institutions in this respect?

Respondent 1

Of course the educational institutions have an important role to play, and in particular universities specialising in teaching economics, their Faculties of Economics and Business, which can be a conduit for transferring academic knowledge in to the public domain through organising scientific fora, leading discussions in the mass media, initiatives and public campaigns aimed at educating and promoting good practice.

Respondent 2

The education system in Bulgaria has crashed in the last 20 years.

Currently it is very difficult to find educated people. A large part of students in secondary education have difficulties with reading. A few years ago Professor Andrei Pantev used a very suitable word to describe what was going on in Bulgarian society. This word is “profanisation”. A young Bulgarian’s vocabulary amounts to 300 words on the average. All students who graduate from secondary schools are accepted on to HE programmes. They usually don’t attend lectures, they only attend something which is called “an exam” and then they graduate. A large percentage of these students are illiterate. They write with mistakes and have no skills. For the HEIs it is important to enrol students, so that they get funding from the government. In Bulgaria this is the law of financing –every pupil and student brings funding to their school and university. These young people are not striving to educate themselves, they want to occupy a job in which they won’t do much, but will get good wages. Their skills are reduced to vain speaking, following fashion and travelling abroad. If the grey economy would bring them money, they would have been the primary participants in it.

Q4. What would help to resolve this issue in practice?

In addition to open public communication, and working strategically with the traditional social media to raise the issues of the grey economy, every government should offer adequate economic measures, which instead of creating barriers, should be enabling the business and consumer relations and solving the everyday needs of the population. Reducing the bureaucracy, encouraging foreign investments, and larger consumption by the population of goods and services due to affordable prices will incentivise and grow the markets for the producers and business operating in the formal economy. It is also necessary to introduce a legal framework to enable this process.

Respondent 1

Firstly, we need good education and a healthy social environment. You cannot see at every step corruption and greed, yet also have good intentions. It is necessary to change the system of values for the people. Money should not be the most important thing in life. We need to be less of consumers and more of citizens willing to change for the better. The EC imposes sanctions on Bulgaria and want our country to fight the grey sector, but nothing will happen if we, the citizens of the country, don’t change our attitudes.

Q5. Does the existence of the grey economy in Bulgaria affect the country’s integration in the EU?

The reduction of the grey economy within bearable and comparable boundaries to the other EU states has an effect on the more successful integration of the country in the sphere of economy, enterprise, the publishing processes and the printing industry. For me it is important for the country to reduce the VAT on books and other editions to be regulated in a way which is customary in the highly industrialised European states.

Respondent 2

The EC cannot and should not allow a member state to have such low wages, corruption in such huge proportion, fraud in the economy, the banking sector and the administration.

## **2.4 Innovation Activity – Argument for the Unrealised Economic Potential of the Bulgarian Economy**

According to Innovation.bg [7] there are some positive trends in Bulgaria's R&D indicators, although these are not dynamic and are the result of market forces and not of a targeted government policy. The report questions whether the global economic crisis can reverse this positive trend while there is a lack of governmental innovation policies and practice. The report notes that although funding for R&D in all sectors is increasing, this is causing structural changes such as increasing share of the business and higher education in R&D expenditure at the expense of the state sector; R&D expenditure distribution is spread out more evenly by planning regions in the country.

The report [7] posits that "main challenges are related to the chaotic nature of the changes in public policy, inconsistency in the funding of individual scientific fields, as well as the weak institutionalization of policy measures". The report concludes that "funding for science and innovation remains below the level required to improve the innovation potential of the national economy, which could result in lower growth in the future".

The report makes recommendations in the following areas to be considered in the development of National Innovation Policy:

- Innovation policy and the financial instruments which make its implementation possible
- Prioritising high-tech services while disregarding traditional low-tech sectors leads to ignoring factors critical for economic growth and competitiveness of national and regional economies, as well as to missing opportunities for spreading know-how and new technologies created in the country.
- The business environment is of key importance for the development of the innovation potential of traditional industries, which are a smaller source of new knowledge but a big absorber of the latter. Basic (transport and communications) and advanced infrastructure (universities and research units) act as a medium for disseminating existing and new technologies, in conjunction with other factors such as patent law, protection of competition, tax relief and established business practices.

## **2.5 Analysis of Strategy documents- Linking Innovation and Research**

### **2.5.1 Bulgarian National Strategy for Scientific Research**

According to the 2010 ERAWATCH report [8] only minor changes have occurred in the research policy of Bulgaria in 2009-2010. Most notably the Bulgarian government approved a national target for R&D expenditure for 2020 – 1.5% of GDP. The Bulgarian Parliament adopted the Law for Amendment and Supplement of the Law on Scientific Research Promotion, which envisages: (1) the establishment of large scientific and research centres; and (2) the start of more effective monitoring and evaluation of projects funded under the National Science Fund (NSF). However, these changes happened against the backdrop of continuing strategic policy planning, uncertainty, and falling public support for research. The draft of a new Strategy for Development of Scientific Research 2009-2019 has not been approved by Parliament. The Bulgarian government cut the budget of the Bulgarian Academy of Sciences (BAS), the biggest public R&D organisation, by roughly 40% of what was initially approved in the state budget for 2010.

The headline targets by 2020 at European level are defined as following: 75 % of the population aged 20-64 should be employed; 3% of the GDP should be invested in Research and Development (R&D); The "20/20/20" climate and energy targets should be met including up to 30% emissions reduction compared to the current emission values; The share of early school leavers should be under 10% and at least 40% of the younger generation should

have a tertiary degree; 20 million less people should be at risk of poverty.[9]

Bulgaria faces the same challenges as the developed EU Member States and also operates as one of the slowest-growing economies within the EU.

## ***2.6 Innovation Environment in Bulgaria***

In Bulgaria the largest structural sector in terms of GDP is the service sector, followed by the manufacturing, and a high level of agricultural industry. When the world economic crisis started Bulgaria had the lowest GDP per capita in the EU. The observed economic growth has sharply slowed from its current pace in the recent years since it had been mainly due to traditional and high-return market segments such as construction, real estate and finance. At the same time innovative and knowledge intensive technologies have not been developed to promote the competitiveness of the economy.

In Bulgaria [7] only a small part of innovation is developed by the industry and the sectors dependent on cheap labour achieve high levels of value added. During the past seven years (2001-2008, according to the World Bank) the export potential of the country has also been concentrated in traditionally strong, but labour-intensive sectors and sectors based on the import of natural resources.

It is clear from the report [7] that the Government is aware of these issues and is updating the legislative framework for science and innovation such as setting targets for national R&D investment of 1.5% of GDP by 2020, provision of venture capital funds and efficient use of EU schemes and an amendment to the Investment Promotion Act, which will provide for state co-investments of up to 50 % for R&D projects. Current issues still affect the country 's performance and some of them include the lack of strategic vision and stable policy for the development of science; lack of clearly defined research priorities; unfavourable ratio between public and private investment.

An interesting factor is "the artificial separation of science from the higher education imposed by the model of science and innovation system in the country up until 1990 and the difficulties for overcoming the vision of universities as purely education structures".

The report posits that "there is a trend in reduced inflow of young people into science as a whole. The exodus of young people from science and engineering professions is a factor conducive to low innovation activity.

### ***2.6.1 Factors hindering innovation***

#### ***2.6.1.1 Ageing scientists***

It is evident from the report that "according to the register of the academic staff at the universities supported by the Ministry of Education, Youth and Science (MEYS) in 2008 there was no professor under 35 and only 12 were between 35-44 years of age. Over 600 professors (out of 1290) are over 65.

#### ***2.6.1.2 Restrictions to researcher mobility***

Researcher mobility as a fundamental right of scientists is not understood, examples of inter-institutional mobility are rare.

There is concentration of intellectual capital in the capital city at the expense of other regions where research and innovation are underdeveloped.

#### ***2.6.2 Stimulation of private sector involvement in scientific activity***

The involvement of the private sector in R&D is one of the main tasks of the EU. It has been stated as an activity in almost all Community political documents. It is envisaged that the business sector is involved not only through direct investment but also as a beneficiary of scientific knowledge and products and a stable partner in the knowledge triangle.

Innovation in Bulgaria forms a small part of the added value of the Bulgarian industry – 26% according to data from the ERAWATCH Report [8], as compared to an EU average value of 45%. Having in mind the structure of the Bulgarian economy, i.e. a predominant share of small and medium-sized enterprises (SME), the efforts should be targeted toward securing start-up capital for these companies and subsequently development of their market sustainability.

## **2.7 *The triple helix in Bulgaria- is it emerging?***

According to United Nations Report [10] the main sources of growth in developed market economies are in innovation, knowledge and in the capacity to integrate ICT into business and social processes, and these will increasingly be based on a developed university system. It has been argued that advanced formal training and a strong science base has become a substantial basis for ‘learning by doing’ and that ‘a university mediated trans-national conduit of learning will be of particularly great importance during the 21st century for countries seeking to catch up’.

In countries such as Bulgaria, the pressures on universities to pursue their teaching function through large increases in the number of students participating in higher education puts their knowledge generation and knowledge utilization functions under strain. This, coupled with limited budgets, has in some cases resulted in a declining quality of teaching and has endangered the balance between the universities’ three main functions. All this suggests that universities in the “catching-up economies” are not yet able to be key drivers and promoters of linkages in national innovation systems. Figure 1 illustrates the tripe helix model from the UK perspective.

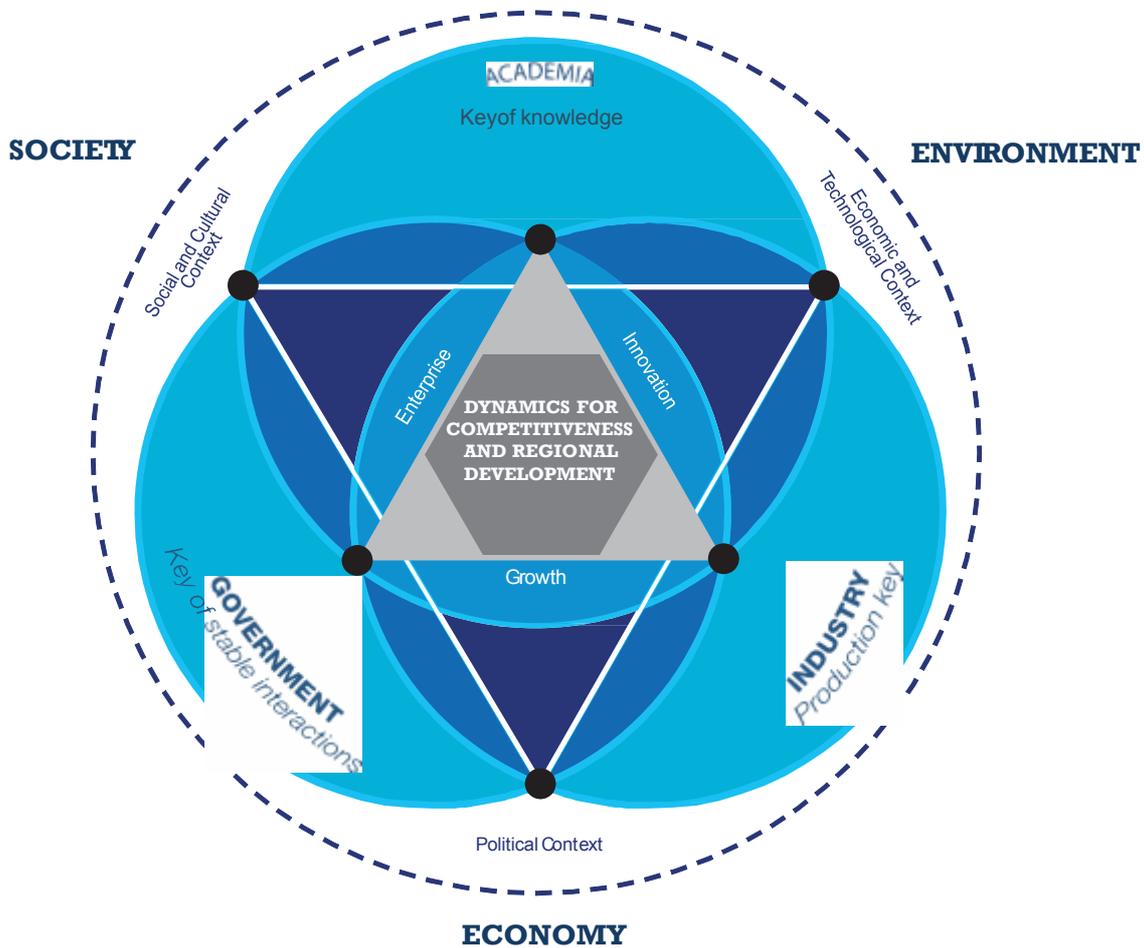


Figure 1 The Triple Helix Model – Regional Dynamics from the UK

### 2.8 Smart specialisation

The draft Bulgarian *Innovation Strategy for Smart Specialisation (ISSS) for the 2014 – 2020* period takes into account government support delivered through instruments such as the National Investment Fund (NIF), Operational Programme Competitiveness (OPC) and National Science Fund (NSF), and outlines the potential for accelerated technological progress leading to sustainable economic growth.

The following technological areas are highlighted as priorities: mechatronics and clean technologies; information and communication technologies; biotechnology; nanotechnology; creative industries, incl. cultural ones; pharmacy; food industry.

## 3. The Entrepreneurial University – A Case Study from the University of Wolverhampton

### 3.1 Current innovation projects

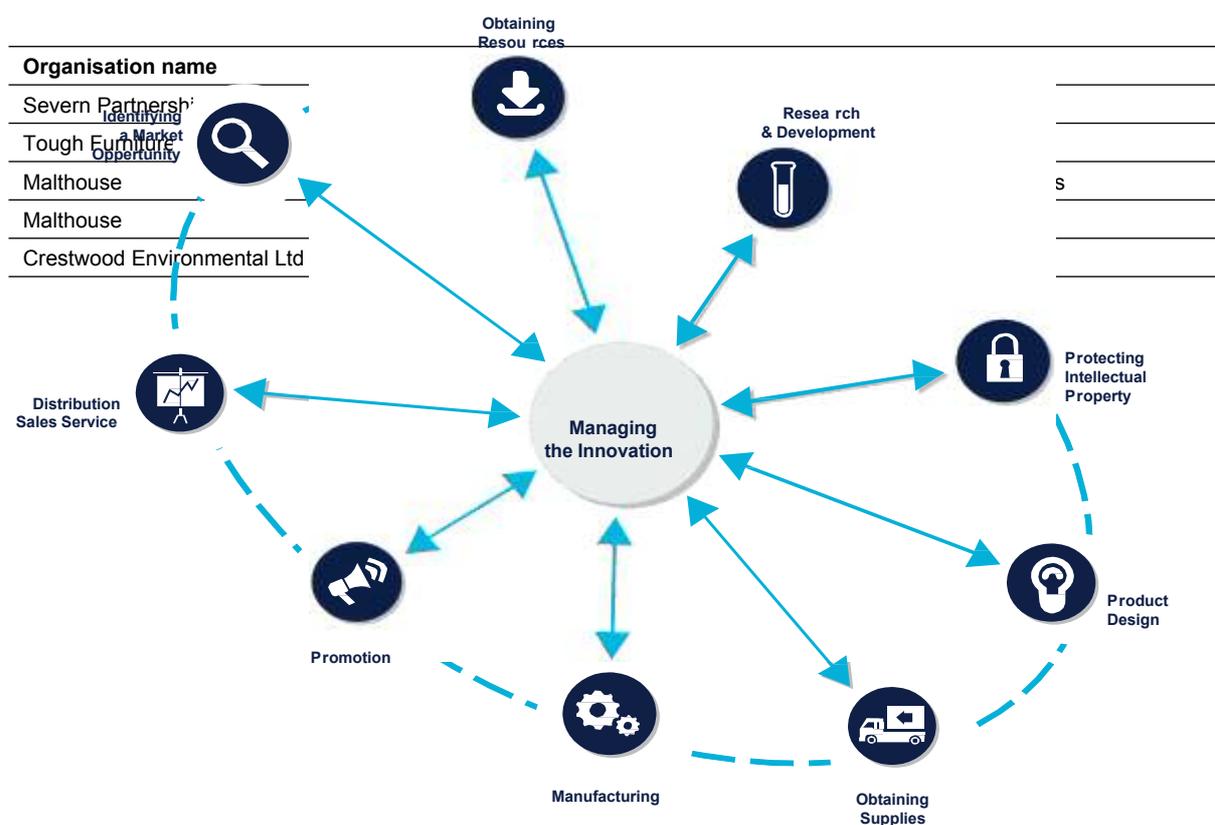
Knowledge Transfer Partnerships have been in existence in the UK for over 40 years. They

are designed to help businesses improve their competitiveness and productivity through the better use of knowledge, technology and skills. KTPs are the main instrument for transferring and embedding knowledge in a business with the intention of creating a long-term bridge between business and academia. The knowledge exchange process is supported through a

**Table 1** KTP Award winners

Organisation name	Award
Tough Furniture	Technology, Enterprise and Innovation Award, Shropshire Business Awards, 2010
Tough Furniture	Special recognition category at the National Impact Awards, run by PraxisUnico, 2012
Hadley Industries with Bac Nguyen	KTP Best National Partnership, KTP Best of the Best Awards, 2013
OSIL (Odour Services)	The KTP Associate, Dr Wan Li, won TSB's Business Leader of Tomorrow Award in 2013
H&R ChemPharm	Business Innovation Award, Express and Star Business Awards 2012
Malthouse	Innovation in Digital Marketing, CISCO
The Advanced Business Development Network (ABDN)	CISCO Prize for New Technologies , 2010
Pebble Learning	Company of the Year, Shropshire Star Awards, 2011
Wolverhampton Business Solutions Centre	Knowledge Exchange/Transfer Initiative of the Year, Times Higher Education Leadership & Management Awards 2013

**Table 2** KTP Award nominations



skilled full-time graduate (known as the 'Associate') working on a tailor-made strategic business development project, with high-level of innovation to meet the needs of the business. Average benefits from a single KTP can include an average increase of over £290,000 in annual profits before tax, the creation of 8 new jobs and an increase in the skills of existing staff.

Over the past 20 years, the KTP specialist team at the University has worked with over 150 programmes across a variety of disciplines such as IT, engineering and environmental sciences. The impact of KTPs is wide reaching and the partnership continues in many cases beyond the project, including collaborative activities such as live student briefs, joint events,

The following two case studies from the University illustrate the scope of the KT programmes:

#### KTP Case Study 1

H&R ChemPharm (UK) Limited are based in Tipton, West Midlands and are one of the UK's key oil and wax blenders, meeting the increasingly specialised needs and requirements of a variety of industrial sectors within a diverse and global market place.

H&R offer these markets a service in the supply of cable compounds, blended wax, wax emulsions, process oils, personal care materials and water blocking compounds.

In order to both maintain and develop its market position in both sectors, the company highlighted the need to explore new market opportunities and product streams.

One area identified was the application of Super Absorbent Polymers (SAP), to coat yarns and non-woven fabric tape to create water swellable cable wraps; however, without a detailed scientific knowledge of the application and the constraints placed on the SAP this would be difficult to achieve.

Significant insight was also needed in the development of wax emulsions for applications within the board and insulation manufacturing sectors, along with wax specifically for equestrian track surfaces and arenas.

The KTP project has significantly contributed to the introduction of the Sahara product, a new superabsorbent polymer product with a number of applications identified in civil engineering, construction, cable construction and water / fluids management.

#### KTP Case Study 2 - OSIL

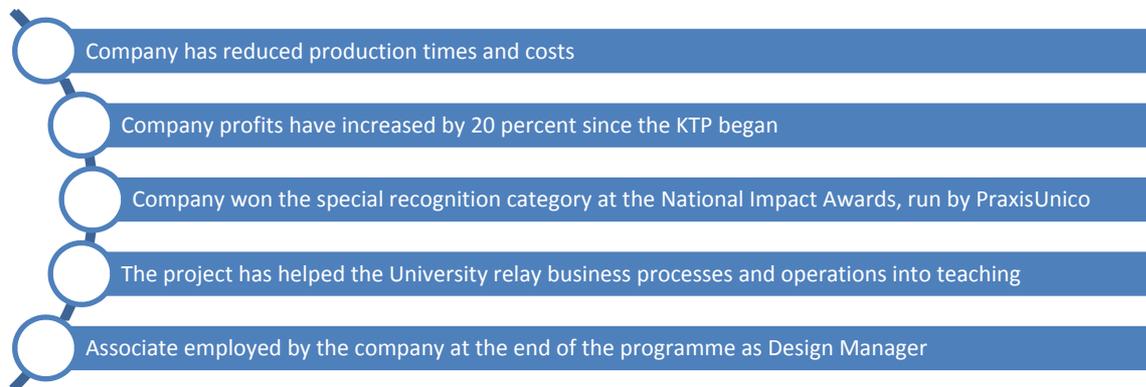
OSIL are an independent engineering service and solution provider based in the West Midlands specialising in the field of odour and air pollution abatement and treatment. OSIL provide a range of services from consultancy, design and build, asset refurbishment and service and maintenance, with a particular focus on providing an independent, tailored solution to meet a client's particular set of needs in terms of odour control. Since its formation in 2004, OSIL has developed a highly experienced and skilled team of process, chemical and project engineers who can apply their skillsets across a range of sectors including water, waste and renewables, food and beverage, process and waste to energy. Based on considerable experience in odour control systems design and optimisation, OSIL strive to lead the market through the development of innovative odour control technologies. As part of OSIL's strategy to develop low cost and more effective solutions to the developing challenges in the odour control market, an improvement to take the successful biological control LavaRok® system to the next level was essential.

In order to achieve this, the company needed to clarify the process parameters and controls within the biological systems and develop new microbiological cultures with different biodegradative capabilities, tailored to tackle the new species of malodorous compounds being produced, particularly associated with fast-developing technologies in the waste to energy sector.

OSIL formed a KTP with the University of Wolverhampton to build up and expand the current knowledge base and establish laboratory facilities to enable the development of bacterial cultures.

The establishment of the laboratory facilities has facilitated this key area of knowledge development, whilst staff training has improved understanding on biological systems. The KTP has enabled OSIL to achieve significant growth through further diversifying its product range and most importantly, to differentiate itself from its competitors in the market place.

### **3.2 Impact of knowledge transfer programmes**



**Figure 3.** Impact of KTP programmes

The impact of the aforementioned knowledge transfer and business support schemes is achieved within the economic environment of the City of Wolverhampton. In its *Economic Review: Wolverhampton The City of Business Opportunities, September 2014* [11] it is evident that the City is part of the process of rebalancing of the national economy which is taking place post the 2008 financial crisis. This rebalancing is in terms of geography and sectors. Wolverhampton has a well-balanced economy across manufacturing, construction, distribution, services and public sector, without an over-reliance on any one sector.

Productive industries provide almost a quarter of overall output, logistics over a fifth, services close to 27% and societal close to 28%. This balance creates a framework for innovation and continuous product refinement. Responding to shifts in global demands for companies to locate productive capacity and specialisation in each of the world's principal regional markets, as a globally-connected city, with an established manufacturing cluster, Wolverhampton is well-positioned as a hub of the regional economy.

In the knowledge-based economy there is evident synergy between the local manufacturing sector and the locally-available technical services sector, particularly design and process modification and also across all the business support and professional services sector.

#### Global Environment Factors

Some of the factors [11] influencing post- financial crisis economic environment include weaker performance in the US, new concerns regarding EU recovery and “lacklustre” Emerging Market activity. The global output growth is underpinned by Japan, Germany, Spain and the UK. The International Monetary Fund (IMF) forecast is global growth of 4% in 2015, with the UK achieving growth of 3.2% in 2014 and 2.7% in 2015- one of the strongest amongst the larger economies.

As the UK economy rebalanced in 2013, the sector which attracted the most number of projects and new number of jobs was advanced manufacturing, with 418 projects and over 37,000 new jobs created. The emergence of the “trade-investment-services-know-how nexus” (according to the Organisation for Economic Co-operation and Development (OECD)), the availability of sufficient infrastructure and business services, and official policies which support expansion and intensification of productive capacity, and educated and skilled labour create conditions attractive to investors.

#### Wolverhampton trends

The area generates Gross Value Added (GVA) equivalent to £10 billion, and a disposable income base of £8 billion [11]. The labour force comprises 323,000. There is a notable shift in the economic structure with manufacturing falling from the equivalent of 25% of the city economy to 14% in 2011, while GVA produced in the societal sector-education, health,

welfare and public administration –increased from 19% to 27% by the end of the period between 1997-2011. This points to enhanced public sector outputs, including the rapid expansion of the University of Wolverhampton and the increased importance of other tertiary –level education institutions. Although manufacturing GVA fell, associated sectors such as business and professional services increased to a tenth of overall output, as part of the manufacturing sector were out-sourced.

The local business community comprises of predominantly SMEs, with 84% employing less than 9 employees [11]. This structure enables a business climate where smaller companies collaborate commercially to produce intermediate goods and components. The benefits of this collaborative nature can also be seen in the location of automotive, aerospace and associated industries. The i54 site housing International automotive and aerospace organisations such as Jaguar Land Rover, Moog and Eurofins provides a nationally recognised centre of advanced manufacturing in the city.

The University of Wolverhampton Science Park, partly owned by the University of Wolverhampton hosts over 100 enterprises operating in software development, environmental management, photography and videography, graphics, website design, water technology, biocidal coatings, healthcare and business support services.

### ***3.3 The Key Enablers for Sustained University Business and Industry Engagement***

The university infrastructure and strategic plans create an environment where academia is able to engage with local businesses to impact the growth of the economy.

#### ***3.3.1 The University Infrastructure as an Enabler for Business Support***

Wolverhampton Business Solutions Centre provides start-up businesses and established companies in the West Midlands, with a single point of access to a wide range of free events & workshops, business facilities and professional advisory services & organisations. The centre acts as a conduit between local businesses, advisors, consultants and key support organisations to help local businesses access the funding and support opportunities open to them.

Based at the University of Wolverhampton Science Park, the centre is a partnership between the University of Wolverhampton, Wolverhampton City Council, Further Education Colleges and the Black Country Chamber of Commerce, who work collaboratively to support businesses in the West Midlands area. These organisations collectively have a long and successful history of supporting the start-up and growth of businesses within the region, providing the assurance that businesses are getting expert advice and quality service.

The Business Solutions Department at the University of Wolverhampton offers one central contact point for all of the University's services to external organisations. Business engagement includes: knowledge transfer activities, research and consultancy, start-up and enterprise advice, Continued Professional Development (CPD) and business focussed workshops, support for new product introduction, training, student and graduate placements.

**3.3.2** The University's international strategy aims to add value to our long-term global partners overseas. This is facilitated through regional economic growth partnerships; the key component this facilitation ignites the entrepreneurship cycle. Particular attention is paid to entrepreneurial DNA and mind set (Figure 4). Business idea generation set within the background of local social and cultural considerations also brings a rich contextualisation to the issue of entrepreneurship. Figure 4 below illustrates the enterprise cycle; the University adds value through bringing global knowledge and applying this knowledge locally.



Figure 4 The Enterprise Cycle

### 3.4 Barriers to the Entrepreneurial University

The value of the entrepreneurial University within the triple helix model is that of an “honest broker”, providing stability and transparency in the triad relationship. Figuratively, this balanced environment, enabled by the University, in itself affects positively the informal economy through “squeezing “ its core and transforming it into a critical mass to enable it to flow and re-form within the boundaries of the formal economy. The triad interaction in the relationship between government, business and universities is at its most successful when the partnership between the three actors is equal, balanced and working effectively to avoid any directional swings and the “see-saw” effect.

Although the triple helix model is well developed and fairly mature in the UK, there exist some barriers to the entrepreneurial University which affect its ability to be an effective stakeholder in the triad and to fulfil its mission.

Some of the barriers include examples of, but are not limited to:

- The government element of the triad is often predicated on the current political regime, thus causing inconsistency in government policy and the resulting inconsistency in terms of funding streams, affecting both the reach and the scope of knowledge transfer programmes;
- The existence of a competitive economic and funding landscape, adversely affected by political changes;
- Inherent misalignment of business objectives and the government research agenda, an example of this being the Research Excellence Framework (REF) as a measure of government spending but not linked to the needs of business;
- As a result Universities producing a very small number of research outputs which are not suitable for commercialisation and adoption into the economy;
- A specific example for the University of Wolverhampton is the misalignment of the core function of the University as a business producing employable graduates and an inflexible work allocation model for academic staff which limits their capacity to engage with

businesses;

### **3.5 Opportunities to replicate the entrepreneurial University model for business engagement in the Balkans**

The entrepreneurial University is a driver for economic regeneration at the heart of the local, regional, national, international and global communities it serves. Its mission as a beacon of innovation is achieved through the co-creation of knowledge through business engagement programmes and partnerships. The triple helix relationship has enabled the overcoming of the structural fragmentation and the de-linking between the policy makers, the business, economic drivers and the intellectual powerhouses, which is still very much evident in the Bulgarian environment.

Although the role of higher education institutions in producing a skilled labour force engaged actively in economic creation and enterprise is not understood and appreciated fully in the Balkans, the entrepreneurial University is well positioned to create bridges to enable this to be achieved.

## **4. Conclusions**

A University has a moral urgency to create an eco-system for enterprise, setting business values and driving the corporate social responsibility agenda at a regional and sub-regional level. Universities are in a unique position to transcend political vagaries and bring leading edge knowledge to the creation of long-term prosperity. The research concludes that Universities are economic power houses capable of generating spin-out business through commercialisation of research and impacting on existing business through Knowledge Transfer Partnerships thus growing the regional GDP.

The formal economy must outperform the informal economy and add value at multiple levels. Universities play the key role as global actors for moral values and social responsibility. Creating a competitive advantage for the formal economy within a balanced environment and an equal triad relationship can influence positively the impact of the informal economy, shrinking its size and output and transforming its nature overtime.

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## **Tackling Informal Entrepreneurship in Ghana: Analysing the Policy Options, Some evidence from Accra**

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The primary aim of this study is to provide a systematic overview of the nature and extent of informal entrepreneurship in Ghana, and to evaluate how it is being tackled through government policies. Notwithstanding the widespread recognition of its magnitude and even growth, the informal economy in Ghana has not received the attention it deserves in the employment policies of the government until now. The informal entrepreneurship is no mean a marginal activity conducted by people outside the formal entrepreneurship realm. However, little is known until now to evaluate how informal entrepreneurship could be tackled to make it more relevant to the economy. This study seeks to bridge this gap. Analysing a 2014 qualitative in-depth interview of government officials and other policy think-tanks, the main finding is that government policy towards tackling informal entrepreneurship has been at best ad hoc with no clear-cut policy to deal with informal entrepreneurship but somewhat adopting deterrent approach (mainly force eviction – aggressive, combative and impulsive). As a consequence, this paper calls for a more humane approach that will make informal entrepreneurship a significant part of the overall economy such as deregulation, facilitating formalisation of informal entrepreneurship amongst others.

### **Keywords**

Entrepreneurs, Ghana, government policy, informal economy

## 1. Introduction

Notwithstanding the widespread recognition of its enormity and even development, the informal economy in Ghana has not received the attention it deserves in the employment policies of the government until now. Recently, Ghana attained a lower middle-income status as classified by the World Bank. However, greater portion of the working population falls under the informal economy. The informal entrepreneurship is no mean a marginal activity conducted by people outside the formal entrepreneurship realm. For many years, some scholars saw the formal and informal spheres as separate and discrete entities resulting in the adoption of a dualist approach when describing the relationship between them (Boeke, 1942[1], 1961[2]; Furnivall, 1939[3], 1941[4]; Hart, 1972[5]; ILO, 1972[6]; Lewis, 1955[7]). Until now, informal work has been theorized either as a residue (modernization), by-product of contemporary capitalism conducted out of economic necessity (structuralism) or an alternative to formal work chosen due to either an over-burdensome state (neo-liberalism) or for social, redistributive, resistance or identity reasons (post-structuralism).

Contrary, to the predictions of the modernists over the decades, informal entrepreneurship has rather expanded as the formal economy dwindles especially in the urban areas. Indeed, this dualistic depiction has become heavily embedded in policy rhetoric at all levels of public policy from the local to the global. The problem, however, as Chen et al (2004)[8] have highlighted, is that the dualistic view is not always an accurate depiction of the relationship between formal and informal work. In fact, it disguises recognition of the multifarious types of informal work and restricts the range of policy options considered possible for tackling the problems of this sphere.

This paper seeks to transcend such simplistic portrayals that depict informal entrepreneurship as separate from formal entrepreneurship. In doing so, its intention is to show that by better understanding the complex and nuanced ways in which formal and informal entrepreneurship are inter-related, not only do new ways of understanding the relationship between the formal and informal sectors emerge but also do opportunities for policy intervention open up. At the outset, it is important to define what is meant by formal and informal entrepreneurship. Part of the problem for tackling informal entrepreneurship is how to define it and what constitute informal entrepreneurship. Until now, the wider literature on what has been denoted as 'black market', "criminal", "underground", "cash-in-hand", "hidden", "shadow", "informal" entrepreneurship has commonly defined informal entrepreneurship with reference to work that is absent from, or lacking in some way to formal regulatory system (ILO, 2002a, [9]b[10]; Williams & Windebank, 1998[11]).

This study is based on a fieldwork in Accra the capital city of Ghana. A variety of data were collected during this time using multiple case studies. Since this is the first known study that specifically investigates policies for tackling informal entrepreneurship in Accra, the study contributes to the literature on the informal entrepreneurship and has policy implication for policy makers and practitioners. Its major finding indicates that, until now there has not been any deliberate government policy for addressing the informal entrepreneurship. Government policy towards tackling informal entrepreneurship has been at best ad hoc with no clear-cut policy to deal with informal entrepreneurship but somewhat adopting deterrent approach (mainly force eviction – aggressive, combative and impulsive).

The starting point of this paper is that few would question the notion that micro and small-scale enterprises and entrepreneurs make significant contributions to the growth and development of most national economies. Few, moreover, would question the notion that in many countries many of these small businesses operate wholly or partly in the informal economy. This is particularly the case in Ghana where the informal economy represents the "mainstream" economy with over 80% of all jobs of the national economy in this sector (Adom, 2014[13]; Adom & Williams, 2014[14]; Debrah, 2007[15]). The formal sector is merely a "marginal" economy existing in the margins of the society confined to specific

sectors and various peripheral places. Palmer (2007, p. 410) also found that, 'approximately 90% of all employment in Ghana is in the informal with formal employment experiencing slow growth rate'. All this evidence highlights that the formal economy is indeed a marginal economy.

In doing this, section 2 reviews the literature on informal entrepreneurship; while section 3 succinctly highlights the methodology applied in this study. Section 4 then presents the findings in relation to the policy approaches adopted by policy makers in Ghana to address informal entrepreneurship and finally, section 5 draws some conclusions from the discussions. This will show that over the years, Government of Ghana has not come out with clear-cut documented policies for addressing informal entrepreneurship.

Notwithstanding, it is important from the beginning to define what is referred here as informal entrepreneurship. Despite the vast emerging literature on the informal entrepreneurship, defining it remains something of an academic tug of war. Although many have tried to offer a comprehensive definition of informal work, it remains contested. This is because different people have defined the informal entrepreneurship in various ways. Again, what is considered informal work changes from one setting and/or country to another.

To understand informal entrepreneurship, one needs to understand what constitutes informal enterprise. This study adopts the definition of informal sector enterprise adopted by the 15<sup>th</sup> International Conference of Labour Statisticians (ICLS) in 1993 (Husmanns 2005[16]; ILO 2011[17], 2012[18]). This describes enterprises in the informal sector as 'private unincorporated enterprises that are unregistered or small in terms of the number of employed persons' (ILO 2012: 1). Informal sector enterprises are thus 'unincorporated' enterprises that are also either 'small' or 'unregistered' (see, Williams, 2014, p. 2[19]). As explained further by Williams (2014), 'unincorporated' is referred to as not constitute as a separate legal entity independent of the individual (or group of individuals) who owns it, and for which no complete set of account is kept. By 'unregistered', meanwhile, is meant that they are not registered under specific forms of national legislation (e.g., factories' or commercial acts, tax or social security laws, professional groups' regulatory acts) (Williams, 2014, p. 2). Some of these informal entrepreneurs may have licenses or permit which in Ghana is called "Business Operating Permit" (BOP) but this does not qualify as registration.

## **2. Informal entrepreneurship: A Literature Review**

The persistent belief is that entrepreneurs operating in the informal economy engage in such endeavour out of economic necessity as a survival strategy (Cross, 1997[20]; McElwee, 2009[21]). Nevertheless, in recent years this has started to change. Evidence from the extant literature shows that this perception is changing as the emerging body of literature shows that many entrepreneurs working wholly or partially in the informal economy do so on a voluntary basis as a deliberate way of exiting the formal economy (Adom, 2014; Adom & Williams, 2014; Williams, 2006[22]; Williams and Round, 2000[23]).

Generally, there are two kinds of entrepreneurs as highlighted by the work Bögenhold on entrepreneurs' motives "necessity" and "choice" driven entrepreneurs. Necessity entrepreneurs are entrepreneurs not of their own free will but drawn into entrepreneurship as a last resort for survival whilst choice driven entrepreneurs are entrepreneurs out of their own free will and choosing for independence or sense of business ownership (Aidis et al., 2006[24]; Harding et al., 2006[25]; Smallbone and Welter, 2004[26]). This dual divide of entrepreneurs' motive has become a central phenomenon not least because of its adoption in the Global Entrepreneurship Monitor, a principal worldwide data-bank on entrepreneurship (Minniti et al., 2006[27]). The dual representation of entrepreneurs' motive is also evident in the informal economy when explaining motives of entrepreneurs in this sector. Entrepreneurs in the informal economy, such as street hawkers, are conventionally seen as driven out of necessity into such endeavour as a last resort (Castells and Portes, 1989[28]; Gallin, 2001[29]) and represented as 'involuntary,' 'forced,' 'reluctant' or 'survivalist' (Hughes, 2006[30]).

Some scholars have begun to argue otherwise since the turn of the millennium, especially in a western and post-socialist context, but also in Latin America (Cross, 2000[31]; Gerxhani, 2004[32]; Snyder, 2004[33]). Gerxhani (2004) argues for a choice model where many opt for the informal economy because they find it more relaxed with flexibility, autonomy and freedom. This is buttressed by Snyder's study of 50 informal entrepreneurs in New York City's East Village. She maintains that the entrepreneurs of her study chose the informal economy out of choice and not compulsion, some to set their careers on a new path, some to find themselves or work identity through their work. This inadvertently debunks the universally necessity-driven motive with a choice-driven motive.

However, there is a recent emergence of a third school of thought in western and post-socialist nations but also in Latin America, which deviates from the universally necessity- or opportunity-driven argument and focuses on evaluating the ratio of necessity-to-opportunity entrepreneurs, similar to the literature on formal entrepreneurship (e.g., Harding, 2003[34]; Harding *et al.*, 2006; Minniti *et al.*, 2006). Lozano's study is one of the foremost studies in this aspect where in her study of 50 dealers at flea markets in Northern California she discovers that 80 per cent of the respondents were driven by compulsion and 20 per cent by choice. Similar studies in this area have been undertaken in rural and urban North America (Edcomb and Thetford, 2004[35]; Valenzuela, 2001[36]), the UK (Williams, 2010[37]) and Latin America (Perry and Maloney, 2007[38]).

Though this provides a vital advancement in understanding the motives of formal entrepreneurship and transcends universal aspects of approaches, it is not able to provide a single driver-motive of informal entrepreneurship but hovers around the either necessity-or opportunity-driven divide; which is viewed as a contrast of the other (i.e., undertaking informal entrepreneurship out of choice does not imply doing so out of necessity). A fourth and final school of thought, reflecting on leadoff studies on informal entrepreneurs' motives, (Aidis *et al.*, 2006; Smallbone and Welter, 2004) which distinguishes between opportunity- and necessity- drivers in individual motives of informal entrepreneurship has questioned this divide of motives. It has been speculated that both necessity and opportunity drivers/motives can be mutually dependent and co-exist in an individual's rationale of informal entrepreneurship and can equally change over time, often from necessity-to opportunity driven (Snyder, 2004; Williams *et al.*, 2009). Thus, it would be a misjudgement for economic and enterprise development to treat necessity entrepreneurs with contempt and as unworthy of support because of their necessity-driven motive for operating in the informal enterprise as many of them changes to be more opportunity driven overtime.

### **3. The Nature of Enterprise and Entrepreneurship in Ghana's Informal Economy**

Entrepreneurship consists of the requisite skills, knowledge, and ability to start and manage a business and to use creativity and innovation to create new economic success or value (new markets, new products, and improving existing products for existing government or private business. It is also about intuition and readiness. Women dominate entrepreneurship in Ghana's informal economy. ILO (2007)[42] argues that women entrepreneurship is an entry point to achieve decent work and Millennium Development Goals as echoed by Ms Gertrude Mongella, Chairperson of Pan-African Parliament. It may be interesting to know whether entrepreneurs in the informal economy in Ghana possess the same positive virtues as regarded in the literature. It is also important to establish whether informal entrepreneurship in Ghana is necessity or opportunity driven. The rationale for this is that large portion of new enterprises in Ghana is formed in the informal economy and thus the informal economy is therefore a seedbed for enterprise and entrepreneurship development. In Ghana, women entrepreneurs dominate the micro enterprises, which are mostly for survival, but there are few small to medium enterprises owned by women entrepreneurs. The Ghanaian entrepreneur in general invests in a business simply because there are limited

opportunities available (Chamlee-Wright, 1997[43]). Entrepreneurs in Ghana may well be understood and be motivated by the intrinsic rewards and satisfaction, which comes from business ownership (Chu et al, 2007)[44]. Entrepreneurial development in Ghana generally has remained at the basic level as evidenced by Ghana's political history. Years of military dictatorship in the 1970s and 1980s drove away many local and foreign entrepreneurs (Dovi, 2006)[45]. However, from 1981 to date Ghana as a country has enjoyed a stable political environment, which is a key ingredient for undertaking any business venture. What is the nature of informal entrepreneurship in Ghana?

One major move to develop informal entrepreneurship was the establishment of the National Board for Small Scale Industries (NBSSI) in 1985 as a lead organisation for the promotion and development of micro and small-scale enterprises in Ghana. This was to guarantee efficiency and competitiveness in the production and distribution of goods and services and thus contribute significantly to the development of the national economy. The National Board for Small Scale Industries has been trying to mobilize the informal economy entrepreneurs to make them a bit organize and reliable to provide livelihood and economic development.

Relating the above to entrepreneurship in the informal economy in Ghana, it becomes obvious that the government as well as other stakeholders have a major role to play in terms of entrepreneurial training. Entrepreneurship development in informal economy is a direct result of some of the problems entrepreneurs face in developing countries. Among these problems are unstable and highly bureaucratic business environment (Chu et al, 2007). Once more, legal environment within which private enterprises operate in terms of registration and taxation system are excessively complicated to comprehend (Chu et al, 2007; de Soto, 1989). For the World Bank and IMF the main problem facing entrepreneurs in Ghana is inadequate access to credit (Chamlee-Wright, 1997)[46].

In spite of this, according to a government survey in 2002 the main problems faced by the Ghanaian entrepreneur are; poor utility connection, high taxes; burdensome administration; corruption and the unpredictability of laws and regulations (Chu et al, 2007). These findings are significant and go to support some of the arguments for informal entrepreneurship. The main motivating factor of the Ghanaian Entrepreneur as uncovered by Chu et al, (2007) are; ability to prove that they could do it, public recognition and ability to provide jobs for family members not leaving out the prospect of job security and to build a business which they can pass unto posterity. One of the key factors responsible for the growth of entrepreneurship in the informal economy in Ghana has been the IMF led structural adjustment programmes in the 1980s. Even though it led to massive privatization of state own enterprises (SOEs) with its attendant socio-economic problems, it has helped many would be unemployed to become entrepreneurs starting up and managing their own businesses mostly in the informal economy (Elkan, 1988)[47].

#### **4. Types of informal entrepreneurship in Ghana**

Informal entrepreneurship in Ghana for many years has been equated to survivalist activities that are conducted mostly by the marginalised as a result of necessity and as a last resort when there are no alternatives available to them. One of the key findings from the literature is that, previous researchers in this area tend to concentrate on these marginalised informal workers to depict informal work in Ghana in most cases (see, Debrah, 2007; Dzisi, 2008[47]; Palmer, 2007). This simplistic portrayal of informal work narrows the debate and also affects how policies are formulated to address the misery of the whole informal economy. It has to be argued that informal work has a wider scope than just a subsistence activity for survival. Only few would question the view that majority of informal workers in Ghana are marginalised (Baah, 2007[48]; Thompson, 2009[49]). However, this must not be taken for granted that informal workers in this country are always marginalised. As it is difficult to clearly distinguish between the formal and informal work, so too must care be taken not to classify all informal work as a survival kind of venture. This therefore suggests that, there are some formal enterprises conducting part or whole of their business informally. This is another

area for future research to investigate the extent of informal work outside the informal economy in Ghana.

Informal entrepreneurship in Ghana can be broadly grouped into three types: the self-employed with employees; self employed without employees; and paid or unpaid informal workers. The self-employed with employees are employers or operators who own small (unregistered) enterprises usually employing less than 10 workers who are in most cases unprotected. The self-employed without employees, are independent, “own-account” workers who are engaged mostly in petty trading and agricultural activities at a very micro or small-scale level. The paid informal employees could be classified as waged workers. They consist of employees of informal enterprises, short-term and part-time workers, casual workers and domestic workers. The unpaid informal employees are family workers who are not paid (they depend on the family business for their livelihood). Apprentices and domestic workers may well form part of the unpaid segment. These categories cover workers in agricultural activities, fishing and fish processing activities, rural agro-based processing activities, family labour, casual labour, apprenticeship and child labour in the rural informal economy and many others like food traders, health and sanitation workers, domestic workers, repairers, construction workers, textile and garment producers, weavers, dress makers and beauticians in the urban economy. All these categories of informal participants work in what might be called “Informal Micro and Small Enterprises” (IMSEs).

## **5. Why informal enterprises remain small in Ghana?**

It is worth noting that although, as mentioned earlier, the informal entrepreneurship is growing, in terms of individual enterprise sizes and contribution: it is still small and marginal generally. Most of the informal workers operating in informal enterprises are in the commerce sub-sector of the informal entrepreneurship, especially petty traders, street vendors – “Streetpreneurs” (locally called in Akan “bodwabodwa” and “apampam store” respectively). Porta & Shleifer (2008)[50] posit that, informal firms need to continue to be small in order to avoid being exposed and, therefore, require the necessary scale to produce efficiently. Notwithstanding this, the situation is very much different in Ghana, in that the informal economy is not a “secret” or “hiding” enterprise which fears being detected by the state agencies thus compelling them to remain small. They remain small mainly due to factors such as, lack of skills and entrepreneurial ability, and lack of funds to expand their existing business or start a large-scale business.

## **6. Methodology**

To understand how the informal entrepreneurship is being tackled from policy perspective, in 2014 an in-depth interview of some policy think tanks was conducted. This included the Ministry of Employment and Labour Relations (MELR), Ministry of Trade and Industry (MOTI), Ministry of Local Government and Rural Development (MLGRD) and the Ghana Trade Union Congress (GTUC). The rationale for selecting these agencies has to do with their historical engagement with the informal economy in particular and employment issues broadly. The interview was conducted face-to-face using an interview guide, which included only open-ended questions. First, the policy makers were asked to estimate the size of the informal entrepreneurship in Ghana, what percentage of small businesses is operating in the informal sector, do all such businesses practice the same level of informality, or does it vary across different enterprises and sectors? Secondly, the motives for Ghana entrepreneurs to operate in the informal economy were asked? Also, whether these entrepreneurs are doing so out of necessity? Is it a survival practice in the absence of alternatives? Or are they doing so more out of choice? What policy measures can be used to tackle informal entrepreneurship in Ghana? What are the barriers to formalization faced by informal entrepreneurs in Ghana? How do the barriers to formalization vary across different sectors?

What should be done to formalise the informal sector – deterrence or enabling option? The interviews were analysed qualitatively using content analysis starting with identifying who are the key participants of the informal economy. This followed by the how the informal entrepreneurship has been organized and the policy approaches towards informal entrepreneurship. All the interviews were conducted in English.

## ***7. Results and Discussions***

### ***7.1 Who engages in informal work?***

Generally the informal entrepreneurship in Accra like many parts of Ghana is composed of street vendors, hawkers, sellers of bagged iced water – locally called “pure water” or “nsu”, cooked-food sellers (locally known as “chop bars”), artisans, carpenters, welders, metal workers and handicrafts, shoe shine so on. There may be others who conduct part or whole of their business informally but the study did not capture this segment. For example, formal or quasi-formal enterprises that engage in such activities are not included in the study. There are also those in the maintenance and repair division including vehicle, home appliances and electronics; construction – road and building, others include commercial vehicle operators (buses or coaches, mini buses operating in the cities, locally called “trotro” and taxis. The other set of informal workers are those working in the personal and social service such as hairdressing and beauty salons, restaurant and catering, child care, guarding of properties and the like and in recent years repair of computers and mobile phones and internet café operation (Haan, 2006). There are those formal or quasi-formal enterprises that conduct part or whole of their business informally. The trouble is that more often than not researchers in this area (Haan, 2006; Palmer, 2007; Debrah, 2007) tend to focus on the survivalist activities conducted by the marginalised and ignore others. This study, like previous studies in this area, also concentrates mainly on informal self-employed especially those in service and commerce.

### ***7.2 Mechanism to organize and regulate informal entrepreneurs***

An in-depth analysis of the policy makers’ responses suggests that there is no mechanism to organize or regulate workers in informal entrepreneurship though they operate openly in the full glare of the policy makers. Despite the fact that informal work is conducted openly, unlike in the advanced economies where the informal enterprise is seen as a hidden enterprise culture (Williams, 2006), the authorities have little or no power to organize or regulate these actors. But, in this direction the GTUC has been at the forefront. It is believed to be the only known non-governmental agency that has been mobilizing the informal workers. Accordingly, one of the ways to mobilize or organize the informal entrepreneurs has been the organization of series of workshops by the Accra Metropolitan Assembly (AMA) for the informal economy operators.

Some of the previous studies in Ghana have argued that the growth of the informal entrepreneurship is the by-product of the Structural Adjustments and Economic Recovery Programme (see, Aryeetey, 1996[51]; Sowa et al., 1992[52]). Similarly, Palmer (2007) argues that the growth of the informal entrepreneurship may be attributed to the increased number of school leavers taking up informal work. It is true that the Structural Adjustments and Economic Recovery Programme did contribute to the growth in the past. As it will be recalled, in the 1980s and 1990s the World Bank/IMF sponsored adjustment brought about freezing of formal sector employment (Adu-Amankwah, 1999)[53]. There was privatization of almost all of the SOEs, deregulation, liberalization and globalization. The major outcome of the privatization was the downsizing, which resulted in more people becoming redundant whether voluntarily or compulsorily.

Again, deregulation brought in new firms especially in the telecommunication sector but they

employed few hands as the market was at the preparatory stage and also the high technology skill requirement was not available. Again, trade liberalization and globalization made it possible for firms to outsource what they could not obtain from the local economy from other producers, which also have contributed to the downsizing. The retrenched workers especially the young and the middle age sought refuge in the informal economy as entrepreneurs. With their end of service benefit (ESB), they started operating their own small businesses especially in the retail sub sector. Liberalization and globalization further accentuated the informal activity as a result of little or no barrier in terms of mobility of goods and services from abroad into the local economy.

Analysing further the policy-makers' perspective, it is clear that there are divergent views about the formalization of the informal economy as a government policy. To some, they do not envisage how one can formalize the informal economy. Some believe 'once it is an informal economy, it will remain an informal economy'. However, they suggested that any attempt to formalise the informal economy may be achieved through sensitization and education about the need to pay proper tax and social security; but this will largely depend on the profitability of the businesses. If people, through education, come to accept the need to formalize their activities then there may be some hope for formalization. This, therefore, leaves the formalization policy in limbo with government policy promoting informal economy in disguise in the sense that government has little control over the informal workers. The formalization of the informal economy has been a key policy issue of the government supported by the ILO and the World Bank.

In spite of the policy makers' position on formalization, they believe that the two economies (formal & informal) are not necessarily distinct from each other and the relationship between them is far from what is portrayed by the dualist. Rather, the two economies interact at all levels within the national economy. Again there was a consensus about the permanent nature of the informal economy as the mainstream economy in Ghana by all the policy makers interviewed. However, the major concern for the AMA is the unorganized nature of the broader aspect of the informal economy because of its associated urban planning and management problems and also potential for reducing revenue to the Assembly. The Assembly has been organizing training workshops for the informal actors so that they can move them towards the decent job end of the continuum thereby preparing them in the direction of formalization. As noted earlier, the key underlying factor of the dualist is the formalization of the informal economy. It is a government policy as repeated by the policy makers to encourage more people to go into the private sector but there is little arrangement for people to adhere to the formal way(s) of doing business thereby ensuring that formalization policy may be achieved. In recent years the government of Ghana continues its rhetoric about formalizing the informal economy but there is little or no measure put in place to ensure that new entrants into the private sector are registered properly and thus formalize their activities to kick-start the whole formalization process again.

A number of the policy makers and other commentators are also of the view that a section of the informal entrepreneurs must go into manufacturing as a way of making the informal economy more diverse and can thus contribute "better" to the economic development of the country. According to Thompson (2009), Ghana has moved backwards over the years in terms of manufacturing, as its share of manufacturing, for example, has gone down from a historical 14% of GDP in 1975 to as low as 8% in 2009. The reason for less manufacturing activities may be attributed to globalization and liberalization which make it easier for local importers than exporters. Imported goods are often cheaper than the locally manufactured goods. The reason may be due to low import tariffs, and relaxed other trade restriction tools and high unit cost of production within the local economy which can be linked to lack of economies of scale and scope. Aside from this, it is believed that Ghanaians have developed a taste for foreign goods to the detriment of the made in Ghana goods as they are popularly called. However, the economy of Ghana over the years has been supported by the export of few commodities like cocoa and gold and it is even so today. As reported by the Ghana Statistical Service, revised GDP estimates for 2008, agricultural sector contributed 33.59 to

the GDP with a 5.1% growth (GSS, 2009) [54]. There has been a gradual shift from the export-based economy to a buying and selling economy. The trouble is, the so-called buy and sell takes place mostly in the informal economy but the informal economy's contribution to the GDP is not substantial (GSS, 2002)[55]. It is not being suggested here that Ghana cannot diversify to export services. The crux of the issue is that Ghana does not have the ability to export services that can generate the needed foreign exchange to sustain the economy.

Whether the formalisation objective is achieved or not, the reality about the informal entrepreneurship is that it is growing and spreading across every space and it is the practice and not the exception. Government policy towards it should address the ills of the informal economy to make it more vibrant and a major contributor of the economy. If the needed attention is given to informal economy in terms of policy, it may help re-order the equation whereby the informal economy would be positively read and not seen as a hindrance to economic development and social cohesion of the country. Although the informal economy is the mainstream economy in Ghana, estimated to be employing over 80% of the potential working population, it is still marginal in terms of other characteristics such as income, output, and physical wellbeing of workers among others.

In terms of policy, there is a new attitude towards the informal entrepreneurship, though from the policy-makers point of view formalization seems inevitable, the informal economy has gained more recognition than ever before. The rhetoric about the private sector as the "engine of growth" in recent years is increasing. This has offered some kind of hope for the informal economy because the private sector has few formal enterprises. They believe that the informal economy has a lot of potential to promote economic growth but if it continues to operate as it is now, then it will take a long time for it to reap the necessary socio-economic development that the country needs. Policies must not discourage informal work because it will simply not work. Instead it must recognize it and involve some of the key players in major policy formulation affecting the informal economy. Presently the involvement of the GPRTU in transport policies is a major step forward, however the task is more technical for the GPRTU alone to undertake. There is still more to be done and may be greater involvement of the informal players may speed up the formalization of the informal economy.

### ***7.3 Public policy and the informal economy in Ghana***

The starting premise is that until now the informal economy has been given very little attention in the discourse of public policy in Ghana. Since the discovery of the informal sector as a concept over four decades ago (Hart, 1973) there has not been any proper public policy on the informal entrepreneurship. Part of the problem of tackling informal entrepreneurship may be how to define it, what are the activities that can be grouped under informal entrepreneurship and so on. It may be argued that the absence of a clear-cut definition of what is an informal entrepreneurship has hindered policy makers to figure out the significance of the sector vis-à-vis its contribution to the national economy. Successive governments' policy concerning the informal economy in the past has been at best as informal as the informal economy concept itself. Mapping out the direction of development since independence in 1957 will paint the actual picture of the changing approaches towards the informal entrepreneurship. Until now the widespread perception about informal entrepreneurship is that it does not promote socio-economic development on a significant scale. As a consequence, very little attention has been given to address the inherent problems of the informal entrepreneurship thereby ensuring that the informal economy can contribute meaningfully to the socio-economic development of the nation. As Adedeji (1990, p. 168)[56] puts it, 'the attitude of most African governments to the informal sector can best be described as ambivalent, development plans put strong emphasis on employment creation and basic needs satisfaction, however, the day-to-day reality is the harassment of the informal sector'.

Throughout the days of the Structural Adjustments and Economic Recovery Programmes in

the 1980s and the 1990s, little was done to mitigate the socio-economic cost of retrenched public sector employees of whom most ended up in the informal entrepreneurship as self-employed or employees (Sowa, Baah-Nuakoh, Tutu, & Osei, 1992). The absence of dependable statistical data made economic planners pay little or no attention to the informal economy (Peattie, 1987)[57]. For some there is lack of a consistent informal employment policy (Debrah, 2007; ISSER, 2007[58]). There is no special ministry in charge of the informal economy (Debrah, 2007). As a result policies on the informal economy have been formulated on ad-hoc basis. Palmer (2007b) also argues that, in spite of what the GPRS I and II look forward to achieve, skill training by and large has obtained insignificant realistic government focus.

#### **7.4 Formalization of the informal entrepreneurship**

The first question to be addressed is whether formalization has occurred in Ghana? The response to this is clear; formalization has never happened in Ghana before or after independence. The attempt to formalize has rather resulted in increased informalisation. This is evidenced by the fact that in Ghana informal entrepreneurship has been the mainstream economic activity for years even before the colonial days, now employing over 80% of the total working population. Informal entrepreneurship is more resilient, extensive and a key integral part of the modern capitalist economy in Accra. Formalization of the informal economy in Ghana is a dream that may be difficult to realize. The way forward is cooperation and not confrontation between the two seemingly separate economies.

For some of the policy makers, formalization of informal entrepreneurship simply means provision of decent work. There are four main issues dealing with decent work that is the employment itself, the right of employers and employees, social protection and giving informal entrepreneurs a voice through social dialogue. However, there are some barriers to the formalization as indicated by the policy makers, such as the size of informal entrepreneurship, the form, the way they have operated over time and how society has understood them as a sector.

Given that the informal entrepreneurship is deeply rooted and street vending is not going to disappear easily what needs to be done is adopting a fitting policy response that encourages a more unbiased linkage between formal and informal entrepreneurship in order to address the issue of poverty. Policy makers have to recognize the informal participants and consider their needs and at some stage involve them in the formulation of certain policies that may directly or indirectly affect them. For example the head porter (locally called “kayayo” or “kayaye” in Ga and “paa-o-paa” in Akan) as an informal worker is a vital source of transportation for carrying travellers luggage and other belongings to complete their journey from one car park (station) to the other and sometimes to their homes. Instead, these people are seen as nuisance and are hardly considered in any policy debate across the country affecting the informal entrepreneurship and some have even called for their eradication from the cities. The fact is that it may well be difficult, if not impossible, to eliminate this activity within the informal transportation network.

What needs to be done to avoid reckless dissipation of limited resources is a more positive and friendly approach to inculcate in them the need to observe health and safety and environmental sanitation in conducting their activities. They need recognition and support so that they can go about their activity in a more welcoming environment – without any form of harassment. There should be training for these people who are mainly women and also have very little or no formal education. They are mostly migrants from the northern sector of the country and therefore may have no proper accommodation at where they are conducting their activities. They take time to integrate into the urban economy, as most of them are rural dwellers. In Accra, Kumasi and other cities it is believed that some of these people sleep on the street, in front of stores, in kiosks, uncompleted houses, slums and shantytowns. They are mostly exposed to the vagaries of the weather, in the night to mosquitoes (which may cause malaria) and are at the mercy of criminals and other social deviants.

Any policy aimed at addressing poverty in the informal economy should not only look at the poor people but also how the so-called rich can sustain their income earning ability. By so doing they may be in a position to expand their business and may employ others. The government's poverty reduction strategy must not only focus mainly on the poor in the informal economy but also the whole low income within the overall national economy.

## 8. Conclusion

This paper sort to examine policy approaches being used to tackle informal entrepreneurship in Ghana. The main finding is that public policy towards addressing the ills of informal entrepreneurship has not been a positive one. Further analysis showed that presently there is no proper policy framework for tackling informal entrepreneurship. The situation become critical as there is no single agency solely responsible for tackling the informal economy. What we find here is that individual government agencies are responsible for some aspect. This was echoed by the Ministry of Employment and Labour Relations where they said their interest is in the job and/or the worker and not location of the activity. Although, there is some form of coordination between the agencies, often a vacuum is created where and agency thinks another is responsible.

Currently, the Growth and Poverty Reduction Strategy (GPRS II), which was Ghana 's socio-economic agenda to attain a middle-income status by 2015, however, stresses the importance of creating employment for poverty reduction and specifically addresses the informal economy (ILO, 2007). This echoes the growing recognition that the private sector development needs to encompass micro and small enterprises in the informal economy that represent about 95% of private enterprises in Ghana (ILO, 2007). The private sector is now seen as the "engine of growth". Former President Kuffour's first sessional address during his second term in 2005 highlighted the need to 'turn around the informal sector in order to turn around the economy' (ILO, 2007). Notwithstanding this, the government still believes that the key success factor of every economy is embedded in a strong formal sector. The crust of the matter is that, the private sector is dominated by informal work that has been regarded as low growth sector in terms of its contribution to the national output. Since there is no policy document presently to tackle informal entrepreneurship, the government may decide on any of the policy recommendations that will yield the expected impact on the informal entrepreneurship. This study also proposes that there should be further research to evaluate whatever policy that the government may adopt to address the informal entrepreneurship in Ghana in the near future.

## 9. Policy Recommendations

Presently, there is no clear-cut government policy on tackling informal entrepreneurship in Ghana. However, the prospective public policy towards informal entrepreneurship is gravitating towards formalization. This is in line with the long-term view of International Labour Organisation (ILO) towards informal economy as a whole. Of all the institutions surveyed, the Ghana Trades Union Congress appears to have done some extensive work on organising informal workers. The Ministry of Employment and Labour Relations is keen on the job that people do and not where the job is conducted. They believe that responsibility rests on the city managers and other related agencies to ensure that there is place for everything and everything in its place. What needs to be done from policy perspective; first there should be clear set of policies towards addressing informal entrepreneurship.

This can be reached at the tripartite committee level with inputs from all the stakeholders i.e. government, employers and the informal workers themselves. Together they must device a roadmap of some sort of policies directed at specific needs of the informal entrepreneur and not one-size-fit-all policy approach which has been the norm in most cases. Since, formalisation is becoming inevitable pill to heal the ills of informal entrepreneurship, there is

the need to create awareness. There should be a clear-cut definition of formalization which will remove doubts from the minds of the informal entrepreneurs on what formalisation is all about. This is so because formalisation comes with cost(s).

With all the understanding of the existence and nature of informal entrepreneurship, what kind of policy approaches must be employed to address the informal entrepreneurship in Accra? How do we see these informal entrepreneurs? Are they contributors to economic development or a bunch of perpetrators of illegality? Not only do answers to these fundamental questions will define what policies are required but also what determinants of informality they will address. There are four main policy options that the government may adopt singularly or collectively.

First and foremost, the government may decide to adopt a do nothing approach. By this the government may turn a blind eye on the ills of informal entrepreneurs and allow them to continue to operate in the current laissez-faire manner. Doing nothing in the long term may result in increased informalisation. The reason is not far fetched; the formal entrepreneurs may start to conduct part or whole of their business informal to reduce their transactions cost. The price that customers will pay is that, since these are illegitimate businesses they cannot sue or be sued in the court of law. The government will lose revenue due to non-payment of proper tax or tax evasion. Almost, the whole economy is informal and thus there is the need for the government to do something.

Policy could also be directed towards deregulating the formal economy with the belief that informal entrepreneurship is a by-product of over regulation of the market by the state institutions. There is the need to streamline the bureaucratic processes and business registration centres and more importantly total elimination of corrupt practices within these state institutions. Since the government is not in a position to expand the formal sector, the informal sector must be attractive to employ more people especially the youth. Even the Growth and Poverty Reduction Strategy (GPRS II – 2006-2009) does not have specific policy to expand the formal sector (GoG, 2005). However this is what the document stresses on, 'pursuant to this strategic orientation, the National Employment Policy will address objectives for the youth employment, labour market information, industry-based skill training, local economic development to support the large and growing informal economy' (GoG, 2005, p. 40).

Formalising the informal economy is already on the table. However, what is not clear is what constitute formalisation. Policy makers are confused as to what formalisation is in real sense. To some formalisation is to bridge the gap between informality and decent work and to others it is all about making it easy to bring more informal entrepreneurs into the mainstream tax regime. In all this the government working in concert with other policy think tanks must understand this and develop a road map for transition into formality. Currently, there is no such policy document. There are some pockets of regulation on piecemeal basis.

Deterrent approach will not bear any good fruit. Although, in Accra often, informal entrepreneurs especially Streetpreneurs are chased by the city's street taskforce locally called in Ga "Abayee" (literally means they are coming). The reality is that these Streetpreneurs will resurface at a different location making the work of the street taskforce more difficult. Customers have played and continue to play key role in the growing and development street vending for convenience especially, those in "time poverty". The truth is that, deterrence has never been the government's response for tackling informal entrepreneurship in any time period historically in Ghana. The state recognises informal entrepreneurship as the oldest economic activity dated back to pre-colonial epoch as highlighted Nissin (1991)[59] and Adu-Amankwah (1999). The outcome is that policies must be friendly to informal entrepreneurship so as to promote their activity on a sustainable level.

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# Tackling the shadow economy in Bulgaria: challenges to the achievement of successful policy approaches

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Since EU accession in 2007, Bulgaria has ranked as the Member State with the largest informal economy of some 31% of GDP. Despite diverse policy measures applied to crack down on tax evasion and undeclared work, some ‘grey’ practices, such as under-reporting salaries and turnover have flourished recently. The aim of this paper is to critically assess the effectiveness of the dominant policy approach in Bulgaria to tackle the shadow economy. It argues that the role of low tax morale and the high level of institutional incongruence have been neglected as drivers for widespread social legitimacy of informality. This is fuelled by a combination of factors including historical developments, politicised administration and persistent negative perceptions of administrative and judicial fairness, among others. The strong focus of the authorities in recent years on administrative control measures creates a vicious circle in the long term – increasing the power of the state through deterrence while failing to guarantee procedural and redistributive fairness or highlight the benefits of compliance create an even greater mistrust by economic actors. Instead, the paper calls for considering an ‘indirect’ approach as an alternative strategy, by promoting voluntary commitment through pursuing a change in social norms and values, but also increasing the legitimacy of institutions and the quality of public goods and services to reduce the gap between taxpayers and the state.

## **Keywords**

Bulgaria, Institutional Incongruence, Policy Approach, Tax Morale, Undeclared Work

## **1. Introduction**

A proliferating literature in recent years has revealed time and again the persistence, and in many cases, growth of the undeclared economy<sup>4</sup> in South-Eastern Europe. [1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15]. In times of continuing high unemployment rates and financial austerity, tackling undeclared economic activity and tax evasion has become an issue of high political priority across Europe. Policies to tackle the grey economy, however, are not

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<sup>4</sup>For the purposes of this paper the terms undeclared economy, grey economy and undeclared work will be used interchangeably.

uniform and vary in theoretical foundation and practical approach. In recent years there has been a shift from over-reliance on direct approach measures, such as deterrence and prevention, toward dedicating resources and attention to curative measures that foster commitment and aim at closing the gap of institutional incongruence. For example, earlier understanding of undeclared work had been founded mainly on the economic theory, explaining the decision to participate in non-compliant activities as a result of a rational cost-benefit analysis [16]. This school of thought propagated the wide acceptance of the deterrence approach in policy-making to tackle non-compliance. More recently, however, arguments grounded in institutional theory have largely rejected the rational-actor models by placing personal and social norms and values at the centre of explaining and modelling predictions in tax compliance [17, 18, 19; 20]. As such undeclared work/grey economy is examined as a complex behavioural issue within a particular context. Further still, factors such as individual and group perceptions of fairness, trust and justice are seen as crucial determinants in the interaction between the government and the governed. Thus the relationships and dynamics within the context of a social contract between authorities and citizens are established as major determinants of compliance [21, 22, 23]. Social norms and values, are analysed as predictors for tax compliance not only as the product of the relationship between state-individual, but also in terms of value formation within interpersonal interactions [19].

Founded in institutional theory this paper argues that a shift in approach to tackling undeclared work in Bulgaria is needed in order to provide for a balanced comprehensive policy that is tailored for addressing the full scope and depth of the problem. The arguments presented here are based on two underlying assumptions. First, that both undeclared work, which is viewed here as a “wicked problem”, and policies to tackle it occur within a specific localised context, in which they interact. By defining undeclared work as a “wicked problem” we mean that there are “multiple drivers which display interdependencies and any attempt to tackle these drivers often has unforeseen and unintended effects” and that “there is no clear and correct solution that can be simply implemented which necessarily results in the desired outcome” [11: p.8]. And second, that this context is contingent on the interplay of the value-forming behaviours of state, policies and citizens, or in other words, both policies and citizens’ attitudes and beliefs can influence the context. In doing so it aims to illustrate that the dominant approach of deterrence used to tackle undeclared work in Bulgaria is inefficient as it fails to take into account the social context of persistent low levels of social/institutional trust and tax moral, therefore creating a vicious circle of institutional incongruence. In the present paper we define institutional incongruence as the asymmetry between formal institutions and rules and social values, norms and beliefs.

In line with institutional theory and recent advances in the understanding of the drivers and motivation behind social behaviour that lies at the centre of complex contextualised problems, governments in developed states are increasingly adopting a “we can’t do it alone” approach to tackling “wicked” problems [24, 25]. Innovative strategies relying on open, collaborative and pluralistic approaches, have been put forward by authorities in order to design, implement and evaluate policy measures to tackle issues in which societal phenomena, such as trust, perception and attitude, determine dynamics in behavioural change such as levels of compliance to formal rules and regulations. This approach aims to bring societies and their governments in a path of cooperation, where institutional incongruence is a key factor. On the one hand, aligning formal and informal rules and values, therefore diminishing institutional incongruence, is seen as a step in the right direction to improving overall compliance to the rule of law. On the other, diverging values between the government and the governed impedes sustainable and effective state-citizenry collaboration and cooperation in tackling “wicked” problems, wherein changes in behaviour and perception are of utmost importance to producing a sustainable and long-lasting effect. From the perspective of policy-making this approach is significant as it also views the substance of policy instruments and tools as indicative of the relationship between state and citizens, i.e. the manner in which various elements of the policy cycle are executed carries a value-forming potential [26]. Therefore, it is not only the impact of the policies and measures

themselves that is a factor in institutional theory dynamics, but the manner in which they are brought to fruition, i.e. their tools and instruments, that possess a potential to change the dynamics of state-citizens value formation.

It should be here reminded that the rational-actor and institutional theory models are theoretically juxtaposed. However, it may not be expected that the latter replaces completely the former, as deterrence is not completely without merit. Rather, a balanced approach should be sought, which is informed by evidence [11, 24, 25]

To begin supporting our arguments, we commence in the next section by analysing the extent and nature of the grey economy in Bulgaria, in order to underline the gravity of the problem. Next, an overview drawing on historical data and recent research on tax morale and institutional trust will be provided, expanding and explaining beyond rational theory the context within which both undeclared work and the policies implemented to tackle it interact. In the fourth part, the social context of the grey economy will be juxtaposed with the most prevalent policy approaches and measures to tackle undeclared work in Bulgaria in order to illustrate the asymmetry or institutional incongruence that has an impact on the effectiveness of policy results, outcomes and effectiveness. Finally, we conclude by suggesting a paradigm shift in the approach of policy making aimed at fostering and enhancing social trust and tax morale, thereby narrowing the gap of institutional incongruence.

As a starting point, however, we need to define what is meant by grey economy. There has been a difference in defining the grey economy especially between enterprise-based and jobs-based definitions used in mostly developing countries and activities-based explanations employed in developed economies [see discussion in 27]. For the purposes of this paper, the most widely used definition will be utilised, which defines the undeclared economy as:

*“all legal production activities that are deliberately concealed from public authorities for the following kinds of reasons: to avoid payment of income, value added or other taxes; to avoid payment of social security contributions; to avoid having to meet certain legal standards such as minimum wages, maximum hours, safety or health standards, etc.[28: p139].*

This definition omits illegal (criminal) activities and also unpaid work, and has been generally accepted in Europe [see 29, 30, 31]. Throughout this report an attempt is made when referring to research that uses different terms or illuminates other aspects of the phenomenon, for the particular definition employed by the authors to be given wherever feasible.

## 2. Extent and nature of undeclared work in Bulgaria

Bulgaria has been featured among the countries with the largest shares of the undeclared economy of GDP in the EU in various measurement approaches. According to the Multiple Indicators Multiple Causes method of measurement (MIMIC) Bulgaria’s grey economy is equivalent to 31% of GDP (31.9% in 2012 and estimated 31.2% in 2013), compared to an EU average of approximately 19% [32]. Schneider has also calculated that, on average, the size of the undeclared economy in Bulgaria between 1999 and 2007 was 35.3% [33]. Although, as illustrated in Table 1, the share of the undeclared economy in Bulgaria has been declining, following a EU-wide trend, it’s magnitude is still of serious concern.

**Table 1** Development of the size of the shadow economy in Bulgaria, MIMIC method (2006-2013)

	2006	2007	2008	2009	2010	2011	2012	2013e
<b>Share of the shadow economy as % of GDP</b>	34.0	34.0	34.0	34.0	32.6	32.3	31.9	31.2

EU-28 +	20.9	20.1	19.4	19.9	19.7	19.3	19.0	18.5
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Source: [32] The EU data includes Norway, Switzerland and Turkey.

Estimates based on the two-sector dynamic general equilibrium model place the Bulgarian hidden economy between 35.5% in 2000 and 31.9% in 2008 [34].

In 2007 the Eurobarometer completed the first EU-wide direct survey on undeclared work, and a follow-up was conducted in 2013 based on a sample of 1 018 respondents in Bulgaria [35, 36]. The definition used for this surveys includes “all paid activities that are lawful as regards their nature but not declared to public authorities, taking into account differences in the regulatory system of Member States”, which is line with the one already adopted for the purposes of this paper [36]. This research brings additional valuable insight into the understanding of the undeclared economy in the EU, as it not only illuminates both supply and demand side of undeclared work, but explores the respondents’ motivations for engaging in such activities.

The Eurobarometer survey revealed both direct involvement in and perceptions of undeclared work, wherein about only 5% of respondents admitted to have engaged in undeclared work in both 2007 and 2013 editions, while some 39% in 2007 and 33% in 2013 claimed to know of someone participating in undeclared employment (Table 2). The share of respondents who claimed to have received “envelope wages” (i.e. an undeclared wage, paid in cash, in addition to their officially declared salary from their employer) in 2007 stood at around 14%, while dropping to 6% in 2013 (compared to an EU average of 6% in 2007 and 3% in 2013). In addition, in 2013, 15.4% of respondents admitted to have purchased goods and services involving undeclared work, which represented a 3% rise from 2007.

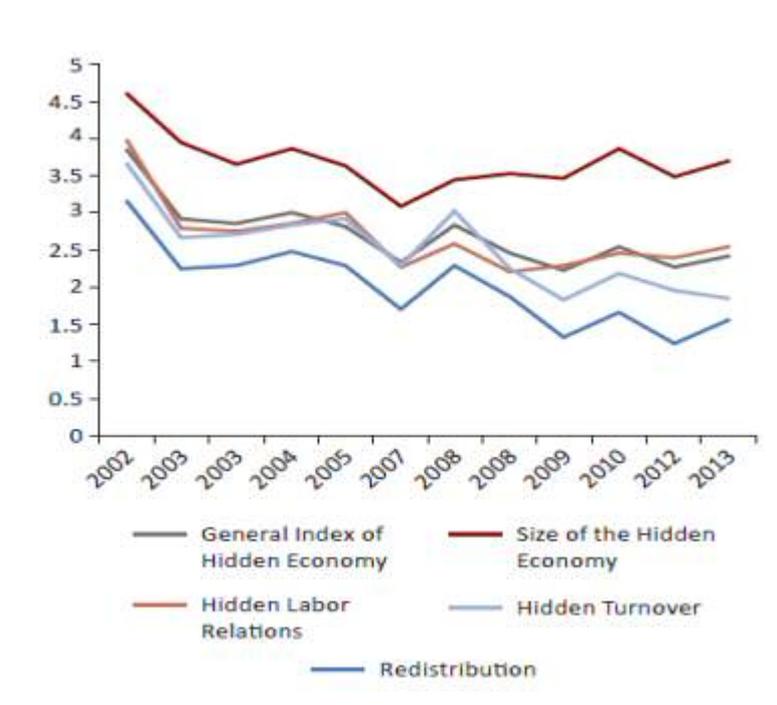
**Table 2** Extent of undeclared work in Bulgaria compared to EU27 (2007 to 2013)

% of respondents	Bulgaria 2007	Bulgaria 2013	EU27 average 2007	EU27 average 2013
Carried out undeclared work	5	5	5	4
Know people involved in undeclared work	39	33	38	32
Received part of their salary in cash (“envelope wages”)	14	6	5	3
Purchased undeclared goods and services	14	16	11	11

Source: [36] (Bulgaria: N 2007=1,000; N 2013=1,018)

Alternative sources of information such as national direct surveys of the population conducted since 2002 draw a more differentiated picture of the different types of undeclared activities. The Hidden Economy Index compiled by the Center for the Study of Democracy based on data from annual representative surveys of 1,000 citizens aged 18+ shows that some undeclared practices have increased in the past year, such as the under declaration of salaries (so-called “envelope wages”). The survey results further indicate that the most prevalent types of grey practices are - working without a contract, under-declared wages (cash payments and envelope wages), evading social security dues, underreporting turnover/profit, under-declaring production and trade in excisable goods [37, 38].

**Figure 1** Dynamics of the Hidden Economy Index (2002-2013)



Source: CSD, *Hidden Economy Survey of the Businesses*.

### 3. Institutional Incongruence and Non-Compliance

In this paper we define institutional incongruence/asymmetry to mean the discrepancy between social norms, attitudes and beliefs with official rules and norms. This can be assessed through a number of variables, including people's level of trust in public institutions, their level of satisfaction with the government, to what degree they feel everyone is treated the same by public institutions and law enforcement bodies, to what degree they believe the government undertakes efforts to reduce inequalities and improve the provision of public goods and services, among others. Low level of satisfaction with economic and social conditions, as well as with public goods and services can be a strong indicator for the low buy-in of citizens with official rules, including taxation. The regular European Value surveys on public opinion in the EU have shown consistently low levels of satisfaction of the Bulgarian population with the standard of living as well as the state of the economy in the past several years [see 39-43].

Studies in transitional post-communist societies in Eastern Europe have often revealed that informality had played an important role in social and economic relations during the period of socialist authoritarianism, inferring that the rift between official rules and informal values, practices and norms has been a persistent feature in some societies [see 44, 45].

Ethnographic research, for example, has brought to light various forms of social interaction that did not follow formally agreed hierarchical arrangements [46: 2000]. Roth [44] maintains that certain types of irregular behaviour, such as circumvention and disregard of official rules, siphoning off workplace resources, bartering and illegally producing and providing deficit goods and services, were distinctive in Bulgarian village life. This exchange of goods and services was made possible and facilitated by the development of a tightly-knit informal network of personal connections. It is further argued that such coping strategies came to represent the main governing instruments of social interaction, which remained in operation during the transitional period as a means to cope and manage adaptation to the coming new order of things.

Such juxtapositions of formal and informal systems of value and trust-building, in other words the institutional incongruence of state rules and informal norms and attitudes, have been identified as an important factor and motivator for engaging in irregular and non-compliant activities. It is further argued that the friction between formal rules and informal social and economic norms arising as a response to adapt to a new reality, has placed the phenomenon of institutional asymmetry in a “path dependency” relationship in transition countries [47: p.16]. Therefore, a persistent failure to bridge the gap between state norms and social values creates an environment of a thriving culture of institutional incongruence in a state of alienation of citizens from their formal governing structures. Factors, such as a particular historical experience, and more recently, high degrees of administrative politicisation and corruption, have all facilitated and exacerbated the functioning of the government-citizen nexus in a state of mistrust and alienation.

In Bulgaria, it is argued, the origin of the deep alienation of Bulgarian citizenry and the government may lie in extended periods of foreign rule [48, 49]. These periods have led to failure to construct a stable national self-consciousness, while personal networks and connections persisted in acting as means in achieving both physical well-being and “self-confirmation” [49: p.61]. During the period of communist party authoritarian rule, the gap between the formal and informal networks intensified as the informal economy played an important compensatory role in an environment of inefficient planned state economy that failed to provide a diverse portfolio of goods and services. Social networks based on personal connections were further strengthened by the perceived illegitimacy of the ruling party-led institutions and by their failure to promote and develop a sense of genuine community, which was in line with the then-dominant communist rhetoric and ideology. As a result, such informal networks were accepted as the normal mechanism for achieving prosperity and recognised as the most important social capital, whereby non-compliance to state-prescribed norms and rules was morally justified. Social relationships during this period were infused with and governed by a self-interested and rent-seeking logic [49]. It is widely argued that the transition period did not eradicate such values and mechanisms, but rather they have been both extended and adapted to deal with the challenges of the new order, therefore continuing to skew the institutional asymmetry in the post-transition period as well.

*“alongside the transformation of the socialist planned economy into a market economy in Central and Eastern Europe over the past 20 years, the old socialist informal economy has been transformed too, both in qualitative and quantitative terms” [50: 2].*

The transition process itself, in fact exacerbated the problems of alienation and state-citizen trust, therefore perpetuating the inherited institutional incongruence. The transformation from a planned economy authoritarianism to a market economy democracy in Bulgaria, as in other post-communist states, was plagued by “a lack of vision for comprehensive structural reforms and by repeated political hesitations” [51: p.93]. The dismantling of old order institutions left a vacuum that the new ones failed to fill, which led to the burgeoning of “an informal system of redistribution practices between different social groups” [51]. Moreover, transition experts agree that a proper institutional and legislative framework was never sufficiently established to manage consequences of the retreating regime and regulate the

way forward, therefore leaving significant parts of the economy outside the regulatory grasp of the government [52, 53, 54]. Still, further analyses concludes that in many transition jurisdictions legislative initiative has been usurped by powerful state and non-state actors with the purpose of “grabbing state recourses”, while the undeclared economy remained the domain, where de facto transition to the market economy occurred [53: p.83]. In addition, it has been argued that the widely spread corruption in transition societies is correlated with the informalisation of large sectors of the economy, at the same time leading to higher levels of tax evasion and an adverse effect on the legitimacy of the governing elites [55, 53].

Another element of the transition process that exerts significant negative influence on the interplay of trust and values in the state-citizen nexus is the failure of nascent democratization to produce unbiased professional administration. The expectations that the process of democratisation would lead to the reforming and/or establishment of professional and independent administration, similar to the ones in older western democracies, however did not materialise in Bulgaria and much of post-communist Eastern Europe [56, 57, 58]. As a result of the ensuing high degree of politicisation in Bulgarian governments in the transition period, administrations were perceived as serving a particular political interest or party, rather than applying the rule of law. Deep politicisation may contribute to an “us against them” or clan mentality in administrations, therefore thinning public trust in the institutions’ ability and willingness to treat all citizens equally. It is yet to be thoroughly researched what the precise impact of politicisation on Bulgarian policy-making is, however it may be assumed that politicisation plays an important role in the perception of administration’s ability to provide public services in an unbiased manner.

Politicisation also inhibits administrations’ ability to initiate innovative policies and measures to tackle complex problems, such as undeclared work. For instance, a survey in the Bulgarian state administration concluded that:

*‘[c]ivil servants are in a constant fear of change, there is an absence of cohesion and team spirit and a lack of joint objectives. ... This generally leads to a situation where most civil servants prefer to take a ‘defensive position’ and attempts to perform their work by taking minimum risks thus avoiding responsibility for any conceivable error’ [59: p.83]*

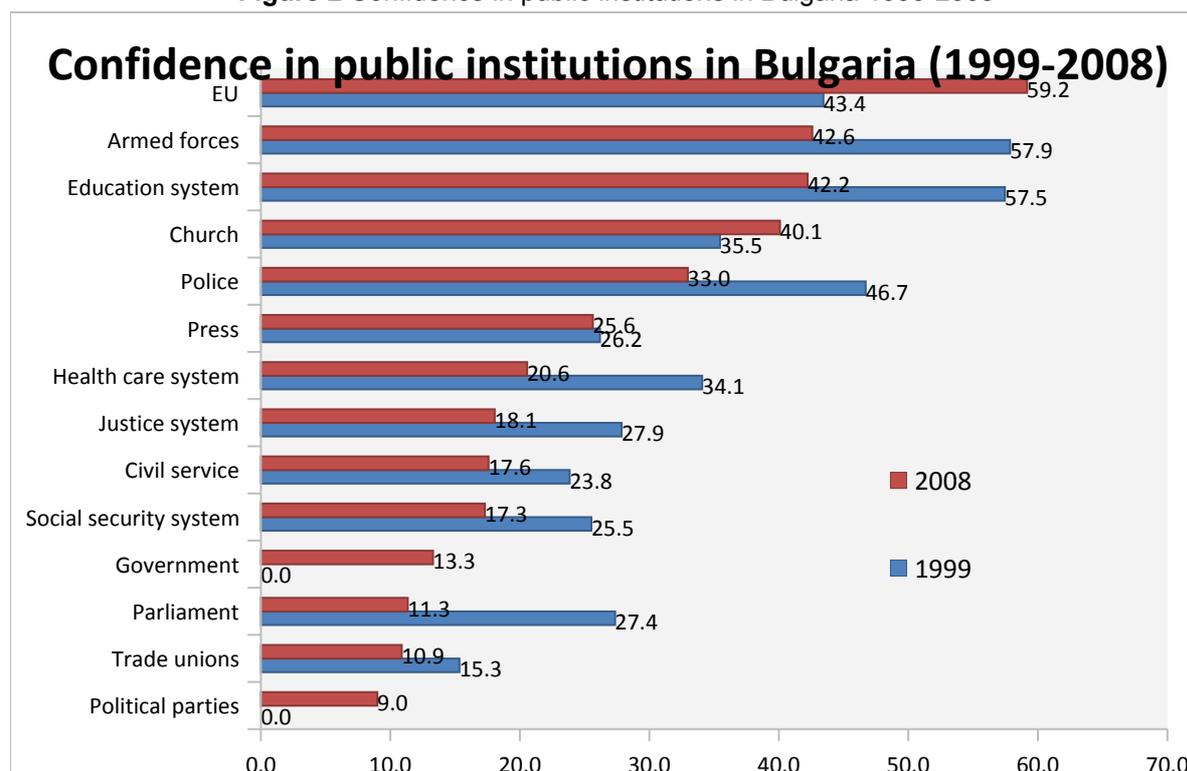
As a consequence, and following a change of regime, second tier civil servants no longer have an incentive to be informative towards a successor party government. Instead, they tended to be passive in their policy making approach unless personnel policy is de-politicised [59]. This environment of lack of incentives and motivation in the administration hinders the genesis of informed and innovative policies to tackle undeclared work and contributes instead to locking in the cycle of institutional incongruence regardless of which party dominates government. In such circumstances, then, it is not uncommon for groups to look for a solution even before the problem is defined [60: p.57]. Stakeholders in the fight against undeclared work, thus, may be inclined to search for solutions based on adapting or extending, and therefore, over-relying on policies that are familiar and tested, such as repressive or direct measures. Research, however, shows that the problem of undeclared work cannot be simply defined as non-compliance resultant from rational actor theory, (i.e. it is not a tame problem) but it is rather a complex, multi-contextual issue that includes, among other factors, trust in governmental institutions and public sense of judicial and administrative fairness.

In addition to the immediate interplay of trust-building within the state-citizen nexus cultural mechanisms such as societal (interpersonal) trust can facilitate or hamper the effective institutionalisation of the new economic order in transition countries [see 50]. In this respect societal trust is critical for strengthening market exchange mechanisms which rely upon anonymity and commitment. Both variables measure the level of trust in the fundamental reliability of the non-personified ‘other’.

We illustrated in the above historical overview that the low level of horizontal and vertical trust in post-communist societies has several underlying causes. Furthermore, it is argued that in the post-transition period (post-2000) “informal personal contacts on the micro-level

rather than formal institutional participation on the macro-level tend to generate social trust and thus hamper institutional legitimacy” [61: p.32]. This process is characterized by a sharp decline in institutional trust as well as falling social and political participation, and a retreat of the individual from taking part in political life and shaping societal rules. The European Values Survey demonstrates the fall of trust in formal institutions between 1999 and 2008 (see figure 2 below).

**Figure 2** Confidence in public institutions in Bulgaria 1999-2008



Source: Author’s calculations based on the European Values Survey, 1999 (N=1,000) and 2008 (N=1,500).

Another indicator painting the contextual landscape of social trust and attitudes in Bulgaria is the business perspective on the nature of interplay between taxpayers and the state. Results from The World Economic Forum Global Competitiveness Report add another negative dimension in taxpayers’ perception of government efficiency and overall institutional performance. In 2013, the lowest ranks given by business executives and owners are related to the first indicator of the index – institutions – Bulgaria overall ranks 107 out of 148 countries in this indicator. In 2014 trust in the state fell even further and Bulgaria dropped behind in the ranks to 112 out of 144 countries when it comes to the quality of institutions. Institutional indicators such as public trust in politicians, received the lowest scores to (2.4 out of 7 in 2013 and only 1.9 in 2014), followed by favouritism in decisions of government officials (2.5 out of 7 in 2013 and 2.1 in 2014), judicial independence (2.6 in 2013 against 2.3 in 2014) and diversion of public funds (2.7 – 2.5) [62]. In 2014, businesses’ assessment of the efficiency of public spending was 2.6, where 1 equals wasteful spending and 7 – highly efficient spending (see Table 3 below).

**Table 3** Business stakeholders trust in institutions in Bulgaria

	Rank 2014	Score 2014 (1-7, where 7 is best)

Public trust in politicians	130	1.9
Diversion of public funds	118	2.5
Judicial independence	126	2.3
Favoritism in decisions of government officials	134	2.1
Wastefulness of government spending	98	2.6

Source: Global Competitiveness Report 2014

Finally, recent studies into the relationship between tax morale and participation in undeclared economic activities provide further support to our arguments. Examining attitudinal and participatory data from 1,018 face-to-face interviews conducted in Bulgaria during 2013, Williams et al, conclude that the rate of participation in activities related to undeclared work increases at lower levels of tax morale [63]. The study also finds that respondents with low tax morale are more likely to engage in undeclared economic activities, despite recognising the consequences of deterrence and penalties.

#### 4. The Policy Approach to Tackle Undeclared Work in Bulgaria – Overview and Evaluation

In the previous part we provided an overview of some of the elements shaping an endemic Bulgarian social context within which both the grey economy and measures to counter it operate and interact. We concluded that this context is characterised by manifest low institutional trust and tax morale, which, in turn are associated with increased rates of non-compliance and decision to engage in undeclared activities. Next, we will provide an overview of the measures implemented in Bulgaria to curb undeclared work. As it will become evident most of the policies implemented to tackle undeclared work in Bulgaria are based on the deterrence approach. Moreover, deterrence measures are perceived to be most effective by policy stakeholders. This is significant as we argue that, such response may prove counterproductive within the context of deep institutional incongruence, and may in fact contribute to its perpetuation.

It has been widely recognised at EU- and national levels, that the approach to fighting undeclared work should include a balanced selection of policies and measures that avoids overreliance on efforts to eradicate and repress (through punitive measures, increased cost of informality and heightened risk of being caught), but includes a focus on providing incentives for formalisation as well. Member States have been repeatedly encouraged by the European Commission to implement policy responses that focus on the transformation of undeclared economic activities into regular work. This process may include reducing the administrative burden on businesses, enhancing the law enforcement effort, imposing more effective sanctions, as well as providing incentives in the tax and social benefit systems [64, 29].

Such measures are generally subdivided into three types: *preventive* - discouraging participation in the grey economy, *curative* - enabling transition from undeclared economic activities the regulated sector, and *commitment* measures - focusing on behavioural change toward improved rate of compliance by increasing institutional trust and legitimacy [30]. Comparative and cross-country policy analysis shows that in recent years Member States are increasingly turning to such enabling and preventative measures. However, repressive and controlling measures are perceived by national administrations as the most effective ones and are implemented most often. Indeed, research from 2010 shows that in 31 European states the majority of stakeholder respondents rated measures to improve detection as the most effective group, followed by preventative measures [65]. Policies aimed at fostering commitment are assessed as the least effective (Table 4).

**Table 4** Stakeholder opinion of the importance of different types of policy measures

% of relevant stakeholders from 31 European	Most	Effective	Least
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<b>countries citing:</b>	<b>effective</b>	<b>effective</b>	<b>effective</b>
Measures to improve detection	<b>64</b>	19	17
Preventative measures	24	<b>57</b>	19
Curative measures	18	38	44
Fostering commitment	12	27	<b>61</b>

Source: [65].

A policy approach framework developed by Williams and Renooy [30] is useful in summarizing and analysing the current policy and measures landscape in the field of combatting the grey economy in Bulgaria (see Table 5). Some consideration should be given to the fact that in reality many of the policies are implemented in a bundle that may include measures from various categories. For example, public awareness campaigns are concurrently carried out with increased control activity and inspections. This is viewed as a move in the right direction as it contributes to a more synchronized and wide-ranging response to undeclared work. The measures listed in the table are not exhaustive but are a robust indicator of the nature of the dominant policy approach employed in Bulgaria to fight undeclared work [38].

**Table 5** Types of approaches and measures implemented in Bulgaria

<b>Approach</b>	<b>Method</b>	<b>Measures implemented in Bulgaria</b>
<b>Deterrence (pursue and punish)</b>	Improving detection	<ul style="list-style-type: none"> <li>• Mandatory real-time link between fiscal devices and the NRA servers (2011)</li> <li>• <i>Ordinance No. 3</i> on the remote measurement and monitoring of excise goods: Excise Movement and Control System (2010)</li> <li>• Increased number of (joint) inspections and unannounced checks (NRA, GLI)</li> <li>• Targeted annual campaigns for collection of social and health insurance contributions (GLI, NRA, NSSI)</li> <li>• Data matching and sharing (NSSI, NRA)</li> <li>• Risk assessment and monitoring of “high risk” legal entities for VAT fraud (NRA)</li> <li>• Restriction of cash payments above BGN 15.000 (2011)</li> </ul>
	Increasing penalties Increasing perception of risk	<ul style="list-style-type: none"> <li>• Increased penalties for violations of the labour legislation</li> <li>• Public campaigns on inspection activity</li> <li>• “Come into the light” campaign – whistleblowing hotline advertised, inspections based on anonymous complaints (2007)</li> <li>• “Work legally” campaign (MLSP) – highlighted sanctions, monitoring of specific companies (2008)</li> <li>• “Naming and shaming” employers owing social security contributions to the state budget (public list of debtors) (NSSI)</li> </ul>
<b>Enabling formalisation/ compliance</b>	Prevention (deter entry)	<ul style="list-style-type: none"> <li>• Act on Limiting Administrative Regulation and Administrative Control on Economic Activity (2003)</li> <li>• Mandatory registration of work contracts (2003)</li> <li>• Mandatory minimum social insurance thresholds (MSIT) for most sectors and occupations (2003)</li> <li>• Reducing the initial required capital of commercial companies to 2 BGN (2010)</li> </ul>

Curative/stimulating (encouraging movement out of shadow economy)	<ul style="list-style-type: none"> <li>• Introduction of flat tax on personal incomes and corporate profits (2008)</li> <li>• Reducing social security contributions</li> <li>• Tax exemptions for firms operating in areas with high unemployment</li> <li>• National Center Rules for Business – advising and informing firms (2010)</li> <li>• Food vouchers (additional non-taxable income for employees) (2003)</li> </ul>
Fostering commitment	<ul style="list-style-type: none"> <li>• Education, online training and public awareness campaigns within the “Work Legally”, “Come Into the Light” and “Rules for Business” initiatives</li> </ul>

Source: Policy framework adapted from [30].

Between 2005 and 2009, 222 proposals for measures and policies put forward by the government, business and trade unions, were reviewed and evaluated by the Center for the Study of Democracy [66, 67]. Results from the study show that prevention policies took precedent, accounting for 127 measures, including new and amended employee types, various incentives for both business and workers, enhanced legal powers of institutions, austere requirements, increased focus on awareness and publicity campaigns. Deterrence measures were found to be second in prevalence and included, monitoring capabilities and powers, improved inter-agency information exchange, enhance inspection efficiency, stricter sanctions among others. Of the reviewed measures only 9 qualified as remedial or indirect measures, involving full or partial tax amnesty, diversified stimuli for client compliance, improved administrative support for businesses, as well as campaigns encouraging voluntary compliance.

External assessment of measures to tackle the undeclared economy has concluded that the policy approach in Bulgaria has relied predominantly on tools and instruments aimed at enhancing control, implemented in a campaign-like manner. This has also been found to be contingent on macroeconomic and budgetary circumstances and considerations [68].

Following this strategy controlled activities are being executed in planned waves, leading to short-lived increase in compliance rates. Moreover, the effect of this approach has manifested, in some cases, in further deterioration of the administrative burden on compliant businesses, thus creating a corruption susceptible environment. In addition, findings point to developments and outcomes of measures that may potentially adversely affect the level of institutional trust, such as increasing the administrative burden of otherwise compliant businesses. Inspections have been found to target predominantly small and medial size enterprises resulting in incommensurately levied penalties compared to offenders in the larger enterprise sector. The analysis of imposed financial sanctions has established that they are regressive with respect to SMEs, while large tax-payers are inspected less rigorously and receive lesser sanctions. Furthermore, there is an emphasis on controlling micro and small-to-medium sized businesses, which are deemed easier to handle. This results in an unbalanced prioritisation of control activities, therefore increasing the administrative and regulatory strain on small businesses [68].

Without a concurrent focus on commitment and curative measures that foster positive behavioural change toward voluntary compliance, over-reliance on deterrence measures, such as inspections, cannot yield a long-lasting compliance effect. The ability of remote and onsite inspections to produce a sustainable effect is doubtful, since after sanctions have been imposed and fines have been paid businesses can return to their usual irregular or non-compliant practice. Moreover, because of their intrusive nature control measures are carriers of a governmental attitude of repression and punishment, which in turn has a diminishing effect on the level of public institutional trust. Therefore a more positive and cooperative environment must be pursued by, for instance, instituting a service-centred approach focused on the importance of customer-relations, thereby encouraging fair treatment and

improving state-citizen trust [38].

Lacking a more serious focus on measures to promote voluntary compliance, the deterrent-laden approach of intensive inspections fails to produce a long-lasting sustainable effect, as compliance rates may resume pre-inspection levels soon after control activities end.

Moreover, increasing the intensity, frequency and scope of inspections requires a considerable strain on agency resources and may prove inefficient in terms of actually producing an increase in state revenue, as the relationship between more inspections and increased state revenue is dubious [38]

Nevertheless, it should be noted that the increased focus on controlling and administrative measures by the Bulgarian government managed to yield some results, especially in the registration of work contracts and the fight against tax evasion [37]. Although punitive and corrective measures may produce results in some areas, they are generally considered unpopular, as their implementation and enforcement rely on controls, sanctions and punishment [69]. The necessity to work toward developing a more balanced approach away from overreliance on control and toward narrowing the gap of institutional incongruence is highlighted by the fact that businesses, although active in proposing initiatives to tackle the grey economy, have not implemented any self-regulation mechanisms, such as codes of conduct or peer monitoring, among others [67].

It must be noted, however, and with a view to provide an unbiased account of the policy approach to tackling undeclared work, that Bulgarian authorities have in recent years initiated a number of curative measures as well. The flat rate tax and the food voucher initiative are the two most notable examples. The flat tax rate of 10% is one of the lowest in Europe and is generally viewed as a popular measure, as it aims to simplify the tax system, while increasing people's income. At the same time however, there are no definitive studies establishing whether the flat tax rate has helped increase state revenue [38]

The food voucher system was externally and independently evaluated in 2010. The impact assessment concluded that the measure did not lead to additional tax benefits for the employees and employers, but it contributed to a reduction in undeclared work activities, such as envelope wages, as it was established that vouchers were used in lieu of undeclared cash payments. It was also assessed that the voucher program had a positive impact on state revenue from VAT, accounting for some €1.2 million in additional income for the state in 2010 [70].

The most notable commitment measures have been initiated by Bulgaria's largest employer's organisations - BIA and BICA. In 2007 the two organisations, in partnership with several media companies and with the support of the authorities launched the "Come to Light" campaign. The measure was largely aimed at increasing awareness of the issue of undeclared work. It created a platform for proposing best practices and mechanisms to tackle undeclared work, an online discussion forum, an electronic form for submission of anonymous signals about violations, as well as a number of publications, news and information related to the topic. BICA and the leading trade union CITUB, launched a large-scale project aimed at studying, monitoring and tackling the undeclared economy - "Restriction and Prevention of Informal Economy". The initiative employed a comprehensive approach, establishing a National Centre "Rules for Business" which plays a coordinating role for implementing a package of diverse activities, mechanisms and measures, some of them including:

- A hotline for reporting undeclared practices
- Dissemination of analytical reports based on primary and secondary data collection
- Sharing and raising awareness of best practices in the fight against the grey economy.
- Focus groups engagement for ideas and information sharing.
- Representative sociological surveys measuring attitudes, opinions and participation in undeclared economic activities.
- Information and public awareness campaigns, round tables, public discussions and press conferences

- Media campaigns

By August 2013 the National Center “Rules for Business” had provided more than 17,000 consultations to citizens and businesses on issues related to the undeclared economy; the largest share of consultations was provided to firms from the electrical engineering sector. An additional 2,000 consultations have been conducted following signals received through the dedicated hotline. The Centre stated that among the most prominent results of the project are an increase in the number of signals received as the project progresses, and an improved level of awareness of both citizens and business towards the problems and risks of the undeclared economy [71, 38].

Despite an increased attention to curative and commitment initiatives from both government and business stakeholders in recent years, the overall weight of the policy approach to tackling the grey economy in Bulgaria remains on deterrent and repressive measures. Moreover, authorities seem to lack a comprehensive and systematic approach to evaluating policies both in the selection phase and during and post-implementation. In some cases, assessment is triggered by external pressure, rather than by policy design<sup>5</sup> [38]. There are strong indications that policy selection, or ex ante evaluation, is often contingent on ad-hoc reaction to immediate crises or critical circumstances, whereby a “quick win” intervention may be sought after. This potentially leads to poor problem definition and analysis, and consequently to measure with questionable effectiveness. Moreover, ceasing or altering such policies, not only leads to additional administrative and financial costs, but may hinder the process of institutional learning. This added strain on the administration often neutralises any initial positive effects of detection and stimulation measures.

Another example in this respect is the continuous increase of minimal social security thresholds in recent years, resulting in an additional regulatory burden for businesses, which “cancels out” the positive effect of reduced social security contributions [66]. The Center for the Study of Democracy has identified the key issues in existing measures aimed at tackling the undeclared economy in Bulgaria as: a *lack of systematic evaluations and cost-benefit analyses of measures* ; *discord between economic and administrative control measures* ; *measures not contextualised* ; *lack of an integrated approach* , i.e. many measures, but no system [66].

## 5. Discussion and Conclusion

A shift in paradigm in understanding the grey economy and non-compliant behaviour in recent years has identified underlying social phenomena as an important driver for engaging in deviant behaviour. Thus far in this paper we have demonstrated that the social context, i.e. social and institutional trust, and tax morale, have a strong influence in citizen’s decision to participate in non-compliant activities. We have also shown that this context is characterised by a low level of institutional trust and a distinct role of informal networks as a means of achieving social status and prosperity. Therefore, a high degree of institutional incongruence or asymmetry is observed in Bulgarian society. Yet, the provided overview of the measures and policies to tackle undeclared work on Bulgaria makes it evident that despite the clearly identifiable context, the dominant approach is based on deterrence, therefore locking the phenomenon of institutional incongruence in a state of perpetuity.

The effectiveness of the deterrence approach, including punitive measures and financial incentives to declare all economic activities, has been challenged increasingly in recent years as insufficient in addressing the full scope of causes and contexts underlying the grey economy [72, 73]. Instead, an “indirect” approach is being promoted that rests on fostering a culture of voluntary commitment by focusing effort in two directions – seeking a change in social norms and values (i.e. informal institutions) AND raising trust in state institutions by increasing the level of their de facto and perceived legitimacy. This has been supported by a

<sup>5</sup> Such is the case with NRA Ordinance on excise goods, whereby, upon implementation the agency received a large number of signals and complains from businesses and the National Customs Agency, who had been charged with executing the measure onsite.

growing consensus, based on empirical studies, that perceptions of general compliance also formulate attitudes, formulating behaviour in the grey economy, such as tax moral [74]. Linkages have been evidenced between attitude and overall law obedience, general social trust, as well trust in official institutions [75: p.33]. In addition, the positive relationship between levels of institutional incongruence and rates of participation in undeclared activities has been confirmed to hold true for Bulgaria [63].

Stemming from institutional theory we accept that policies, together with their tools and instruments reflect the government's attitude toward the governed, thus having an effect on the trust-building relationship between state and citizenry [26]. This means that policies play a vital role in the trust-creation process between the state and its citizens. Based on this we recommend that policies, as well as their tools and instruments are designed with built-in consideration for fostering trust, commitment and voluntary compliance. Such incongruence diminishing measures may include increased reliance on collaborative approaches, externalising ex ante policy evaluations, extending power-sharing in the decision-making process to a wider circle of shareholders, among others. The efficient inclusion of incongruence-diminishing dimension to policy-making, however, must be preceded by an *institutionalised belief* in the attitude-forming and trust-building powers of policy measures, tools and mechanisms.

Furthermore, authorities in developed states are increasingly coming to terms that government agencies need to consider that policies aiming at behavioural change have to be reasonably congruent with a particular society's informal value system [24, 25]. Such views may vary according to policy area and over time. However attitudes can change significantly over time and can be influenced and fostered by government measures. This is especially true for complex policy areas that aim to tackle "wicked" problems where it has become increasingly clear that governments cannot simply deliver desired policy outcomes to a disenfranchised and passive public. In the case of wicked problems it is clear that achieving significant progress requires the active involvement and cooperation of citizens. This further underlines the crucial importance of institutional incongruence, not only as a factor increasing non-compliance, but, perhaps more importantly, as a potent hindrance to state-citizen cooperation and collaboration to tackle complex behavioural problems, such as undeclared work.

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# Tackling undeclared work in societies with substantial asymmetry between formal and informal institutions – the case of FYR Macedonia

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In spite of the recommendations by the European Commission to put more emphasis on measures fostering voluntary compliance, policymakers across the EU and beyond continue to perceive deterrence and prevention as the most effective strategies to combat unregistered economic activities. However, considerable amount of evidence gathered during the last several years has revealed limited effectiveness of coercion, particularly in countries with pronounced asymmetry between formal and informal institutions. This paper adds to the debate on appropriate policy responses towards unregistered practices by examining the case of FYR Macedonia, an EU-candidate country whose government has repeatedly declared its strong resolve to reduce the size of undeclared work. However, in spite of significant improvement in repression during the past few years and notable efforts to prevent the occurrence of unregistered work from the onset, the share of the undeclared economy in the country remains substantial at nearly 35% of official GDP. The paper discusses reasons behind such limited success of the existing policy strategies to tackle the phenomenon in FYR Macedonia in the light of the country's economic and socio-cultural peculiarities. As we demonstrate, the poor economic situation accompanied with weak enforcement apparatus, prevalent distrust in state institutions and low level of social cohesion have undermined the authorities' efforts to reduce the size of the undeclared economy. Given this, the paper calls for shift from coercion towards more refined strategies, i.e. those focused on the improvement of the psychological contract between the state and the taxpayers. Unless such an indirect approach is pursued, it is hard to expect further advancement in tackling unregistered work in this post-socialist country. Given the number of similarities with other transition economies, the arguments presented in the paper can easily be extended beyond the case of FYR Macedonia.

## Keywords

FYR Macedonia, public policy, tax morale, undeclared work

## 1. Introduction

The issue of economic activities which remain hidden from the authorities, and thus cannot be taxed, has been one of the central areas of interest in both political and academic spheres during the last few decades [1-9]. Yet, since the onset of the economic downturn, which caused profound public budget deficits, tackling this complex phenomenon has become the key political and economic priority all around the globe [10-18]. Following this, in the last few years more attention has been given to the evaluation of existing policy responses to address the issue, possible improvements of the applied strategies and exchange of expertise among countries [19]. An important step in this regard was done in 2008 by the European Foundation for the Improvement of Living and Working Conditions,

which launched an online database of the key policy practices applied in 33 countries across Europe [20]. This *knowledge bank* provides baseline information and evaluation (where available) for 186 strategies applied in Europe, thus enabling straightforward insight into a huge range of available policy measures for all interested stakeholders.

So far the authorities in Europe and elsewhere have primarily relied on coercion in their endeavours to reduce tax evasion and violations of the labour legislation [17-19]. However, some recent research on the issue has questioned such an approach as it can result in increased noncompliance [16, 21, 22]. For instance, Walsh [16] argues that coercion inevitably deteriorates the psychological contract between the states and its citizens, thus reducing taxpayers' willingness to comply. In addition, evidence shows that behaviour of audited firms and individuals can worsen for two reasons [21]. Firstly, the perceived probability of being targeted again in the near future is quite small, thus providing sufficient motivation for disobedience. Secondly, those who are penalised often opt to continue evading taxes in order to recover the loss. Another critique of coercive strategies can be found in their detrimental effect on social cohesion, which is commonly expressed through the informal neighbour exchange and unregistered community work. As Williams and Lansky [23] argue, eradication of such small-scale informal activities can suppress active citizenship, thus undermining the efforts of the other spheres of public policy which promote it.

Given the relatively modest success of coercive strategies to reduce the occurrence of unregistered economic activities in the EU, there is a call to put more emphasis on measures fostering voluntary compliance [17, 22, 24]. Indeed, the European Commission has repeatedly advocated for more cooperative approach towards taxpayers, in the first line through tax education, awareness raising campaigns and normative appeals, as well as through various incentives in the tax system and the social benefit system [14, 25].

This paper evaluates the efficacy of coercive policy approach in economies characterised by a substantial gap between the state and taxpayers. This is done by examining the case of FYR Macedonia, an EU-candidate country whose government has repeatedly declared its strong resolve to reduce the size of the undeclared economy given the country's bleak economic prospects and high unemployment rates [26-28]. Nevertheless, in spite of resolute efforts of the authorities to tackle the phenomenon, the share of the undeclared economy in the country remains substantial at nearly 35% of official GDP [29-31]. To evaluate the reasons behind such a limited success of the applied policies, the paper is organised as follows: after this introduction part, chapter two gives a systematic overview of available policy strategies to tackle undeclared economic activities, followed by an outline of the adopted practices in the EU. Summary of the findings on the nature and extent of undeclared work in FYR Macedonia is given in chapter three, while chapter four provides the review of policy responses to address the phenomenon in this South-East European country. In chapter five we critically evaluate adopted strategies in light of the country's economic and socio-cultural peculiarities. The last chapter gives conclusion and recommendations for more effective fight against undeclared work in FYR Macedonia, as well as in other economies characterised by wide social approval of noncompliant behaviour.

Nevertheless, before commencing the discussion it is important to define what the term *undeclared work* refers to. Throughout this paper, we use the activity-based definition by the European Commission [3] which describes undeclared work as "any paid activities that are lawful as regards their nature but not declared to the public authorities, taking into account differences in the regulatory system of Member States" [p. 4]. Thus, the only difference between undeclared work and its declared counterpart is that undeclared work remains deliberately unreported to the authorities in order to evade taxation and/or social security contributions, or to avoid having to meet certain employment standards [14, 32]. In the case of any further absences or insufficiencies, an activity would not be classified as undeclared [33]. This implies that criminal activities, unpaid community work and self-provisioning are not considered as undeclared activities.

## 2. Typology of policy strategies towards undeclared economic activities

Given the great variety of unregistered economic activities, there is no standard recipe for tackling this phenomenon. Instead, the authorities of each individual country tend to adjust policy responses in line with the extent and nature of such activities inside national borders [11]. As a result, there is a range of possible strategies, which vary according to their approach, targeted population and behavioural patterns of interest. Broadly speaking, one can roughly categorise these strategies into *direct controls* and *indirect controls* (see Figure 1). While direct controls act upon the cost-benefit ratio of undeclared work, the indirect ones are focused on reducing asymmetry between the state and its citizens [17]. In this chapter we briefly describe each of these two groups and give an overview of the adopted practices in Europe.

The foundations of the direct controls approach can be traced back to the early seventies and the seminal work of Allingham and Sandmo [34]. According to their theory, the taxpayer is a rational actor who opts to evade taxes if assessed benefits of evasion are larger than the expected costs of being caught and penalised. As such, taxpayers are depicted as “perfectly amoral, risk-neutral or risk-averse decision-makers who maximise utility” [35, p. 94]. Reflecting these standpoints, a range of direct control measures were developed to act upon either cost or benefit side of the equation [19]. Measures focused on the cost side, the so called *sticks*, usually assume various reforms to improve detection or simply an introduction of harsher penalties. Due to their aim to deter people from evasion, measures acting upon the cost side of the equation are commonly denoted as *deterrence measures* [35-37].

On the other hand, if the aim is to reward compliant behaviour rather than punish the non-compliant one, the authorities seek to increase benefits of declared work. Such measures, which are often depicted as *carrots*, can be further decomposed according to the target population. For instance, *preventative measures* seek to intercept non-compliance before it occurs by providing incentives to start activities inside the formal economy from the outset. The most common preventative strategies include facilitation of the transition from unemployment to self-employment, easing the process of starting a business, simplification of tax payment procedures and introduction of new categories of work [11, 12]. On the other hand, *curative measures* are focused on encouraging individuals and firms who are already working on undeclared basis to transfer their activities into the formal realm. This is usually done by launching advisory services for undeclared workers and firms who want to shift to the declared realm or by organising voluntary disclosure campaigns and providing amnesties for such individuals [11, 12].

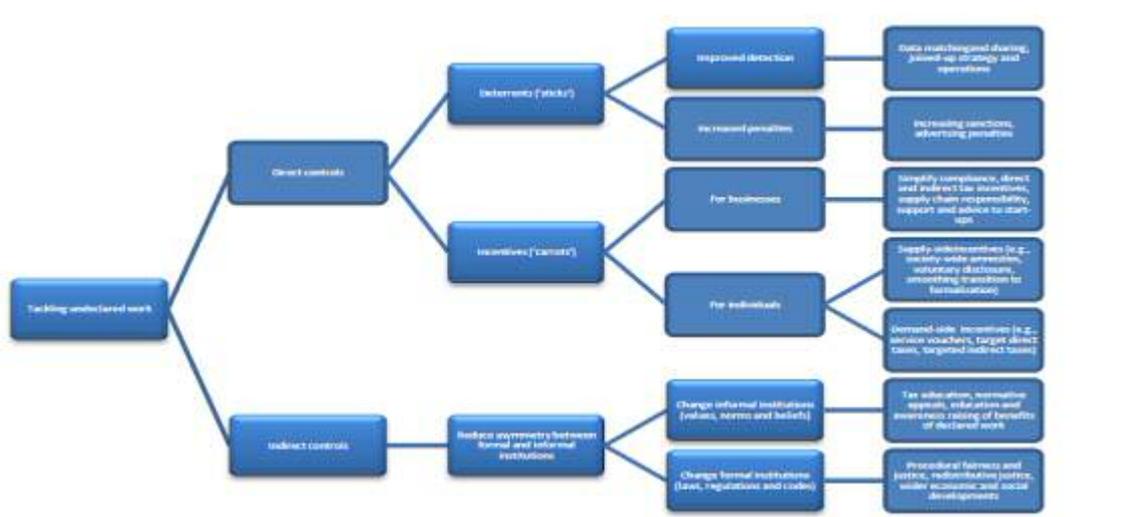


Figure 1 Policy measures for tackling undeclared work – a conceptual framework Source: [17]

Unlike direct measures which assume that individuals are rational agents, indirect controls approach perceive taxpayers primarily as social agents. According to this standpoint, tax evasion is a consequence of the non-alignment between the formal and informal institutions [38, 39]. More precisely, the larger disproportion between norms, beliefs and values of citizens (i.e. informal institutions) and the laws, codes and regulations inside the legal framework of the country (i.e. formal institutions), the greater tax evasion would be [17]. According to Levi [40], willingness to pay taxes is determined by invisible psychological contract existing between citizens and the authorities. Given this, he describes tax compliance as a quasi-voluntary process, which is based on perception of efficiency in distribution of public welfare and the overall fairness of the system. More precisely, non-transparent public spending, widespread corruption among state officers and disrespect towards citizens can weaken the psychological contract and amplify institutional incongruence (i.e. disparity between the formal and informal institutions) [15].

To put it in other words, the theory of the taxpayer as a social actor suggests that wider societal approval of activities which are deemed as illegitimate from the standpoint of formal rules inevitably implies larger undeclared economy. The key indicator of the institutional asymmetry is tax morale, a latent factor defined as “individual’s willingness to pay taxes, in other words, the moral obligation to pay taxes or the belief that paying taxes contributes to society” [22, p. 140]. In that light, indirect controls seek to reduce the institutional incongruence. By doing so, the goal is to improve the psychological contract, increase tax morale of citizens and consequentially foster voluntary compliance.

There are two not mutually exclusive approaches available to accomplish this aim. On one hand, governments can use normative appeals, awareness raising campaigns and/or tax education to act upon norms, values and beliefs of citizen [41, 42]. The idea behind such strategies is to illuminate benefits of declared work and drawbacks of the unregistered employment, as well as to clarify the role of taxes in society.

On the other hand, indirect controls can be focused on reforms of the formal institutions [17]. This in the first line assumes improvement in procedural justice (by changing the way the authorities treat taxpayers – i.e. from coercion to more cooperative approach), procedural fairness (by securing fair distribution of tax burden among taxpayers) and redistributive justice (by establishing a clear link between what citizens receive from the public budget given their tax liabilities) [43-46].

The analysis of adopted policy strategies to tackle undeclared work across Europe by Williams and Nadin [47] reveals that deterrence is the most popular option among policymakers. Namely, all scrutinised countries<sup>6</sup> have recently conducted reforms to improve detection, while 93% introduced harsher penalties. Although 90% of countries launched at least one preventative strategy, those were mainly focused on simplifying compliance. On the other hand, only 64% of countries introduced at least one curative measure, while 69% of countries introduced some measures fostering commitment.

Some explanation for such a wide reliance on deterrence can be found in a survey encompassing representatives of departments responsible for the fight against undeclared work across Europe [48]. According to the survey results, deterrence is generally perceived as far the most effective strategy amongst the policymakers (Table 1). While 55% of respondents think that repression yields the best results, only 12% see such measures as the least effective.

**Table 1** Stakeholders opinion on effectiveness of different types of measures (% of respondents)

<sup>6</sup> EU27 plus Norway, Switzerland, Iceland and Liechtenstein.

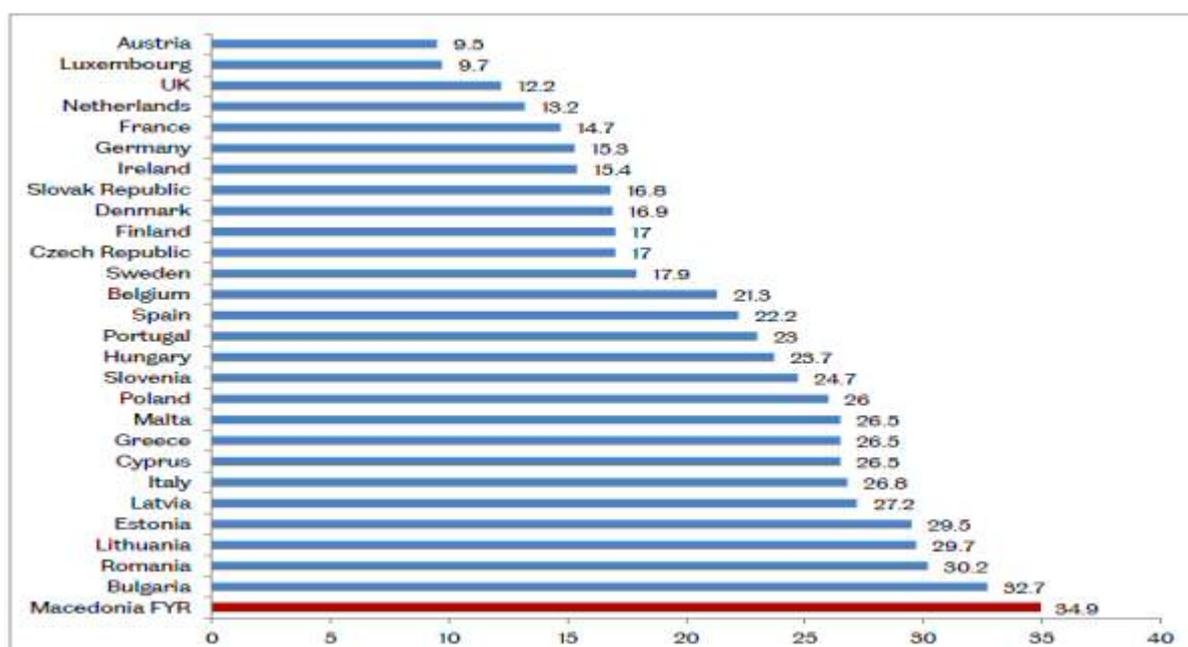
	Most effective	2nd most effective	Least effective
Repressive measures	55	13	12
Preventative measures	20	41	13
Curative measures	15	27	31
Measures fostering commitment	10	19	44

Source: [48]

All other strategies are much less preferred, and this particularly applies to the measures fostering commitment. Namely, 44% of respondents see commitment measures as the least effective and only 10% as the most effective. This confirms that the appeal of the European Commission to switch attention from direct controls to more refined approach, which would put more emphasis on indirect strategies, is far from being accepted. Moreover, such perception among policymakers is quite surprising given the earlier discussed findings on the limited effect of direct controls, particularly in countries with pronounced asymmetry between the formal and informal institutions. One such example is FYR Macedonia, an EU-candidate country with one of the highest rates of undeclared work in Europe. In spite of strengthened deterrence, accompanied with significant improvements of the business environment during the past few years, no significant reduction of the undeclared economy in this post-socialist country is noticeable. Therefore, the rest of the paper will critically evaluate the effectiveness of direct controls applied in FYR Macedonia in the light of the country's economic and socio-cultural peculiarities.

### 3. Undeclared work in FYR Macedonia – extend and nature

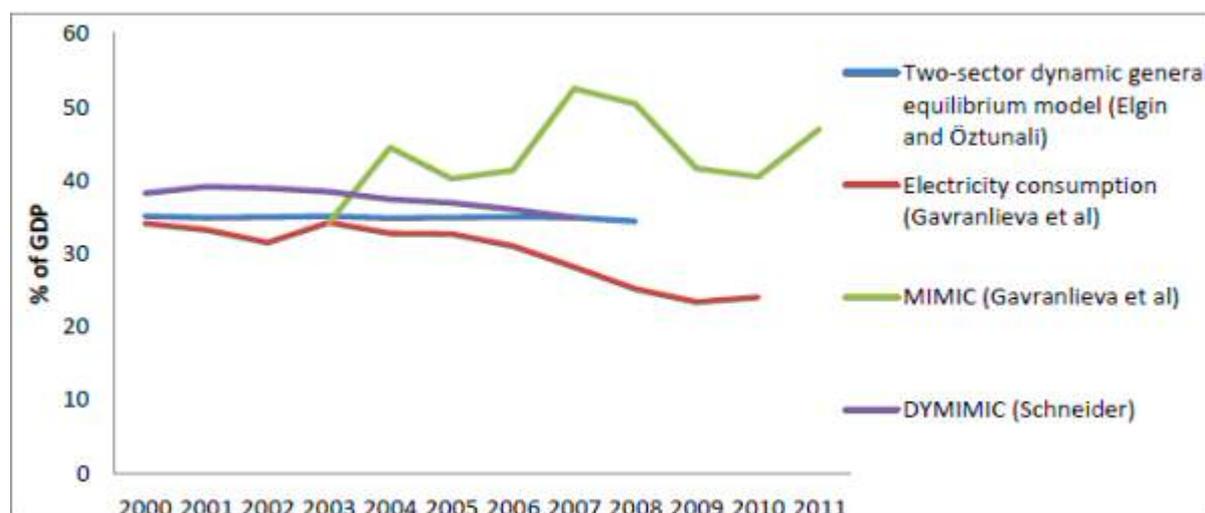
According to some estimates, hidden economic practices are far more prevalent in FYR Macedonia than in any EU-member state or candidate country [29-31]. According to the most widely used data by Schneider et al. [31] the unregistered economy in FYR Macedonia accounted for 34.9% of GDP in 2007, while the EU average was some 19% (Figure 2).



**Figure 2** The share of undeclared economic activities in European countries as % of GDP, in 2007  
Source: [31]

In spite of different methodology applied and slight variations in estimated size of the undeclared economy, other available sources confirm the pervasiveness of hidden work in Macedonian society. For instance, according to two-sector dynamic general equilibrium

estimates by Elgin and Öztunali [29], such activities accounted for around one third of the official economy during 2000-2008 period (Figure 3). In addition, the authors found no significant variations during the observed period. Having in mind substantial economic growth in FYR Macedonia in early 2000s at average rate of some 5% [49], these findings essentially suggest an increase of the real size of the undeclared economy. On the other hand, Gavranlieva et al. [30] found using the MIMIC method that there was even an increase in the relative size of unregistered economic activities during pre-recession period. According to them, such activities accounted for more than a half of the official economy in 2007. The authors also estimated the dynamic after the onset of the crisis, applying both the MIMIC and electricity consumption methods, and found only a modest decrease in the share of unregistered activities (see Figure 3).



**Figure 3** Undeclared economy in FYR Macedonia as % of GDP, an overview of available estimates, 2000-2011

Sources: [29-31]

Further insight in the dynamics of the undeclared economy after the onset of the crisis can be provided by the *Labour Force Survey* [50, 51]. This survey, conducted by the State Statistical Office of the FYR Macedonia, reveals that some 22.5% of the total workforce in 2013 was employed on undeclared basis. In general, there was a drop in the overall number of undeclared workers, which shrunk from 170 thousand in 2009 to some 153 thousand in 2013 [51]. However, the minimum was achieved in 2012 when 146.3 thousand workers were estimated as having undeclared job. Such a severe increase in the last analysed year can be best explained by examining growth rates of official GDP. Namely, relatively stable economic growth rates of some 3% from 2010 onwards were interrupted only in 2012 when real GDP shrunk for 0.4% [49]. Therefore, one can argue that the dynamics of the undeclared economy is determined by the dynamics of its formal counterpart, rather than by strong resolve of the Government to reduce the size of the undeclared work, which will later be discussed in more detail.

Turning to the nature of undeclared activities in FYR Macedonia, we analyse findings of the *World Bank Enterprise Survey 2013*. The survey reveals that firms in manufacturing are more likely to compete against unregistered companies than those in retail and service sectors [52]. However, the issue of unfair competition seems more pronounced in retail as firms in that sector identify existence of unregistered companies as the key constraint for their business. Generally, medium-size companies in FYR Macedonia, and especially domestic owned ones, are most likely to face unfair competition from firms working off-the-books [52].

When it comes to the labour supply side, unregistered work is most commonly found in agriculture. For instance, Novkovska [53, 54] concluded using data from the Labour Force

Survey that more than 4 out of 5 people in this sector are working without a contract. Moreover, the author found significant gender discrepancies in this regard, as more than 90% of women working in agriculture are unregistered, while this share for men is approximately 80%. Unregistered agricultural jobs mainly assume different types of non-standard work, such as seasonal or occasional work.

Besides agriculture, undeclared economic activities are also inherent for other labour-intensive jobs. For instance, research shows that low-income workers in the textile industry, construction, trade, transport and household services are most frequently found to be employed without a contract [26, 28, 55]. However, some studies suggest that self-employed and sole traders in FYR Macedonia are even more likely to hold undeclared positions than wage earners [56].

Turning to the demand for undeclared goods and services, which is often the fundamental driver of the undeclared economy, we can analyse findings from the survey of the *handicraft shadow economy* [57]. This survey, conducted in 2009 on 85 households of the 11 cities, discloses how easily accessible undeclared goods and services in Macedonian society are. For instance, more than 9 out of 10 citizens stated they find it easy or very easy to access and buy goods and services on an undeclared basis [57]. In general, Macedonian households spend almost one fourth of their income at the undeclared handicraft market, a significant part of which goes to agricultural products (accounting for 10.6% of all income). More precisely, some 47% of all the money spent on acquiring products without receipt goes to the green markets, followed by car repairs (14.5%) and cosmetic services which account for some 10.4% [57].

#### **4. Policy strategies to tackle undeclared work in FYR Macedonia**

Reviewing policy measures to combat the undeclared economy in FYR Macedonia, one can notice that the focus lies predominantly on repressive and preventative strategies [58]. Alike other European states, the authorities in FYR Macedonia therefore rely on coercion rather than on cooperation in their efforts to increase tax income. This chapter gives an overview of the most important reforms implemented in this South-East European country during the last several years. This will provide a solid basis for the next chapter in which we discuss reasons why such an approach failed to significantly reduce the share of undeclared work.

The most important improvement in the field of repression was accomplished during 2012 and 2013, following the introduction of the system for electronic data exchange. The main aim of this reform was to facilitate cooperation and mutual support of various governmental departments. Yet, repression was additionally enhanced by establishing several administrative bodies responsible for enforcement of tax and labour law legislation. The most important among them is the Misdemeanour Body, a specialised department established in 2010 within the Ministry of Labour and Social Policy, which monitors and processes any detected irregularities in labour relations [59]. Other notable departments include Centre for debt collection, Tax Academy for training and Centre for seized goods, which were all established within the Public Revenue Office.

Willingness of employers to hire workers on an undeclared basis was further reduced in 2011, by obliging them to officially employ any unregistered workers detected by labour inspection, in addition to payment of three gross wages to the worker [60]. In addition, the Government also decided to put particular emphasis on activities of the unemployed, as they are most prone to work undeclared [30]. In this regard, the authorities proscribed compulsory verification of job search activity for the unemployed in 2012 [61].

When it comes to prevention, some significant reforms have been conducted from 2007 onwards. For instance, in order to increase the standard of living, stimulate consumption and decrease the share of the unregistered economy, the Law on Minimal wage was adopted in 2012 [60]. Furthermore, the national collective agreements became obligatory for all

employers in both private and public sectors after amendments to the Law on Labour Relations in 2008 [62]. There are three levels of collective bargaining: national (between confederations of unions and employers' associations for private sector and confederations of unions and minister of labour for public sector), branch (between representative unions and employers' organizations) and company level (between the representative union organization in the company and the employer). Further amendments to the Law on Labour Relations were adopted in February 2013 [63], which resulted in easing the requirements for severance pay, introduction of the trial work in seasonal jobs and reduction of time for a firing notice.

However, the main reforms to prevent occurrence of undeclared economic activities were focused on tax system and procedures for starting a business. In 2007 both personal income and corporate income tax rates were decreased and equalised, thus resulting in the *flat tax system* [64]. More precisely, the progressive personal income tax system with marginal tax rates of 15%, 18% and 24% was replaced with a single tax rate of 12%, while corporate income tax rate was decreased from 15% to 12%. This unique rate was additionally reduced to 10% in 2008. This was accompanied with a gradual reduction of the social contribution rates since 2009. Namely, the pension insurance rate was at first reduced from 21.2% to 19% of the gross wage in 2009 and then to 18% in 2010 [64]. Additional reduction in tax burden was done in 2011 when the obligation to pay corporate income tax was proscribed only for distributed profits [58].

To ease the process of starting a business, the Government in 2009 introduced a *one-stop-shop system* for the registration of companies [27]. The main idea was to reduce administrative requirements, as well as time and financial costs associated with registering a company. The system was additionally improved in the following years by establishment of the online scheme for registration and the electronic system for registration of collateral and leasing [65].

These are just some of the most important changes which resulted in relatively high position of FYR Macedonia in the World Bank *Doing Business Survey* for 2015 [66]. Ranked 30<sup>th</sup> out of 189 countries across the World, FYR Macedonia provides much more supportive business environment than any other surrounding state<sup>7</sup>. In addition, Estonia, Latvia and Lithuania are the only EU-member states in transition ranked higher on the list. Such a high overall ranking of FYR Macedonia indeed results from remarkable achievements in the fields of starting a business and paying taxes. Namely, FYR Macedonia ranks 7<sup>th</sup> when it comes to paying taxes, while New Zealand and Canada are the only two countries that made it easier to start a business [67].

Following this, one could debate about why all of these changes failed to significantly reduce the prevalence of undeclared economic activities. In spite of increased repression on the one hand and significant reduction of tax burden accompanied with praiseworthy improvements in business environment on the other, the undeclared economy in FYR Macedonia still accounts for almost one third of official GDP. As the next chapter will show, the answer lies in almost complete absence of measures to reduce the disparity between formal and informal institutions. Due to extremely weak psychological contract between the state and its citizens, wide social approval of tax evasion has undermined effects of the introduced measures.

Indeed, indirect control measures are particularly scarce in FYR Macedonia. Apart from two awareness raising campaigns conducted in 2012, there were no other significant attempts to educate population about the importance of taxation. Nonetheless, even these two campaigns, which were supported by the International Labour Organisation, were focused only on specific target groups. While the first one targeted undeclared workers in agriculture and construction [68], the second one aimed to educate students about pitfalls of undeclared work and their rights on the labour market [69].

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<sup>7</sup> In comparison, Montenegro is ranked 36<sup>th</sup>, Bulgaria 38<sup>th</sup>, Romania 48<sup>th</sup>, Slovenia 51<sup>st</sup>, Greece 61<sup>st</sup>, Croatia 65<sup>th</sup>, Albania 68<sup>th</sup>, Kosovo 75<sup>th</sup>, Serbia 91<sup>st</sup>, and Bosnia and Herzegovina 107<sup>th</sup> [67].

## 5. Barriers to formalisation – asymmetry between formal and informal institutions

An important feature of the studies such as the above discussed World Bank Doing Business Survey is their analytical approach towards evaluating business environment. Namely, assessments are based on a predefined set of measureable indicators and thus some important aspects often remain left out. For instance, the Doing Business Survey assesses achievement in only 11 technical criteria, thus failing to take into consideration all the obstacles that firms encounter on a daily basis. For more comprehensive picture of the economic environment in FYR Macedonia, it is thus crucial to get some insight into perception of the legislative framework and the overall business climate in this EU-candidate country from the perspective of firm managers and owners.

Examining the results from several surveys on this issue, one can find numerous barriers to formalisation. For instance, the survey by the Institute for Democracy, Solidarity and Civil Society, conducted in 2008 on 100 companies [70], reveal somehow different picture than the Doing Business Survey. For instance, representatives of the surveyed firms pointed at frequent changes in tax legislation as the central impediment in running their business. Having a harmful effect on long-term investments and business planning in general, uncertainty caused by unstable legislation is recognized as the key obstacle by almost 50% of owners and managers. The issue is particularly pointed out by the representatives of large firms, with 75% of them emphasising the necessity for a more stable regulatory framework. In addition to this, the surveyed individuals also underlined the weak performance of the Public Revenue Office as another important obstacle in day-to-day business operations. Firms frequently encounter various complications in the tax payment procedures, which are in their opinion the consequence of an insufficient number of personnel in the Office, as well as of the inadequate skills of the existing tax officers. In order to avoid hassle with the administration, a certain proportion of companies inevitably choose unregistered work as a more convenient option.

Another important issue in FYR Macedonia is the weak rule of law, which is reflected through both the poor performance of inspections and under-developed judicial system [70]. It is widely perceived that a strong political influence over the inspection services provides a shelter for some privileged companies, thus enabling them engagement in various informal operations. Moreover, many of those who are detected and prosecuted manage to avoid fines due to prevalent corruption inside the judicial system [30]. Such a weak rule of law undermines previously discussed efforts of the authorities to increase deterrence, as there is a low risk perception of being penalised when carrying out unregistered work.

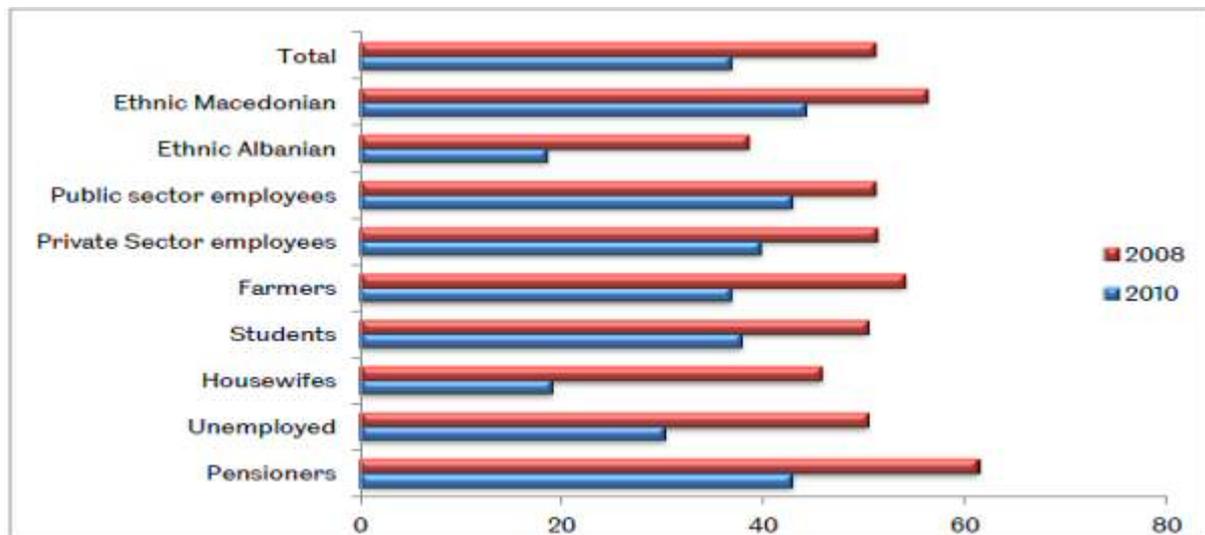
Yet, corruption is not confined solely to the judicial system, but it is rather inherent for all aspects of the Macedonian society. For instance, a representative survey on corruption in FYR Macedonia, which encompassed 3,500 respondents interviewed during 2010, reveals that approximately one in ten citizens had participated in at least one corruptive action involving public officials during 12 months preceding the survey [71]. The most common reason for bribery was for speeding up a procedure, which is highlighted by 50% of those who admitted corruptive practices. Other frequent reasons include finalising a procedure (12%) and attaining a better treatment (11%). In general, one quarter of the respondents in the survey think there is a widespread corruption among public officers, while more than one third thinks that the situation will even worsen in the future [71].

In its *Progress Report* for 2013, the European Commission [72] pointed at weak formal institutions as one of the fundamental factors behind the pervasive undeclared economy in FYR Macedonia. As stressed by the report, the central problem in FYR Macedonia lies in (non)enforcement of the existing legislation rather than in the lack of regulative framework [72]. Therefore, all future attempts to combat undeclared work should include substantial reforms of formal institutions. This is to be done in the first line by improving judicial system,

combating corruption, ensuring independence of inspectors and empowering the Public Revenue Office. On the other hand, numerous changes in tax and labour legislation during the last few years seem to have had a counter-effect due to increased uncertainty.

Finally, one should also scrutinise the issue of undeclared work in FYR Macedonia through the lens of the pervasive unemployment, which accounted for 29% in 2014 [73]. Particularly problematic are high rates of long-term unemployed and youth unemployment, which undoubtedly indicate “deep-rooted structural impediments in the labour market ” [72, p 18]. Since more than 4 out of 5 unemployed in FYR Macedonia are without a formal employment for more than a year [74], they often find undeclared work as the only income opportunity. The problem is especially pronounced among young population, given that almost one half of the work-capable people aged between 15 and 29 struggle to find an official job [75]. Some estimates suggest that approximately 70,000 of the unemployed in FYR Macedonia are engaged in some kind of unregistered work [30].

Having enumerated these economic and regulatory deficiencies, one should not be surprised with the low public support towards national institutions. For instance, according to the study by the Macedonian Center for International Cooperation [76], slightly more than one third of citizens trusted their Government in 2010 (Figure 4). What is more, this presents a severe decrease in comparison with the pre-crisis period, as some 50% of population expressed their support for the Government in 2008.



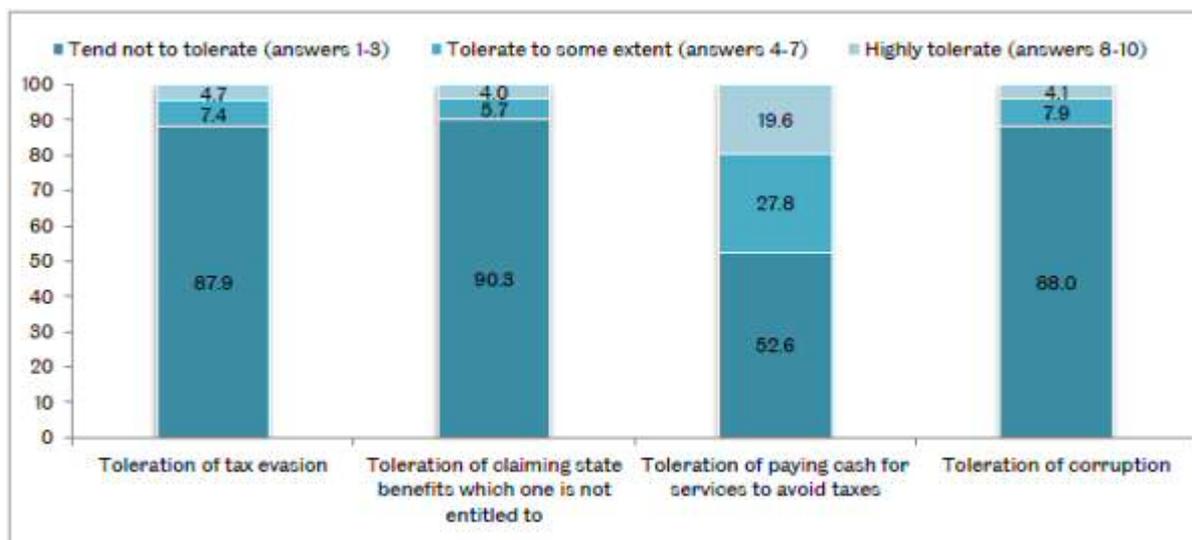
**Figure 4** Trust in the Government, 2008 and 2010, in %Source: [76]

However, the most notable feature concerning trust in institutions is the substantial difference between ethnicities. For instance, only 18.5% of ethnic Albanians, who comprise one quarter of the Macedonian population [77], expressed their support to the Government in 2010. On the other hand, this share was 2.5 times larger for ethnic Macedonians, accounting for some 44% [76].

All these factors inevitably affected the citizens’ willingness to pay taxes. Indeed, findings from the *European Values Study* [78], which provides insight into attitudes of Macedonian citizens towards different types of noncompliant behaviour, confirm that a significant part of the population tend to tolerate various unregistered activities. For the purpose of this paper, we are interested in attitudes towards the next four practices, which are seen as illegitimate from the standpoints of the formal institutions: cheating on taxes, falsely claiming state benefits, purchase of undeclared goods and services and corruption. Possible answers range from 1 to 10, where 1 indicates zero-tolerance towards a certain activity and 10 means that it is absolutely acceptable. Findings from the latest wave of the European Values Study,

conducted in 2008 on 1,500 Macedonian citizens, are summarised in Figure 5.

**Figure 5** Attitudes of Macedonians towards four types of noncompliant behaviours, % of respondents Source: Authors' calculations based on [78]



As can be noticed from the figure, there is a wide social approval of cash transactions without a receipt. Almost every fifth citizen finds informal payments for services highly or completely acceptable, while further 27.8% tolerate such behaviour to some extent. On the other hand, only 52.6% of population would rarely or never approve cash-in-hand activities from the demand side. Although being much less permissive when it comes to corruption, direct tax evasion and cheating on state benefits, there is still a substantial proportion of Macedonians who approve those illegitimate activities. With some 10-12% of population finding such practices moderately or completely acceptable, one can conclude there is a significant asymmetry between formal and informal institutions in FYR Macedonia.

In their analysis of determinants of tax morale in FYR Macedonia, Ristovska et al. [79] found a strong link between (dis)trust in institutions and citizens' willingness to pay taxes. More precisely, using above described data from the *European Values Study* in probit modelling, the authors concluded that tax morale in FYR Macedonia is predominantly determined by trust in the Government, trust in judicial system trust and trust in civil service. In addition, the findings indicate that attitudes towards taxation also reflect satisfaction with life and the level of national pride. Finally, and confirming previous discussion about ethnical variations, the authors found significant difference between ethnicities in this regard. Namely, ethnic Macedonians, which comprise around 64% of the population [77], are 60% more likely to demonstrate the highest tax morale than any other ethnicity. This certainly indicates a deep division inside the multi-ethnic Macedonian society, as non-ethnic Macedonians find it hard to identify themselves with the rest of the society and thus express weaker inclination to contribute to the public budget.

The findings presented in this chapter undoubtedly illustrate existence of the substantial gap between the state and taxpayers. Since the authorities have failed to establish a clear link between paid taxes and public goods and services received in return, many practices which are deemed as illegitimate from the perspective of the formal institutions are wide approved amongst taxpayers. Indeed, the survey by Stankovic and Stankovic [28] reveal that one in four citizens does not see any problem in buying unregistered goods and services nor feel obliged to report tax evaders in his/her surroundings. It is likely that this trend will continue in the future if nothing is done to reduce the misalignment between the formal and informal institutions.

## 6. Conclusion

By focusing on the case of FYR Macedonia, this paper has demonstrated the limitations of direct control approach in tackling undeclared work in societies characterised by low tax morale. The findings on the extent and nature of the undeclared economy in this EU-candidate country reveal no significant decrease in its size during the last decade, thus questioning the effectiveness of the adopted policy responses. In spite of significant improvement in repression during the past few years and notable efforts to prevent the occurrence of unregistered work from the onset, it remains substantial at nearly 35% of official GDP.

As we argued in this critical assessment, failure of the applied direct controls can be found in the country's economic and socio-cultural peculiarities. Namely, due to weak rule of law, pervasive corruption among state officials, low efficiency of the public administration and the lack of regular employment, there is a wide social approval of undeclared work in this post-socialist country. Having in mind that almost one half of the population support cash economy, while more than 10% of citizens see corruption, direct tax evasion and cheating on state benefits as highly or completely acceptable, it is hard to expect significant reduction of undeclared work unless the issue of low tax morale is addressed.

Due to complex intertwining of trust in institutions, tax morale and tax evasion in FYR Macedonia, we argue that no successful fight against the undeclared economy in this South-East European country can be accomplished if nothing is done to improve the weak psychological contract between the state and its citizens. To achieve this, the authorities should not only strive to alter norms, values and beliefs of citizens, but should also attempt to extensively reform the formal institutions. To change attitudes of citizens towards taxation, it is important to rely on tax education, normative appeals and awareness raising campaigns which would foster voluntary compliance. When it comes to reforms of the formal institutions, particular emphasis should be placed on tax fairness and improvement of procedural and redistributive justice, alongside wider economic development.

Given the number of similarities with other transition economies, arguments presented in the article can be easily extended beyond the case of FYR Macedonia. If this paper hence encourages policymakers in FYR Macedonia and beyond to put more emphasis on indirect approach towards tackling the undeclared economy, then it will have accomplished its main objective. If it also intensifies discussion about the link between the institutional incongruence and undeclared work, then it will have achieved its broader academic objectives.

## Acknowledgements

This paper is an output of the European Commission's Framework 7 Industry-Academia Partnerships Programme (IAPP) grant no. 611259 entitled "Out of the shadows: developing capacities and capabilities for tackling undeclared work in Bulgaria, Croatia and FYR Macedonia" (GREY). The authors would like to thank the funders for providing the financial support to enable this to be written. The usual disclaimers apply.

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# **Entrepreneurship, policy and society**

## **Developing and Governing Entrepreneurial Ecosystems**

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Scholars and policymakers are increasingly employing the concept of entrepreneurial ecosystems to better understand the continued regional concentration of high growth ventures. Ecosystems represent the economic, social, and policy environment surrounding the entrepreneurship process. Public and privately run entrepreneurship support programs form a critical part of entrepreneurial ecosystems by providing training and resources to entrepreneurs and new ventures they could not otherwise access. However, the role of support programs within ecosystems is poorly understood with little conceptual or empirical discussions about how support programs contribute to the development of successful entrepreneurial ecosystems. To address this gap this paper employs the concept of institutional thickness to identify the optimum structure of support programs within a region. Institutional thickness refers to elements of a region's political and economic structure that territorialize regional competitive advantage. The role of institutional thickness is explored through an investigation of entrepreneurship support programs aimed at technology entrepreneurs in Edinburgh, UK. 43 such programs are identified and a preliminary analysis was conducted regarding the services and resources they offer, the stage of the entrepreneurship at which they are aimed, and their relationship with other programs to deliver their support. While these programs display many aspects of institutional thickness there is a tension between the national focus of many programs funded by Scottish government sources and the need for a regionally specific focus to take advantage of regional path dependent capabilities.

### **1. Introduction**

The concept of entrepreneurial ecosystems has enjoyed a recent growth in popularity within academic and policy circles. However, the idea that some regional social and economic environments are conducive to growth-oriented entrepreneurship is not new. There is a long legacy of work from disciplines such as geography (Malecki, 1997; Ritsilä 1999) sociology (Sorenson and Audia, 2000), and business research (Dubini, 1989; Bahrami and Evans, 1995) that emphasizes the relationships between entrepreneurs and their local economic and social contexts. The recent popularity of the topic has been driven by popular business and management books like Feld's (2012) *Startup Communities* as well as the emergence of metropolitan policy as a major driver in economic growth. But while entrepreneurial ecosystems have strong connections to existing frameworks such as cluster theory and innovation systems, there has been limited work that examines the development of ecosystems and how they provide benefits to entrepreneurs.

The purpose of this paper is to critically investigate what we know about entrepreneurial ecosystems and the role of entrepreneurial support programs in their creation and operation. Ecosystems represent the regional economic, social, and cultural environment within a region that provides support and resources for growth-oriented entrepreneurs. These benefits come from a supportive local culture, networks of investors and advisors, and

organizations that provide training and resources to entrepreneurs. These benefits do not develop in a vacuum; they are the result of a continuous process of development driven by the needs of multiple stakeholders. While the platonic ideal of entrepreneurial ecosystems, based on success stories like Silicon Valley or Boulder, Colorado, involves an entrepreneur-led transformation, more detailed histories of these regions demonstrate that the state, philanthropic organizations, and universities play a major role in their development (Saxenian, 1994; Lécuyer, 2006).

This paper synthesizes the main conceptual foundations to contemporary ecosystem theory, in particular work on clusters and path dependency. Building on these concepts, the paper argues that institutional thickness (Amin and Thrift 1994; 1995) is a useful model to understand the structure of ecosystems. This framework is used to explore the governance structure of Entrepreneurship Support Organizations (ESOs) in Edinburgh, Scotland. While Edinburgh can be considered to have a very effective entrepreneurial ecosystem, it is home to the United Kingdom's only billion-dollar technology startups outside of London (Skyscanner and FanDuel), its ecosystem is dominated by publicly funded actors. This raises questions about the overall effectiveness of these programs to provided target support and resources to new technological ventures in Edinburgh.

## 2. Literature review

Entrepreneurial ecosystems are the economic and social environment surrounding the entrepreneurship process: the “complexity and diversity of actors, roles, and environmental factors that interact to determine the entrepreneurial performance of a region or locality” (Spilling, 1996 p. 91). This environment is composed of the local market and labour force, the availability of investors and mentors, supportive public programs such as incubators or knowledge transfer centres, and a localized culture that supports the risk taking associated with high-growth entrepreneurship (Isenberg, 2010). Such environments help growth-oriented entrepreneurs in two ways. First, a supportive culture within the ecosystem normalizes entrepreneurial activities, increasing both the supply of potential entrepreneurs willing to take on the risks of starting a new venture and the number of people willing to accept the increased uncertainty of working at or investing in new ventures (Minguzzi and Passaro, 2000). Second, entrepreneurs draw resources such as knowledge spillovers, investment capital, and expert mentorship from their ecosystem (Nijkamp 2003; Audretsch et al., 2011).

One of the largest streams of ecosystems on entrepreneurial ecosystems has been identifying their most important attributes. This includes factors such as a supportive entrepreneurial culture and history of successful entrepreneurs (Spigel, Forthcoming), the presence of dense social networks of entrepreneurs, investors, and advisors (Baharmi and Evans, 1995; Zacharakis et al., 2003; Feldman, 2014), research intensive universities that produce both new technological innovations and new entrepreneurs (Harrison and Leitch, 2010), and the presence of open markets with low regulatory barriers (World Economic Forum, 2013). These attributes increase the supply of entrepreneurs by encouraging risk-taking and innovative activities and improve the survival and growth prospects of new ventures through the resources and support they provide. In many ways an entrepreneurial ecosystem represents this virtuous cycle in which successful entrepreneurship creates the conditions and cultures that spur on further entrepreneurial development.

Current thinking about ecosystems can be critiqued on three levels. First, it lacks a strong theoretical foundation. Contemporary views of ecosystems are largely based on histories of successful entrepreneurial regions rather than rigorous research. While there have been multiple efforts to identify entrepreneurial ecosystems through large scale statistical analysis of levels of innovation and firm formation, we know less about how ecosystems actually deliver benefits to entrepreneurs (Acs et al., 2014). As a result it is difficult to understand the different ways ecosystems evolve over time and develop different institutional and social structures. A second concern is that much of the existing research on entrepreneurial

ecosystems has focused on identifying elements of entrepreneurial ecosystems with little regard for the importance the individual elements play in the overall functionality of the ecosystem (Motoyama and Watkins, 2014). Finally, there has been little discussion about the governance structure of entrepreneurial ecosystems. Many profiles of entrepreneurial ecosystems tend to be hagiographies focusing on the leadership of individual entrepreneurs in building an ecosystem when the reality of the situation involves the active participation of many other actors from the public and educational sectors.

The conceptual antecedents of entrepreneurial ecosystems provide important insights that can be used to address these critiques. Current thinking on entrepreneurial ecosystems draws on two key literatures: entrepreneurial environments and industrial clusters. While these areas differ in their particularities, they share the belief that there are attributes external to the entrepreneur or the firm but within a region that increase firms' competitive advantages against those outside the region.

### **2.1. Entrepreneurial environments and contexts**

Researchers have long recognized the heterogeneous geography of entrepreneurial activity (e.g. Acs and Audretsch 1987; Keble and Walker 1994). Some regions have enjoyed consistently high rates of entrepreneurial activity over the past fifty years while other regions lag behind. The economic and social environment surrounding the entrepreneurship process is a key factor in explaining this unevenness. Malecki, (1997), building on earlier work by management researchers such as Dubani (1989), Peer (1994) and Spilling (1996) popularized the concept of entrepreneurial environments to explore the continued concentration of highly innovative entrepreneurship in particular regions. These environments, built on a foundation of a strong entrepreneurial culture and the presence of universities and other knowledge creating organizations, "becomes self-reinforcing and sustaining," preserving the attractiveness of a place for entrepreneurs (Malecki, 1997 p. 68). This is in line with Moore's (1993) pioneering work on business ecosystems that stresses the dynamic and self-reproducing nature of these systems.

Such views have been incorporated into newer perspectives of the entrepreneurship process that emphasizes the social embeddedness of entrepreneurs in local and global networks they draw on knowledge, resources, and emotional support. This is a break with an older tradition that focuses on the individual attributes and psychological profiles associated with entrepreneurial activity ( Steyaert and Katz 2004 ). Entrepreneurs draw the resources they require to start and grow the firm through these networks, with the densest and strongest connections often found within their local environment (Thorton and Flynn 2003; Schutjens and Volker 2010 ). The quality of the social capital and networks of a community will therefore have a significant impact on the ability of entrepreneurs to gather the information, resources, and support they require. While individual attributes such as educational background and prior experience with entrepreneurship still play an important role, the economic and cultural environment surrounding entrepreneurs will have a profound impact on the entrepreneurial journey (Julien, 2007).

Culture plays a crucial role in both the willingness of nascent entrepreneurs to take on the risk of starting a firm but also the willingness of other actors like investors, employees, and mentors to work with the entrepreneur. As shown by Saxenian (1994) and Aoyama (2009), regions with similar resource bases can have vastly different cultural orientations towards entrepreneurship, with some supporting the risk taking necessary for entrepreneurial development and others deprioritizing these activities. These cultures develop over time in response to a region's economic history and are resistant to short term policy interventions (Wyrwich, 2012). A supportive culture encourages both potential entrepreneurs to engage in risk taking activities as well as others to support the new venture by acting as advisors, investors, or employees. This helps overcome the traditional vulnerabilities of entrepreneurial ventures and increases their overall competitiveness (Ritsilä, 1999). In particular, a supportive entrepreneurial culture involves the normalization of activities such as intensive

networking, cooperation, labour mobility, and spinoff creation (Henry and Pinch, 2001). Such activities encourage the knowledge spillovers that enable entrepreneurial developments. Work on entrepreneurial environments has two implications for our understanding of entrepreneurial ecosystems. First, the quality of the resources within the entrepreneurs local environment has a strong influence on their performance. Regions with strong, growing economies will have a host of opportunities, knowledge spillovers, and a deep labour pool of skilled workers that entrepreneurs draw on (Audrestch et al., 2011). Second, local cultural outlooks will have a major impact on not only the types of resources available within a community but also the ability for entrepreneurs to successfully access them. In this sense culture becomes a “powerful determinant of regional or national variation in the ‘supply’ of entrepreneurship” (Klyver and Foley, 2012 p. 2). Cultural attitudes towards entrepreneurship affect the propensity of those who hold these resources to associate with entrepreneurship (Spigel, 2013). Local cultures outlooks that create a high social status for entrepreneurship encourage other people to aid the process, for instance by investing in a high-risk, innovative startup or taking the time to mentor a new entrepreneur (Feldman, 2001). At the same time, local cultures can also work against entrepreneurial activity by stigmatizing the risks associated with innovative entrepreneurship (Staber, 2007).

## **2.2. Industrial clusters**

Research on industrial clusters has heavily influenced thinking about entrepreneurial ecosystems. Unlike the entrepreneurial environment literature that highlights the overall importance of the contextual environment, cluster theory focuses on the specific ways firms gain an advantage by being located near other complimentary firms (Porter, 2000). Early proponents of cluster theories such as Marshall (1920) argued that their advantages are driven by the co-location of firms in similar industries or supply chains who can share common infrastructures, skilled labour pools, and the development of specialized suppliers. More recent approaches, drawing on the work of Jacobs (1961) have stressed the importance knowledge spillovers due to the increased interaction between co-located firms (Maskell, 2001). The close proximity of firms allows them to observe and learn from each other and engage in cooperative activities that improve their ability to absorb and process new knowledge (Henry and Pinch, 2000).

Entrepreneurial ecosystems closely resemble what Marksuen (1996) termed Neo-Marshallian Industrial Districts, clusters built on the interactions between multiple small and medium sized firms that simultaneously cooperate and compete within the same industry. The competitive advantages provided to firms comes from the circulation of tacit knowledge between firms and normalization of particular firm routines such as cooperation and learning. However, the advantages of Neo-Marshallian clusters generally only develop when the region has specialized in a particular industry, such as biotechnology or high-end fashion (Glaser et al., 1992). As with Neo-Marshallian clusters, entrepreneurial ecosystems are marked by a type of relational organization and governance that lack a clear power hierarchy or formalized enforcement methods (Bell et al., 2009).

The growth of a cluster reproduces and enhances its advantages, in turn attracting more firms who can cooperate and compete in a stronger marketplace. The concentration of firms with specific needs creates a market for specialized suppliers, either for particular technological needs or support services such as patent lawyers or accountants (Kenney and Patton, 2005). The presence of these support firms create new advantages for firms in the cluster, creating a virtuous cycle in which the cluster is strengthened over time. This creates a space for public support for these specialized needs such as targeted educational programs, research and development programs, or public financing of entrepreneurial ventures. The evolutionary paths of clusters create self-sustaining advantages which are key to the continued success of the cluster.

However, there are clear differences between clusters and entrepreneurial ecosystems. Clustered firms gain advantages from being co-located with firms in the same industry or

supply chain because they can cooperate to serve larger clients, learn from each other's production techniques, and build up the untraded interdependencies that allow them to learn and innovate more effectively (Storper, 1997). This is not necessarily the case for entrepreneurial ecosystems. Entrepreneurs are more likely to share a core technology (such as computer coding) or a core challenges (growing a new venture) than a market or industry. Entrepreneurs within an ecosystem benefit from sharing knowledge and experience about the startup process itself rather than particular sectoral or market knowledge. Unlike traditional industrial clusters which build up a suite of supportive institutions and organizations related to the core industry of a region, entrepreneurial ecosystems are marked by the presence of multiple public and private organizations capable of supporting entrepreneurs across a variety of different industries (Pitelis, 2013). The advantages of an entrepreneurial ecosystem are related to entrepreneurial skills and resources rather than other industrial benefits found in more traditional clusters.

### **2.3 Path dependency**

Neither clusters nor entrepreneurial ecosystems develop in a vacuum. Their eventual structure and the relationships between actors within them develop out of the region's economic and social history (Carlsson, 2006). This process, known as path dependency, refers to the tendency of regional economies to follow existing 'paths' or trajectories laid down by its prior economic and social history (Boschma and Frenken, 2011). Contingent historical events can help spur the development of a new industry or cluster (Porter, 1998; Nelles et al., 2005). These events cannot be predicted before hand or be created by an external organization. The role of the state therefore is to create the conditions that can lead to such events, but with the knowledge that it is difficult to pre-ordain certain industries or firms that will be successful. Funding the development and commercialization of basic scientific research, helping to train entrepreneurs, or helping to improve the local markets and infrastructure help create an environment where seemingly random discoveries or entrepreneurial successes can contribute to the formation of a successful entrepreneurial ecosystem (Wolfe and Gertler, 2006; Mazzucato, 2013). However, policies designed to encourage entrepreneurship will not be effective in the absence of an underlying supportive cultural and institutional environment (Lerner, 2009).

The importance of durable cultural traditions and institutional routines to ecosystems makes them path dependent phenomenon. Ecosystems may build up organically over a long period of time (Bramwell et al., 2008) or they may develop quickly as the result of an external shock that rearranges existing economic structures (Feldman et al., 2005). Feldman's (2001; Feldman et al., 2004) work on the exogenous shock that helped create the Washington D.C bioscience cluster is of particular interest. The shock disrupted an existing cultural orientation within former federally employed scientists that saw entrepreneurial activities as "selling out and betraying scientific integrity," creating the conditions for scientific entrepreneurship (Feldman, 2001 p. 861). This cultural shift helped create a new path in the region that contributed to the formation of a durable entrepreneurial ecosystem.

## **3. Governing entrepreneurial ecosystems**

The main method regional and national governments have to support entrepreneurial development is to create initiatives to train entrepreneurs, provide financing, or supply other resources they require (Lundstrom and Stevenson, 2006). However, there has been little direct research on the role of governance public policy in entrepreneurial ecosystems. These programs do not constitute an entrepreneurial ecosystem by themselves. Their relationship with the rest of the elements of an entrepreneurial ecosystem is mediated through governance practices and entrepreneurs' beliefs about their effectiveness. The diffuse nature of power within the entrepreneurship process makes governance a critical factor. The state cannot dictate how entrepreneurs go about starting and running a business nor can it dictate

people's attitudes toward risk and investment. Rather, support programs must work within existing social frameworks and networks of existing firms, entrepreneur-led initiatives, and institutions to order to deliver services and resources to entrepreneurs.

Based on his experience as a champion of Boulder's entrepreneurial ecosystem, Feld (2012 p. 25) makes the clearest argument for how an ecosystem should be structured, writing: "The most critical principal of a startup community is that entrepreneurs must lead it." Feld argues that most policy-driven attempts to build entrepreneurial ecosystem fail due to a lack of engagement with the on-the-ground needs of entrepreneurs. In his view, entrepreneurs must be in a position to articulate a vision for their entrepreneurial environment and take the leading role in creating the various groups, networks, and programs that will deliver the support they desire.

However, there are substantial challenges in reaching Feld's vision of an entrepreneur-led ecosystem. Pitelis (2012) suggests that the issue of appropriability is a barrier to cultivating entrepreneur-led ecosystems. Entrepreneurs who create support organizations, mentor other entrepreneurs, and act as dealmakers help establish and maintain entrepreneurial ecosystems. But these activities require an inordinate amount of time and effort on the part of entrepreneurs who already have substantial responsibilities within their own firms. It is often difficult for entrepreneurs to perceive the benefits of starting or joining these types of organizations if they cannot see successful examples around them. It is possible that a supportive local culture can help overcome this barrier. Cultures that create a high social status for entrepreneurship and which normalize intensive networking help actors understand the value of participating in an entrepreneurial ecosystem. Recent work on dealmakers within entrepreneurial communities suggests that associating entrepreneurial support with civic pride is a powerful motivator for highly networked individuals to actively contribute to their ecosystem (Feldman and Zoller, 2012). As Feldman (2014 p. 4) argues: "a spirit of authenticity, engagement, and common purpose is the particular feature that differentiates successful [entrepreneurial] places."

This leaves a major role for the state and third sector groups in organizing programs to support entrepreneurship. While multiple authors have identified the key role that public and private programs play in entrepreneurial ecosystem (e.g. Isenberg, 2010; Spigel, Forthcoming), there has been relatively little work about how these programs support the development of a successful entrepreneurial ecosystem. Case studies by the Kauffman Foundation are amongst the few sources on this topic (Motoyama et al. 2014; Moyoyama and Watkins, 2014). Moyoyama and Watkins (2014) identify two core missions of entrepreneurship support programs: broad support that connects entrepreneurs with mentors, advisors, and collaborations and functional support to provide training, and other resources like office space or financing for entrepreneurs. But while the authors suggest that linkages between these programs are critical to provide the appropriate support to firms at different stages of the venture creation and growth process, there is still a major research gap around how these programs should coordinate and integrate with more informal groups and social norms.

Acknowledging the role of the state raises the question of which state: regional public bodies such as city governments or universities; sub-national governments such as provincial or state governments; national bodies in the form of national governments; or super-national bodies such as groups such as the European Union or the OECD. Most often, entrepreneurship support is provided by all four levels of government, creating issues of multi-level governance. While economic development has been traditionally the purview of national governments, in many jurisdictions this responsibility has been downloaded to regional governments or uploaded to larger units such as the EU for funding and coordination (Pike et al., 2015). Despite these changes, interactions between bodies at all levels is necessary for successful policy making and service delivery (Piattoni, 2010).

Work on clusters provides useful guidance on the role of the state in creating a fertile environment for fortuitous entrepreneurship but it gives fewer explicit policy models. Institutional thickness, a concept that developed out of early thinking on the role of clusters

within a globalized economy, provides a more compelling model for the role of public, non-profit, and private organizations in helping to create an environment conducive to the formation of an entrepreneurial ecosystem. As originally described by Amin and Thirft (1994; 1995), institutional thickness refers to regions with a high number of economic development and support organizations that exhibit high levels of interaction and cooperation between them with well established goals, power relations, and a shared vision of a common regional goal. Institutional thickness is a governance structure of clusters that helps preserve their competitive advantage. This configuration of state and non-state institutions help 'territorialize' production systems, counterbalancing the tendency for firms to relocate to lower-cost regions. Networks of support programs, educational organizations, and more informal collaborative cultures provide firms with a competitive advantage that they would lose if they moved their production or management functions away from the region.

Two elements of institutional thickness create the foundation for the emergence of entrepreneurial ecosystems. The first is a diverse array of support programs targeting different industries and types of entrepreneurs. Both public and private social enterprises can develop small yet focused programs to target specific areas of need, such as academic entrepreneurship, green technology, or getting existing firms ready for venture investment. Ideally these programs are either run by entrepreneurs themselves or developed based on intensive market research. Second, strong connections between these programs to ensure that their services cover the entirety of the entrepreneurship process, from initial idea to growth to the final exit. This allows programs to 'hand off' entrepreneurs as their needs change, providing more entryways for entrepreneurs to engage with support programs and ensuring continued support throughout the entrepreneurship process. Strong connections between programs also helped create the shared goals and sense of mission associated with institutional thickness.

However, the presence of institutionally thick networks of entrepreneurship support programs does not constitute an entrepreneurial ecosystem. Public and private programs cannot substitute for a missing entrepreneurial culture nor can they compensate for a lack of private angel investors, venture capitalists, or successful entrepreneurs in a region. Institutional thickness is therefore not a guide to how to create an entrepreneurial ecosystem through policy intervention but rather a model for how networks of support programs should look like within an already successful ecosystem.

## **4. Governance in Edinburgh's entrepreneurial ecosystem**

### ***4.1. Entrepreneurial support in Edinburgh, Scotland***

Edinburgh, Scotland is one of the most successful areas for growth-oriented, technology-based entrepreneurship in the United Kingdom. It is the home of the UK's only technology startups valued at over one billion pounds outside of London. It ranks in the top ten of British cities in terms of the number of firms founded, patents per capita, and percentage of the population with higher education qualifications. The city boasts a major research university, the University of Edinburgh — which has Europe's leading computer science department — as well as two other universities with strong engineering, business, and life science programs. Along with its traditional strengths in finance — Edinburgh is the second largest financial centre in the UK behind London — the city boasts strong concentrations of leading firms in software industries, creative services, and life sciences.

The devolution of economic development responsibilities to the Scottish Government has led to a major role for public support for technology entrepreneurship in Edinburgh's economy (Keating, 2005; Brown et al., 2015). Scottish Enterprise, the main Scottish economic development organization, has distributed more than £250 million in aid and grants to firms in 2013-14 with a particular focus on growth-oriented ventures. This support is delivered through dozens of ESOs both within Scottish Enterprise or supported by it through

grants. Some of these such support organizations provide general advice and guidance for entrepreneurs in any sector while others provide very targeted assistance for firms in priority sectors. Beyond Scottish Enterprise's programs there are many other ESOs operating in Edinburgh, ranging from large philanthropic organizations, university technology transfer and commercialization programs and informal networking groups operated by entrepreneurs.

The complex array of organizations providing support for entrepreneurs raises questions about their overall coordination and role in Edinburgh's overall entrepreneurial ecosystem. To better understand the relationship between the resources and support these organizations provide and the entrepreneurship process in Edinburgh an analysis of the various ESOs targeting technology entrepreneurs was conducted as part of a larger investigation. ESOs were identified through government publications, consultations with key informants, and monitoring Scottish entrepreneurship media outlets. The criteria for inclusion in the analysis were (1) the program is targeted at technology entrepreneurs, broadly defined, (2) the program is specially targeting entrepreneurs in Edinburgh rather than being a general nation-wide program, and (3) the program has an actual support staff and resources rather than being an initiative of another organization. 43 ESOs were identified using these criteria. This is necessarily an incomplete list as there is a constant churn as new programs are introduced and moribund ones are shut down.

The websites and other public materials of these ESOs were analyzed in order to provide a basic overview of the types of services they provide and their relationships with other stakeholders in Edinburgh's entrepreneurial ecosystems. ESOs services were categorized according to the typology developed by Moyoyama and Watkins (2014). The authors identify two core functions of ESO: broad and functional. Broad support types focus on providing resources to aid the entrepreneur with their overall entrepreneurial journey, such as mentorship, networking, and financial advice. Functional support provides more targeted solutions to problems entrepreneurs face at specific stages of their firm development, such as helping refine their business model during the initial startup phase or subsidized office space in incubators and accelerators. Based on the services provided by the ESOs in the sample, one new type of support was added to the 'broad' category: inspiration, where the program's goal is to inspire new entrepreneurs by publicizing success stories. Three types of support were added to the functional category: training, non-competition awards, and direct financing. Training refers to programs which provide specific training services to entrepreneurs, for instance by educating them about the startup process or obtaining outside funding. Non-competition awards refer to awards given to entrepreneurs that do not involve a pitching competition but are based on other criteria. Finally, direct financing programs provide either equity financing, loans, or grants to new ventures.

#### **4.2 Attributes of ESO activity in Edinburgh**

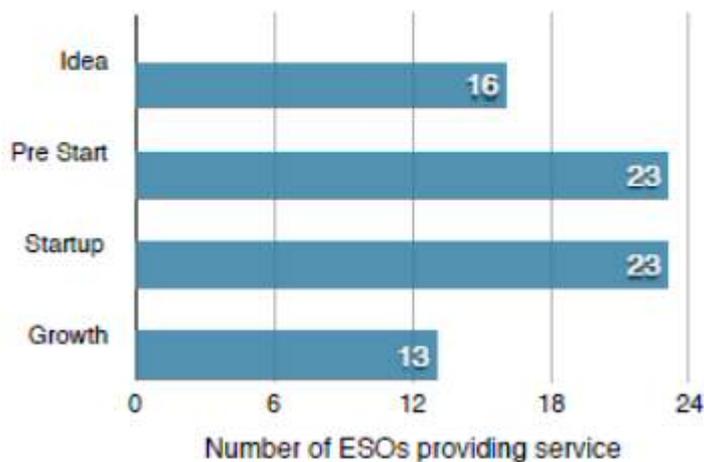
As shown in Figure 1, ESOs in Edinburgh provide more broad rather than functional support. Networking services were the most popular, with 26 out of the 43 ESOs (60%) providing them. This is in part due to the low cost of putting on networking events compared with other types of entrepreneurial support activities. Training and mentoring were also popular support activities, with 37% and 32% of ESOs offering these services, respectively. The least common activities were people finding, where the organization pro-actively connects the entrepreneur with advisors, investors, or other individuals who can help the venture grow, and financial advising.

Figure 1: Types of Support provided by ESOs in Edinburgh



ESOs were further classified based on the stages of a venture's lifecycle they provide support for. Services can be supplied at the idea stage, where the entrepreneur has an idea for a new venture but it needs refining, the pre-start phase where they are developing a business model and plan, the startup phase at which the entrepreneur has founded a new venture and is in the process of developing and selling their product, and finally the growth phase where the firm is expanding its market. ESOs differ in their focus, with some concentrating their resources only on one stage, such as the idea or growth phase, with others covering multiple phases of the entrepreneurship process. Figure 2 suggests a somewhat even distribution of ESOs with at least a partial focus on these stages. The lower number of programs for the growth phase of entrepreneurial ventures may be a concern given the growing realization about the importance of firms with high-growth potentials for economic development. However, firms at this stage need far more specialized support that

Figure 2: Stages of Support Provided by ESOs



is difficult for smaller or less focused ESOs to provide.

As shown in Table 1, the majority of ESOs in Edinburgh are financed either directly or indirectly by public organizations like Scottish Enterprise, the Scottish Funding Council, the City of Edinburgh, or one of the city’s universities. Twenty (46%) of the ESOs analyzed either are fully public bodies or are non-profits whose funding comes from a public body. Five are public-private partnerships where a public organization funds a private enterprise to deliver entrepreneurial support services. Three ESOs are for-profit organizations who do not receive substantial government support. The remaining fifteen programs are best described as not for profit organizations who are supported by some combination of membership fees or donations. In total, 58% of the ESOs within Edinburgh’s technology entrepreneurship ecosystem are publicly supported.

Table 1: Organizational Structure of ESOs in Edinburgh

<b>Type of Organization</b>	<b>Number</b>
<b>Public</b>	20
<b>Private</b>	3
<b>Not for Profit</b>	15
<b>Public Private Partnership</b>	5

A number of these public and public-private organizations are funded through major governmental programs, most frequently Scottish Enterprise, the Edinburgh City Council, or the University of Edinburgh. Scottish Enterprise is the dominant actor in the broader Scottish network of entrepreneurial support programs, directly or indirectly sponsoring dozens of different programs which range from broad business advice for entrepreneurs in all sectors to programs specifically targeted at high growth firms in designated sectors such as oil and gas, biotechnology, and software development. Of the 43 programs analyzed as part of this project, only nine (21%) did not receive a majority of their funding from a public source such as Scottish Enterprise. Most of these independent programs are informal networking groups. The only major actor in Edinburgh’s entrepreneurial ecosystem not to receive substantial public financing is Codebase, a privately financed technology incubator facility established in 2013.

## 5. Institutional thickness in Edinburgh’s entrepreneurial ecosystem

The number of ESOs operating in Edinburgh suggest that its entrepreneurial ecosystems contains the type of institutional thickness critical to preserving the region’s competitive advantage ESOs in the region range from large, broad programs that provide generic training to every entrepreneur to much smaller and more focused programs designed to help provide mentorship, financing, and support to specific types of entrepreneurs in priority sectors. These ESOs make up an important part of Edinburgh’s entrepreneurial ecosystem, providing resources and support to entrepreneurs that they would not otherwise necessarily have. The sheer number of programs designed to assist technology entrepreneurs suggests some degree of institutional thickness. There are programs to provide assistance across the entire entrepreneurship process, from the pre-idea stage until growth and eventual exit. These programs offer a wide variety of different services, including broad support that builds up the strength of the entire ecosystem and more functional support to provide targeted resources and capabilities to certain firms.

The role of Scottish Enterprise as a major funder of entrepreneurial initiatives in Scotland

allows it to set the general direction and mission for many of the ESOs in Edinburgh. In this sense it can be seen as helping Edinburgh's entrepreneurship support community develop a common vision for an economic development path. However, the extent to which this common vision is based on the unique needs of Edinburgh's economy is questionable. The overall mission of Scottish Enterprise is focused on the economic development needs of the entire nation, which vary from the rural economy of the Highlands, the petroleum cluster in Aberdeen, and the design hub of Glasgow. While Scottish Enterprise is a nominally independent agency, its priorities are set by the Scottish Government who often steer support towards sectors of the economy they deem important. The focus on Scotland-wide priorities makes it difficult for Scottish Enterprise to concentrate on the unique economic paths found in Edinburgh or other communities.

While Scottish Enterprise have programs to support industries concentrated in Edinburgh such as financial software, these are not their primary focus by any means. Many of the major recent entrepreneurial successes in Edinburgh in the software industry received comparatively little support from Scottish Enterprise affiliated programs because at the time the organization had a significant focus on the life sciences. Rather, independent programs or those run by the University of Edinburgh tend to focus more on specific attributes of Edinburgh's economy rather than more generalized types of entrepreneurial support.

The structure of ESOs in Edinburgh meets the basic definition of institutional thickness. However, it is unclear if these programs actually territorialize entrepreneurial competitive advantage. Many programs, especially those aimed at the idea and startup phase, provide more generic resources and support that can be found in most areas throughout the United Kingdom. More local-specific programs are those that focus on connecting entrepreneurs with mentors. These programs draw on the very well developed business networks of Edinburgh to connect entrepreneurs with advisors with experience in their specific industry or market.

## 6. Conclusion

Support programs are only one part of an entrepreneurial ecosystem. While these programs act as a way to channel resources and guidance to entrepreneurs they do not by themselves constitute an entrepreneurial ecosystem. An ecosystem is based around the entrepreneurs, investors, advisors, and workers of a region along with underlying cultural and social attributes that underlie the entrepreneurship process. Though ESOs are not the centre of ecosystems they can be seen as force multipliers which can build on and accentuate the existing attributes and networks of a region and provide a way to access resources that are not otherwise available.

As of yet there are few metrics or models to judge the effectiveness of support programs and organizations within an entrepreneurial ecosystem. Programs can be very useful to individual entrepreneurs while doing very little to build the overall ecosystem. Drawing on existing work on clusters and institutional economic geography, Amin and Thirft's Institutional Thickness theory may be an appropriate model for the structure and governance of support organizations within entrepreneurial ecosystems. Multiple programs can effectively provide a wide array of services and support to entrepreneurs across a variety of different sectors and stages of development. To function effectively these programs should exhibit some level of coordination based on a shared vision and centralized leader. Scottish Enterprise serves as a centralized leader who creates a shared vision through its support for many of the ESOs present in Edinburgh. However, the effectiveness of Scottish Enterprise as this kind of leader is questionable given that its focus extends far beyond Edinburgh and beyond support for growth-oriented technology ventures. Large-scale organizations are not in a position to develop within the constraints of existing regional paths and economic trajectories.

At the same time it is necessary to question the effectiveness of state-led programs in the formation and reproduction of an effective entrepreneurial ecosystem. The prominence of nation-wide programs sponsored by Scottish Enterprise suggests that the largest programs

are not well positioned to focus on community building in Edinburgh. While there are several entrepreneur-led, grass-roots organizations in Edinburgh, they lack of the resources of larger organizations like Scottish Enterprise. The local entrepreneur-led organizations have limited influence over these larger programs.

More research is necessary to judge if the current governance model of Edinburgh's ESO community is able to effectively serve local entrepreneurs and help sustain a successful entrepreneurial ecosystem. In particular, a better understanding of the actual communication and influence networks between the ESOs in Edinburgh would be a useful way of understanding the true role of Scottish Enterprise as opposed to other more locally focused actors. Beyond this, more research is necessary to understand how entrepreneurs themselves work with ESOs to develop their skills, extend their networks, and obtain resources. Entrepreneurs' use of support programs is their ultimate test of effectiveness and more information on how they utilize support programs will provide valuable insights into the overall place of ESOs within entrepreneurial ecosystems.

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## **Development of Business Incubators in Serbia aimed at Entrepreneurship Empowerment: Past, Present and Future**

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**Business incubators are programs for production support to newly established companies through infrastructure and range of services (administrative, technical, business etc.) that can improve their ability to start and run their business during the early period of development. In developing countries, such as Serbia, business support is more than welcome. This is an economy with many difficulties in economic development, and for young entrepreneurs the main problem is fundraising for development of their business ideas. Serbian government has only recently recognized the importance of entrepreneurship empowerment and began with establishing business incubators in this area. The main goal of this paper is to examine the effect of business incubators' success and to highlight the most important advantages of these businesses to enhance economic development of a country in transition, but on the other hand to draw an attention to the challenges and difficulties they are facing with. With a review of the relevant literature and statistical data, this work represents a step forward in understanding of the importance of business incubators in order to strengthen the entrepreneurship in Serbia.**

## **Keywords**

Business incubator, Economic development, Entrepreneurship

## **1. Introduction**

Considering the growing interest in entrepreneurial activity around the world, the aim of this paper is to present the state of entrepreneurship and level of development of entrepreneurial awareness in developing countries, such as Serbia. The objective of this study is to examine the environment and conditions of the Serbian market and their impact on strengthening the entrepreneurship in this region, but also to highlight the difficulties in fundraising for launching startups. In addition, by reviewing the relevant literature, we pointed out the importance and the role of state policy, national strategies and the establishment of adequate business infrastructure in purpose of empowering entrepreneurial climate in this country, with a special focus on identification of incubators as a tool for economic development.

It is widely known that business incubation is a very useful tool for economic development, so this trend came also to Serbia and business incubators have begun to be established in this area. According to that, the subject of our research is the success of business incubators and contribution to the economic development of the country. Our findings can help policy makers, governments and practitioners in understanding and implementing incubator programs, leading to better planning and greater chance of success. The research focus is directed towards the Serbian entrepreneurship, because generally there is not much studies dealing with this issue in the countries in transition. The concept of free enterprise is a relatively new for the citizens of Serbia because communism and socialism prevailed for decades. Actually, the Serbian economy is defined as a post-socialist transition economy on its way to becoming a market economy [1]. Over the years Serbia's growth performance has improved, but, substantial challenges remain [2].

Business incubators are important business entities for researchers, small and medium enterprises, startups, and domestic and foreign investors, allowing them to connect and achieve their business goals and aspirations, in spite of all the challenges associated with conducting business in the transitioning economy. For the purpose of this study,

entrepreneurship is defined as the pursuit of opportunity beyond the resources an entrepreneur currently controls [3] [4]. The contribution of this study is reflected in a better understanding of business incubators and their role in a entrepreneurship development, as well as a significant impact on the economic development in developing countries. In addition, this study emphasizes the importance of strategic implementation of incubator models in developing countries and also provides new and helpful information to all stakeholders who are interested in incubator programs. In the long run, we presented a forecast of revenues related to the operations of business incubators in the near future.

## 2. Entrepreneurship in Serbia

One of the significant force and key to economic development throughout the world is certainly entrepreneurship, and it is evident in all industries, from agriculture to construction, education to health care, in art, transportation, and especially in high and internet technology [5]. Most countries focus on the importance of innovation from an economic perspective where entrepreneurship is the driving force for a nation's economic prosperity [6]. It is very important to study entrepreneurial activity in different countries in order to add a new knowledge and experiences in entrepreneurship theory and practice, to gain a profound understanding of entrepreneur behavior, hence all of the specific challenges and impediments they face with among different countries, and indispensable to identify cultural specifics, differences or similarities in multiple nations [7].

There are many reasons why entrepreneurs are entering into their own business ventures, and personal freedom, independence and desire to create something new are the most frequent and primary motives [8] [6]. In addition, it is not rare that the entrepreneurial desire arises from dissatisfaction with the work for others and personal frustrations, but still it may also be a result of personal aspirations and ambitions for self-actualization and personal achievement of something better and higher [9]. There is also a bright side of urge for launching an entrepreneurial businesses - individuals become entrepreneurs to pursue their own interests, ideas or just because their own joy for creation [10] [11]. Researchers Barringer and Ireland [9] have concluded that people become entrepreneurs because they want to have their future in their own hands, they want their own control, greater wealth, they have an enthusiasm and passion for novelty and they are attracted to obscurity.

However, despite the enthusiasm and innovation, all around the world entrepreneurs have a lot of trouble finding financial and other resources for launching their own startups, and this situation is further aggravated by the fact that they are inexperienced, unknown and have an untested new ventures [12] [9]. Struggle for raising capital is inevitable because young entrepreneurs usually have a little business knowledge and experience. In a developing countries, such as Serbia, an additional and alternative ways of funding are very limited, and until recently did not even exist.

Development of business infrastructure in Serbia ran its course alongside with the other processes of economic transformation to a market-oriented economy. The first steps of the business infrastructure entities were conceived through project interventions numerous international organizations, while later continued through the action of the relevant ministries and National Agencies for Regional Development active at the national, provincial/regional or local level. In many cases, the development of business infrastructure was non-institutional, on the initiative of private agencies, non-governmental organizations, or as an initiative of individuals, who wanted, with their personal commitment, to promote economic development in their communities [13].

Strengthening the elements of business infrastructure, and therefore of entrepreneurship, is mentioned in many strategic and program documents of the Government of Republic of Serbia, the Government of the Autonomous Province of Vojvodina and in acts of local governments. Development of business infrastructure is largely seen through its contribution to the development of the competitiveness of small and medium sized enterprises, so the business infrastructure is only mentioned in this context in official documents and programs.

However, it should be noted that there is no single document that deals exclusively with the development of business infrastructure; hence this area is divided between several strategic documents and programs.

One of the first documents dealing with developing business infrastructure is the National Economic Development Strategy Republic of Serbia from 2006 – 2012 [14], which is the first development document which in a consistent and comprehensive way, defines the basic development priorities of the country and the ways of their realization in subsequent years. Business practice worldwide indicates the importance of business incubators and accelerators for economic development, which is crucial in today's era with high unemployment rate in Serbia. Also, since the last decade, the revolution in information technologies and liberalization of trade regimes have created enormous opportunities for knowledge-based businesses as well as challenges for planners to create a new job positions [15]. The business incubators help tackle the obstacles faced by entrepreneurs, facilitate the venture creation process and provide numerous benefits to young entrepreneurs.

During 2006, the Serbian Ministry of Economy, Republic Agency for Development of Small and Medium Enterprises in Serbia and the Norwegian organization SINTEF ([www.sintef.no](http://www.sintef.no)) wrote the Program for development of business incubators and clusters from 2007 – 2010, which, among other things, proposes the establishment of a minimum 15 business incubators and the main national association of business incubators, establishment of at least one technology park and 10 clusters. Serbian Strategy of development of competitive and innovative small and medium-sized enterprises for the period 2008 - 2013 also supports the implementation of the program of development of business incubators and clusters, and the necessity of improving the institutional support for the development of entrepreneurship and small and medium-sized enterprises. Regional Development Strategy of the Republic of Serbia for the period 2007 - 2012. god. represents the first strategic development document of regional development in Serbia, which aims to encourage the polycentric regional development of Serbia through politics of entrepreneurship and SME Policy in Serbia that have the function of reducing disparities in regional development through a "better economic connections with regions (clusters and enterprises associating, building business-technological incubators within local self-governments and scientific-technological parks in university centers)" [16].

In 2011, the Government of the Autonomous Province of Vojvodina has adopted a *Strategy of development of business incubators in Vojvodina* for the period 2011 – 2015 [17], in order to ensure a better environment and conditions for the development of business incubators of various profiles (incubators of economic development and technological incubators), accelerate their connectivity and provide support for a development of a business incubation systems. The vision of Strategy is defined as "the development of a comprehensive and coherent infrastructure to support the establishment of new enterprises and the development of competitive, innovative and export-oriented small and medium enterprises" [17; pp. 45-46]. The necessity of development of business infrastructure is recognized by the institutions of the European Union, which have supported a number of project initiatives in various ways, all across the Republic of Serbia.

In transitioning economies such as Serbia, massive economic change and social unrest brought an end to the period where private enterprise was forbidden [7]. Therefore, a new era was born creating tremendous opportunities for entrepreneurship and new venture creation to help rouse the developing nation [1]. Generally, the situation in Serbia can be described with three main characteristics of its transition process:

- The transition from an industrial economy to the knowledge economy,
- The transition from socialist era to capitalism and
- The transformation social ownership into private property.

As Serbia continues with transition into a market economy, funding will become more accessible providing entrepreneurs with greater means to operate and succeed. Also, a development of business incubators are significant for empowering the entrepreneurship, because it provides entrepreneurs more means, ways and chances to operate, grow and start their ventures.

### 3. The role of business incubators in Serbian entrepreneurship

A Business Incubator is an economic and social development entity designed to advise potential startup companies, help them to establish, and accelerate their growth and success through a comprehensive business assistance program [18]. As we have already mentioned, development of business incubators represent an excellent tool for economic development, because they are supporting startup companies and their business development. The main tasks of business incubators are reflected in providing services in various fields [19]:

- start-up consulting and business planning,
- consulting in all areas important for business development and growth;
- consulting for and/or access to financing; and
- training and networking.

The mentioned statement that business incubators help strengthen the local economic development is supported by the fact that their small business tenants and clients survive inside the incubators with the survival rate 90% [19] [20]. This information will lead the governments fund and support business incubators, because the number of successful startup companies is increasing, which leads to the new jobs creation in the local market [21]. Finally, the total number of jobs created by the incubators affect on the economic development [18].

The mission of the business incubator is the establishment and empowerment of successful businesses that will be financially viable and freestanding and after incubation program. By creating new jobs, they are directly affecting on revitalization of communities, commercialization of new technologies and creation of wealth for local and national economies [18].

Business incubators are organizations for support the start-up companies with potential for growth and development, and types and models vary depending on the region's problems to be solved. Serbia is dealing with many problems, but some of the most important are:

- The uncompetitive economy,
- Weak growth of start-up enterprises,
- Brain drain and
- Poor transfer of knowledge and technology from R&D.

Therefore, the establishment of business incubators in this transition region is justified because there is an experience of developed countries and market potential. In Serbia, first business incubators are being developed in 2004/2005 in City of Nis and Knjazevac. After that, during 2006/2007 there was an explosion of business incubators all across the country – Belgrade, Subotica, Vranje, Uzice, Prokuplje etc. Today, there are 23 business incubators in Serbia, but only 9 of them are functional. Aggregate data for business incubator by some of the key characteristics in October 2014 in Serbia are given in Table 1.

**Table 1:** Aggregate data for business incubators in Serbia in 2014

<b>Number of Business Incubators</b>	<b>9</b>
<b>Space (in square meters)</b>	13.432
<b>Occupancy rate (in percentages)</b>	86%

<b>Incubation period (in months)</b>	36
<b>Survival rate after leaving the incubator (in percentages)</b>	88
<b>Number of tenants</b>	138
<b>Number of employees</b>	576
<b>Number of incubated firms</b>	255
<b>Number of workplaces</b>	955
<b>Annual revenue budget of the Republic of Serbia for taxes and contributions for employees (in euros)</b>	1.942.373€
<b>Annual revenue in the budget of the Republic of Serbia in the name of VAT (in euros)</b>	776.949€

Generally, in Serbia there are two categories of business incubators, depending on the focus of their business, so we have to major groups with:

- focus on development of jobs (related to the industrial economy)
- focus on creating scalable technology-oriented startups (such as business incubators in Belgrade and Novi Sad).

In this regard, given the dynamic market environment and rapidly growing technology development, we can say that the history of development of business infrastructure, and in this regard development of business incubators in Serbia, was directed exclusively to create new jobs; but nowadays, field of action of business incubator spreads and this assignment is upgraded with a creation of scalable technological-oriented startups. Also, in Serbia each business incubator has their own field of activities, so that some of them are concerned only with providing services, some of them are engaged in production, but some business incubators combine these activities. Detailed statistical data for each of the nine business incubators in Serbia, are presented in Table 2.

**Table 2:** Facts and Figures for business incubators in Serbia in 2013

<b>Business Incubator</b>	<b>Year of foundation</b>	<b>Length of the existence</b>	<b>Type</b>	<b>No. of offices</b>	<b>No. of tenants</b>	<b>Total area (m<sup>2</sup>)</b>	<b>No. of employees</b>
Subotica	2006	9	combined	7	52	1600	3
Novi Sad	2010	5	service	12	35	800	2
Zrenjanin	2005	10	service	19	32	900	2
Beograd	2006	9	combined	12	50	570	5
Kragujevac	2008	7	service	18	50	2690	7
Užice	2008	7	combined	6	60	1250	4
Kruševac	2008	7	combined	33	39	1632	5
Prokuplje	2007	9	combined	18	41	1300	5

Vranje	2006	9	production	14	198	2690	3
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As we have already mentioned, the world's indicators of firms' survival that leave the business incubators after an incubation period, is around 90%. Serbia can also be proud of the fact that the survival rate of tenant firms in this region is moving with the world level. The numbers of firms that have passed business incubation as well as their survival rate are given in Table 3 for each business incubator in major cities in Serbia.

**Table 3:** Survival rates of incubated firms in 2013

<b>Business Incubator</b>	<b>Number of firms incubated</b>	<b>Survival rates of tenant firms (%)</b>
Subotica	32	70
Novi Sad	12	88
Zrenjanin	24	85
Beograd	35	95
Kragujevac	31	90
Užice	32	97
Kruševac	51	82
Prokuplje	11	90
Vranje	24	93

Only Autonomous Province of Vojvodina in Republic of Serbia, on its territory has three large business incubators, in Zrenjanin, Subotica and Novi Sad. They generate their revenue based on many sources of funding:

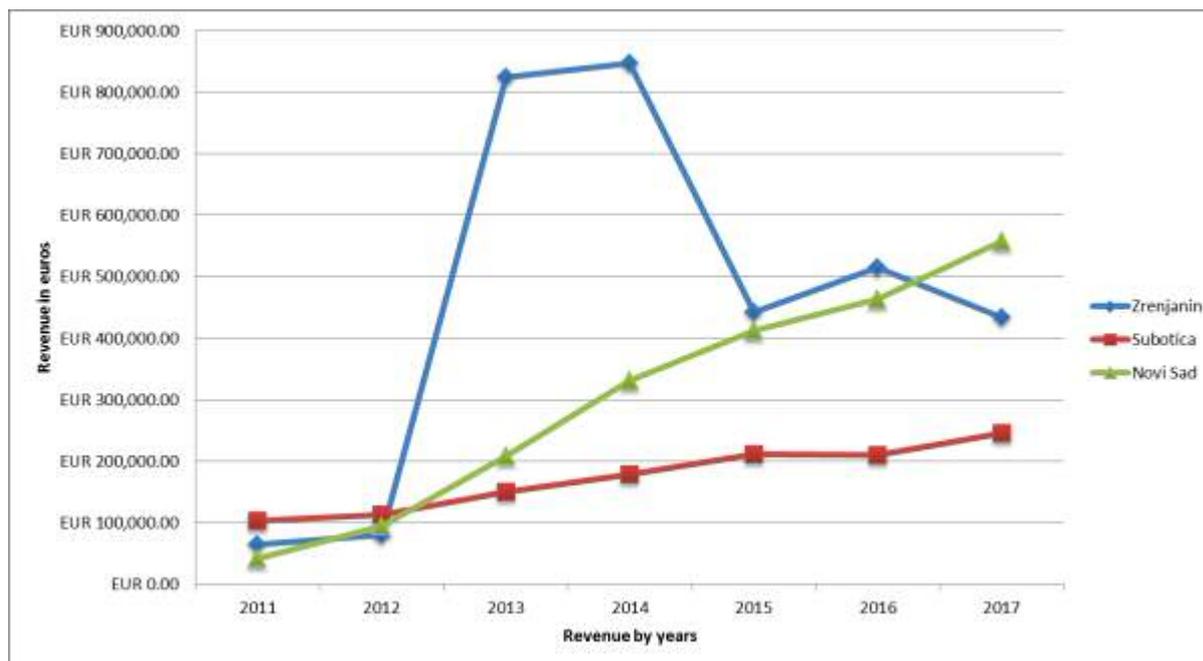
- Budget revenues of Republic of Serbia on the basis of taxes, contributions to personal income of employees in firms tenants;
- Budget revenues Republic of Serbia on the basis of taxes and contributions on personal income of employees in companies ex-tenants to 5 years;
- Budget revenues Republic of Serbia on behalf of VAT proceeds of final consumption from personal income of employees and firms tenants;
- Budget revenues Republic of Serbia on behalf of VAT proceeds of final consumption from personal income of employees from ex-tenants to 5 years;
- The total value of projects, grants in which the incubator was a partner (budget incubators in these projects) for that year.

During the research performance of these incubators, besides the number of startup companies that were launched, we have analyzed and generated revenue in the period 2011-2015, which are shown in Table 4. Based on these data, we performed a revenue projection for the next two years. The integrated data in euros are presented in Table 4, and future success and growth of the revenue, that are some of the most important business incubators accomplished, can be noticed in the Graph 1.

**Table 4:** Annual revenue of business incubators in AP Vojvodina, Serbia

<b>Business Incubators</b>	<b>Years</b>
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	2011	2012	2013	2014	2015	2016	2017
<b>Zrenjanin</b>	65,243	80,202	823,640	846,961	442,067	514,487	434,000
<b>Subotica</b>	103,084	113,071	149,838	179,200	210,800	210,180	246,000
<b>Novi Sad</b>	41,243	94,177	208,541	330,578	412,500	462,913	558,193



**Graph 1:** Revenue projections in business incubators in AP, Vojvodina, Serbia

## 4. Conclusions

Throughout a careful review of the published literature and the analysis of the success of business incubator, it can be concluded that business incubators are an effective tool for economic development. The findings in this paper support previous work that suggests that quality initiatives and careful planning of incubators may present a pathway to stimulate an economy and in particular in the developing countries, such as Serbia.

In this study, the general conclusions can be drawn, but also some of the main challenges and tasks for future actions:

- Improve the level of understanding of the role and important features in business incubators, both in national and local structures;
- Increase the level of understanding of important features of innovation for the development of new knowledge-based economy;
- Motivate a young educated people to focus their energy in launching their own businesses in local communities (as a prevention of brain drain);
- Prepare and adjust the legal framework for the rapid development of innovative companies;
- Increased networking (among business incubators, government agencies, scientific-technological parks and with universities);
- Better promotion through electronic media and social networks;

- The development of entrepreneurial education and training through cooperation with the University;
- Establishing a group for creative development and development of mentoring program for students-potential entrepreneurs;
- Establishing a system for monitoring of business incubators.

Studies have shown that the development of small and medium-sized enterprises, and in this regard the entrepreneurship development through launching startup companies, is the prime driver of economic development of a nation, especially in developing countries. According to that, if Serbia is becoming more entrepreneurial-oriented, it has better chances to prosper as an economy.

On the basis of the statistical data about practices and performance of business incubators in Serbia, it can be concluded that they have a significant role and contribution to the development of entrepreneurship. Of course, the development of business infrastructure and business incubator is situated in the jurisdiction of state governments, but indirectly they are also responsible for establishment of new startup companies.

In the initial phase of establishing business incubators, during the previous period, the main goal was creating jobs. However, with the advancement of technology and the new market demands, in addition to new jobs, business incubators have begun to produce scalable technology oriented startups. So, this is the current trend. When we think about the future, we have to think in a direction of creating companies that are built on knowledge, because knowledge is the only resource that multiplies by dividing. To make this possible, the community needs smart money. At this moment, incubators provide space, and what Serbia really needs is smart money and mentorship of those who have succeeded in business.

## Acknowledgement

The authors of this paper are very grateful to the TEMPUS project "iIDEA LAB" (JPHE544373-1-2013-1) for enabling and supporting participation at the 8th International Conference for Entrepreneurship, Innovation and Regional Development organized by University of Sheffield, UK.

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## **Development of Entrepreneurial Learning Strategy of the Republic of Macedonia 2014 - 2020**

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**This paper presents the process of development of Macedonian Entrepreneurial Learning (EL) Strategy 2014 – 2020 and gave an overview of the main principles of the strategy. The strategy was developed with support of the European Training Foundation, while the responsible institution for development and implementation of the strategy is the Ministry of education and science. All phases for development of the strategy are presented in this paper. The high priority areas for Macedonian EL strategy are located in five main pillars: (1) Primary education; (2) Secondary education; (3) Higher Education; (4) Informal and non-formal education; (5) Young entrepreneurs. Five pillars are the central part of the entrepreneurial learning ecosystem in the country. They are the basic foundation that will directly frame the implementation of EL activities and EL strategy vision – to ensure sustainable economic development and prosperity of the country and Macedonia to become a country with highly developed entrepreneurial culture and spirit that inspires everyone. In addition, there are also five energizers that will support the implementation and continuous improvement of the entrepreneurial learning process in the country. The first energizer is creating strong awareness in the whole environment about the true meaning and importance of entrepreneurial learning. In the creation of a successful entrepreneurial learning ecosystem there really foundational reforms will be required, including regulations related to entrepreneurial learning and education in general, and continuous teachers' development in the field. This is the second important energizer in the entrepreneurial learning ecosystem that will be developed with this strategy. The third energizer is technology that means using the state-of-the-art-technology in implementing entrepreneurial learning activities that will bring better competences of everyone in the process. As a fourth energizer there are good practice which means implementation of systematic approach in developing, implementing and sharing best practices related to the implementation of entrepreneurial learning activities inside and outside country. And at the end this ecosystem is based on building strong international cooperation among all educational institutions in the country in order to share and learn entrepreneurial learning new information.**

## **Keywords**

Entrepreneurial Learning; Republic of Macedonia; National Strategy; Primary, Secondary and Tertiary Education; Governmental Policies on Entrepreneurship

## **Acknowledgement**

The authors are expressing sincere gratitude to vision of the Ministry of Education and Science of the Republic of Macedonia for initiating development of the Macedonian Entrepreneurial Strategy and to the European Training Foundation that with full capacities (financial, know-how and expertise) strongly supported its development through all phases.

## **1. Introduction**

*“Our belief is that deep, radical and urgent transformation is required in higher education as much as it is in school systems. Our fear is that, perhaps as a result of complacency, caution or anxiety, or a combination of all three, the pace of change is too slow and the nature of*

*change too incremental*” [1]. This statement from the **Institute for Public Policy Research** (IPPR) suggests that citizens will need to have greater control over their careers and lives, that every citizen should be considered as a potential entrepreneur and employer as well as an employee, and that in order to keep pace of this change, the University sector has to reappraise its offerings to the community it serves. The similar can be considered also for primary and secondary education.

*“The ambition is for education to be entrepreneurial in its very thinking, for young people to benefit from practical entrepreneurial experiences throughout their learning ”* [2]. Investment must be targeted to ensure the most effective return, especially during a period when youth unemployment is at a peak and economic growth is still not a certainty for businesses and SMEs. Entrepreneurship education is one of the means by which education systems can demonstrate that return by aligning education more closely to the needs of the labour market and making an impact on the economic issues that matter. At the same time, for the individual, this type of education can enable learners to explore their personal motivations and interests, so they may better understand what path they can take to secure their own economic futures and social wellbeing, and inspire entrepreneurial action [3].

Entrepreneurship in education was addressed by many initiatives at EU level, but one of the most important in addition to different reports and research become **The Oslo Agenda for Entrepreneurship Education in Europe** [4] that aims to step up progress in promoting entrepreneurial mindset in society, systematically and with effective actions. Important part of the agenda is providing concrete proposals that can be adapted by stakeholders according to the local context.

In the **EU Entrepreneurship 2020 Action Plan** (Reigniting the entrepreneurial spirit in Europe) [5] entrepreneurial learning is part of the first action pillar: Entrepreneurial education and training to support growth and business creation where main focus is on increasing the prevalence and quality of entrepreneurial learning, recognition and validation of entrepreneurial learning in an in-formal and non-formal learning environment, mechanisms of university-driven business creation and emerging university-business ecosystem around key societal challenges.

**Rethinking Education:** Investing in skills for better socio-economic outcomes [6], is another key document where one of the challenges in member states that need to be addressed is building skills for the 21<sup>st</sup> century; and again, this challenge cover entrepreneurial learning: *Attention should be particularly focused on the development of entrepreneurial skills, because they not only contribute to new business creation but also to the employability of young people.*

At **EU level** [7], studies have shown that all Member States have introduced elements of entrepreneurship education into at least one level of education, however it is not at all clear whether all aspects nor which aspects of the entrepreneurship key competence are addressed [8]. For Member States, this lack of insight will be addressed in the second European Report on Entrepreneurship Education in Schools being carried out in 2015.

In addition, **the EU Small Business Act** [9] is recognized as one of the main policy drivers for this entrepreneurial learning strategy - from which all strategic entrepreneurial learning developments in the pre-accession region have evolved. Additionally, SBA is an integral part of Europe 2020 strategy for smart, sustainable and inclusive growth [10] and SEE2020 – a target-driven strategy for the pre-accession region [11] reflecting the EU ’s 2020 growth and employment. SBA represent one plank of the EU (and pre-accession region’s) efforts to meet the objectives of EU competitiveness and employment (growth and jobs).

In its way to EU full membership Macedonian Government (Ministry of Education and Training) in late 2012 expressed an interest to cooperate with the European Training Foundation (ETF) to develop the first Entrepreneurial Learning (EL) strategy for the country. This paper gave overview of the process of development of Macedonian Entrepreneurial Learning Strategy 2014 – 2020 and presents main principles and content of the strategy.

## 2. About Republic of Macedonia

**Republic of Macedonia is a small, land-locked economy with a population of 2 million** and a GDP of EUR 7.5 billion (2011). This equals about 0.06% of the GDP of the EU-27. Per-capita GDP is roughly EUR 3,700 at current prices, which, in terms of purchasing power parity, amounts to one third of the EU-27 average. Until 1991 as a member state of the Socialist Federal Republic of Yugoslavia (SFRY), the country's economy was the least developed and as such a recipient of financial support from the federal budget. After gaining independence, the Republic of Macedonia experienced sharp decline in its already limited economic activity. The separation from its traditional markets, the loss of preferential trading arrangements, the interruption of crucial north-south trading routes due to regional conflicts, and a surge in inflation marked the first five years of transition. As a result, economic activity had declined to three quarters of the production level before independence.

The subsequent period of 1996-2000 was characterised by relative economic stability and slow but important structural reforms including privatisation and trade liberalisation. This economic revival was abruptly interrupted by the financial crisis in 2001 which caused a renewed GDP decline of 4.5%. The situation was further aggravated by the uncertainty on the financial markets created by the war in neighbouring Kosovo.

After the economic downturn in 2001, the country's economy experienced slow, but steady, growth and macroeconomic stability under a fixed exchange rate regime for almost ten years. More fundamentally, the Republic of Macedonia's growth was driven by its deepening integration with the global economy and particularly with the EU in terms of investment, banking and trade since 2005. Real gross domestic product (GDP) growth in 2002-2008 amounted to 4.1% on average. **In 2013 GDP growth was 2.7, while for 2014 is expecting to be ~3.5.**

The business working environment has substantially improved over the past few years, especially in areas such as tax administration, business registration and simplifying regulations and customs procedures; it was once again awarded a high ranking in the latest World Bank Doing Business poll of 2014 (25th out of 189 economies). However, there is still very high unemployment rate to consider.

The Republic of Macedonia currently is a country with an **unemployment rate that is around 29%** (it was almost 36% in 2006). This is particularly prevalent among youth, the rural population, ethnic minorities and less educated people, hence one of the main challenges for the Republic of Macedonia is to create employment. These challenges can only be addressed by new jobs creation, and increased entrepreneurial activities of the people will have significant impact.

Regarding this high unemployment rate in the country, we must also take into account the many actors in policy formulation related to entrepreneurship, innovation, increasing competitiveness and developing human capital that was formed in order to answer the challenges for the future.

From the SME Policy Index [12] it is evident that there are still room for improvements in dimension 1 "Entrepreneurial Learning and Women Entrepreneurship" and dimension 8a "Enterprise Skills". In particular, there is an identified need for improvements in the entrepreneurial learning process.

## 3. Process of development of entrepreneurial learning strategy for the Republic of Macedonia 2014 - 2020

In late 2012 the Ministry of Education and Science (MoES) expressed an interest to cooperate with the **European Training Foundation** (ETF) to develop the first Entrepreneurial Learning strategy for the country. In response to this request, ETF provided

guidance, shared knowledge and good practice, technical expertise and quality assurance throughout the strategy build-up process. In December 2012 ETF supported the organization of a first workshop with a wide group of stakeholders, including young entrepreneurs. The workshop led to the identification of a number of pillars that will feature in next-phase planning discussions, which will ultimately result in a national entrepreneurial learning strategy.

A second workshop was organized in April 2013. Its main objective was to present the proposed starting activities in preparation of the EL Strategy. During the workshop expert teams described the overall project concept and planned deliverables. The experts also presented the methodology, approach and milestones that will be used to track the development of the EL strategy. The workshop received excellent feedback from the participants and ideas that can be included in the development of this strategy were well received.

In the period between April – June 2013, a wide range of networking e-tools were developed in order to gain additional input. These complimented the on-site visit that experts conducted:

- desk research (relevant documents, links, web pages, etc.),
- interviews (by phone and face-to-face site visits with all relevant stakeholders),
- questionnaire were sent to selected organizations / schools / donors / individuals
- (<https://docs.google.com/a/pretpriemac.com/spreadsheet/viewform?formkey=dGdWd09wLUhTR2pwX2c3S25ERURGNVE6MQ#gid=0>),
- on-line forum (<http://premium.pretpriemac.com/index.php?/register/EMSItw>),
- e-mail list directory created for development of Macedonian EL strategy (<http://eepurl.com/yr93f>),
- Facebook community for Macedonian EL strategy (<https://www.facebook.com/ELStrategija>).

In order wider community to be closely engaged in creation of EL Strategy, video materials from the first EL workshop (April 18 2013) was posted on the following link <http://www.youtube.com/user/Pretpriemac/videos>. Some of the presentations from the workshop can be found on following links

(P1: <http://www.slideshare.net/sutevski/presentation-of-current-status-with-el-strategies-in-eu>, and P2: <http://www.slideshare.net/sutevski/description-networkingtools-el-strategy>).

After collecting different ideas via the networking tools and on-site visits during this period, experts drafted the stocktaking report of good practices that was presented to the third workshop in July 2013. The final stocktaking document was then updated with the recommendations and ideas from the participants at the third workshop, and served as a basis in the creation of this entrepreneurial learning strategy.

The participants of the workshops that actively participated in the creation of this strategy included representatives from leading state institutions (Ministry of education and science, Ministry of economy, Ministry of labour and social affairs, State Agencies, etc.) chambers of commerce, employers representative organizations, business support organizations, schools, universities, Biro for Development in Education, Centre for Adult Education, VET Centre, young entrepreneurs, ETF, donor representatives, municipalities and other relevant institutions.

Draft version of the strategy was presented in December 2013 in front of the Inter-Agency board that was body responsible for finalisation, implementation and monitoring of the strategy. Head of the Board is the State secretary in the MoES, while all main stakeholders are members in the board. In the period December 2013 – April 2014 EL strategy was finalized and Action plan 2014-2016 was developed. Because of the parliamentary election and appointment of the new Government **official adoption of the strategy was realised in November 2014.**

## 4. Key components of entrepreneurial learning strategy for the Republic of Macedonia 2014- 2020

### 4.1 Relations with main national strategies and documents

In the Republic of Macedonia there are already many strategies and documents related in some parts with entrepreneurial learning and this strategic document. In the interests of clarity, only the most pertinent will be noted:

- **Government's Working Programme for the period 2011-2015** . Two of the five strategic objectives of this working programme are increased economic growth and employment, as a precondition for increased citizens' standard of living and improved quality of life as a first strategic objective and investment in education, science and information technology as elements of a knowledge –based society as a fifth strategic objective. The entrepreneurial learning strategy will also support future implementation of these strategic objectives.
- **Multi-Annual Operational Programme for Human Resources Development 2007-2013** (programming documents and its two revisions). One of the strategic priorities of this document is education and training – investing in human capital through better education and skills. EL strategy will have direct contribution through modernization of the educational and training system of the Republic of Macedonia and promoting lifelong entrepreneurial learning.
- **National Strategy for Sustainable Development of the Republic of Macedonia** . One of the strategic thrusts in this strategy is streamlining private sector and building awareness for sustainable development in the Republic Macedonia. EL strategy can additionally improve the implementation of these strategic objectives.
- **Action Plan for Youth Employment 2015** also contain reform in education and training system addressing lifelong learning and employability needs of the young people who are outside the formal education system. On the other side, this plan also has another one priority objective to promote youth employment through private sector development. Entrepreneurial learning strategy will become supporting force for the implementation of this plan.
- **National Strategy for Alleviation of Poverty and Social Inclusion 2010-2020** . This strategy as a main strategic objective has to reduce poverty and social exclusion in the Republic of Macedonia through a better use of disposable human and material resources, improve conditions for living, working and social conditions for all citizens, system and institutional co-activity in the function of accelerated development, higher standard and better quality life. There are 14 key areas in the strategy where employment as the first one, informal economy and strengthening entrepreneurship is a second and labor market is a third key area. Entrepreneurial learning strategy will have an active role in supporting of all these three key areas.
- **National Strategy for Development of Education 2005 – 2015** . The entrepreneurial learning strategy can help in promotion of the culture of living as one key area for intervention in the National strategy for development of education in the Republic of Macedonia especially in linking formal and informal education, promotion of lifelong learning and adult education. Other key areas where EL strategy will strongly influence is increasing social participation, improving the competitiveness of Macedonian society and promoting international cooperation.
- **Strategy for Innovations of Republic of Macedonia 2012 – 2020**. This strategy takes into account the current state of development in the Republic of Macedonia to ensure that policies to promote innovation are both focused and relevant for the country.

According to the strategy, by 2020, the Republic of Macedonia will have an effective national innovation system, co-created by all stakeholders and open to the world. In order to fulfill this vision, in the strategy four strategic objectives were defined: 1. Enhancing the business sector's propensity to innovate; 2. Strengthening human resources for innovation; 3. Creating a regulatory environment in support of innovation; and 4. Increasing knowledge flows and interactions between innovation actors. This strategy and entrepreneurial learning strategy have many things in common and complementarity especially for the second strategic objective for strengthening human resources in the country for innovation. Because innovation is generally part of entrepreneurship, reforms in formal education related to entrepreneurial learning, stimulation of entrepreneurship at all levels of formal, non-formal and informal education and promotion of lifelong entrepreneurial learning as a part of entrepreneurial learning strategy will help in building effective national innovation system.

- **Strategy for Vocational Education and Training of Republic of Macedonia and Action Plan 2013 – 2020.** The main goals covered in VET strategy are: 1. To enhance the attractiveness, relevance and quality of VET and enable it to play a key role in the improvement of professional performance, competitiveness and innovation; 2. To offer more diversified and flexible learning opportunities to young people and adults to acquire the skills that are necessary for their career development and that stimulate entrepreneurial spirit, whilst fostering participation in further education and training, and contributing to active citizenship and personal fulfilment and 3. To promote excellence and social inclusion, contribute to greater employability, mobility and job security enhance anticipation and management of labour market changes and encourage business competitiveness. Entrepreneurial learning strategy as a document that have objective for stimulation of entrepreneurial spirit among people on all levels in the country will also play an important role in achieving these goals.
- **Industrial Policy of Republic of Macedonia 2009 – 2020.** The main objectives of the Industrial Policy 2009-2020 are to contribute to the increased competitiveness of the domestic industry based on knowledge, innovation and research, the creation of a stimulating business and investment climate, and to support companies in their efforts to increase the competitive advantages by acquiring more knowledge, new technologies and markets. This strategy focused measures on the following areas: international cooperation of key economic development stakeholders, applied research, development and innovation, eco-friendly technologies, products and services for sustainable development, SMEs and entrepreneurship development and collaboration in clusters and networks. Entrepreneurial learning strategy with their own measures will help in creating society with high skills for applied research, development and innovation in addition to development of SMEs sector and entrepreneurship in the country.
- **Action Plan for Improvement of Competitiveness.** Building entrepreneurial skills and more entrepreneurial ventures in the country will increase competitiveness of the companies in the country.
- **National Development Strategy for SMEs.** Even though this strategy expires at the end of 2013, the new strategy is under preparation and will have influence on the implementation of the EL strategy.

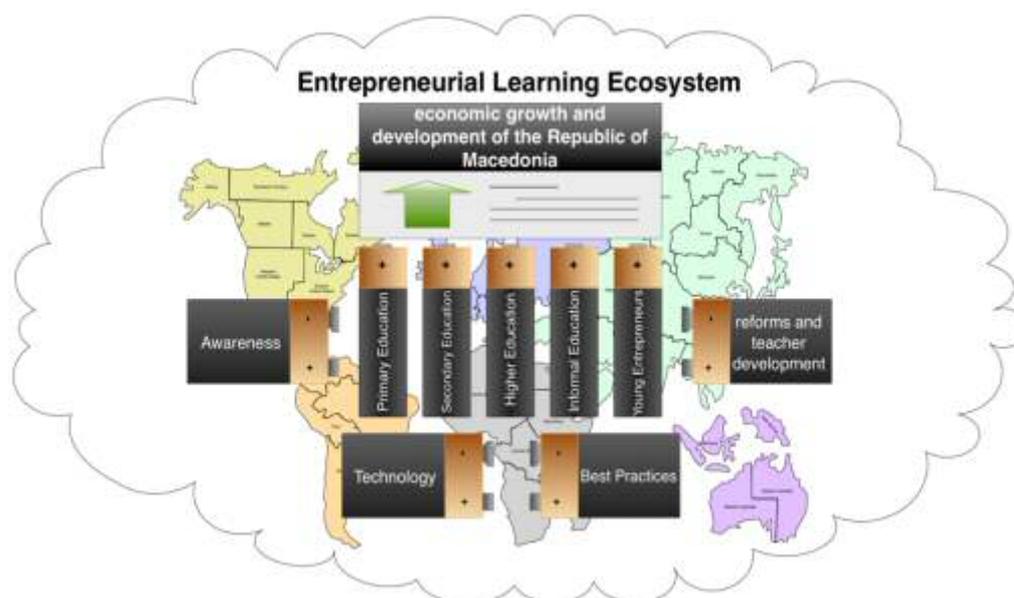
#### ***4.2 Priority areas of Macedonian Entrepreneurial Strategy***

The high priority areas for the entrepreneurial learning strategy in the Republic of Macedonia are located in five main pillars elaborated bellow, while technology and good practices are the drivers of the strategy that will increase overall EL awareness and will results in reforms and continuous teachers (service providers) development. All of these are the preconditions

for achieving an EL strategy vision - to ensure sustainable economic development and prosperity of the Republic of Macedonia and Macedonia to become a country with highly developed entrepreneurial culture and spirit that inspires everyone.

As can be seen from the figure 1, there are **five pillars** as a central part of the entrepreneurial learning ecosystem in the Republic of Macedonia, and these are explained below. They are the basic foundation that will directly frame the implementation of Entrepreneurial Learning activities - in order to support economic growth and development of the Republic of Macedonia. Importantly, there are also five energizers that will support the implementation and continuous improvement of the entrepreneurial learning process in the country.

The first energizer is **creating strong awareness** in the whole environment about the true meaning and importance of entrepreneurial learning. Only with strong awareness there will be enough support of all activities related with this strategy. In the creation of a successful entrepreneurial learning ecosystem there really foundational **reforms** will be required, including regulations related to entrepreneurial learning and education in general, and **continuous teachers' development** in the field. This is the second important energizer in the entrepreneurial learning ecosystem that will be developed with this strategy. The third energizer is **technology** that means using the state-of-the-art-technology in implementing entrepreneurial learning activities that will bring better competences of everyone in the process. As a fourth energizer there are **good practice** which means implementation of systematic approach in developing, implementing and sharing best practices related to the implementation of entrepreneurial learning activities inside and outside country. And at the end this ecosystem is based on building strong **international cooperation** among all educational institutions in the country in order to share and learn entrepreneurial learning new information.



**Figure 21:** Macedonian Entrepreneurial Learning Ecosystem

Generally, on all formal educational levels, EL strategy will require **strengthening the systematic approach in building entrepreneurial education institution** through strengthening managerial systems and building strategic alliances on formal and informal way with business and local community. Regardless the location of the formal educational institutions, or size and previous history, all of them will have the same goals and will use unified working processes.

EL strategy **will not require some big changes into the legislation**, but in order to ensure that this strategy will be fully implemented without improvisation it will require deeper analysis

of the current legislation especially in the fields of enabling solid conditions for strategic alliances and cooperation between entrepreneurial education institutions and local and business community, and practical work of the students and implementation of entrepreneurial projects right on the market regarding the level of education.

EL strategy will require to be **created and implemented specific entrepreneurial learning outcomes** for all formal educational levels that will support better integration of entrepreneurial learning into the curriculum and more focused teachers development and equipment with tools and materials that will enable sharing best practice. Collaboration on institutional level and outside the borders of institutions through strengthening entrepreneurship educators network will additionally support implementation of the goals of the EL strategy and will bring continuous improvement of curriculum and teachers development in entrepreneurial schools.

Some of the skills that will need to be developed through formal education are already part of the curriculum, but there is still lack of more systematic approach in developing teachers, implementation of the best practice and strong awareness that will enable long-term improvement of entrepreneurial practice in educational institutions.

Detailed explanation of main 5 pillars is following.

#### ***4.2.1 Primary and pre-school education***

Primary education as the first stage of formal education in a range of basic subjects is one of the priority areas of this strategy because will create much higher awareness between pupils from their early age. Learning to be creative, learning to work in teams, solving practical problems and presenting different solutions, exploring and experimenting with new approaches is something that can be learned from the earliest age and as a part of primary education in large will contribute in creating entrepreneurial spirit in youngest people in the country. There are those who claim that at this age young people already have it, but that later 'teaching to the test' styles of education slowly drain it out.

Earliest age means that pupils do not fear to start something new, to experiment with different things, to try different activities and primary education can play a large part in helping these personal features to be developed and encouraged as useful in everyday life.

Primary education ensures many possibilities through different teaching subjects in which can be injected entrepreneurial learning process. Students can be easily encouraged to learn about their local community, the needs of the community and practical problems that can be and should be solved. Knowing the local community will require young people to be introduced to the world of grown people, where they work and create. The primary school is the ideal place where kids can be introduced to the world of work where they can meet and talk with people from wide range of occupations where also can be included people who have already started their own business. This can of course be playful and fun for the young learners.

In the later grades in primary school students can start to learn about the skills that they will need in the future, like idea generation process, decision making and problem solving. One of the goals of primary education is to introduce responsibilities that students have to the community and starting with the activities that will improve different parts of the primary school live and will come directly from the students will be very useful not only for them, but also to their community in general.

Entrepreneurial learning at this stage will develop pupil's:

- Self-confidence;
- Creativity;
- Team work skills;
- Responsibility;
- Resilience and flexibility;

- Courage to explore and experiment with different things;
- Decision making and problems solving skills;
- Social skills;
- Collaboration and communication skills;
- Awareness about local community;
- Skills to use different type of technology.

#### **4.2.2 Secondary education**

Secondary education as an secondary stage of educational process is another primary area for entrepreneurial learning strategy in the Republic of Macedonia. Secondary education here will cover VET Schools and gymnasiums.

In this part of their educational development students will need to continue to grow their entrepreneurial skills and should start working on practical projects from idea generation to implementation of entrepreneurial processes. They can implement their entrepreneurial projects with the help of their school or of existing relevant associations and NGOs (international, national) or alternatively through direct engagement with the local community - where the project will be designed to solve specific problem or need for the specific environment.

Secondary education has the goal to provide students with a first-hand experience related to different career opportunities. Entrepreneurial skills can be promoted through all curriculum areas and learning subjects, as well as through specific subjects related to entrepreneurship and innovation.

Entrepreneurial learning at this stage will need to equip students with skills related to:

- Concept development;
- Problem solving;
- Decision making;
- Network building;
- Discovering opportunities;
- Practical work and simulation of the innovation process or real-life working conditions;
- Knowledge of founding start-up;
- Economics knowledge;
- Financial literacy;
- Marketing and selling knowledge;
- Importance of planning;
- Importance of flexibility.

#### **4.2.3 Universities**

Higher education is the third main priority area for this document because the universities have an important role in the research and development field and in large part can become the most valuable support for the first entrepreneurial ventures of their students.

At the university level students should have the possibilities to learn more entrepreneurial skills related to their area of study.

Through the implementation of EL strategy, Universities will give the possibility for each student to build entrepreneurial skills and will have the role as a catalizator for innovation and practical transformation of the most innovative ideas into the entrepreneurial ventures.

Building supportive conditions for students as a possible entrepreneurs at universities will be made through creation and overall support of start-up/business accelerators and incubators

that will ensure high-level know-how for the students (nascent entrepreneurs), prepare them for investments and help them access to financial grants and seed/venture capital. This will be partially supported from one side, and will directly support from the other side the innovation strategy, planned activities that will be implemented and Innovation Fund as a part of that strategy.

Additionally, universities will need to work on strengthening students organizations in order to incorporate entrepreneurial culture and skills in them to support the overall entrepreneurial learning eco-system in the country.

Entrepreneurial learning at this stage will need to build on existing skills and abilities in order to support the development of skills related to:

- Knowledge about national and global changes and trends;
- Industry knowledge;
- Environmental theory;
- Resources utilisation;
- Productivity;
- Identification and evaluation of business opportunities;
- Developing business models and preparing business plans;
- Implementation of developed business plans and starting real-life company.

#### **4.2.4 Informal and non-formal education**

Another priority area in this strategy is informal and non-formal education. Here we find types of education and training that rest outside of formal education, but can bring more learning possibilities for people of the Republic of Macedonia regardless their age – this is an integral part of the overall eco structure strategy.

“Formal learning is always organised and structured, and has learning objectives. From the learner’s standpoint, it is always intentional: i.e. the learner’s explicit objective is to gain knowledge, skills and/or competences. Informal learning is rarely as structured, has no set objective in terms of learning outcomes and is often never intentional from the learner’s standpoint. Often it is referred to as learning by experience or just simply as experience. Mid-way between the first two, non-formal learning is the concept on which there is the least consensus, which is not to say that there is consensus on the other two, simply that the wide variety of approaches in this case makes consensus even more difficult. Nevertheless, for the majority of authors, it seems clear that non-formal learning is rather organised and can have learning objectives. The advantage of the intermediate concept lies in the fact that such learning may occur at the initiative of the individual but also happens as a by-product of more organised activities, whether or not the activities themselves have learning objectives. In some countries, the entire sector of adult learning falls under non-formal learning; in others, most adult learning is formal. Non-formal learning therefore gives some flexibility between formal and informal learning, which must be strictly defined to be operational, by being mutually exclusive, and avoid overlap.”<sup>8</sup>[13]

Informal and non-formal education is the best way to build opportunities for adult people to join in the process of entrepreneurial learning such as those who lose their jobs, and also persons that have a beneficial pension. Also, here are the individuals who are expanding their views learning by themselves, for example on the job or during their free time.

Informal and non-formal education should support development of number of competences that will allow individuals to increase:

- Life-long learning capacities;
- Specific competences related to type of industry/sector or hobby;

<sup>8</sup> <http://www.oecd.org/education/skills-beyond-school/recognitionofnon-formalandinformallearning-home.htm>

- Networking opportunities;
- Resources utilization;
- New technology utilization;
- Novel opportunities and new career options;
- Follow-up activities to increase the implementation of what is learned;
- Encourage proactive approach regarding self-employment and economic independence.

#### **4.2.5 Entrepreneurs (with focus on young entrepreneurs)**

Entrepreneurs, current and potential entrepreneurs are important components of this entrepreneurial learning strategy. The success of entrepreneurs will mean the success of the implementation of the strategy. The main focus of the strategy is on young entrepreneurs and on the conditions and environment needed for their successful growth.

This pillar of strategy should ensure entrepreneurs to strength their capacities for:

- Expanding current developed hard skills;
- Opportunity-seeking and initiative taking;
- Utilizing technologies, innovation and new products development;
- Persistence;
- Demand for quality and efficiency;
- Calculated risk-taking;
- Systematic planning, goal-setting and monitoring;
- Persuasion and networking;
- Independence and self-confidence;
- Fund-raising;
- Internationalization of their work.

### **5. Challenges of the entrepreneurial learning strategy for the Republic of Macedonia 2014- 2020**

All types of transformations are covered with different types of challenges that often can be very limiting factors in ensuring successful implementation of strategic documents. So, the same is the case with Macedonian strategy. Because of that it is important to build strong ability to face challenges with a constructive approach from the start to ensure successful implementation of the entrepreneurial learning strategy.

The biggest challenges to the success of the national strategy for entrepreneurial learning will be the following, presented in descending priority order:

- **Ensuring support from all stakeholders responsible in the implementation of entrepreneurial learning strategy in the Republic of Macedonia.** Important challenge that this strategy will also need to address is ensuring enough support from everyone in the process of implementation. It is not only about the formal and in-formal/non-formal educational institutions and policy makers, but there will be high need for building collaborative environment, in which all parts from formal, non-formal and informal education will collaborate in creating better future. Also, involvement and commitment of enterprises to participate in relevant activities of the EL strategy will be one of the most important factors for the successful implementation.
- **Limited financial resources, human resources and time** . As always limited financial resources, but also human resources can become one of the biggest obstacles in successful implementation of the strategy. Other challenge is the persons that will be on the first line in the implementing this strategy (teachers and school managers) that also

will need to exert more efforts that will ask additional time from them.

- **Creating flexible curriculum especially in the fields related to entrepreneurial learning with the connection of other learning subjects in formal, non-formal and informal education.** This is one important challenge because the main purpose of the curriculum will have to succeed in preparing students for the jobs that not yet exist on the market. Flexible curriculum will avoid high level of current generalization of educational system in their span creating knowledge about everything for everyone, so it will contribute in the creation of the skilled people prepared for the future jobs that even not exist today.
- **Building high level awareness from students, parents to teachers and all parties in the process of entrepreneurial learning in the Republic of Macedonia.** Students and teachers are important part of entrepreneurial learning process, but there are also many other influencers that can really be impactful on the implementation of the strategy. Because of that one of the challenges of this strategy is to build really high level of awareness from students, parents, teachers and local and national community that will have supportive role in the entrepreneurial learning process.
- **Creating teacher training programs that will reflect the real needs of today's and future markets.** Teacher development is one of the most important pillars of the strategy, and as something like that creating teachers training program that will ensure successful implementation of the strategy is additional challenge.
- **Involvement and commitment of enterprises to participate in relevant activities of the EL strategy.** Direct involvement of the companies in the educational process is the key for successful implementation of the strategy.

## 6. Conclusion

Creation of any national level strategy document is very challenging activity. Moreover, Macedonian EL strategy document addresses a wide range of challenges: processes of changing the population mindset (especially among youth), the severe unemployment issues, and enhancement of lifelong learning. Summing-up, this strategy has the potential to contribute to prosperity and sustainable economic development of the country.

The fact that this document is supported by the key state stakeholders ( **President of the Republic of Macedonia, Vice-premier of the Republic of Macedonia responsible for economic affairs, Minister of education and science, Minister of economy, and Minister of labour and social affairs** ) [14] and all other stakeholders from educational and business sector gave us right to conclude that this will be active document (together with its action plan) and will contribute to build Republic of Macedonia in a **country with highly developed entrepreneurial culture and spirit that inspires everyone** (this is Macedonian EL vision). The Republic of Macedonia aspires to become country with a highly developed entrepreneurial culture and spirit, one that transcends age and inspires everyone in society through creativity, innovation, initiative taking and a competitive attitude towards learning to succeed.

This paper demonstrates simultaneously a broad and in depth look at Entrepreneurial Learning through the focus of one developing EU country. Authors show the cultural change going on in education that emphasises the need for self-responsibility for job and business creation for self and economic growth. In addition, the Macedonian example can raise broader issues as for example “Does this help address the helplessness or ineffectual nature of governments?” or, “Does this speak to the new wave of capitalism? ”, “Is Entrepreneurial Learning an expression of Post modernism”, or “Is it an approach to stripping down to basics and simply teaching people to be efficient in all aspects of living? ” and many other similar questions that should be answered in upcoming period.

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## Drawbacks of spin-off creation in higher education: a Central European perspective

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**In the recent decades academic entrepreneurship has gained an increasing attention in the literature since universities had been engaging in the commercialization of the scientific results. Despite of the popularity, there is still a lack of studies investigating the role of individual scientists in the transition of universities to becoming entrepreneurial universities and even studies focusing on Central European countries. The topic requires interdisciplinary thinking because in one hand scholars have to understand the milieu of natural- and life sciences, engineering and agriculture and on the other hand the methodology of social sciences should be applied for the investigation. Although the Theory of Planned Behavior (TPB) has been developed more than three decades ago, the researches on entrepreneurship attempted to adopt as a theoretical framework only in the recent decade. In our study we use TPB model for determining the main influencing factors of entrepreneurial intention with the extension of potential drawbacks. Building on the theory we conducted a survey among researchers at four scientifically respected Hungarian universities to unfold the most influencing factors of entrepreneurship. We received 141 responses due to time constraints between 26 February 2015 - 05 April 2015. The results provide evidence of the relevance of attitudes, social norms and perceived behavioral control in connection with entrepreneurial intention in the TPB model. This suggest that those scientists who have positive attitudes, are encouraged by the social environment and feel control over entrepreneurial activity, are tend to establish spin-off company for commercializing their research results, and vice versa. Conducting Principal Component Analysis on other 8 variables we can concluded that previous entrepreneurial experiences, industrial embeddedness and the ability of covering the expenditures of spin-off creation also foster entrepreneurship. In general, respondents expressed rather negative views than positive opinion relating to entrepreneurship in our survey. While two-third of the respondents would commercialize their research results through spin-off creation if they got possession of commercializable invention, there is only a small proportion of academics (11%) planning to commercialize his recent research results through entrepreneurial activity. Therefore we approach these potential influencing factors as drawbacks instead of incentives.**

## **Keywords**

Drawbacks, Entrepreneurship, Spin-off, Theory of Planned Behavior, University

# 1. Introduction and Theoretical Framing

In recent decades university entrepreneurship has gained an increasing attention in the literature [References

1], [2], [3] due to their role in the regional development [4], in technology development [5], [6] and in spin-off creation [7]. However, academic spin-offs are rare entities, they can contribute to the economic development and in the additional income generation for universities [8].

In 1980, the United States legislation passed the Bayh-Dole act which facilitated the transition of traditional universities to entrepreneurial ones. The act allowed universities to commercialize their intellectual properties arising from federal government-funded research [8]. Although the Bayh-Dole Act was a fundamental milestone of the transition, there had been other factors as well fostering universities' patenting and licensing activity [9]. As a result, universities were engaging in entrepreneurship not only in the United States, but also in Europe [10] in order to bring university technologies to the market [11]. The transition to the entrepreneurial university poses challenges [12], which make difficulties for universities corresponding to the new role [13]. Furthermore the participation of academics in the commercialization of university knowledge is crucial due to the tacit knowledge possessed by the inventors [14]. According to the literature we also believe that scientists play important role in the development of entrepreneurial university therefore we put our research focus on the individuals.

Various motivations have been revealed that can influence academics' entrepreneurial activity. Personal income is one of the well discussed motivational factor. There are evidences of expected financial gain can motivate researchers [15], but other results suggest only indirect effect between financial gains and entrepreneurial intentions. This supposes that the expected personal earnings exert direct effect only on the attitudes towards entrepreneurial activity that has direct impact on entrepreneurial intention [16] while many scientists are motivated in enhancing their academic standing instead of profits [17]. In addition, expected reputational gain does not motivate scientists in entrepreneurial activity [16]. This latter can be explained by that probably entrepreneurial activity does not yield additional reputational gain to the researchers in the scientific community. Another motivational factor is the desire to bring discoveries to the market which has been proven important in researchers' motivation [18] while some young scientists create spin-offs in order to escape the bottlenecks of the academic system and work on the field of their expertise [19].

Some authors emphasize that the commercialization of university knowledge may divert scientists from fundamental research activity [20] and can restrict information flow among scientists [21], which is contrary to the norms of open science. Significant obstacles of entrepreneurial intentions can be scientists' workload (teaching and research) and personal circumstances [16]. Although most of the scientists have positive attitude towards knowledge and technology transfer in general, they do not prefer entrepreneurial activity as a form of knowledge transfer [22]. But those researchers, who are motivated mainly by the commercial potentials of entrepreneurial activity, are more likely to take part in spin-off creation [23]. In addition, other authors argue for the possible positive effects of commercialization [24], [25] [26], [27] which may yield additional benefits for the academics, like increased publication performance, defining new research agendas with industrial partners or increased cooperation between research groups.

Despite of the increasing amount of studies investigating university entrepreneurship in the United States and in Western Europe, there is still a lack of studies in Central Europe. A Hungarian [28] study concluded that there is a lack of motivation (motivation gap) towards entrepreneurship which pulls back researchers from spin-off formation. Even if some researchers are enthusiastic, they still have to face with the lack of competence (competence

gap) in commercialization and lack of confidence (confidence gap) from industrial partners 29]. Another study in Hungary emphasizes the role of department in engaging in the technology transfer, while the spin-off creation is mainly influenced by the entrepreneurial attitude and previous working experience.

Our investigation aims to determine the potential factors that can have impact on academics' intention towards spin-off creation. Although recent studies in the United States and in more industrialized European countries unfold remarkable results of university entrepreneurship and good practices, in Central European countries there is a lack of university entrepreneurship activity. Therefore we approach the potential influencing factors as potential drawbacks, which can pull back scientists from entrepreneurship in Hungary.

Our study builds on the Theory of Planned Behavior (hereinafter TPB model) to investigate the potential influencing factors of spin-off creation. The TPB model is widely used [30], [31], [32] as a theoretical framework for predicting behavior in psychology and other scientific fields. In recent decades the researches on entrepreneurship also adopted this conceptual model for predicting entrepreneurship [16], [33], [34]. The theory supposes that the intention towards certain behavior (*intention*) is affected by the *attitudes*, *social norms* and *perceived behavioral control* related to the given behavior. The model also measures the linkage between the *intention* and the *behavior*<sup>9</sup> as well. The predicting factors (attitudes, social norms, perceived behavioral control) are usually constructed from at least 2-3 variables.

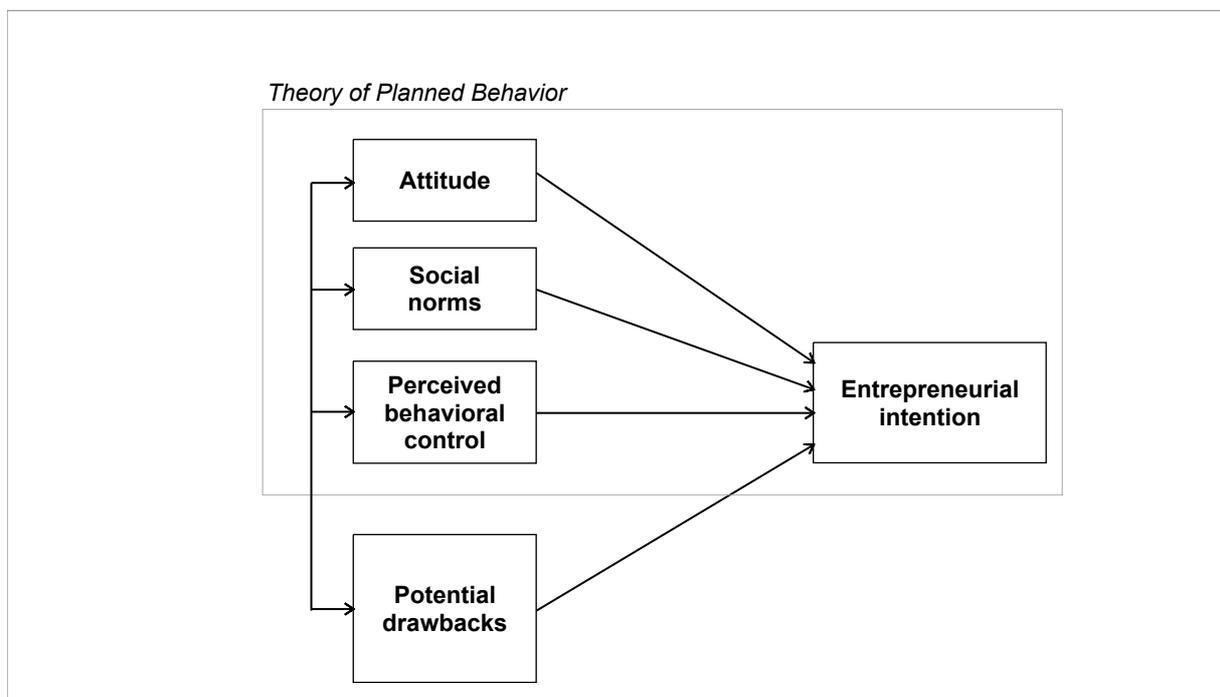
The TPB model allows us to investigate the predefined psychological factors of TPB model and other entrepreneurship-related factors as well. In one hand, we test the TPB model in the Hungarian context and on the other hand we determine the most influencing factors that are not considered by the TPB model. These influencing factors were collected from recent studies and a qualitative study carried out with 21 researcher<sup>10</sup> in Hungary [35] concluding that scientists perceive significant obstacles of becoming entrepreneurs because involvement in technology transfer activity causes difficulties in their traditional role. The additional workload related to entrepreneurship, the lack of business-oriented skills and unsuccessful previous entrepreneurial activity keep researchers away from spin-off creation.

summarizes the conceptual model built on the Theory of Planned Behavior and the potential drawbacks of spin-off creation.

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<sup>9</sup> In our study we do not investigate the relationship between *spin-off creation intention* and *spin-off creation (as behavior)* because we did not conduct the second research on the behavior due to the time constraints. According to the theory, we should carry out a second survey on the behavior which investigate whether the *intention* transformed or not into the *behavior*.

<sup>10</sup> The paper submitted to the conference included 14 interviews, which was extended in the same year to 21 individual in-depth interviews with university scientists.



**Figure 22:** Conceptual model of entrepreneurial intention  
Source: Authors' compilation

## 2. Research Method

The present study was carried out among academics at four determining universities according to their research activity in order to better understand the influencing factors of spin-off creation. A questionnaire has been developed based on the literature review and the previous qualitative study conducted with 21 scientists in 2014. The interviews last between 45-90 minutes which were recorded (25 hours) and transcribed (740,000 characters) for further investigation. The questions covered different topics relating to patenting, spin-off creation and technology transfer offices. In this study we focus only on spin-off creation.

## 2.1 Data Collection

Two principles were taken into consideration during the data collection from the departments' websites. Firstly, the scientific field represented at the department had to be relevant to life sciences, natural sciences, engineering or agriculture, while departments relating to arts (e.g. literature, history, etc.) were excluded in our survey. Secondly, the personnel listed on the websites had to be relevant to research activity like full professors, associate professors, assistant professors, assistant lecturers, PhD students; or who held research-related positions (e.g. research fellow or head of research) according to the websites. Others were excluded, like assistants, technical staff and administrators. Finally, 3,993<sup>11</sup> relevant e-mail addresses were collected. We used *EVASYS web-based survey system* for collecting responses. Due to time constraints, during this time period (26 February 2015 – 05 April 2015) we received 141 responses from university researchers (response rate is 3,53%).

## 2.2 Hypotheses

In our study we test two hypotheses relating to the spin-off creation. Taking the psychological assumptions of Ajzen (1991), we suppose that *attitudes, social norms* and *perceived behavioral control* play important role in the *spin-off creation intention* (Hypothesis 1).

*Hypothesis 1: Attitudes, social norms and perceived behavioral control towards patenting plays important role in the spin-off creation intention.*

Testing the results of previous studies and our qualitative research we investigate the relationship between *other potential influential factors* and the *factors of TPB model*, including *spin-off creation intention*. Therefore we suppose the following presumption in our study:

*Hypothesis 2: The potential drawbacks play important role in scientists' spin-off creation intention.*

This model allows us to test the Theory of Planned Behavior in the Hungarian context and to investigate what other factors have impact on spin-off creation intention.

## 2.3 Measurement

In the Theory of Planned Behavior we measured *attitudes*<sup>12</sup>, *social norms, perceived behavioral control* and *intention* with 5-point Likert scales ranged from -2 (not agree at all) to 2 (fully agree), where respondents had to mark whether they agree or not with the statements. The statements were constructed based on guidelines of the TPB model [30], [36], [37]. Entrepreneurial intention was measured with the following statement on a 5-point Likert scale: *I plan to create spin-off company within 1 year for the commercialization of my scientific results*. Regarding the *potential drawbacks*, in some cases we used the previous 5-point Likert scales and in other cases we let researchers to decide whether the given statement has positive or negative content. The statements were collected through the qualitative study in 2014 where 21 researchers have been interviewed and provided basis for the potential drawbacks [35].

## 3. Research Results

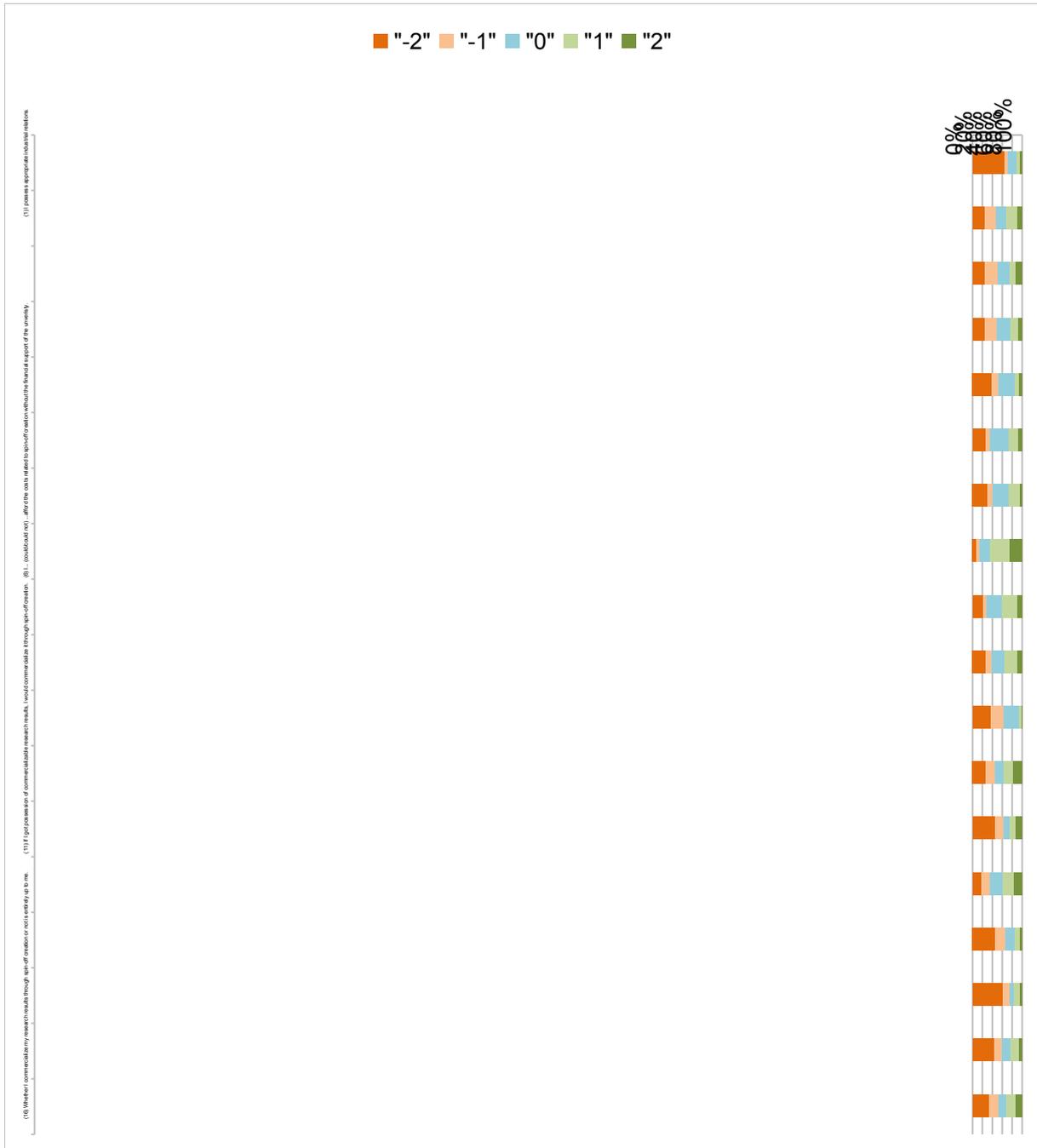
<sup>11</sup> University 1 (1199 scientists); University 2 (1047 scientists); University 3 (653); University 4 (1094)

<sup>12</sup> Attitudes were measured by 3 statements, which were focused on the 3 components of attitude (*affective component, behavioral component and cognitive component*).

In this section we demonstrate the research results including the descriptive statistics, then the Theory of Planned Behavior and the potential drawbacks of spin-off creation will be investigated. Firstly, we unfold the relationships within the Theory of Planned Behavior, because this model is the basis of our presumptions, secondly we attempt to discover patterns among responses and to determine potential drawbacks which may pull back spin-off creation intention.

### **3.1 Descriptive Statistics**

According to the respondents, most of the scientists expressed rather negative opinions in connection with entrepreneurship than positive (**Error! Reference source not found.**). More than half of the researchers stated that, (1) they do not possess appropriate industrial relations and (2) are not familiar with support organizations. Just a small share of scientists (3) has any experience in spin-off creation/operation (16%) or (4) possess entrepreneurial competences (15%). Moreover (8) only 5% of researchers believe that the commercialization of university research results is easy contrary to 64% of them who find it difficult. We can conclude that these results depict an unfavorable environment for entrepreneurial activity. Regarding the attitudes towards entrepreneurship (9-10), 35-41% of the researchers expressed positive opinion, while (11) 64% of the respondent would commercialize their research results if they got possession of commercializable results. Unfortunately, (12-13) academics perceive few encouragement from social environment (family, friends and peers), and (14) only 15% of researchers are encouraged by the university management which should promote the transition to entrepreneurial university. Although (15-17) 23-32% of the respondents feel control over the spin-off creation, there is still a small proportion of scientists (11%) who plan to commercialize their research results through spin-off creation/operation within 1 year (entrepreneurial intention).



**Figure 23:** Frequencies of responses  
Source: own construction

**3.2 Factor Analysis of the Theory of Planned Behavior**

The three main factors of the theory are *attitude*, *social norms* and *perceived behavioral control*. Each category was measured with 3 statements (Table 10). We measure the *Attitude Factor* with statements relating to the importance of spin-offs in the scientific field represented by the researchers (cognitive component of the attitude), to the importance of spin-off creation for the individual (affective component of the attitude) and to the willingness of creating spin-off if the scientific results can be commercialized (behavioral component of the attitude). Regarding the *Social Norms Factor*, the impact of family and friends, other scientists whose opinion matters for the scientist and the university encouragement were investigated. We assume that these three groups of stakeholders can

have impact on spin-off creation intention. Finally we wanted to better understand how much the academics feel control over the freedom of spin-off creation at the university and control over the competitiveness of the spin-off company led by the scientist (Perceived Behavioral Control).

Regarding the correlations between the variables and the entrepreneurial intention (Appendix 2), all variables relating to the attitude factor play important role in spin-off creation intention. But, the behavioral component of the attitude (Pearson correlation: 0,273\*) exerts less influence on intention than the affective (Pearson correlation: 0,585\*\*) and cognitive (Pearson correlation: 0,419\*\*) components. This suggests that entrepreneurial intention has stronger relationship with the importance of entrepreneurship for the individual than the willingness to create spin-off if the scientific results could be commercialized. Regarding the social norms, the encouragement of family, friends (Pearson correlation: 0,325\*\*) and other scientists (Pearson correlation: 0,339\*\*) play important role in entrepreneurial intention while the encouragement of university management does not (Pearson correlation: 0,127). The variables of the perceived behavioral control have not be found significant, only the scientist's belief about the competitiveness of the spin-off company led by the scientist (Pearson correlation: 0,437\*) play important role.

According to the principles of the TPB model we test the internal consistency among the variables. We use Cronbach 's Alpha for the estimation of reliability among the variables by each factor. In our predefined constructs we expect the internal consistency among the given items. As Table 10 shows that, the items of the *Attitude Factor*, the *Social Norms Factor* and the *Perceived Behavioral Control Factor* pertain to the corresponding constructs. However the internal consistency of the items relating to the perceived behavioral control (Cronbach 's alpha: 0,628) is lower than the internal consistency of Attitude (Cronbach's alpha: 0,816) and Social norms (Cronbach 's alpha: 0,815), each factor can be applied for futher investigation due to the acceptance criteria ( $0,7 < \alpha < 0,9$ : good internal consistency;  $0,6 < \alpha < 0,7$ : acceptable internal consistency). These results provide empirical evidence of the relevance of statements.

**Table 10:** Reliability statistics of the variables within the TPB model

<b>Factors</b>	<b>Statements</b>	<b>Reliability statistics (Cronbach's Alpha)</b>
Attitude	(1) Commercialization of research results through spin-off creation plays key role in my scientific field. (2) The commercialization of research results through spin-off creation is important for me. (3) If I got possession of commercializable research results, I would commercialize it through spin-off creation.	0,816
Social norms	(1) My family and friends encourage me to commercialize my research results through spin-off creation. (2) Those researchers, whose opinion matters for me, encourage me to commercialize my research results through spin-off creation. (3) The university management encourage me to commercialize my research results through spin-off creation.	0,815
Perceived behavioral control	(1) If I wanted to commercialize my research results through spin-off creation, I can freely commercialize it at the university. (2) Whether I commercialize my research results through spin-off creation or not is entirely up to me.	0,628

(3) My spin-off company under my leadership would be able to compete with industrial competitors.

Source: own calculation

### 3.3 Factors Analysis of the Potential Drawbacks

Based on the literature review and our previous qualitative study we investigated different variables, which may have impact on scientists' spin-off creation intention at Hungarian universities. In this study 8 variables and their relationship with entrepreneurial intention were analyzed (Appendix 3).

In order to create factors from the variables that can have impact on entrepreneurial intention we conduct Principal Component Analysis (Table 11). According to the analysis, four factors can be constructed from the 8 statements in our model. Firstly, *entrepreneurial experiences* consists of the scientists' previous entrepreneurial experiences and the appropriate competences possessed by the individual. *Industrial embeddedness* is described by the appropriate industrial relations and the awareness of support organizations for scientists. *Commercial prospects* of entrepreneurship means that those scientists who see lower rate of commercial prospects of entrepreneurial activity, find it difficult to commercialize university research results and do not believe in getting rich from entrepreneurship. The opposite is also true, in case of high commercial prospects scientists believe that commercialization of research results and getting rich from entrepreneurial activity is easy. The fourth factor is the *Independence* which reflects on whether scientists would need expertise or financial support from the university or not.

Table 11: Rotated Component Matrix<sup>a</sup>

	Factors			
	Entrepreneurial experiences	Industrial embeddedness	Commercial prospects	Independence
I have experience of creating/operating spin-off company.	,930			
I possess appropriate entrepreneurial competences.	,876			
I possess appropriate industrial relations.		,825		
I am familiar with those organisations that can provide assistance in patenting and spin-off creation.		,820		
University scientists... (cannot get/can get) ...rich from the entrepreneurial activities.			,872	
The commercialization of research results at universities through spin-off companies is... (difficult/ easy).			,821	
I... (would need/ would not need) ...support of business expertise from the university in order to operate the spin-off company successfully.				,890
I... (could/could not) ...afford the costs related to spin-off creation without the financial support of the university.				,708

Extraction Method: Principal Component Analysis.  
Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 4 iterations.

Source: own calculation

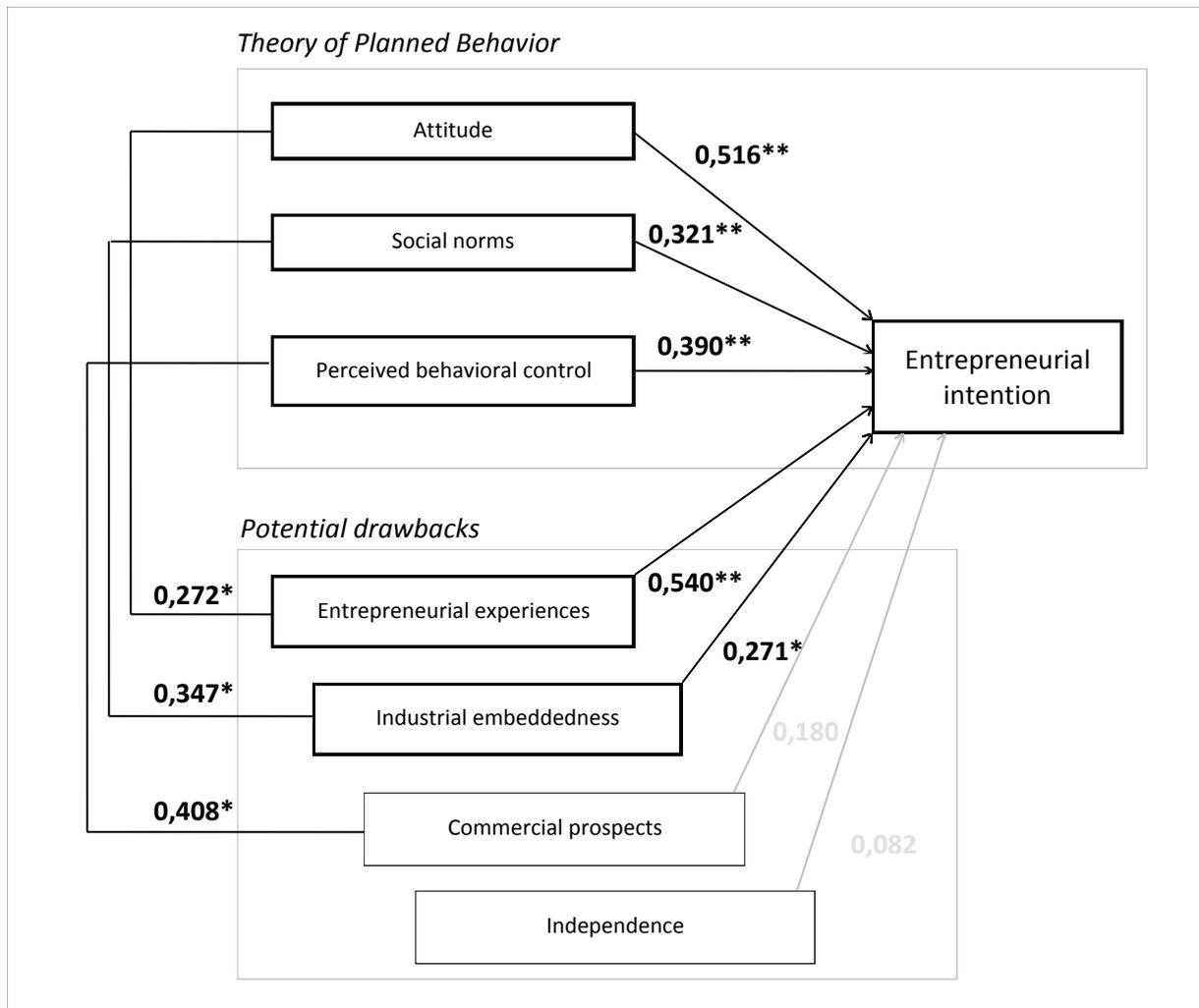
### **3.4 Relationships within the model**

In this section we investigate the relationships between the determined factors and entrepreneurial intentions in order to unfold significant linkages within the model. Firstly, the TPB model will be tested, then the potential drawbacks.

In the TPB model we assume that the *attitude*, *social norms* and *perceived behavioral control* have impact on the *entrepreneurial intentions*. In previous sections we provided evidence of the internal consistency of the TPB model's factors (Table 10). Considering the relationships between the TPB factors and entrepreneurial intention we can conclude that each factors have significant impact on entrepreneurial intention ( Appendix 4) as expected by the theory. Furthermore, the attitude, social norms and perceived behavioral control has significant relationships with each other as well. In one hand these results contribute to the presumptions that these factors exert influence on intention, on the other hand the model is seem to be applicable in the Hungarian context. *Based on the results Hypotesis 1 is accepted.*

We assume that the determined potential drawbacks also have impact on entrepreneurial intention. According to the results, only *Entrepreneurial experiences* and *Social capital* exert influence on intention, while *Commercial prospects* and *Independence* have not been proven significant in this context. Remarkably, *Entrepreneurial experiences* have the strongest linkage with entrepreneurial intention, while three of the four potential drawbacks have significant relationships with the items of the TPB model. According to these results the *Hypothesis 2 is rejected*, not all these potential drawbacks play important role in entrepreneurial intention (

).



**Figure 24:** Conceptual model of entrepreneurial intention  
Source: own calculation

## 4. Conclusions

In our study we investigated the determining factors of entrepreneurial intentions in a Central European country at four scientifically respected universities. As we have seen, scientists express rather negative opinions in connection with academic entrepreneurship than positive views. Only a small proportion of researchers (11%) plans to engage in commercialization of research results through spin-off creation. This result contribute to recent studies [16], [28], [29] which suggest that there are a small group of scientists (12%) calling them „repeat commercialisers” who take part in technology transfer and who invent 80% of the university technologies [38]. But this rate is still quite low. Remarkably, almost two-third (64%) of the respondents in our study would commercialize their research results through spin-off creation if they got possession of usable invention. This result gives rise to hope.

According to the results we can suggest that, those scientists, who have positive attitude towards entrepreneurship, who receive encouragement from social environment and feel control over spin-off creation are tend to create spin-off companies for commercializing his research results. We extended the TPB model with potential drawbacks and found previous entrepreneurial experiences and industrial embeddedness significant in connection with entrepreneurial intention. While the first one reflects on experiences and appropriate competences in entrepreneurship, the latter focuses on industrial relations and familiarity with support organizations. Although the other two constructs have not been proven

significant in entrepreneurial intention, those researchers who can afford the expenditures of spin-off creation are rather tend to establish spin-off company than who does not possess enough financial resources to do it. In one hand these factors can trigger entrepreneurial intention in case of positive opinions, but on the other hand those scientists who do not feel competent or do not possess industrial relations will not commercialize research results through entrepreneurial activity. Due to the overweight of general negative opinions we approach these factors as drawbacks rather than incentives. These results contributed to the literature extending our knowledge in entrepreneurship from a Central European perspective. Our study includes only four leading Hungarian universities, therefore we cannot generalize these results into the Hungarian context. Due to this limitation the results should be interpreted carefully. Furthermore, extending this survey to other universities (and enlarging the sample) would provide better understanding in entrepreneurship. Due to time constraints we could not test whether the entrepreneurial intention trigger entrepreneurial activity (behavior) or not, therefore we assumed the relationship between these two variables. The results of the first data collection have proven the consistency of the model, and we could provide evidence of the relationships within the TPB model. In the future we will conduct the second survey in order to test the relationship between the intention and behavior.

## Acknowledgement

This work was partially supported by the European Union and the European Social Fund through project (grant no.: TÁMOP-4.1.1.C-12/1/KONV-2012-0004).

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## Appendix

**Appendix 1** Descriptive statistics of the variables

Variables	Valid	Missing*	Total	Mean	Std. Deviation	Values				
						-2	1	0	1	2
I possess appropriate industrial relations.	140	1	141	-0,43	1,45	48	26	22	26	18
I am familiar with those organisations that can provide assistance in patenting and spin-off creation.	138	3	141	-0,75	1,33	61	21	24	24	8
I have experience of creating/operating spin-off company.	139	2	141	-1,16	1,24	84	21	12	16	6
I possess appropriate entrepreneurial competences.	131	10	141	-0,93	1,20	59	29	23	15	5
University scientists... (cannot get/can get) ...rich from the entrepreneurial activities.	88	53	141	0,01	1,33	16	15	23	20	14
I... (could/could not) ...afford the costs related to spin-off creation without the financial support of the university.	91	50	141	-0,73	1,47	42	16	11	10	12
I... (would need/ would not need) ...support of business expertise from the university in order to operate the spin-off company successfully.	96	45	141	-0,18	1,46	25	19	17	18	17
The commercialization of research results at universities through spin-off companies is... (difficult/easy).	77	64	141	-0,94	0,98	28	21	24	3	1
Commercialization of research results through spin-off creation plays key role in my scientific field.	92	49	141	-0,21	1,34	24	12	24	23	9
The commercialization of research results through spin-off creation is important for me.	96	45	141	-0,01	1,29	21	7	29	30	9
If I got possession of commercializable research results, I would commercialize it through spin-off creation.	95	46	141	0,66	1,14	7	7	20	38	23
My family and friends encourage me to commercialize my research results through spin-off creation.	94	47	141	-0,39	1,25	28	10	31	21	4
Those researchers, whose opinion matters for me, encourage me to commercialize my research results through spin-off creation.	92	49	141	-0,29	1,26	25	8	35	17	7
The university management encourage me to commercialize my research results through spin-off creation.	88	53	141	-0,72	1,23	34	13	28	8	5
If I wanted to commercialize my research results through spin-off creation, I can freely commercialize it at the university.	75	66	141	-0,44	1,24	19	18	21	11	6
Whether I commercialize my research results through spin-off creation or not is entirely up to me.	82	59	141	-0,39	1,32	21	20	21	10	10
My spin-off company under my leadership would be able to compete with industrial competitors.	60	81	141	-0,32	1,33	15	14	12	13	6
I plan to create spin-off company within 1 year for the commercialization of my scientific results.	91	50	141	-1,23	1,17	59	7	15	7	3

\* Missing values consists of missing values and „I cannot decide“ answers.

Source: own calculation

**Appendix 2** Correlations between the variables of the TPB model

		I plan to create spin-off company within 1 year for the commercialization of my scientific results.
Commercialization of research results through spin-off creation plays key role in my scientific field.	Pearson Correlation	,419**
	Sig. (2-tailed)	,000
	N	79
The commercialization of research results through spin-off creation is important for me.	Pearson Correlation	,585**
	Sig. (2-tailed)	,000
	N	83
If I got possession of commercializable research results, I would commercialize it through spin-off creation.	Pearson Correlation	,273*
	Sig. (2-tailed)	,014
	N	81
My family and friends encourage me to commercialize my research results through spin-off creation.	Pearson Correlation	,325**
	Sig. (2-tailed)	,003
	N	81
Those researchers, whose opinion matters for me, encourage me to commercialize my research results through spin-off creation.	Pearson Correlation	,339**
	Sig. (2-tailed)	,002
	N	80
The university management encourage me to commercialize my research results through spin-off creation.	Pearson Correlation	,127
	Sig. (2-tailed)	,274
	N	76
If I wanted to commercialize my research results through spin-off creation, I can freely commercialize it at the university.	Pearson Correlation	,195
	Sig. (2-tailed)	,110
	N	68
Whether I commercialize my research results through spin-off creation or not is entirely up to me.	Pearson Correlation	,130
	Sig. (2-tailed)	,270
	N	74
My spin-off company under my leadership would be able to compete with industrial competitors.	Pearson Correlation	,437**
	Sig. (2-tailed)	,001
	N	54

\*\* . Correlation is significant at the 0.01 level (2-tailed).

\* . Correlation is significant at the 0.05 level (2-tailed).

Source: own calculation

**Appendix 3** Correlations between variables of potential drawbacks

		I plan to create spin-off company within 1 year for the commercialization of my scientific results.
I have experience of creating/operating spin-off company.	Pearson Correlation	,422**
	Sig. (2-tailed)	,000
	N	91
I possess appropriate entrepreneurial competences.	Pearson Correlation	,525**
	Sig. (2-tailed)	,000
	N	85
I possess appropriate industrial relations.	Pearson Correlation	,391**
	Sig. (2-tailed)	,000
	N	90
I am familiar with those organisations that can provide assistance in patenting and spin-off creation.	Pearson Correlation	,421**
	Sig. (2-tailed)	,000
	N	90
University scientists... (cannot get/can get) ...rich from the entrepreneurial activities.	Pearson Correlation	,098
	Sig. (2-tailed)	,410
	N	73
The commercialization of research results at universities through spin-off companies is... (difficult/easy).	Pearson Correlation	,215
	Sig. (2-tailed)	,080
	N	67
I... (would need/ would not need) ...support of business expertise from the university in order to operate the spin-off company successfully.	Pearson Correlation	-,002
	Sig. (2-tailed)	,986
	N	78
I... (could/could not) ...afford the costs related to spin-off creation without the financial support of the university.	Pearson Correlation	,302**
	Sig. (2-tailed)	,008
	N	77

\*. Correlation is significant at the 0.05 level (2-tailed).

\*\* . Correlation is significant at the 0.01 level (2-tailed).

Source: own calculation

**Appendix 4** Correlations within the model

Attitude

		Social norms	Perceived behavioral control	Entrepreneurial experiences	industrial embeddedness	C
Attitude	Pearson Correlation Sig. (2-tailed) N					
Social norms	Pearson Correlation Sig. (2-tailed) N	,541** ,000 70				
Perceived behavioral control	Pearson Correlation Sig. (2-tailed) N	,471** ,002 41	,461** ,002 43			
Entrepreneurial experiences	Pearson Correlation Sig. (2-tailed) N	,272* ,049 53	,241 ,082 53	,313 ,059 37		
industrial embeddedness	Pearson Correlation Sig. (2-tailed) N	,223 ,109 53	,347* ,011 53	,078 ,645 37	,000 1,000 60	
Commercial prospects	Pearson Correlation Sig. (2-tailed) N	,159 ,256 53	,085 ,546 53	,408* ,012 37	,000 1,000 60	,000 1,000 60
Independence	Pearson Correlation Sig. (2-tailed) N	-,226 ,103 53	-,023 ,870 53	,178 ,292 37	,000 1,000 60	,000 1,000 60
Entrepreneurial intention	Pearson Correlation Sig. (2-tailed) N	,516** ,000 72	,321** ,006 72	,390** ,010 43	,540** ,000 56	,271* ,044 56

\*\* . Correlation is significant at the 0.01 level (2-tailed).

\* . Correlation is significant at the 0.05 level (2-tailed).

Source: own calculation

# Effects of Restructuring at Regional Level and Approaches to Deal With the Consequences

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Most large company restructurings have effects on the regions and employment areas they are active in, going beyond the individual firm and its employees. This paper explores the nature of these effects and shows that implications seem to be stronger the closer regional businesses are linked to each other, the more the regional labour market depends on few employers and the less diversified the regional economic structure is. In order to overcome the potentially negative effects of such large restructurings, local multistakeholder policy approaches are deemed to be effective instruments if designed and realised in an efficient way. The paper shows on the example of five case studies across Europe how regional actors have established a set of activities to cushion the effects of a large company restructuring on the regional economy and labour market. In general, these regional policy approaches are a combination of interventions in various policy fields and strategic orientations. They constitute a comprehensive package of measures to tackle both, the immediate effects of restructuring and the long-term sustainability and competitiveness of the regional economy and labour market. The policy packages are designed and implemented through cooperation of the national and regional government, the public employment service, social partners, companies and service providers. The paper identifies success factors for regional approaches to deal with the consequences of large restructurings to be effective. These refer to the need to be open towards change, the commitment and active engagement of all types of relevant regional stakeholders, the implementation of an integrated strategic approach with sustainable funding and the awareness and consideration of developments outside the region. Based on this, the following main policy pointers can be highlighted:

- Fostering a common ‘regional spirit’ through joint vision, networking and exchange before a crisis situation occurs contributes to quick and effective actions.
- The policy intervention should follow a sufficiently funded integrated approach tailored to the particularities of the specific region, combining short-term and long-term measures as well as a diversity of policy fields.
- The implemented measures should be continuously monitored and, if needed, adapted. This also requires a sufficient level of autonomy, competences and capacities of the regional actors.

## Keywords

Anticipation and Management of Change, Multistakeholder Approach, Regional Labour Market Policies, Regional Policies on Entrepreneurship, Restructuring

## Abbreviations

EMCC European Monitoring Centre on Change

EU European Union

GDP Gross Domestic Product

R&D Research and Development

## 1. Introduction

Structural change is a necessary element of economic development. Even if not all restructurings have negative employment effects (for example, business expansion or some internal reorganisation), it is widely perceived as incurring job loss. Consequently, restructuring is high on the political agenda in the Member States and at European level not only since the global economic and financial crisis.

Due to interrelationships among companies and the way they are embedded in the local environment, most large-scale restructurings have implications that reach beyond the individual firm and its employees. Particularly events such as substantial business expansions or plant closures can affect the regional business structure due to dependency links along the supply chain and hence affect the attractiveness of the area as a business location. This, in turn, can have an impact on the provision of services such as roads, public transport, childcare facilities, health and education, and leisure and recreational opportunities due to changes in tax income, thereby affecting the region's living conditions and causing population changes. Such inward or outward migration influences labour supply and labour productivity which, again, impacts the attractiveness of the regions for companies to settle there.

However, the impacts of large-scale restructurings beyond individual firms and their employees have received little attention so far, neither by research nor by policy makers. Information about the overall effects of restructuring as well as the approaches taken at regional level to ensure a positive outcome for the region is rather limited although it is acknowledged that such tailor-made local initiatives are the most effective approaches to such challenges.

Against this background, the European Foundation for the Improvement of Living and Working Conditions (Eurofound), having established the European Monitoring Centre on Change (EMCC) in the early 2000s, launched a research project in 2013 to identify the outcome of large-scale restructuring beyond the boundaries of the firm undergoing the restructuring, and to illustrate success stories of positive regional management aimed at maintaining and improving the labour markets and economic performance of the region following a significant restructuring event (Eurofound, 2014 [1]).

The project was based on a combination of a literature review and five qualitative case studies of large-scale restructurings across Europe. The case studies describe not only the anticipation and management of the restructuring events, but also the economic, labour market and institutional frameworks of the regions, the estimated effects on regional businesses and the regional labour market as well as the public, social-partner-based and private initiatives to deal with the consequences of restructuring at regional level. The analysis of these examples resulted in deriving success factors of such approaches as well as policy pointers. This paper summarises the main findings of this project.

In this paper, restructuring is understood as an important change in a firm or group of firms related to one or a combination of the following events: bankruptcy or closure, business expansion, merger and acquisition, offshoring or delocalisation, outsourcing, relocation, internal restructuring.

## 2. The Case Studies

In order to qualify for analysis in this project, the region had to have experienced a large-scale restructuring affecting not only the individual company and their employees but going beyond that, for example because the company is one of the main employers in the region or because it has considerable impacts on other regional companies due to value chain

networks. The restructuring event must not be too recent (about five years ago) so that effects on the regions could have materialised in the meantime. There must have been a regional approach to tackle potential negative effects of the restructuring.

The case studies were realised by conducting indepth interviews with regional stakeholders involved in the restructuring (for example, company management and works councils, regional government, employers' organisation, trade union, local economic development agency, cluster initiatives and research). In total, around 45 institutions and organisations were interviewed across the five case studies.

Across the case studies, there was a mix of restructuring types, including those that are generally linked to employment growth (business expansion) and types that cause job loss (closures, bankruptcies). The analysed companies are well established, with a history going back at least several decades. Ownership and management structures range from family firms to companies with public shareholders. The companies are large global manufacturing firms, and they are important employers in their regions. The only case study that does not involve a single company restructuring event is the Italian case study of the Prato Textile Industrial District. This involves a cluster of small and medium-sized enterprises (SMEs) that jointly form the industrial district which is undergoing restructuring.

There are some differences across the case studies regarding how the companies are embedded in the regional business structure. This ranges from strong local business networks in the cases of the Hamburg aviation sector and the Prato Textile Industrial District, to less close but still important business relationships along the supply chain in the French case of Arc International, to weak local business ties in the Slovenian Mura case (due to international sourcing and demand). Interestingly, particularly for the analysed French, German and Slovenian companies, their commitment to their region is strongly emphasised in the case studies.

**Table 1** Case Study Profiles

Country/ region	Restructuring company	Sector	Type of restructuring	Date of restructuring
DE Hamburg	Aviation sector – Airbus (international production network employing a total of about 60,000 and about 15,000 in Hamburg (largest employer) which is the German headquarter since 1969; 1/3 public shareholders); supplier network of about 300 SMEs (with a total of about 8,800 employees); high importance of regional business relations; rather high qualifications and skill levels among staff	Aviation	Business expansion, internal restructuring, outsourcing, merger and acquisition	1997, 2000, ongoing
FR Saint-Omer (Nord-Pas-de-Calais)	Arc International – family firm since 1825 with paternalistic management style; about 11,600 workers globally (about 6,000 in France); international market leader, highly innovative; main employer in the region; rather blue-collar workers); high commitment to the region; strong local business relations	Glass manufacturing	Internal restructuring, outsourcing, closure, offshoring/delocalisation	Ongoing since 2004
IT Prato (Tuscany)	Prato Textile Industrial District – among Italy's largest industrial districts and among the international market leaders since the 19 <sup>th</sup> century; specialisation and division of work between regional companies (with a high level of individualism among the enterprises) and a 'parallel district' of Chinese textile companies in the region; about 3,000 companies in the textile sector; rather low education levels among workers	Textile	Internal restructuring, bankruptcy/closure, merger and acquisition	Ongoing since the early 2000s
SE Trollhättan (Western Götaland)	Saab Automobile – formed in 1937; second largest car manufacturer in the country, known for its innovation, technology and efficiency; largest private employer in the region (about 3,000 workers before the closure; workers are widely considered as highly skilled, innovative and efficient), with mainly local workforce with long tenure in the firm	Automotive, aviation	Bankruptcy/closure	2000-2012
SI Pomurje	Mura – founded in 1925; family firm being part of a holding; technologically advanced; flagship company in Slovenia and largest firm in the EU manufacturing sector; about 1,200 employees (low qualified but highly skilled); stable regional employer with sound wages and training provision; locally	Clothing	Internal restructuring, bankruptcy	Late 1990s-2011

### **3. Effects of Restructuring at Regional Level**

#### **3.1 Economic Effects**

Next to the direct effects on the affected company (extent of production, turnover and employment, changes in the internal organisation), the analysed restructurings had economic effects on the region. However, this differed across the case studies.

Little regional economic impact has been observed in the Slovenian case, which is mainly attributed to the weak business links of the Mura company in the region. The other cases, however, do show knock-on effects. The restructuring of the Hamburg aviation sector contributed positively to the gross domestic product (GDP), turnover and productivity growth in the region as well as to the improvement of the image of the region as centre of expertise in aviation. An increased trend for international sourcing has been experienced since, with the number of local suppliers decreasing due to consolidation processes and restructuring of the value chain. Overall, the aviation industry mitigated the consequences of the decrease in other manufacturing industries. In the French, Italian and Swedish cases, the economic situation improved for some sectors (such as business-to-business, healthcare, retail trade or mechanical engineering), while it deteriorated for others (manufacturing).

All case studies (except the Italian one, due to its different nature) show important effects on the suppliers of the restructuring companies, mainly SMEs. In the French, Slovenian and Swedish cases, suppliers had to search for new clients to compensate for the lost business, which partly required the supplier firms to restructure too. While this was not much of a problem in Slovenia and Sweden, in Germany increased cost pressure, pre-financing needs, the requirement to deliver larger lots and risk-sharing imposed on supplier companies massively reduced the number of first-tier suppliers and the independence and self-control of the remaining ones.

Interestingly, the Swedish Saab bankruptcy fostered the start-up of a specialised engineering consultancy firm, employing previous Saab employees. As of early 2014, the company had about 170 employees and was expanding, including setting up offices in other regions.

The examples show that 'positive' restructuring (in immediate economic and labour market terms), like the Airbus business expansion, can still have negative effects on regional businesses, while 'negative' ones, like the Saab closure, can have positive effects.

#### **3.2 Labour Market Effects**

The business expansion of Airbus led to employment growth, however only partly through direct hiring (mainly white-collar workers). Rather, it mostly arose through the enhanced use of temporary agency workers, whose numbers reached one-third of the overall workforce, and of skilled service contracts with specialised external companies. Core staff had to cope with competition within and between teams, overtime work and an intensification of work processes.

Available data (HWWI, 2012 [2]) show that compared to other major German cities, the loss of industry jobs was lower in Hamburg, which is largely attributed to aviation. Between 2000 and 2013, the Hamburg manufacturing sector lost about 14,000 jobs, while aviation experienced an employment growth of 9,500 and was responsible for about one-tenth of all job creation in the region. This is attributable not only to the main large employers, but also to the knock-on effects on the SMEs in the cluster. Furthermore, jobs have been created in other sectors, such as engineering, logistics and design as well as in temporary work agencies due to outsourcing activities. Studies estimate that each aviation industry job

creates about 0.6 additional jobs in the region and 1.1 additional jobs in Germany (Bräuninger et al, 2010 [3]; HWWI, 2012 [2]).

Due to the nature of the restructuring events in the other cases (bankruptcy, closure or downsizing of production), these resulted in direct job loss. In all cases, however, many of the redundant employees could be transferred to other employers, take on self-employment or enter pre-retirement. Of the workers who lost their jobs in the Saab restructuring, more than 80% found a new job or started their own business. In the French case, the local net job loss is estimated to be 'only' about 1,000 in spite of the reduction of nearly 6,000 jobs by Arc International. In the Slovenian Mura case, the more than 2,400 redundant workers registered with the public employment service at the time of bankruptcy finally resulted in 'only' 600 being unemployed.

The newly created jobs in the German aviation sector are generally higher skilled and characterised by good wage levels. However, transitions from unemployment or other sectors to aviation is difficult due to the high and specialised qualification profiles, and the larger regional companies tend to recruit at national or international level rather than locally. Also in the Italian case study, transitioning across sectors was observed to be difficult due to lower pay and poorer working conditions in the prospering sector and the fact that these businesses were mainly run by Chinese immigrants, who tend not to recruit Italians.

In the German case study, but also in Gibson et al (1999, [4]) and Dobbins et al (2013, [5]) a change in work organisation is observable, resulting in a lower availability of permanent jobs, an increased insecurity of employment and decreasing average wages, driving those in employment to work harder and longer hours.

While in the French and Slovenian case studies increased mobility of workers has been experienced (even if this is not exclusively attributed to the restructuring), workers in the Swedish region around Saab have been reluctant to commute.

In the Slovenian Mura case, the restructuring fostered a general atmosphere of mistrust and pessimism among the regional workforce. Together with the generally low educational levels of the workers, this has resulted in low flexibility of the workforce and resistance to change.

## **4. Regional Approaches to Dealing with the Consequences of Large-scale Restructuring**

### **4.1 *Types of Measures Implemented***

Across Europe, several permanent regional multistakeholder approaches exist that, anticipating future developments in the economy and labour market, aim to foster economic competitiveness, support the labour market and uphold the social fabric. Examples are various business cluster initiatives, Territorial Employment Pacts or local economic and employment development programmes. In contrast to these proactive approaches to prepare the regional economy and labour market for future events, there are only few examples of permanently available regional multistakeholder structures that could be activated in case of emergency – that is, to manage and tackle large-scale restructuring events and their effects outside the company.

In the analysed case studies, such multistakeholder approaches have been quickly initiated by combining a variety of measures that jointly addressed the various challenges arising from the restructuring. In the German and French case studies, these approaches were much in line with the general regional economic and labour market policy focus. Existing frameworks were used as much as possible and adapted to the restructuring situation.

Hamburg follows a policy that fosters innovation and growth and strategically supports the aviation sector. This is done by providing support for research and development (R&D) and skill development, cluster and networking initiatives, bringing together all relevant private and public actors in the field of aviation (employers, business associations, economic promotion

agencies, local government, universities, research centres, engineering and service providers, vocational training institutes and private employment agencies).

Similarly, in the analysed French, where the general policy focus is on developing existing companies and assisting new ones, the local restructuring support is aimed at attracting companies to the employment area and supporting local businesses. Examples of such activities included strategic support to identified growth industries, investment in information and communication technologies (ICT) (notably broadband internet access), R&D activities, advice, networking and cluster activities, access to business premises or the transfer of activities and employees from Arc International to other companies. In addition, a spectrum of labour market instruments has been applied. Examples are job-to-job transition schemes (including incentives for internal company redeployment such as financial allowances or hours off, mapping of local job opportunities, training and recruitment subsidies, and incentives for pre-retirement and start-up support (assessment of the feasibility of the business idea by experts, financial support for start-up and job creation).

In contrast to these two examples, the measures implemented to tackle the Saab restructuring in Sweden do not seem to correspond to the general regional policy focus of improving the business environment of the automotive sector. Rather, the restructuring measures dealt with job-to-job transition support targeting the redundant employees (advice, matching, training, motivation and psychological support, and commuting incentives), on the one hand, and with regional economic diversification in terms of identifying future regional growth potential beyond the automotive sector, on the other.

The policy response to the restructuring of the Italian Prato Textile Industrial District and the Slovenian Mura company included direct support for affected workers. In the Italian case, this took the form of income support through the Wage Guarantee Fund and a grant for employees affected by the restructuring to pay interest on loans. In the Slovenian case, it involved transition measures, including information provision and matching, motivation workshops, on-the-job training, internships and public works, but also employment and self-employment subsidies. This direct support was combined with strategic development of the regional business sector: support for innovation, tax reliefs for investment and attracting investors to the region.

Due to the variety and combination of instruments in the regional approaches to deal with the consequences of the restructuring and the different funding sources, it is difficult to specify the total amounts spent on the interventions. Nevertheless, in the majority of cases, most of the funding came from public actors. The exception to this is the French case, where the company devoted a large amount of money to support the redundant employees as well as for regional development (based on a legal obligation, but the company invested more than what would have been required).

The analysis shows that the regional approaches to cope with the effects of large-scale restructurings are a combination of employee/labour market-related and business/economy-related instruments as well as of short-term/emergency and long-term/strategic measures. Interestingly, it seems that there is a greater variety of employee/labour market-related types of instruments with an emergency/short-term orientation than of strategic/long-term orientation; the situation is the other way around for business/economy-oriented measures.

**Table 2** Classification of Regional Approaches to Deal with the Consequences of Large-scale Restructuring

	Emergency/short-term focus	Strategic/long-term focus
Employee/labour market orientation	Support of job search, matching, applications, interviews	Local mapping of job opportunities
	Temporary redeployment to other regional firms	Occupational guidance and reorientation, including training and recognition of skills
	Internships	Start-up support (advice, training, financial)
	Public works	
	Preretirement schemes	
	Commuting support	
	Employment subsidies	
	Income/financial support for redundant workers	
Business/economy orientation	Advice	Analysis of the economic situation and structure of the region and identification of growth/development potentials
	Networking support	
	Problem oriented working groups	Promotion of entrepreneurship (including start-up support (advice, training, financial) and attracting companies to the region (including revitalisation activities such as use of deserted premises)
	Financial support	
		Networking and clustering initiatives (including the establishment of business parks)
		Diversification initiatives
		R&D and innovation support
		(Tax) Incentives for investment
		Regional marketing/branding

Source: Case studies; Mühge et al, 2006 [6]; Wood, 2006 [7]; Mandl, 2009 [8]; European Commission, 2012 [9]; Kiss, 1999 [10]

## 4.2 Actors and Their Roles

The approaches taken are implemented in the form of multistakeholder cooperation. This is standard practice in local economic and employment initiatives, emphasising the need to have good coordination among local policy actors as well as the need to adapt policies and initiatives to meet local challenges (see, for example, OECD, 2011 [11]; Dorenbos and Froy, 2011 [12]; Giguere and Froy, 2009[13]; Mandl, 2009 [8]; Eurofound, 2007 [14]).

National governments are often the main actors in establishing the general framework conditions under which the restructuring takes place, including legislative decisions, political and strategic financial support. Furthermore, national governments together with the regional and local governments are generally involved in designing and funding the approaches.

In some cases, governments coordinate the various interventions and actors, while in other cases this role is fulfilled by an economic development agency. Economic development agencies, together with public employment services and providers of educational, social or other services, are generally responsible for implementing the individual instruments.

Regional employer representatives and trade unions are also involved in the delivery of support. These actors also provide political support by negotiating deals and lobbying for the interests of their members.

The regional businesses, notably the restructuring company and its suppliers, and their works councils are engaged in the regional measures. Their input is mainly directed at the design, the implementation (including the follow-up of the affected workers) and the funding of the instruments. However, the role of works councils might differ considerably with the company size.

One last important type of actor is service providers, such as education and training providers, research centres and private employment services, that help to implement either the restructuring or the approaches to deal with the consequences effectively.

**Table 3** Actors and Their Involvement in the Approaches to Manage the Restructuring at Regional Level

	General framework conditions	Design of interventions	Implementation of measures	Coordination of activities	Financing of interventions	Lobbying
European Commission	X				X	
National government	X	X		X	X	
Regional/local government	X	X	X	X	X	
Public employment service			X			
Economic development agency			X	X		
Business/employers' organisations and trade unions		X	X			X
Service providers (transition measures, education, start-up/business support, social and health services etc.)			X			
Restructuring enterprise (management and works council), other regional enterprises		X	X		X	

Source: Case studies; Garaudel et al, 2006 [15]; Wood, 2006 [7]; Fuchs and Kempermann, 2010 [16]; Dorenbos and Froy, 2011 [12]

### 4.3 Success Factors and Limitations of Regional Approaches

The following aspects have been identified in the analysed case studies, and also in literature (OECD, 2011 [11]; Proto et al, 2012 [17]; Wood, 2006 [7]; Mandl, 2009 [8]), as important factors for regional approaches tackling large-scale restructurings to avoid or reduce negative consequences for the region.

- Openness to change in institutional settings, to new policies, business models and aspects of employment
- Collective spirit, commitment and active engagement as well as mutual support of relevant regional actors to jointly deal with the challenges and find solutions resulting in acceptable outcomes for all
- Integrated strategic approach in terms of offering a comprehensive package considering long-term and immediate measures, various policy fields and target groups
- Quick design and support provision, favoured by continuous monitoring of regional developments and the flexibility to take decisions at regional level

- Sustainable funding of the overall approach rather than project-based finance
- Awareness of developments beyond the region, for example to jointly draft approaches with neighbouring regions or to learn about potential national budget limitations or global sector developments

## 5. Conclusions and Policy Pointers

This paper shows that large-scale restructuring has impacts on the regional economy and the labour market. The impact on the regional economy mainly relates to structural shifts and changed dynamics of, for example, innovation and R&D. The extent of the impact seems to be directly and positively related to the relevance of the restructuring company for the regional economy and to the degree of dependency of the regional economy on the restructuring firm. Spill-over effects are particularly challenging for SMEs as they require the SMEs to restructure too, mainly in the form of internal restructuring (for example, adjusting the business model, reorganising the product portfolio, production processes and the workforce).

Examining the approaches taken to cope with the effects of large-scale restructuring, it is evident that while strategic support to adapt the regional economy in the long-run is considered, immediate measures hardly ever deal with the effects on other businesses. This is a significant problem as SMEs in particular have a specific need for support in their restructuring, and such support is most efficient if it is provided immediately (Eurofound, 2013 [18]).

From a labour market perspective, the most striking finding is that even in restructuring cases related to a huge number of immediate job losses, the overall effects on the regional labour market can be cushioned by an effective implementation of regional approaches. At the same time, the limitations of the regional economy (notably mono-sector structures resulting in high dependency) and the affected workers have to be considered. First of all, transitions to another job are only possible if suitable jobs for the redundant workforce exist. Secondly, the affected workers must be willing and able to transition to another job. This might not be the case for some low-skilled or older workers who do not have the skills and qualifications needed by other employers and who tend to be more reluctant to develop their skills to improve their employability. At the same time, too much specialisation might also limit workers' opportunities to switch to a new job. Another aspect in this context is the still-widespread aversion to commute for work to another region or even relocating.

The analysed case studies as well as the available literature underline the risk of regional social polarisation and increasing inequalities as an outcome of large-scale restructuring. Furthermore, some deterioration of working conditions could be observed and should be tackled.

The current research clearly pinpoints that regional multistakeholder approaches are necessary and effective to ensure that large restructurings result in a win –win situation for the company and its workforce as well as the region as a whole. These need to be packages of various interventions, based on good cooperation and coordination among the involved actors. Pre-established structures for regional actors help this process, as it works best if there is a good level of mutual trust and understanding, a relationship that takes time to develop. Ongoing cooperation also fosters the feeling of joint ownership of the activities and the willingness of each actor to make concessions within certain limits to achieve a win –win situation. In this context, networking, exchange and communication are important elements that should be systematised and fostered.

Furthermore, it is important to coordinate the cooperation among the stakeholders by setting objectives which must be agreed upon by all, measurable, attainable, realistic and well communicated not only to the other stakeholders, but also to the beneficiaries and the region. Roles and responsibilities need to be assigned to all the actors involved. Strategies must take into account the specific characteristics of the region, the restructuring, the

affected firm and its employees. The measures also need to be suitable for the target group as well as the delivery mechanisms. A central contact point (one-stop shop) providing a general overview and basic information is recommended to mediate between the service providers and the potential beneficiaries who otherwise might get lost in the 'jungle' of support offered.

The case studies suggest that regional approaches to tackle the effects of restructuring need to be designed and implemented quickly as delays hamper their effectiveness. In addition to the existence of a pre-established cooperation structure, mentioned already, a factor that facilitates quick intervention is a sufficient degree of autonomy, resources and capabilities of regional and local actors to make decisions and implement them. Quite naturally, those actors closest to the problem have the best understanding of what is needed, and consequently their experience and knowledge should be considered without requiring lengthy and bureaucratic decision-making processes.

It is important to also look beyond the region. On the one hand, national or global economic and political developments might have an effect on the region and hence should be considered. On the other hand, more general developments might result in a kind of competition among regions for available support instruments and should thus be anticipated.

The issue of finance is always relevant in the context of support provision. Due to their comprehensive character and the need to cover a huge number of beneficiaries, regional approaches to cope with the consequences of large-scale restructuring tend to be costly. The analysed cases show that the funding does not necessarily need to be provided solely by the national or regional government. Rather, joint financing models can be applied, with more exploration of such innovative models being required.

Finally, although only very limited information is available, it is assumed that large-scale restructuring has some potential to result in social polarisation and a downward trend in working conditions in the region. Consequently, labour market and social policies, for example in the field of flexicurity (including occupational and geographic mobility), should ensure that working and living conditions are maintained.

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***Emerging VC industry: do market expectations play the most important role in project selection? Evidence on***

## ***Russian data – Part II (extended)***

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**Currently, the venture capital becomes more and more advanced and effective source of the innovation project financing, connected with a high-risk level. In the developed countries, it plays a key role in transforming innovation projects into successful businesses and creating prosperity of the modern economy. Actually, in Russia there are many necessary preconditions for creation of the effective venture investment system: the network of the public institutes for innovation financing operates; there is a significant number of the small and medium-sized enterprises, capable to sell production with good market potential. Now we can speak about Russian VC system as more than 500 deals was made during four last years. It was the time of VC expansion in Russia. Nevertheless, the story is very recent, so to understand the key driving factors, we should see the factors, which determine the size of investment rounds. This paper studies the influence of various factors on the venture industry development mostly on the example of the IT-sector in Russia. The choice of the sector is based on the fact, that this segment is the main driver of the venture capital market growth in Russia, and the necessary set of data exists, as the certain amount of deals were publicly disclosed. Nevertheless, some examples of private equity and VC deals from other sectors were also chosen. The size of investment of the second round is used as the dependent variable. The story of exits in Russia is not long, so we took the approach that the company which attracted the second round of PE&VC investment can be considered successfully developing. To analyse the influence of the previous round such determinant as the volume of the previous (first) round investments is used. There is also used a dummy variable in regression to examine that the participation of an investor with high reputation and experience in the previous round can influence the size of the next investment round. Finally, the predicted marked growth of the company examined at the moment of investment was taken into account. As the implication, the regression analysis of short-term interrelations between studied variables reveals prevailing influence of the volume of the first round investments on the venture investments volume of the second round. The most important determinant of the value of the second-round investment is the value of first-round investment, so it means that the most competitive on the Russian market are the start-up teams which can attract more money on the start, and neither the target market growth nor the reputation of the investor is not the factor of the first importance.**

### **Keywords**

Determinants of the venture sector development, IT-sector, Venture industry, Venture investment

## *Abbreviations*

IPO – Initial Public Offering

IT-sector – Information technology sector

LBO – Leveraged Buy-Out

MBO – Managerial BuyOut

M&A – Mergers and Acquisitions

## **1. Introduction**

Among different types of start-up financing possibilities, venture capital stands alone because it possesses the unique characteristics of financing terms at the beginning of their life cycle, which allow mitigating risks.

Venture capital companies and individual venture investors play an important role in the economic activities in innovative sector. They are intended to finance new, growing companies that possess high levels of risk, but have substantial growth potential.

The topic of venture investments as a non-traditional way of financing different start-up projects has been booming in the last decades. The focus of venture investors is mostly directed to the companies that demonstrate dramatic growth rates or significant market potential. Considering plenty of success stories of venture financing and the scale of venture market (35-40 billion dollars per year in the world), the strong attention of researchers is drawn to tendencies and determinants of venture investment development at the level of particular company.

Considering the dynamics of venture investment development in Russia in the last years and growing need for data-mining, trend estimation, the research on drivers and constraints to development of start-ups, financed by venture capital, is an actual task. Nowadays, there is still lack of published fundamental econometric researches on the venture investments in the innovative projects of Russian companies including modern methods of empirical analysis. The vast majority of works on Russian VC market is descriptive and based on the high-level analysis of aggregated statistical reports.

The situation with data gathering in this field caused some major difficulties for researchers because of its inconsistency. Many details of announced deals were under non-disclosure agreement and the figures on many important deals are unpublished. In 2013, the rocket growth in the flow of new deal data was registered, new databases and sources appeared, and appropriate information was disclosed for many deals. All these facts opened the way for conducting the deeper econometric research on Russian venture capital data, which was earlier impossible because of the inappropriate size of the possible data sample. The results obtained in this study are based on the recent information aggregated by RusBase portal [1], PwC [2], FastLane [3] data and Thomson Reuter's informational terminal.

Despite the absence of empirical research on this topic, the international experience is full of significant studies of similar kind.

So, the subject of this research were Russian companies operating in the information technology sector (IT) and attracting venture capital investments.

This work is the first Russian detailed analysis of determinants of the IT-sector venture deals that have taken place from 2010 to the first two quarters of 2014. Sixty-nine companies that attracted venture capital investments are investigated. The result of the work is the dependence that was explored between the responding variable, which is the second round investment values, and the explanatory variables; the first round investments values, participation of investors with first-class reputation, and the growth rate of market sector, in which the invested company operated.

The impact of the paper can be formulated in the following terms:

- to continue the research on venture determinates on the sample of Russian venture deals including the logit model;
- to find key determinants of the Russian venture development (by studying foreign academic researches) on the enlarged list of deals;
- to detect the drivers of the venture capital attraction (by means of empirical analysis) which can be the deal size on the previous round, reputation of the investor, the predicted market growth of the subsector, where does the invested company operate.

This work consists of introduction, three sections and conclusion. The list of references is also provided. Section 1 is the description of venture industry and the review of the academic literature that is devoted to the venture capital analysis. Furthermore, in section 2 the methodology of the research is discussed and hypotheses are set out. After that, in section 3, the model is outlined, with the high-level regression variables.

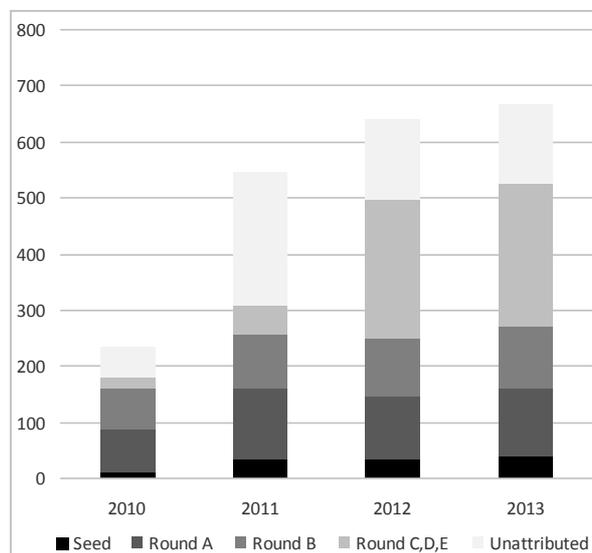
## 2. Review and Background

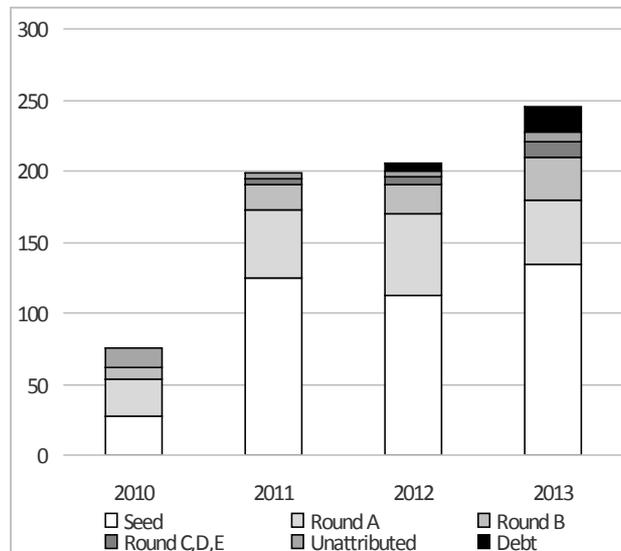
### 2.1 Basic Information

During the last 20 years, Russia has been trying to build an effective hi-tech market system. The development of innovations and technologies is commonly considered as the best way to success. Existing advantages of previous early-stage financing alternatives, for example public-based, often are not able to solve appearing problems of lack of capital available for seed and start-up projects.

Venture capital takes a special place in the innovation development and is considered a good solution. The venture money is the capital of investors that is involved in the financing of new growing firms with a rather specific deal pattern. The markets where venture capital operates differ from other types in some characteristics: the high level of risk, innovative nature of the subject, possibility of changing the market structure where the business operates, and an investor has enormous profit opportunities in the projects in case of success. Such famous companies as Intel, Microsoft, Google, Yandex etc. appeared due to the participation of venture capital and succeed because of venture funds.

Russia has become the highest growth venture capital market of Europe in 2011-2012, having climbed up the 4th place by the available venture capital volume in the high-tech sector by the 2012 totals [4], but due to the short story of Russian VC, and small number of exits we still cannot say that this trend is stable.





**Figure 1** Total number and total amount of the venture IT deals, 2010-2013 [6].

Source: FastLane venture team Deal book of Russian internet [5]

The presented charts illustrate that the volume of the Russian venture capital market was doubled in 2011. In 2012, the market growth ratio amounted 18% versus 4% in 2013. At the same time, there were 205 deals in amount of 643 mln. USD in 2012 with 245 deals in amount of 667 mln. USD in 2013.

Thus, in spite of the fact that growth of the market has slowed down in 2013, the number and total amount of investments still grow. According to Thomson Reuters' customer, support the number of venture transactions in the first half of 2014 reached only approximately 70 units but the average sum of investments totaled 2.71 million dollars that is much higher than for previous period.

The performed successful investors' exits became the main growth driver of the venture capital market in Russia. It is the most important indicator of the market development. The positive tendency of exists will stimulate further capital inflows to Russian venture industry and promote its development.

The growth also is driven by investments in IT-sector, whose main driver was the enormous growth of online retail. This market segment in Russia offers a number of easy innovation opportunities with a relatively short return on investments.

The volume of venture investment in the Russian IT sector in 2012 increased by over 50% to exceed USD 450 million. In 2013, it accounted for almost 87% of deals – 213 deals, and 93,5% of total investments – 623 mln. USD.

The venture company as the subject of investments has the following stages of development:

- the seed stage (the stage when the idea of the business appears and only the first investments are made).
- the start-up stage (the beginning of the business).
- the early stage of the project (the project is gradually reaching the break-even point).
- the growth stage (the model of realization proved its successfulness, expansion of the business).
- pre-IPO stage.
- selling stage (investor sales the share by Initial Public Offering (IPO), Managerial Buyout (MBO), Trade Sale, Leveraged Buy-Out (LBO) or other ways).

There also can be other stages like pre-seed stage or late growth mezzanine stage.

It is necessary to notice that these 6 stages describe the «classic» successful venture project. And most projects do not have the final stages because of bankruptcy. In that work would use terms «first» and «second» round without the reference to the stage.

## **2.2 The Literature Review**

In order to underpin the methodology, which is proposed in the next sections, the extensive literature review is given. The review is chronological, and will also provide the sample details and the methodology summary.

One of the first articles on the topic was the work by Tyzoon et. al [6]. The aim of this framework was to numerically assess the importance of the factors, which are interpreted by venture investment specialists in order to provide a definitive decision on the investment in the start-up. As at the time the financial statistics were not available to the necessary extent, the researchers had to use expert opinion as a key method. After carrying out a survey on 41 venture funds, 5 main stages of a venture investment deal were identified.

These main stages included:

1. Deal origination, meaning the information about a project reaching the interesting parties.
2. Deal screening, the primary high-level selection of deals which did not fit the criteria of the venture investor.
3. Deal evaluation, the deep analysis of the projects, e.g. the projected returns and inherent risks, the assessment of the start-up non-numerical data. As a result of this stage, a weighted score is obtained implementing all the available data. Consequently, a decision on the investment is made.
4. Deal structuring, this stage happens in case of an accepted project and includes the transaction negotiations on the price, share to be bought and minor juridical issues, associated with the transaction.
5. Post-investment activities, which implies a stage when an investor actively participates in the operational activities of the invested company.

Obtaining a sample of 90 deals, which reached the 3rd step from 41 funds (while being rejected by 100 for confidentiality matters), the researchers required additional data concerning the qualities of the project. In order to get it, they gathered information on 23 characteristics of each project (including required return and risks). Most of the companies in the sample were from the electronics industry, on average requiring 1 mln. USD of external financing. After the analysis of the results, the criteria were narrowed down to 5 basic ones. The list is provided below:

1. market attractiveness (the market share, growth opportunities, level of monopolization).
2. the level of product differentiation (the uniqueness of the product, patents, innovative technology).
3. quality of management (professional level of managers in areas of finance, marketing).
4. the stability in case of external shocks (the level of technological development of the market segment, business-cycle susceptibility, stability in case of recession).
5. the exit strategy possibilities (potential opportunities for M&A (Mergers and Acquisitions), IPO, LBO, MBO and other possibilities of exit).

The regression analysis of the data showed that for the calculation of the required return of the project investors use such factors as the market attractiveness and level of product differentiation ( $R^2=0,22$ ), and for the risk assessment the quality of management criteria and stability are most relevant ( $R^2=0,33$ ). Moreover, the analysis proved that in 89,4% of the cases the result of an investment decision was dependent on the risk/return ratio.

It is important to note, that comparing the results with previous works, the researchers emphasized the same key factors on project evaluation stage. At the end of the research project, 7 representatives from venture funds were invited. The results of the analysis proved to be satisfactory, however, the experts thought that the management role was overvalued

as a key factor, and some of them pointed out that it should be more relevant in the risk assessment, but not in the return assessment.

In another relevant article by H.Chen et. al [7], the venture investments were analysed from the point of view of the presence of successful venture projects in the same region. Working with the 1000-deal sample, the research was concentrated mostly on the San-Francisco, Boston and New-York areas, since these areas have most start-ups that were venture-financed. In conclusion, a positive relation between a number of venture funds and a number of successful venture projects in each city was found. However, the success of venture projects in the “home” region was more significant than of the projects financed by the same companies but in other regions, in terms of returns.

The research by Zarustkie [8] tried to estimate the impact of personal qualities of a venture fund manager on the funds' financials. Based on the sample of 1184 funds, the conclusion was that the experience of venture financing proved to be crucial, and the managers have a significantly large number of companies in their portfolios. The start-up management experience nearly doubled the strength of this relationship. It is also interesting to note that at the seed stage the impact was the strongest, other stages were much less influenced by the managerial experience.

The article by Munarii and Toschi [9] focused on another issue arising from venture investment decision. The authors analysed the bias of venture investors towards the start-ups created based on educational institution rather than a private project. The sample of 247 companies was also divided between venture funds and public funds. As a result, the hypothesis of such a bias was rejected. The amount of venture capital raised by venture was deemed most dependent on intellectual property rights, the business model and the prestige of educational institution.

Another branch of articles focuses on the determinants of the venture activities from the macro-economic standpoint. The first article under review from this sphere is by Schertler [10]. The research was focused on the drivers of venture capital investments in Western Europe. Analysing the issue from the narrow definition of venture (seed-stage) and wider (later financing stages), the conclusions were drawn that the key drivers are liquidity and the capitalization of the stock exchange in the region, human capital potential and the stability of labour market. The regressions, however, proved that at the later stages of financing the results are independent of these issues.

Another study, addressing the same issues from a different perspective, is the one by Felix and Pires [11]. The hypothesis tested empirically in the article was about the level of dependence of venture capital activities on the size of the M&A market. The sample included companies from 23 countries for the period 1998-2003. The null hypothesis was proven in that case, the relevance of M&A market was significant, moreover, the level of entrepreneurial activities and unemployment rate played a major role in the volume of venture capital market. The issues, which were highlighted for the future researches were mostly considering the asymmetric information and the exit environment.

An analysis of the cross-country data is also a valid source of knowledge about the venture financing. The study by Jeng and Wells [12] was focused on the macro-factors of venture capital activities. Among the variables in the model were the GDP, IPO number, data on the capital markets etc. The results showed the significance of IPO market for the success of venture investing, especially in the later stages, since the exit strategy is an important factor then. The government-owned venture capital funds showed little relationship with economic variables, and that have proven to be a good ground for future research.

Since the cross-country data proved to give some valuable insights into the venture capital markets, another source of relevant hypothesis can be found in studying venture financing for funds investing domestically and internationally diversified funds. This issue was researched in the Wang [13] paper. The sample was based on the Chinese companies and proved that the results of venture investing were strongly dependent on the amount of experience of the fund in the country's operations. The networking, relations and value created by it are the key to venture capital success in a particular investment. Therefore,

investing locally was in most cases the better strategy.

Through the literature review it could be seen, that the wide and developed methodology for the study of VC market development factors is present now in the economical theory. Nevertheless, there is a literature gap for Russian market, as there almost no available research exist (the previous works of the authors should be mentioned). This work eliminates the gap and gives the extended research of Russian VC market by the tested methodology. Importance of this research is defined by the following factors. Firstly, the aim is to continue the studying of rather new Russian VC market including the application of the logit model. Secondly, to study which determinant is the most important on the young VC market, among the quantity previously invested, growth of the companies' market, reputation of the previous round investor. Thirdly, to introduce a method of determination the probability of second-round investment if the reputable investor of the first round exists.

Although not complete (as many information of deals is partially closed and could not be included in the database), this models can useful tools for the investors to determine how much to invest in different companies, as the crucial factor of the success is the quantity money that was earlier attracted in the company.

### 3. Data and Methodology

#### 3.1 Research Settings

The analysed data for Russia was collected based on the RusBase – a web-project that collects information about the venture market [1] and Thomson Reuters' one [4]. Moreover, FastLane Ventures base was used [3]. It is an investment company that creates and develops successful internet businesses using their own unique model and it publishes annual reports. Furthermore, the annual analytic reports of PricewaterhouseCoopers for Russian PE and VC market were used [2].

As a result, there are taken into consideration venture investments made by business-angels, investment companies, and private, corporate and state venture funds in the first round of financing, relying to open data sources. If a company attracts investments during two or more rounds, then every round is seen as a separate deal.

According to some experts, the modern conditions for creating the venture industry in Russia are becoming more favourable due to active government policy and intensive growth of the IT-sector (Information technology sector). Therefore, only Russian IT companies are investigated in this paper.

**TABLE I:** Regression Statistics

Multiple R	0,624261		
R square	0,389702		
Adjusted R Square	0,362376		
Standart Error	25,12874		
Observations	71		
	Coefficients	St. error	P-value
Intercept	2753991	3910360	0,4864

### 3.2 Selection Methodology

By means of the process mentioned, the sample of 125 companies that attracted venture investments was formed and was used to make an assessment by logit-regression model. Then, the companies that attracted venture capital more than once were selected for the OLS-regression analysis. Finally, 69 companies with all relevant information are taken into account.

The information required is about the value of investments in the first and second rounds, the name of the business-angel, an investment company, a private, corporate and state venture fund and the date of the deal. The investor was considered reputable if he has successful exits or represents a significant brand, for example Intel Capital or Mail.ru Group.

All companies in the sample operate on such markets as IT services, mobile apps, protection from leaks of confidential data. This information is completed by the forecasted market growth on the moment of the deal. It was supposed that in the process of decision-making investors focus on market trends and use the estimations of market growth forecast provided by leading marketing agencies just before the moment of the deal. This factor is the main landmark for investors' decisions. So the market growth predictions made by the leading Russian marketing agencies were also taken as a variable.

### 3.3 Hypothesis

That is more convenient for future analysis to divide all the hypothesizes into two groups: those, which are tested in according with the OLS-regression model, and those, which testing method is logit-regression construction.

#### *OLS-regression model*

The value of investment of the second round is influenced by such factors as the value of the first round deal, the participation of a reputed investor and also the forecasted data about the market growth.

- H1. There is supposed to be a stable positive relationship between the second round investments and the first round ones. It is possibly based on the factors connected with the company's operating process ( 'enough money is required to pass the first stage ' ), and the fact that in Russia *the money available for the company is the most crucial factor of competitiveness (not the operating skills)*.

On the other hand, the participation of experienced (reputed) investor in the previous round can influence the size of next investments.

- H2. The participation of an experienced (reputed) investor can influence the next rounds negatively because they are supposed to be thrifty and economize on the expansion efforts (according to [13]).
- H3. Finally, because of the anticipation of a dramatic increase in the volume of investments after the deal, experienced investors choose the optimal level of their investments that is lower than the level of others.

#### *Logit-regression model*

- H4. The presence of "experienced" investors in the first round increases the probability of investment in the second round. This hypothesis will be tested by plotting the logit model based on a sample of 69 observations in the statistical package STATA. In this case all the observations are considered, even those, in which there was no investment in the second round.

## 4. The Model

**TABLE II:** Regression Statistics

Multiple R	0,619697		
R square	0,384025		
Adjusted R Square	0,365908		
Standart Error	186964		
Observations	71		
	Coefficients	St. error	P-value
Intercept	999361	3208437	0,7564
1 round	1,330758	0,223994	1,08E-07
branded investor	7051297	4500771	0,12183

*OLS-regression model*

The sample consists exclusively of Russian companies, which operate in the IT sector and had some kind of venture transactions for the period under review. Number of observations, representing considered companies, that is discussed in this context, is equal to 69 units, and the reviewed period is from 2007 to the end of 2014.

The responding variable of the regression is a value of the second round investment. It is nominated in US dollars. The explanatory variables are the first round investments values, participation of investors with first-class reputation (the similar factor as in [13]), and the growth rate of the market sector (the similar factor as in [6]). **The choice of the first round of investment was our own approach, as in Russia it was too little exits till now, and the possibility to attract the second round was considered as a successful dynamics.**

The “reputed investor” is the investor that is well known in the venture market (took part in plenty of successful deals or makes big investments or this investor is an expert in the field he invests in) or the fund with corporate participation. This is supposed to be a dummy variable: 1 – the reputed investor takes part in the deal unless 0.

As for market growth, it is different for all parts of the highly diversified IT-sector. Therefore, it is relevant to check this influence on investment decisions.

The best way to estimate this influence is the Ordinary least squares method.

Regression statistics are presented in Tab.1, the parameters of the regression are in Tab.2.

So that, the getting model is the following:

Y - the value of investment of the second round;

X1– the volume or the first round investments are significant at a level of 1%;

X2– the participation of branded investor is significant at a level of 15%;

X3– the forecasted market growth now of deal is non-significant variable.

The positive dependence between Y and X1 that is demonstrated by the model is evident: investments in the previous stage attract the following investors. So the H1 is not rejected. The participation of branded investor in the first round influences the second round investments positively since investors trust them and try to follow their way. So the H2 is rejected.

The market growth is insignificant variable. Moreover, the dependence is negative. It is important to conclude, that this variable is not the factor all investors pay attention to – H3 is rejected.

So that there is a regression which has two significant regress variables from the last model:

Y - the value of investment of the second round;

X1 – the volume or the first round investments;

X2 – the participation of branded investor;

Both regressors (1) and (2) now are significant (significance level – 12%). As it can be seen from the descriptive statistics, the dependence between Y and and remains positive

#### *Logit-regression model*

During the construction of logistic regression the probability of the investment in the second round, depending on the same three factors, was estimated according to the following function:

Where rnd2 - the probability that for a certain period of time (2007-2014) there will be more investments in the company under review.

rndln1 - logarithm of the volume of investments in the first round,

inv - the presence of an experienced investor (dummy),

grateln - logarithm of the forecast growth rate.

**Table 3:** Regression Statistics

Iteration 0:	log likelihood	
	=	-58.373938
Iteration 1:	log likelihood	
	=	-46.093129
Iteration 2:	log likelihood	
	=	-45.454471
Iteration 3:	log likelihood	
	=	-45.452815

Iteration 4:	log likelihood =	-45.452815
Logistic regression		
	Log likelihood =	-45.452815
rnd2	coef	p-value
rndln1	-0.3242273	0.016
inv	1.962967	0.001
grateln	0.8353225	0.033
_cons	2.415313	0.230

H4 hypothesis is not rejected at the 1% level of significance. This means that the presence of an experienced investor in the first round effect on future investment in the second round. Most likely, it is because investors chase high returns and this behaviour helps neutralize the risks.

The negative coefficient before the variable rndln explains a negative correlation between the volume of investments in the first round and the likelihood of investment in the second one. Perhaps, such a situation arises due to the fact that investors, analysing the value of investments in the first round, realize that they can not afford such sums to spend on the project under review, i.e. they do not have enough votes in decision-making or do not want to work in collaboration with existing investors.

In this model, the variable rate of growth of the market is significant at the 5% level and the probability of investing in the project for the second time depends positively on the variable grateln. Therefore, it is important to note, that before making a decision investors make a careful review of all their actions, and the market growth rate is one of the determinants of this analysis.

## 5. The Results

In this paper the following results of testing the formulated hypotheses in according with the OLS-regression model were obtained:

1. H1 hypothesis is not rejected – investments in the previous stage attract the following investors, and the amount of the first round of the investment positively influences the second one.
2. H2 hypothesis is rejected – the participation of branded investor in the first round influences the second round investments positively since investors trust them and try to follow their way.
3. H3 hypothesis is rejected – the market growth is insignificant variable, so the investor of the second round looks on the first round size of the investment, and the reputation of the first-round investors. The more and the earlier a company attracts the money on the first round, the quicker in can expand and develop, and a smart and reputable first-round VC investor can contribute to the right speed and direction.

The results, received from testing with the logit-regression construction, are the following:

4. H4 hypothesis is not rejected (at the 1% level of significance) – the presence of an experienced investor in the first round effect on future investment in the second round.

So, according to the research we can formulate the recommendation for a VC investor operating in the young market, that he or she should look for companies which already have enough development speed and resources (due to the money previously invested) and a smart and reputable investor in the board of directors. Perspectives of the market are the factor of the second importance.

It is also worth noting, that in fact, one of the main conclusions of this research project is a confirmation of the hypotheses constructed on in correspondence with the described-above literature study, but more variables should be explored. Therefore, this study cannot be considered as a complete one.

## 6. Conclusion

The main conclusion of this empiric research is that investments in the previous stage attract the following investors stimulating the further capital inflows to Russian venture industry and promote its development. And it is also worth to take into consideration, that the development of the venture capital market and its usefulness for the IT and other consumer sectors depends on the experience of participating investors, as their presence in the first round increases the probability of investment in the second round. Expected market growth of target companies plays the secondary role in investment decisions. The VC continue invest in companies who have attracted investors and reputed investors among them, not in trends

The world experience shows the efficiency and importance of venture schemes for the financing of risky early-stage projects. Venture investments are a good instrument for the competitive battle for the most valuable and promising start-ups and projects.

However, the topic has not been adequately investigated from the point of view of determinants of venture capital activities in Russia at the macro and micro-economical level. In this research project, the focus was maintained on the determinants of the volume of successful venture capital investments based on the emerging market sample. The results proved that the venture capital in Russia can be explored econometrically and allow future analysis.

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## Appendix

	Company	Round 1	Year of Round 1	Round 2	Year of Round 2	Investor	Growth Rate
1	Speaktoit	10000	2007	1000000	2007	1	68
2	Absly.com	10000	2009	0	0	0	5,4
3	Wikimart	10000	2009	700000	2009	1	5,4
4	Wikimart	10000	2011	80000	2011	0	68
5	Voltayr-prom	10000	2011	1200000	2011	1	68
6	MiiiX	20000	2007	20000	2007	0	20
7	Oriense	20000	2011	20000	2011	0	5,4
8	□ . □ □ □ □ □	20000	2012	30000	2012	1	9
9	KeyCaptcha	25000	2013	40000	2013	0	5,4
10	YouDo	25000	2009	1000000	2010	0	5,4
11	Aziatsko-Tikhookeanskiy Bank	25000	2011	2500000	2011	0	9
12	Domosite.ru	30000	2012	1200000	2012	1	9
13	Dr Tariff	30000	2012	1000000	2012	0	68
14	Smart Fox	30000	2008	40000	2008	0	5,4
15	Morgan & Stout Llc	30000	2013	25000000	2013	0	5,4
16	Tin'koff Kreditnye Sistemy Bank	30000	2008	700000	2008	1	19

17	CLIPCLOCK	50000	2013	2500000	2013	1	5,4
18	ePythia	50000	2013	80000	2013	1	68
19	MD.Voice	50000	2011	1000000	2012	1	68
20	ShopPoints	55000	2014	8000	2014	1	68
21	A Dept Co	55000	2014	250000	2014	1	19
22	OSG Records Management	55000	2014	100000	2014	1	68
23	ActiveCloud	65500	2013	135868	2013	0	12
24	Speakto	67000	2009	17000	2009	0	20
25	StartPack	67000	2011	17000	2011	0	20
26	Kamchatprombank	67000	2011	900000	2011	0	9
27	KB Unistream	67000	2012	1000000	2012	1	68
28	Optogan	67000	2009	50000000	2009	1	5,4
29	MoosCool	70000	2011	0	0	1	5,4
30	Choister	100000	2014	40000	2014	1	9
31	SQBA	100000	2013	40000	2013	0	68
32	Wizee Shopper	100000	2011	200000	2011	0	68
33	Podorozhniki	100000	2013	1000000	2013	0	9
34	10tracks	100000	2008	0	0	1	5,4
35	□ □ □ □ □ □ □ □ □ □	100000	2011	0	0	0	12
36	Kompaniya Yunimilk	100000	2013	1200000	2013	1	5,4
37	Evrorent Group	100000	2013	750000	2013	1	19
38	Coursmos	150000	2009	100000	2009	0	5,4
39	Kuznech	150000	2011	750000	2011	1	9
40	Wheely	167000	2014	25000	2014	0	9
41	Pervoye kollektorskoye byuro	167000	2007	25000000	2007	0	9
42	Attendify	200000	2007	200000	2007	0	68
43	LinguaLeo	200000	2011	139000	2011	1	19
44	TimePad	200000	2007	1000000	2007	1	5,4
45	Winkcam	200000	2013	100000	2013	0	5,4

46	Blabroom	200000	2007	0	0	0	5,4
47	Seopul't OOO	200000	2014	0	0	0	68
48	Pervoye kollektorskoye byuro	200000	2012	900000	2012	1	9
49	Questli	220000	2009	750000	2009	0	9
50	Cloudmach	250000	2011	500000	2011	1	9
51	uGift	250000	2008	30000	2008	0	5,4
52	KB Unistream	250000	2009	250000	2009	1	9
53	CyberCop	300000	2009	700000	2009	0	7
54	Yam Labs	300000	2009	500000	2009	0	19
55	Babystep.tv	300000	2007	0	0	0	5,4
56	Favim	300000	2009	0	0	0	5,4
57	FRUCT	300000	2009	0	0	1	5,4
58	STS Logistics, Inc.	300000	2011	40000	2011	1	5,4
59	Tin'koff Kreditnye Sistemy Bank	300000	2014	750000	2014	1	9
60	Budist.ru	350000	2008	25000	2008	1	9
61	Surfingbird	400000	2011	1000000	2011	0	9
62	Context Broker	400000	2013	0	0	0	12
63	Belaya Dacha Trading	400000	2012	0	0	1	19
64	Apps4all	500000	2011	1000000	2011	0	68
65	iVENGO	500000	2009	250000	2009	0	25
66	Jelastic	500000	2012	900000	2012	1	20
67	MyWishBoard	500000	2008	730000	2008	1	5,4
68	Renthome.ru	500000	2013	1000000	2013	0	9
69	Sales Exchange	500000	2012	70000	2012	0	9
70	BimBasket	500000	2011	0	0	0	5,4
71	□ □ □ □ □ □	500000	2012	0	0	0	5,4
72	AKB Probiznesbank	500000	2013	40000	2013	0	5,4
73	Eruditor Group	600000	2014	4000000	2014	1	5,4
74	□ □ □ □ □ □ □ □ □ □	650000	2008	0	0	0	5,4

75	Verysell Group Of Companies	650000	2008	40000	2008	1	5,4
76	Fidesys	900000	2008	163000	2008	1	20
77	Darberry (groupon)	1000000	2013	50000000	2013	1	19
78	□ □ □ □ □ □ □ □ □ □	1000000	2013	10000000	2013	1	68
79	Coub	1000000	2013	0	0	0	5,4
80	DocDoc	1000000	2011	0	0	0	5,4
81	□ □ . □24 □	1000000	2009	0	0	0	12
82	MixVille	1000000	2008	4000000	2008	0	5,4
83	KB Fia-Bank	1000000	2011	500000	2011	0	5,4
84	Bakar	1000000	2013	250000	2013	1	9
85	AKB Probiznesbank	1000000	2012	25000000	2012	0	9
86	Flocktory	1500000	2013	0	0	0	12
87	Frolik	1522750	2012	0	0	0	68
88	2can	1600000	2012	400000	2012	1	20
89	Travelmenu	1600000	2008	3000000	2008	1	9
90	LED Mikrosensor NT	1600000	2008	0	0	1	5,4
91	ROCK FLOW DYNAMICS	2000000	2012	874611	2012	1	20
92	Yaklass	2000000	2014	450000	2014	1	5,4
93	Net By Net Holding	2000000	2014	1200000	2014	1	19
94	Teamo	2400000	2011	2000000	2011	1	19
95	Melon Fashion Group	2400000	2013	0	0	0	5,4
96	Sports.ru	2500000	2012	2000000	2012	0	9
97	Vivaldroni Enterprises, Ltd.	2500000	2009	50000000	2009	1	9
98	NGINX	3000000	2008	10000000	2008	1	20
99	Global lab	3000000	2013	0	0	0	5,4
100	Kupikupon	3000000	2014	0	0	0	5,4
101	Moneyman	3000000	2007	80000	2007	0	5,4
102	IVI	3300000	2007	25000000	2007	0	19

103	Garpun	3500000	2008	0	0	0	20
104	SAPATO	5000000	2013	12000000	2013	1	19
105	Kinoyazyk	5000000	2007	0	0	0	12
106	MartMania	5000000	2013	0	0	0	12
107	Professionaly RU OOO	5000000	2008	163000	2008	1	9
108	Severnaya Kazna JSC	5000000	2013	500000	2013	0	5,4
109	QIK	5500000	2009	100000000	2009	1	9
110	Esky.ru	6000000	2011	0	0	0	5,4
111	Termosteps-MTL OAO	6000000	2012	900000	2012	1	19
112	acumatica	6600000	2011	10000000	2011	1	20
113	NIVAL NETWORK	7000000	2014	6000000	2014	1	19
114	Airtime	8300000	2011	25000000	2011	1	9
115	OneTwoTrip	9000000	2013	16000000	2013	0	5,4
116	Cardio Control	9900000	2008	0	0	0	5,4
117	GridGain	10000000	2011	0	0	1	12
118	Coccoc.com	15000000	2012	0	0	0	5,4
119	Grindelia Holdings Ltd	15000000	2009	163000	2009	1	9
120	UpiVIP	15500000	2012	0	0	0	5,4
121	Lamoda	16000000	2011	130000000	2011	1	5,4
122	Game Insight	25000000	2014	0	0	0	5,4
123	Avito	26000000	2008	75000000	2008	1	19
124	Kinopoisk	80000000	2012	80000000	2012	1	5,4
125	Hansastroi	80000000	2007	100000	2007	1	9

## **Entrepreneurship and competitiveness serve as the model for economic growth and resilience in Kosovo**

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**Purpose:** Entrepreneurship is seen as a crucial component of economic growth as it plays a highly important role particularly for countries in transition by enabling economic prosperity, reduction of unemployment and overall economic resilience. The purpose of this paper is to perform a systematic literature review consolidated by interviews for the role of entrepreneurship in developing countries, and post-war countries such as Kosovo in order to develop hypotheses regarding the importance of institutional and business environment and key factors among predefined factors that impact on facilitating entrepreneurial activity as key to economic growth and improved resilience.

**Methodology/approach:** This paper uses a qualitative approach including a research from policy documents linking to economic development in Kosovo (secondary data) and data gathered from in-depth semi-structured interviews (primary data). The systematic literature review (exploratory) that was performed enabled the elaboration of the research hypotheses that were then investigated through in-depth interviews with key entrepreneurs from different sectors. The interviews were then analysed via thematic analysis techniques and the initial hypotheses were updated with the insights from the target sample.

**Findings:** Data analyses show that in developing, transition and post-conflict countries, the institutional environment can hamper economic resilience. This paper discovers that the business and institutional environment in Kosovo has not been very conducive for entrepreneurs. Financial barriers, inefficient regulation, lack of experience and informal barriers are the key impediments affecting business development in Kosovo. Despite many challenges, entrepreneurs use tools of capacity development, innovation and professional skill trainings to develop businesses and improve the potential for competitiveness. Finally, entrepreneurship

is seen as the main vehicle for market development and sustainable economic growth in Kosovo.

**Implications:** This paper adds value to the recent literature of resilience by providing qualitative data and an investigation on how entrepreneurship and competitiveness can contribute to economic growth and resilience. The current hypotheses in the related literature relating to the topic of this research have been updated and specialized for the target sample of Kosovo. This research provides also key policy and practice implication by providing an updated status/environment for entrepreneurship in Kosovo enabling thus better awareness for current and new entrepreneurs as well as for governmental institutions that aim to improve this ecosystem.

### **Keywords**

Competitiveness, Economic Growth, Entrepreneurship, Kosovo, Post-war, Resilience

## **1. Introduction**

For many years researchers have analysed the relation between entrepreneurship and economic growth. The literature related to the importance of entrepreneurship on economic growth and the contribution of small firms in job creation and employment, is extensive [1-4]. However, a various number of evidence has uncovered the effect of private growth and levels of entrepreneurship have positive impact on economic growth [5-6], larger impact is seen on developing countries and relatively small impact on developed countries. Private enterprise is a fundamental part of the society and has become increasingly essential mechanism for socio-economic development. This sector is often seen as the primary engine of economic growth, particularly in developing countries where critical challenges are present in the meaning of slowing the development process [7].

The dynamic growth of private sector is one of the main driving forces behind economic recovery in developing countries especially for countries in transitions such as Kosovo [7]. Considering the fragile economic growth and huge unemployment rate around 45% in Kosovo, entrepreneurship and particularly fast-growing firms are considered as the key factors for creating new jobs. Moreover, the importance of entrepreneurship and SMEs in transition economies is seen as the main vehicle for market development and sustainable economic growth [7-8].

Despite the huge importance of entrepreneurship, the business environment in Kosovo has not been very favourable for entrepreneurs, in particular from the institutional side and their policy focus as a key determinant of private sector development. Kosovo has faced radical changes during the transition process and because of its special political conditions, it has been subjected to an extreme business environment conditions that affect entrepreneurship development in different stages [9]. However, Kosovo has faced critical challenges on building conditions for the market economy and institutional policy for economic development. One of the key challenges in transition process was the creation of new institutions and a favourable business environment for facilitating entrepreneurship [10]. The promotion of entrepreneurship remains the primarily solution to support economic growth.

This paper is structured by the following 4 sections. After the introduction, the second section provides the literature review on entrepreneurship background, economic growth and hypotheses. The third part describes the methodological approach and sample, while the fourth section presents the results and findings from entrepreneurs as a mechanism of economic structure. The paper concludes with the findings from the research and hypotheses by providing recommendations and implications to policymakers and further analysis to academic research.

## **2. Literature Review and Hypotheses**

### ***2.1 Entrepreneurship Background***

The entrepreneurial concept is rooted in the field of political economy which evolved into theories relating to the activities of unique individuals to focus on entrepreneurial movements within an economic context [9]. Many scholars have contributed to the development of entrepreneurship concepts and theories, while for many researchers entrepreneurship is considered crucial for the economic development of nations [1-3, 11]. Economists consider the entrepreneur as an agent who contributes to the economic activity, therefore concentrate on market rather than human factors [12]. Entrepreneurship is the main component of national advantage with eminent importance in enhancing rivalry and carrying out innovations which influence on stimulating economic growth [4].

There are three principal issues surrounding entrepreneurship, according to Salgado-Banda [13] they are identified as:

- (I) How can entrepreneurship be measured?
- (II) What factors help to determine entrepreneurship?
- (III) What is the relationship between the levels of entrepreneurship and economic growth?

Regarding the impact of entrepreneurship on economic growth, many researchers found that there is a contribution of entrepreneurship to economic growth [2, 13-17], depending on the country's economic development it was found that entrepreneurship levels in developed economies influence more on economic development while in the developing economies it does not have any significant influence [18]. Entrepreneurship has emerged as an essential organisational form for economic growth by serving as an instrument for the knowledge spillover; entrepreneurship is a mechanism by which investments, both public and private can generate larger returns in terms of economic growth and job creation [19]. In addition, Acs and Storey [20] investigate the hypothesis of entrepreneurship levels across countries which could be the source of differing levels of efficiency in knowledge spillovers, therefore eventually on economic growth. The prevailing theories of entrepreneurship have revolved around the ability of individuals to recognize opportunities and to act on them by starting a new business. According to the knowledge spillover theory of entrepreneurship, a context with more knowledge will increase the entrepreneurial opportunities, whereas a context with less knowledge will produce lower entrepreneurial opportunities. Based on this, empirical evidences identified important sources of opportunities such as investment in knowledge and ideas made by universities and firms define that entrepreneurial opportunities are no exogenous but rather endogenous to the extent of the investment in knowledge [21]. There is a link between high potential of entrepreneurial activity and opportunity entrepreneurship that have a positive impact on technological change and innovation, whereas necessity entrepreneurship has no such effect. Hence, it is suggested that enhancing research and development expenditures could be more effective if they are associated by an increased entrepreneurial activity [11, 22].

Considering the fact that entrepreneurship contributes to economic development whether in high levels or low levels, it requires three elements of working in concert: the individual, a business entity or an enterprise and, the environment in which it occurs, the three elements have significant differences in success or failure based on the context in which entrepreneurship occurs [23]. It is frequently highlighted that the countries undergoing through the process of transition show distinctive features of entrepreneurship [9, 24-25]. Eastern European countries provide an interesting area for testing and developing theories, because of the transition process that these countries are going through, with unique societal and economical setting [26]. It is assumed that for countries in transition and developing economies entrepreneurship beyond the fact of developing innovative activities of developing new goods and services is also concerned with alternative sources of providing products and services to the marketplace which may produce a more efficient market that can be considered similar to a developed economy but with different dynamics of the process [9, 25]. Particularly, it is mentioned the contribution of fast growing firms in transitional economies that are of significant importance for economic development [27] therefore, the investigation of entrepreneurship in general and particularly of fast growing firms in transitional economies is of crucial importance for these countries [28].

Firms and entrepreneurs operating in developing countries usually face different barriers compared to entrepreneurs who operate in other developed countries [7, 9, 25, 29]. This happens mainly because of the formal and informal barriers that emerge due to the specific setting of countries going through the transition process [30]. Many authors investigated various obstacles to entrepreneurship and small and medium enterprises, including those that occur in transition countries [7, 24-25, 31-33]. Factors and barriers can hinder the development of the entrepreneurship process, these obstacles can be environmental factors, social and legal factors that result with lack of entrepreneurship levels. Most of the

obstacles that are qualified as formal obstacles, namely high levels of taxation [34], overall business environment [25, 29, 33] legal framework [30], or informal barriers, namely enforcement of property rights, and the networks of corruption.

Aidis [24] stress that formal institutions such as laws and regulations or informal activities like red tape, corruption, bribery and others affect the development of entrepreneurship in the transitional environment. Moreover, Hoxha [7] emphasise that these impediments are present because of the unpredictable environment for doing business which may be characterised also by weak institutional factors and poor enforcement of laws and regulations, these obstacles are mainly present in countries in transitions and post-war countries like Kosovo [7]. In addition to above mentioned reasons, policy makers across the levels of government should have a strong interest in promoting entrepreneurship as a key to building and sustaining economic growth by creating an attractive business environment and conditions for entrepreneurs [5].

## **2.2 The link between entrepreneurship and resilience**

The contribution of entrepreneurship to economic growth can lead to the creation of economic resilience. Resilience is a relatively new concept in regional growth context that increased attention from various fields of engineering, psychology, ecology and has very recently raised attention in the regional and local field [35-36]. Walker et al [37] defines resilience as the measure of a systems' ability to cope with shocks and disturbances and to retain in the same function or structure. In terms of regions, Foster [36] defines resilience as "the ability of a region to anticipate, prepare for, respond to, and recover from a disturbance" (p.14) while, in economic terms resilience is perceived as the ability of an economic region to return to the equilibrium point after it has experienced a shock or economic downturn [38].

Various researchers found different approaches for creating regional resilience, Simmie and Martin [39] highlight the four-phase cycle model for adaption and change since firms and organizations are continuously changing therefore the adaptive cycles are needed. The adaptive capabilities of a region may depend on the regional capabilities such as firms, local workers, entrepreneurial capabilities, institutional innovation and similar factors. In the regional context, Martin [40] highlights models of how regional economies respond to shocks and recessions which are resistance, recovery, structural re-orientation and renewal. Firms and individual actors have a crucial role in productivity and innovation to create economic growth and resilience. Therefore, the concept of resilience within organisations focuses on the firm's ability to withstand crises, disturbances, and discontinuities; organizations must strive and continually adapt to the new risk environments in order to sustain competitiveness and remain viable within uncertain environments [41-43]. Organisational resilience is recognised as an essential element within an organisation's capacity to respond to crises [44]. Thereby, Vogus and Sutcliffe [45] define organisational resilience as the maintenance of a positive change under the critical challenges that emerge in an organisation from specific conditions strengthened and more resourceful. The term 'challenging conditions' is used to describe disruptive events such as crises, disturbances, errors, shocks, as well as ongoing risks like competition that cause stress and strain. The positive adjustment of an organisation represents the ability of organisational systems to cope, adapt and recover from disruptive events [41]. Hence, in this sense a resilient organization would have the capacity to learn from past incidents and adapt to change [46]. There are several essential concepts that define organisational resilience such as enterprise risk management, governance, quality assurance, information security, business continuity, culture and values that create a foundation from the outcomes of these applied domains. Furthermore, [47] highlight the importance of systems, processes, technology and infrastructure in business functions, operations and services of an enterprise system. In addition Erol et al [47] proposes a framework based on the expanded application of two enablers of enterprise resilience: (i) the capability of an enterprise to connect systems,

people, processes and information in such way that allows enterprise to become more responsive to the changes in environment; (ii) the role of information technology in assisting connectivity with business goals which consequently contributes to resilience. The effective use of the system can provide better performance, faster decision making and increased flexibility and adaptability [44, 48-49]. The capability of an enterprise to reorganise itself despite its changing environment and the effectiveness of recovering in the least possible time at the least possible expense, makes an enterprise resilient [44]. In order to achieve this, organisations need to manage the complexity of their infrastructures to adjust to potential risks and disturbances, also to understand the interrelationships between the business processes, information, and technologies within the enterprises [50].

A long-term, systemic perspective of regional economic resilience emphasizes the structure of relationships among macroeconomic variables that resist over a long period of time and the economic, social, and political institutions that condition this structure. A regional economy would be resilient to the extent that its social and economic structure is able to make a rapid transition from one structure to another [35]. This structure includes the competitiveness and creativity of firms, entrepreneurial skills, the networking of systems with other countries, institutional and political conditions which consequently may help or hinder a region's recovery from a shock or a disturbance [40].

Following this literature review on entrepreneurship impact on economic growth and resilience, the following hypotheses were formulated:

H1: Opportunity entrepreneurship dominates in developing economies compared to necessity entrepreneurship

H2: Investment in knowledge increases entrepreneurial activity and innovation which impacts on enterprise performance

H3: Management style, human resources and professional practices have a positive impact on companies' growth in times of crises

H4: Regional business factors hinder the development of entrepreneurial activity in transition countries

H5: Organizations continually adapt to the new risk environments in order to sustain competitiveness in times of crisis

### **3. Methodology**

This paper uses a qualitative approach including a research from policy documents linking to economic development in Kosovo (secondary data) and data gathered from in-depth semi-structured interviews (primary data). The qualitative research offers an understanding of people's life, situations from the perspectives of people being researched, exploring meaning and understandings. Entrepreneurial process is a dynamic process on regional development; it involves various agents and stakeholders and also different dimensions of macro environment. The qualitative approach is very appropriate for this study since it investigates particular issues to different individuals in an entrepreneurial context, while quantitative methods are very limited and not suitable for this type of study [51]. The research included a literature review on economic profile in Kosovo by gathering data from policy documents and reports relating to the economic development and entrepreneurship in Kosovo. The systematic literature review (exploratory) that was performed enabled the elaboration of the research hypotheses that were then investigated through in-depth interviews with key entrepreneurs from different sectors. In-depth interviews are used in order to learn more insights from the individual level of entrepreneurs on the ways to maintain business growth, and practices used in times of crises in order to sustain organizational resilience and adapt to changes. The questions that were discussed with entrepreneurs followed the sample of Rodgers et al [52]. The interviews were then analysed via thematic analysis techniques and the initial hypotheses were updated with the insights from the target sample.

The individual interviews were undertaken face-to-face which were settled to remain anonymous since this was a condition of the research. The interviews with entrepreneurs provided information on firms' characteristic, entrepreneurs' actions and steps toward business growth, their performance, and the impact of business environment factors which act as obstacles or facilitators of the firm's growth. Entrepreneurs were asked about the impact of business environment particularly the economic policy of institutions that help or hinder the work of entrepreneurs, the rate of the impact of the obstacles such as the ease of access to finance, the tax administration system, the government's role in promoting entrepreneurship and improving business environment, the role of law and judiciary, and other features that influence both entrepreneurs and firms. Entrepreneurs were selected randomly in different countries of Kosovo but they were mainly from the city of Gjakova, they represented firms from different sectors including manufacturing, trade, and services since the aim was to investigate the entrepreneurial cognition in the sense of learning the behaviours, ideas, strategies and actions of the entrepreneurs in the region of Kosovo and how they react to crises in order to develop the business, and not necessarily to see the contribution of each sector in Kosovo's GDP in order to see how it impacts in economic growth, even though this observation is also important. The semi-structured nature of scheduled interviews intended to raise further questions which were therefore discussed and explored. This gave a thorough and comprehensive view from entrepreneurs' side about their perspectives in business, the institutional conditions for business start-ups and policies for business environment. The interviews lasted about half an hour which were recorded and later transcribed and translated into English. These interviews were then coded into topics in order to analyse separately each topic that the paper sought to investigate. The individual interviews were undertaken face-to-face which were settled to remain anonymous since this was a condition of the research. The interviews were undertaken in June 2013 and provided deep insights into the role of individuals as a part of the entrepreneurial ecosystem. The following section presents the results from interviews with entrepreneurs.

## **4. Results**

### ***4.1 Environment Assessment***

The literature on entrepreneurship showed the importance of entrepreneurship in economic development which is a key element of competitiveness and growth. To understand better the entrepreneurial activity of businesses, entrepreneurs were firstly asked about the environment assessment. The majority of entrepreneurs do not feel positive about economy today compared to three months ago even though to the majority of firms there have been improvements in business activity compared to three months ago. The employment level in firms is the same but it increases only in the summer season due to the general improvement of business activity as a result of returning Kosovars who live abroad and the cash inflow inside the country. However, many entrepreneurs responded that they do not feel optimistic about economy in the future and they do not plan to employ more workers. Measuring the level of necessity based entrepreneurs and opportunity based entrepreneurship, most of them responded that it was necessary for living to start the business. Motivation of people to start-up a business in transition economies has been considered mainly as a necessity driven with limited extent of opportunity driven [7]. Moreover the table below shows the number and percentage from our sample of necessity and opportunity entrepreneurs.

**Table 1** Types and motivation of entrepreneurship

<b>Entrepreneur Type</b>	<b>Number</b>	<b>Percentage</b>
Necessity Entrepreneurship	5 Entrepreneurs	62,5%
Opportunity Entrepreneurship	3 Entrepreneurs	37,5%
Total	8 Entrepreneurs	100%

Five firms that started operating in the early 90s established their businesses as a need for survival, their families were in business before, mainly trade sector, and these entrepreneurs continued the business as an ambition inherited from their families. The entrepreneurship spirit and private enterprises in Kosovo exist since ancient times, private sector before the war consisted of family businesses focused mainly on agriculture [53], handicrafts, cattle-raising, also the producers of basic consumption goods, whereas the service sector was based on traditional activities such as leather craftsman, carpenters, and blacksmiths [54]. These entrepreneurs stated that starting a business in that time was easier than nowadays because government and public enterprises provided with benefits for entrepreneurs to start a business with a year of grace period. After the war, all of these firms were destroyed and had to start all over again from scratch [55]. Whereas, three entrepreneurs who started their businesses later on after the war, said that they had the opportunity to start a business so they challenged themselves in the entrepreneurial activity. Majority of entrepreneurs started their businesses from family savings, as they began small and gradually expanded their businesses to achieve firms' vision and objectives. Based on these insights from interviewed entrepreneurs, it can be stated that Hypotheses 1 is not reliable in this region.

## **4.2 Enterprise Performance**

The previous experience has had much impact on entrepreneurs and the development of their businesses. All of them stated that their experience before in business or other sectors has influenced them in their decisions, communication skills, and management skills. Education in this regard for many of them does not seem to be with high importance for their business development, as one entrepreneur states, *“business experience is the biggest education, to take the right decisions and continue with the business growth”*. The same was found by Krasniqi et al [32] business survey and entrepreneurial activity in Kosovo. On the other hand, two entrepreneurs emphasised the role of education in their business decisions as they have improved and gained knowledge for entrepreneurship and business, they state:

*“Past experience in banking sector has helped me gain the necessary discipline about the work environment, increase network connection, and create relationships with different individuals and companies. However, business experience itself and entrepreneurship is more challenging. The combination of professional education and past experience created a prepared model to face business challenges.”*

All entrepreneurs, except one, have experienced increased business turnover compared to three years ago. They experienced steady growth through the years and also the number of the employees in firms has increased gradually, except one company which has reduced the number of employees extremely because of the investment in technology, furthermore he adds:

*“...considering that we have invested in technology more than 10 million Euros, we had to reduce the number of employees. In 2008 we had 670 employees in the construction material industry, and now there are about 270 employees in this industry.”*

However responded mentioned that due to the actual crisis they do not plan to employ more employees in the coming months. Although the Hypotheses 2 states that investment in knowledge plays a critical role in companies' growth, entrepreneurs do not see it as a crucial component for their companies. By this, we consider that Hypotheses 3 is not confirmed.

### **4.3 Business Model/ Organization**

Business model of the organizations was depended from the level of enterprise, entrepreneurs of large companies consist of several departments and the structure is built on a hierarchal model where low managers respond to the middle managers and the middle managers to the top managers. Whereas, companies considered as small and medium enterprises depend on flat/horizontal structure where all employees are connected to each other who communicate directly with managers and top management. Entrepreneurs stated that they are based on the group model of decision making, they discuss with employees ideas and solutions but majority of them stated that the final decision is taken by the top management or entrepreneurs. Furthermore they state:

*“One advantage of our company is the relatively young age of employees with an average of 24 years old. Having a young, educated and skilled staff is a benefit for the company because they are ambitious and willing to continuously start new projects, to take risks and responsibilities more than the elderly staff. This has made our collaboration strong and easy to face challenges.”*

*“We are always close to our clients; the idea is to keep clients satisfied and to know their needs. The moment when we receive the product demand from our employees, apparently we are missing something to keep our clients satisfied. Therefore, we understand better the market by staying close to the buyer.”*

However, during the last three years, entrepreneurs stated that their strategy has changed depending on the external environment. The complex circumstances present in an extreme socio-economic environment like Kosovo have made the entrepreneurship area a difficult sector to enter considering huge barriers such as institutional barriers, resource inadequacies, and the rule of law [9, 31, 56-57]. Many entrepreneurs stated that political instability, economic environment and inefficient business strategies have had significant affect in their businesses by hindering activities and hampering their development. The strategic orientation of their firms has changed along with the changes in market demand, economic crises, and competition. Regarding strategic priorities for the next three years, entrepreneurs responded that they pay more attention to innovation in order to bring more changes and diversity to satisfy customers' needs and majority of them do not pay much attention to marketing as a development strategy. Two of them responded that human resources are critical factor for the business development, therefore this aspect need to be considered carefully by entrepreneurs. The main objective for the next three years to majority of entrepreneurs is to expand their business activity by enlarging production capacities, product variety and diversifying their business model. The actual crisis resulted with lack of cash flow in the market which impacted the clients to make payment delays and lack of ability to buy goods. As one entrepreneur states:

*“Changes in environment and economy, also the actual financial crises, have affected both negatively and positively our company. Over time we have made changes in business strategy by observing the market demand, thus orienting our strategy based on needs. This has made us more resilient because we are continuously investigating the market, bringing changes and innovation to keep our clients satisfied.”*

Thus, management style, leadership, strategy and operations impact on the business

development, depending on these variables and also the education level of entrepreneurs affect the business performance [58]. Regarding management style, six entrepreneurs state that management style is directed by them and they have not employed any professional management practices during the development of their business because their methods were appropriate and effective. Whereas, two entrepreneurs emphasised the importance of implementing professional management practices in business since it is very helpful to employ external practices to create a resilient organization. In addition, one entrepreneur states:

*“For three years I have implemented professional practices from consultants, experts and managers. Every month we have continuously experts from different fields such as production process, management, technical specialists that have contributed extremely in the development of our company. This has extremely helped us in professional skills and knowledge, practice development, experience and capacity enlargement.”*

Although many entrepreneurs did not employ professional practices, they responded that it is possible to use these practices in the future considering the unfavourable circumstances for doing business in Kosovo. Considering these analysis from the research and entrepreneurs insights, the Hypothesis 3 is partly confirmed and needs to be updated.

#### **4.1.3 National/ Regional Business Environment**

For the majority of entrepreneurs is hard to develop the business in Kosovo, there are a lot of environmental factors that hinder the development process of businesses. The consisting barriers including business environment factors such as difficulties in accessing financial resources, inefficient regulations, education quality, lack of experience, barriers on internationalization, [25, 59] the institutional barriers that are also qualified as formal obstacles such as fiscal policy, high taxation levels, poor law regulations, and informal barriers such as property rights, corruption and bribery [7, 57, 60 -61] have critical impact in the development of entrepreneurship, thus influence negatively on economic growth and create unproductive or destructive effect in economy [12, 57, 62].

Financial barriers as one of the key impediments affecting business development in Kosovo impact negatively firms' performance, many entrepreneurs stress that having high levels of norm interests, does not give many opportunities for businesses to grow. There are no other financial benefits for the development of businesses, therefore considering these circumstances; entrepreneurs were necessarily left with the option of receiving loans for business development. Some features for the success of firms were mentioned from entrepreneurs, such as providing good quality, excellent services and satisfying market needs are great attributes for development, even though trade market has changed as a result of external environment and clients have changed as well, but providing these feature always keep clients satisfied and loyal to companies.

In this regard, two entrepreneurs' state:

*“...our clients take decisions easier now because they know our products' quality and they have gained the trust in our Company.”*

This attribute is the most common and appropriate method for some entrepreneurs in order to satisfy clients and market needs. Most entrepreneurs have had collaborations with private sector which has helped their business development through partnerships and collaborations with the same industry or sector. They state that this is with critical importance for business development, as business partnerships impact positively on economic growth. Tendencies for collaboration with other private businesses are seen from entrepreneurs as a key role, but some of them state that considering the actual crisis, is crucial to find the right people to collaborate with, to have good communication and understanding. As for the public sector most of entrepreneurs responded that they do not

have any collaboration and they did not benefit in any aspect from the public sector. Furthermore, financial politics, public policies, lack of economic development strategy, customs policies, Tax Administration of Kosovo [9], also inefficient electric supply and lack of appropriate infrastructure only hinder the private sector development and business development, and do not influence positively in this regard [7, 63]. Based on the results from the literature also from the interviews, the Hypothesis 4 is confirmed.

#### **4.1.4 Economic Resilience**

Economic policy is the main variable that influenced private sector, businesses and the overall economy; it affected indirectly and hindered the business environment in Kosovo. Public institutions did not pay much attention to the domestic production, thus the economy is totally depended on imports from other countries [64]. Respondents mentioned that as a result of dependency on imports, money flowed out of the country and the cost of imported goods increased due to the high taxes which are equal for raw materials and for the final products. Considering this, an obstruction in other countries affects the entire economy in Kosovo by causing inflation. On the other hand, entrepreneurs emphasise that privatization is the biggest degradation that has been done to Kosovo since war; it destroyed the main assets of Kosovo as a result of selling these assets with low prices. Also, the government and public institutions are mainly focused in promoting agriculture sector by giving subventions for its development, thus leaving behind other sectors which would be more profitable and would impact more on economic development.

The main priorities for economic development and resilience from entrepreneurs were considered the development of domestic production, the development of infrastructure, and energy supply. Two entrepreneurs emphasised the development of textile production since Kosovo has assets and competitive advantage to export products in this regard. Moreover they state:

*“Production of textile is an area in which Kosovo has capacities and capabilities because of the relatively low cost on investment considering the large number of factories in Kosovo that are not active since war.”*

*“In Kosovo you have a large number of labour market which is skilled in textile manufacturing and is relatively cheap in Kosovo, this creates competitive advantage for Kosovo to export products particularly in countries that charge no tax fee for our country such as US, Germany or France. The development of this sector would have a large impact on economic development”*

Therefore building on these priorities could be an advantage for Kosovo to benefit and create economic development and resilience.

The global financial crisis affected many economies worldwide but it hit Europe harder than any other region in the world and can be considered as the worst crisis since the Great Depression during 1929-33 [65]. Due to that, the process of transition for many developing countries such as countries in the Balkans and former Soviet Union has harmed transition economies to suffer more rather than the developed economies [33]. While other countries in region were significantly affected by the crises it did not affect directly Kosovo 's economy since the economy was isolated, but it had an impact indirectly on its economy through reducing exports, remittances and foreign investments [66]. The consequences of the global crisis were reflected more in the real sector of economy with a slow down of economic activity, whereas the financial sector in Kosovo despite the unfavourable circumstances suffered modest crisis and the overall sector was mainly stable compared to other sectors [67].

#### **4.1.5 Organisational Resilience**

Different methods and strategies are implied in companies to be more resilient; many entrepreneurs emphasised the need for using more investments in their companies in order to enlarge their firms' capacities by product enlargement and diversity. Four entrepreneurs state that the main strategy they are willing to employ, in order to be more resilient, is to grow the capacities of their firms and to expand their companies' activity in other cities of Kosovo or outside the country so they can be more competitive with the international market as well. By enlarging firm's capacities, it sustains market needs therefore increases firms abilities to be more competitive and resilient to overcome crisis. Except these views, some other entrepreneurs express:

*"The financial crisis of 2008-09 came three years later in Kosovo and my company faced that crisis very hard. However, this year has been more difficult than the past years and my company is being adapted after the crisis by being more vigilant with the collaborating companies, calculating better the risk of new projects, and analysing carefully our collaborating partners in order to overcome the crisis and to be more resilient."*

*"The collaboration with the external consultants and companies will help our company define various strategies for business development in order to bring more innovation in our company and to be more resilient."*

One entrepreneur mentioned that in order to adapt with the crisis he reduced the number of employees to lower expenses, but that did not work properly. Furthermore he adds:

*"This time we are planning to apply a different method that can be more effective to overcome crisis and sustain the company's growth. So far we have offered products with European prices for the middle clientele. Our new strategy that we will employ will be focused on the product diversification, to offer products with cheaper prices which will be more affordable for the majority of the clients."*

As the respondents mentioned different strategies and methods in order to overcome crisis, there are still areas needed for improvement and resilience. Many entrepreneurs emphasised that they did not employ any professional methods and they rely on their own strategies. Considering that the environment is changing and market is growing, further professional methods, knowledge and skills are needed for entrepreneurs to keep their businesses grow and to be more resilient. By this we concluded that Hypothesis 5 is partly confirmed.

## **5. Conclusions**

This paper explored the drives of entrepreneurial activity in Kosovo and the levels of entrepreneurship activity as the main vehicle contributing to economic growth and improving economic resilience. Many scholars have contributed to the development of entrepreneurship concepts and theories, while for many researchers entrepreneurship is considered crucial for the economic development of nations [1-3, 11]. Entrepreneurship has emerged as an essential organisational form for economic growth by serving as a mechanism by which investments, both public and private can generate larger returns in terms of economic growth and job creation [21]. The contribution of entrepreneurship to economic growth can lead to the creation of economic resilience. The concept of resilience is a relatively new concept that has been used from researchers in regional growth context and increased attention from various fields of engineering, psychology, ecology and has very recently raised attention in the regional and local field [35-36]. Researchers have considered the applicability of this concept in local and regional economy in order to

analyse the reaction of regional and local economies after a natural or environmental disaster [39-40]. However, although many authors explored this concept and several studies presented frameworks to conceptualise this notion, there is a research gap in linking the role of entrepreneurship in economic resilience. As Martin [40] states that regional economic resilience could be viewed as the capacity of a region's economy to reconfigure, that is adapt, its structure (firms, industries, institutions and technologies) to maintain an acceptable growth path in output, job creation and employment over time. Such adaptability will depend on the level of entrepreneurship in the region and new firm formation, on the innovativeness of existing firms and their ability to shift into new sectors or product lines, on the ability of labour and the right skills, on access to finance for investment, on diversity of the region's economic structure and similar factors.

The role of entrepreneurship and competitiveness is a crucial part to a dynamic and growing economy, by stimulating competition, driving innovation and creating employment can lead to an increased economic resilience of a region. This study analysed the role of entrepreneurship on economic growth and resilience, and the motives behind entrepreneurial activity in an extreme environment like Kosovo. The key challenge for economic growth and development is the emergence of private sector which is the best stimulation for growth and the best hope for Kosovo's population by providing employment and revenues for the major unemployed labour market [63, 68-69]. This paper finds that there are numerous constraints impeding the development of this sector like the lack of public infrastructure particularly in energy and transport, low skills and education, limited judiciary and administrative capacity hampering the business climate. Some of the challenges can be improved through the effective policy making, while other challenges are linked with the external environment and require an improvement in institutional level in order to expand the scope of entrepreneurial capacity.

This study emphasizes that entrepreneurship despite many challenges present in business environment is playing an important role for the development of private sector; however it is not contributing to economic growth in the larger scales. Public institutions and stakeholders should see entrepreneurship as the key to economic growth and resilience. The entrepreneurs' perspective suggest that development of business environment, improving access to finance and easing the tax burden on businesses are the main areas needed for improvement in order to develop private sector. The existing businesses do not feel positive about economy or business environment in the future and they do not plan to increase the number of employees. While, the motivation of people to start-up a business has been considered mainly as a necessity driven with limited extent of opportunity driven. Entrepreneurs stressed that they did not benefit from the public sector policies in the development of their businesses and that there is no clear strategy from the institutions for the businesses and private sector. Moreover, findings from their perspectives suggest that more education is needed in the entrepreneurial practice in order for organizations to be more resilient to changes and shocks.

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## **Entrepreneurship in Oman; policies and practices**

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**Oman provides an interesting context to examine how formal institutions encourage**

local enterprise. We examine the views of local entrepreneurs about the effectiveness of government policies that are intended to foster indigenous small business. We ask how they evaluate the entrepreneurial ecosystem. We provide an overview of the remarkable context, the Sultanate of Oman; thriving oil based economy, but characterised by a high percentage of expatriate business ownership. Moreover, the current industrial and commercial structure looks unlikely to be able to provide sufficient satisfying jobs for the rapidly expanding youthful population. The government has responded by creating modern formal institutions to facilitate enterprise and by providing a number of well-funded programs to enable local entrepreneurship. This forms the basis of our research problem, establishing how local entrepreneurs respond to these initiatives to address the low levels of local entrepreneurship. We conducted a face-to-face interview -survey with 60 Omani SME owners asking about how well the initiatives had addressed their cultural and practical “requirements”. We found that many respondents were motivated by a quest for independence coupled with the need for a “good” job. However, we also found that the sheer joy of entrepreneuring delighted some respondents. The initiatives had provided the means of achieving this self-determination. The formal structures were very supportive; initial funding for example was readily available. However, we also found the informal structures were less developed. There was evidence of an emergent cognitive appeal and approval for entrepreneurship. We argue that there is need to develop such informal institutions to help existing businesses to grow and to cultivate an Omani enterprise culture.

## **Keywords**

Entrepreneurship, formal institutions, informal institutions, Oman, policy

## *Introduction*

The purpose of this paper is to consider how well formal and informal institutions work to support entrepreneurship in the rather unique context of a flourishing, but oil dependent economy. Our objective is to study the entrepreneurial ecosystem and its effectiveness according to users, entrepreneurial agents. We examine these processes in the Sultanate of Oman. Oman shares some characteristics with its neighbouring countries of the Gulf Cooperation Council (GCC), categorised as hydrocarbon -dependent economies. Consequently the development trajectories of the Arab Gulf states are shaped by the vicissitudes of the petroleum market (Ennis, 2013). As such, the economy has a substantial expatriate presence and less well developed local human capital. Moreover, the population is young and new satisfying jobs for Omanis in the private sector are scarce. Hence, as in many developed (Dana et al, 2008) and developing countries (Harbi et al, 2009), entrepreneurship is seen to offer a solution.

The paper examines the entrepreneurial support systems through the lens of respondents who are engaged in the system. Thus the views are informed by practice and experience, but are subjective interpretations. However, our analysis of these opinions allows us to step back from individual opinions to reflect and form an overview of the more general implications emanating from the patterns of responses. As we see it, although an interpretation of interpretations, this is particularly useful because it is grounded in real entrepreneurial lived experiences rather than a checklist evaluation determined by the policy objectives themselves. We believe the paper contributes at different levels. There is a burgeoning awareness that context shapes enterprise (Welter, 2011; Dodd et al, 2013), so our appreciation of the Omani context may be useful for understanding entrepreneurship in similar contexts. Our institutional exploration, reflects on, and adds to, the significant point that institutions shape the nature and type of entrepreneurship (Harbi and Anderson, 2010; Baumol, 1996). These theoretical contributions are complemented by our practical

contributions about the effectiveness of policies.

The paper begins by describing the context, Oman. We then expand on the descriptive account to discuss the nature of our research problem. Essentially Oman's rapid modernisation has been path dependent on oil and this has created specific problems related to the suitability of local human capital for the development process and a shortage of good jobs for the expectations of an expanding, but very youthful population. The problems to be addressed are seen as; reducing the reliance on an expatriate labour force; the indigenisation of the small business economy and broadening the economic structure to prepare for a reduction in oil revenues. More, and better Omani led entrepreneurship is held up as a solution and the effectiveness of policies is our research problematic. The paper continues with our data and analysis. Finally we discuss how our findings relate to Omani institutions and offer some suggestions.

## The context, Oman

The Sultanate of Oman is a small but beautiful country that enjoys a reputation for international trading over 2000 years resulting from its geographic position straddling historical East-West trade routes. The population of some 3.8 million consists of approximately two million Omanis plus 1.8 million expatriates. Oman is one of the most progressive countries in the Middle East, with a stable political environment, a well-established legal system and international banking standards and regulations that encourage investment and enterprise (Khan and Al-Moharby, 2007). Although Curtiss (1999) had described Oman as one of most traditional societies in the Arab world, Oman has rapidly modernised (Kemp and Madsen, 2014) under the direction of Oman's monarch, His Majesty, Sultan Qaboos bin Sa'id. Ghailani and Khan (2004) explain how the Vision for Oman's Economy: Oman 2020 proposed moving the country from reliance on the public sector to building the economy via private sector enterprise. Brandenburg (2013) refers to this era as Oman's Renaissance; offering the example that more than 30 public higher education institutions (HEI) were established, all offering free education, but exclusively for Omani citizens.

Nonetheless, all the countries that form the Gulf Cooperation Council (GCC) are highly dependent upon an expatriate labour force. Ennis (2013) explains that labour and expertise dependence began in the early days of the oil boom. Small populations and human capital development constraints meant local labour pools were both insufficient and ill equipped to manage the rapid, large-scale development projects. However, amongst its GCC neighbours, Oman is structurally less dependent upon an expatriate workforce. Oman expatriate workers represent 59.4% of the total workforce in contrast to, Qatar at 94%; UAE at 93%; Kuwait at 80.5% and Bahrain at 77.3%. Saudi Arabia's working population is eight times larger than Oman but has only some 50.2% of this workforce as expatriates.

Nonetheless, Ennis (2015) concludes that the regional economy is circumscribed by two interrelated path dependencies; national addictions to hydrocarbon revenue and foreign labour.

Addiction may be a poor description of structural features that have served the country so well, thus far. Moreover, it is also important to recognize the extraordinary improvements made in a comparatively short historical period. Before 1970, Oman was in political turmoil especially in the south of the country. Importantly, there were only two schools in the entire country so that national illiteracy prevailed. Thus the changes since 1970 when His Majesty Sultan Qaboos Bin Said, the Sultan of Oman, assumed power are remarkable in the extent and reach of the radical improvements. This *Renaissance* period began with infrastructure improvements and spread to all sectors. It is fair to say that Oman now has a modern infrastructure and supporting institutions, albeit with a hydrocarbon dependency.

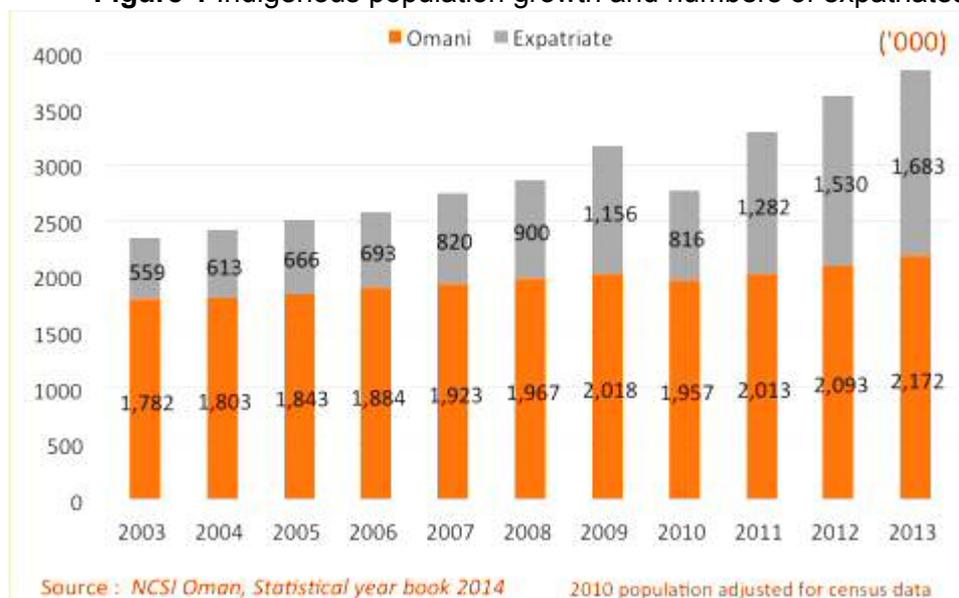
Nonetheless, it was oil discovery that has positioned Oman as one of the most progressive countries in the Middle East Region and oil remains pivotal for the development of the country. This is because oil production creates around 80% of the total revenue (Al Shanfari

2012). In 1970, GDP was \$ 110 million and \$ 1,760 per capita income, but by 2014 GDP was \$ 80.57 Billion and per capita income was \$15,145.

However, perhaps as a consequence of financial success of the hydrocarbon economy, two related problems have arisen. The overdependence upon a foreign workforce influenced a weakened supply of local human capital. Indeed local Omani labour ambition was often for a well paid secure government job. However the state sector has been described as bloated and cannot absorb the sharply increasing numbers of new labour market entrants. The indigenous Omani private sector is growing, but not fast enough to soak up these large numbers. Buckley and Rynhart (2011) estimated that youth unemployment (15-24 years old) could be as high as 30%. More than 35 % of Oman’s population is under the age of 15, and 63 % is under 25 (MoNE 2010). Moreover although the education system produces international standard graduates, “the annual number of college and university graduates already exceeds the annual number of jobs available in Oman” (Al-Barwani *et al.*, 2009, p. 416). Furthermore there may be a question about the suitability of local graduates. It is reported that near half of surveyed Arab CEO’s consider that the education system produces an unqualified national cadre (Arab Human Capital Challenge, 2009).

Accordingly the “problem” is more than merely adjusting the imbalances of expatriate versus local labour and expertise, or of simply creating more jobs. Solutions must create satisfying jobs, especially if avoiding the disaffection of the youthful population is a priority. In the longer term, growth, but especially sustained growth, will have to be home grown. Such growth may well involve international partners, but will have to be anchored in Omani expertise and in Omani owned and managed businesses. Thus given the complexity of the “problem” it is unsurprising that the promotion of entrepreneurship has become a policy objective. The socio-economic dilemmas have been the driving force for the government support for entrepreneurship and self-employment especially among the young (Khan and Al-Moharby, 2007). Moreover, Ennis (2015) argues that the entrepreneurial ecosystem is closely tied to government policy and initiatives. Thus an understanding of how these work in practice will allow us to see how the “problem” is being addressed. Figure 1 below, numerically illustrates the extent of the problem.

**Figure 1** Indigenous population growth and numbers of expatriates



Indeed, governments around the world have striven to promote entrepreneurship and develop the institutions necessary for a successful entrepreneurial ecosystem. An outstanding example from a less developed country is Rwanda. It made a spectacular leap in the World Bank list for Ease of Doing business, jumping from 143rd to 67<sup>th</sup>. (World Bank, 2015). This has paid off for Rwanda; the per Capita GDP has almost quadrupled since 1995, (Isenberg, 2010). Of course, if entrepreneurship forms and practices are shaped by context and institutions, so too is the appeal of entrepreneurship, especially for younger people (Dodd et al, 2013; Harbi et al, 2009). The appeal of entrepreneurship is uneven; according to the World Bank research in 2010, developed economies produce 10 times more new ventures per adult per year as compared to economies of countries in the Middle East. This seems to illustrate the extent of the challenges that Omani policies must face.

Nonetheless, compared to other Arab Gulf governments, the Omani government has been more active in its labor market intervention through its job nationalisation (Omanisation) program. The Omanisation program is an initiative that aims to integrate local labour into the job market and reduce foreign labour in both private and public sectors. A focus has been the entrepreneurship programmes, supported by both private and public organisations. We now describe the programmes.

## **Entrepreneurship support in Oman**

### ***Intilaaqah***

Intilaaqah, Shell's social investment initiative was set up in 1995 and designed to stimulate and encourage unemployed Omani youth to consider starting their own business as a career option. By supporting their business ideas and plans with free expert training and counseling, Intilaaqah aims to create young entrepreneurs who will help diversify the economy away from oil and gas.

Since its inception, the programme has trained more than 7,600 Omanis, many of whom now successfully run their own business. Intilaaqah's main focus is to help in creating sustainable businesses and job opportunities. It does this by providing guidance, business development assistant and online self-paced training courses. Furthermore, the programme offers financial support ranging from US 50,000 to one million dollars to qualified Small and Medium Enterprises (SME's).

Its vision is to create an entrepreneurial environment and assist small businesses to prosper.

Intilaaqah recognizes that startup businesses go through many obstacles at the early stages; it therefore addresses these obstacles by providing necessary counseling and business development services. The program has contributed to the creation of many businesses and will continue to do so to achieve its objective of promoting and encouraging entrepreneurship in Oman.

### ***Intilaaqah's Objectives***

- To focus on development of entrepreneurial talents and business mindset of young entrepreneurs.
- To support the development and growth of Small and Medium Enterprises (SME's).
- To create sustainable SME's in Oman.
- To build the capacity of local entrepreneurs.
- To recognize successful entrepreneurs and promote the concept of entrepreneurship to others.
- To contribute to the national strategy to diversify the economy.

- To help alleviate the growing job seeking rate amongst young Omanis.
- To demonstrate Shell's commitment to the sustainable development of the Sultanate of Oman.

As observers, we are interested in Intilaaqah as an institution and the roles played. We note the type and extent of practical support provided by the programme. Yet it has an ambitious objective; unemployed youth will likely lack the sort of experience and knowledge that steers a new small firm through the liabilities of newness. Nonetheless, counseling is an effective way of sharing knowledge, but is very dependent on the knowledge resources of the counselor. We know that general codified knowledge is useful at start up, but that tacit specific knowledge is critical for firm growth (Anderson and Ullah, 2014; Hardwick et al, 2013). From this viewpoint, we see Intilaaqah as a formal institution that offers cognitive and practical support for new small firms. However as a formal, albeit private, institution it may lack the capacity to enable growth. We are nonetheless, impressed by the extent of financial support for new firms. This would be the envy of many new firms in other parts of the world!

### ***Al Rafd Fund***

Unlike most of the world, finding finance for small firms is remarkably easy in the Sultanate. We noted above the funding from Intilaaqah, but alternative funding for small firms is available through the Al Rafd fund. Internationally, many small firms struggle to secure finance, especially loans. Not only is credit limited, when available, it usually requires security. In Oman through the Al Rafd Fund, SMEs are offered loans without any guarantee. The Al Rafd Fund offers finance for projects worth up to RO 100,000 (over \$250,000 US). This is clearly a substantial pillar of formal institutions.

### ***Riyada***

The government institutional support for entrepreneurship is represented in Riyada. On 30th May 2013, a Royal Decree was issued to convert the Directorate General of Small, Medium Enterprises within the Ministry of Commerce and Industry to the Public Authority for Small Medium Enterprises (Riyada) with a dedicated management structure. The main objectives of the Authority are as follows:

- Development of SME establishments and foster them to spread and enable them to get finance and services by collaboration with the concerned public and private authorities and bodies.
- Instilling the culture of entrepreneurship in young and youth.
- Enforcing the role of establishments to provide various and renewable job opportunities to Omani youth.
- Assisting entrepreneurship to take the initiative to establish and execute their own projects and to develop them.
- Enhancing the competitive, advantage of the existing SME Establishments.
- Increasing the ability of establishments to achieve added value to the national economy; to take part in economy diversification, to support innovation, and to use modern technologies.

“Riyada” launched five initiatives: a business center “incubator”, entrepreneurs’ business card, open registration for industrial lands acquisition, the establishment of an entrepreneurs’ club and the establishment of entrepreneurs’ newspaper. The establishment of the business incubator is the first of its kind in Oman and is intended to help enterprises to progress towards excellence and sustainability through the use of services and facilities provided. These include training programs, technical support, consulting and creating a partnership among the entrepreneurs and with government and private sectors to provide a solid ground

for these institutions to flourish and develop.

This is clearly a substantial formal institution offering both cultural and practical support. Within the institution are the possibilities of supporting growth rather than simply start up, but the focus is on start up and inexperienced entrepreneurs.

### *Research Methods*

Our research problem is about the effectiveness of institutional support but our research questions enquired about the subjective opinions, the views, of our respondents. This signaled a qualitative, interpretative approach as the most suitable for the study. We used a questionnaire with both open and closed questions in face-to-face interviews. Thus, we acquired quantitative data, mainly based on Likert scales, which was useful for showing the range and extent of opinions. The qualitative comments were intended to help us understand and then conceptualise the patterns we found. Our focus was not on capturing effects, “explaining” in positivistic terms (Anderson, 2015) through variances, but in understanding processes.

Our sampling was purposeful (McKeever et al, 2015) that is to say we sought out respondents who had experienced and used the support programmes and thus were active participants in the entrepreneurial ecosystem. We interviewed 60 Omani entrepreneurs whom we selected from a list of participants in the Riyada programme. We used a questionnaire and interview schedule that had two sections. The first section was about the entrepreneur and the business and the second asked about their perceptions and experiences of government support programs. The lead author who is Omani and an experienced businessman conducted all of the interviews. This helped to develop rapport with the respondents, especially in the more sensitive question areas. Of course, it may also have introduced some bias, but this kind of study is never value free.

We first completed a simple descriptive analysis, but then employed the constant comparative method to explore the data in detail. The constant comparative method involves analytical induction; first identifying themes in the data and then iterative comparisons with and between other data and theory (Jack et al, 2010). This is not full blown formal grounded theorizing but neatly described by Anderson et al (2010) as “dancing between data and theory”

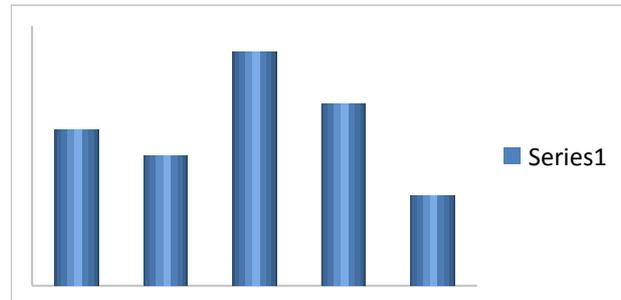
### *Description of our sample*

The greatest number of respondents, 25, were aged between 31 and 40; the next largest group aged between 41 and 30 included 18 respondents. We had only one older respondent, but 14 aged 25 to 30 and 2 between 19 and 24 years. Thus our respondents were generally mature, Omani males with some life experience. All had completed high school, for 18 respondents this was their highest qualification; 20 had diplomas, 15 bachelor degrees and 7 had a master’s degree. However their backgrounds and previous experience was quite varied. Only 18 had previous business experience, of these 5 had family business experience; for the remainder, 18 had worked for the government and 25 had no work experience.

Although most of our respondents were originally entrepreneurial novices, several were now well established; 5 had started their business before 2000; 10 were established 2000-2004; 13 between 2004-2007; 15 between 2008 and 2010 and the remaining 17 started in business after 2010. Thus the respondents have had substantial business experience to enable them to reflect on the support programmes. Company turnover varied considerably; 39 respondents’ companies could be classified as small with a turnover of around \$150k; 12 as small to medium with a turnover around \$250k; 6 had a turnover of \$250k to just under a \$million and the remaining 3 had turnovers exceeding \$1m. We asked how their businesses were doing and 52 reported that their businesses were growing; 6 felt that business had not

changed very much, but only two thought their business was not going well. It seems that our respondents were generally quite successful.

Our final descriptive question was about whether they were satisfied with the support they had received. Figure 2 below shows a very disparate response to the question.



**Figure 2**, extent of satisfaction with support

### ***Qualitative analysis and thematic findings***

This section presents our interpretations of the respondents' replies to the open questions. We thought it important to establish why they had decided to start a business, especially in light of the lack of previous business experience for most of the respondents. We thought this might help us to understand if there was any evidence of an enterprise culture in Oman. We had expected to hear quite instrumental responses; the sort of motivations that are deemed necessity or opportunity or pushed or pulled. However we were surprised at the type and range of answers we were given.

Nonetheless, several respondents had a narrow instrumental motivation. 6 respondents told us that they wanted to secure a job for themselves; typically *"I didn't have a job"*. But only two respondents said, *"no other option"*. Moreover, one respondent told us that starting his own business was *"instead of waiting for a government job"*. Similarly another explained, *"instead of looking for a job or wait for a government job"*. One respondent didn't explain his motivation, but told us he currently worked for the government as well as in his own business.

Although our respondents had not been members of the "problem" group of unemployed graduates; we are, nonetheless, surprised by the low numbers who saw entrepreneurship as no more than creating a job for them. Interesting too is how the career options were bound up with a government job. Indeed one respondent told us, *"this was better than a government job"*. Clearly, as the literature had indicated, a secure government job is seen as a baseline of Omani career options. However, if that is not possible, or as we discuss later, desirable, entrepreneurship is considered quite favourably. Chinese youth attitudes towards entrepreneurship provide an interesting contrast. China too is beginning to experience a shortage of graduate jobs. China's economy had been dominated by state owned enterprises, not unlike the situation of Omani government jobs. However, informal but normative institutions such as strong parental pressure favour the steady job and preference for the "iron rice bowl". Starting your own business is seen as "jumping into the sea" (Anderson and Zhang, forthcoming). Yet in Oman, it appears that in broad terms, the idea of starting a business is generated from positive reasons. In turn this suggests that although there may not be a strongly manifest Omani enterprise culture, there is a positive perception of entrepreneurship.

This positiveness about entrepreneurship becomes very evident in the responses, which emphasise the benefits as motivation. Many talked about achieving a better income; *"to improve my income and welfare"* was typical. A strong theme was independence, *"I don't want to belong to anyone"* or, *"to work independently"*. This idea of independence was

related to success in personal terms , “for a change and for better future ”; “to be self dependent, feel the success”. This suggests that entrepreneurial autonomy is more than just being your own boss and escaping being told what to do. These words taste of liberation and responsibility. But listen to these declarations: “I love entrepreneurship!” This was not the only passionate response, “I believe in entrepreneurship ”. We were also told, “I love my business!” Moreover, this joy in entrepreneurship was explained, as “I love being in business”. Statements such as, “I love the spirit of entrepreneurship, would like to be my own boss”, echo and resonate with the munificence of enterprise and of being enterprising. Interestingly, two respondents told us they were motivated by the status of being an entrepreneur. Thus looking at these data thematically we see a strong positive characterisation of entrepreneurship. Of course this is biased, as these respondents were successful entrepreneurs. But the characterisation of entrepreneurship as a desirable means to an end is powerful. As an end in itself, the delight in doing was almost an ecstasy of enterprise. These are powerful indicators of the desirable status of entrepreneurship in Oman.

## Conclusions

In the section above we looked for explanations of why there were such varied opinions on support programmes. Unfortunately we could not see any logical reasons! If results matter, most of our respondents’ businesses were doing rather well. A superficial conclusion has to be that given the general prior lack of experience they programs had worked, and worked very well. For many, they are now established entrepreneurs so we can only imagine that the early stages of ignorance and hope that characterise the liabilities of newness have been forgotten. Building from the confidence that success creates they may have set their sights on higher targets. The programmes were perhaps great for early stage enterprise but less good for a growth orientation.

Turning to institutional explanations, we saw strong enabling formal institutions in the shape of the government-supported schemes. We didn’t detect specific informal institutions. However, we can see a beginning in the strong cognitive support for entrepreneurship. This stands as a counterpoint to the security but lack of excitement in a government job. Indeed for those who are entrepreneurially inclined, entrepreneurship itself is the opportunity!

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## **Entrepreneurship support in developing economies: can the diaspora help?**

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**Small-and medium-sized enterprises (SMEs) in developing economies are constrained by limited financing options, domestic market uncertainties, and inadequate support to ensure their products attain international standards. These factors undermine their domestic growth and export potentials. Increasingly, development policies are identifying the diaspora as an additional source of support for entrepreneurs in their home countries. In Nigeria, the putative ‘entrepreneurial spirit’ of the diaspora has encouraged its inclusion in the National Enterprise Development Programme (NEDEP) as a means of leveraging the resources of the diaspora. However, there is insufficient research to draw any firm conclusions about this policy claim. This study of a cross-section of Nigerian diasporans provides insights into how far support for entrepreneurs ‘back home’ can be harnessed. A four-step analysis was carried out using optimal scaling non-linear categorical principal component analysis, categorical regression and correspondence analysis. Results suggest that attitude to trust and**

**reciprocity contribute significantly to support preferences and that the length of relationship with an entrepreneur contributes significantly to establishing trust. Finally, the analysis of the comments of respondents identifies three classes of diasporans and the results are discussed.**

## **Keywords**

Diaspora support, Entrepreneurship, Networks, Social capital, Social support

## **1. Introduction**

Small-and Medium-sized Enterprises (SMEs) play a crucial role in the economic growth of developing countries. They are however resource constrained particularly in Sub-Saharan Africa and this affects their performance. Prior studies [1][2] have identified constraining factors such as poor access to finance, weakly developed business environment, red tape, corruption, complex entry regulations etc. SMEs tend to rely on network support to mobilise and leverage resources [3][4]. For example, to stimulate exports, overcome informal trade barriers and to gain access to finance. Historically, African entrepreneurs have relied on their self-sustaining networks like ethnic, religious and family networks to achieve their business objectives [5].

It is believed that diasporans can contribute to the development of their home country by supporting export oriented SMEs, investing in existing businesses and/or setting up new ventures in their countries of origin [6]. Findings of a recent study [7], shows that migrant networks have a positive effect on bilateral exports indicating the potential productive capacity of the diaspora on the export sector through exploiting the knowledge, experience and interconnectivity of the diaspora. Increasingly, entrepreneurship development policies are identifying the diaspora as an additional source of support for entrepreneurs in their home countries. These global networks of skilled migrants [8], play an important role in connecting regions in different countries. They transfer know-how and market information to the country of origin and help jump-start local entrepreneurship e.g. the Silicon Valley immigrant entrepreneurs. However, the contributions of the diaspora to entrepreneurship is neither limited to knowledge intensive industries nor to skilled migrants.

The idea of financial support from the diaspora seem to be encouraged by the increasing remittance figures. According to the World Bank, the top recipients of officially recorded remittances for 2013 were India (with an estimated \$71 billion), China (\$60 billion), the Philippines (\$26 billion), Mexico (\$22 billion), Nigeria (\$21 billion), and Egypt (\$20 billion). Countries particularly those with high emigration are adopting policies that include the diaspora in entrepreneurship development in order to take advantage of the potential of their diaspora for promoting bilateral entrepreneurial growth and development.

The remainder of this paper is structured in five main parts. The first gives the theoretical and conceptual framework of the research. The second describes the study context. The third and fourth parts discusses the methodology and presents the results respectively. The fifth part discusses the findings and the conclusions.

## **2. Theoretical and conceptual framework**

The traditional definition of diaspora is linked to dispersion, for example, the forced migration set into motion by the slave trade. Subsequent post-colonial emigration in the twentieth-century, prompted by civil wars, famines, economic failures and political instabilities, has generated the 'new' diasporas [9]. There are various interpretations of what or who constitutes a diasporic agent. According to Mohan and Zack-Williams [10], defining and theorising the diaspora particularly the African diaspora can be problematic considering that the definition of diaspora opens up different implications for the types of consciousness that exist and the functional relationships between the diaspora and an African 'home'.

However, diasporas are presented as ethnic migrant minority groups within a host country which maintain links with their respective homelands [11]. Some analysts [12][13] label the diaspora communities as a form of 'social capital' forming institutions and organisations that facilitate various forms of economic, political and social activity. Along similar lines, diasporas are defined as networks of immigrant, social networks that facilitate immigration and channelling social capital [14]. Operating at an increasingly global scale, the diaspora has an important part to play economically in contemporary social processes using their skills and connections [8][10]. The notion of diaspora in discussions of globalisation therefore opens up the study of how linkages are created between different societies through social relationships in the context of economic investments, business and finance.

In the public-policy context, the European Union (EU) portrays the diaspora as networks of migrants with links to the home country. The African Union (AU) broadly define diaspora in terms of the 'African Diaspora'. The 'African Diaspora' consist of people of African origin living outside the continent, irrespective of their citizenship and nationality and who are willing to contribute to the development of the continent and the building of the African Union. The approaches of the United Nations (UN) and International Organisation for Migration (IOM) define an actor in development policy as an individual acting on a voluntary basis. The diasporan according to these approaches, inclusively refers to migrant and ethnic communities as transnational networks. And within these networks, the economic dimension of the diaspora is the most important rather than symbolic ties to the homeland [14].

Diaspora support for entrepreneurship can be understood from the social capital and social support theoretical perspectives. Social capital is depicted as socially embedded resources that are mobilised by individuals [15][16][17]. Social capital is linked to possession of a durable network and resources are mobilised from the network through the ties embedded therein [18]. Social support is the mobilisation of resources from a network. It represents transactions between individuals in the form of tangible help received as outcomes of social networks [19]. It also represents the support system made up of subset of persons in the individual's total social network upon whom he or she relies for socio-emotional aid, instrumental aid or both [20]. Davidson [21] also identified two types of support as, emotional support (e.g. caring, gift giving which are largely informal in nature) and instrumental or behavioural support (e.g. information, knowledge, financial assistance and advice).

### **2.1. *Diaspora and entrepreneurial support***

Diaspora entrepreneurial support from the social capital perspective suggests a close relationship between the economic dimension and symbolic ties. For example, as seen in the cultural practice of sending back money home to family. Interestingly, at country level, remittances are critical in policy assumptions about the potential of the diaspora, in relation to financial support. It is believed that remittances have direct impact on poverty reduction, since they tend to provide lifeline to families of migrants in the country of origin. They are a vital source of income to families, and are used primarily for basic needs such as food, shelter, education, health care and for business investments [22][23][24][25]. This suggests that the economic as well as symbolic ties to the homeland are important in understanding diaspora support. The symbolic ties that bind [26] e.g. genealogical linkage to the country of origin through history or family lineage may feature in diaspora support in form of preferences for people close to the diasporans.

The intensity of symbolic ties could be understood for example, in terms of motivations for moving out of country of origin. Motivations for moving out of Africa range from forcible exile to a set of decisions rooted in risk aversion and economic rationality at the household level. Diasporans who were forced into exile for economic reasons may be apprehensive about entrepreneurship support in the country of origin especially if militating conditions are perceived to be the same [10]. Also, risk averse diasporans may be restricted in their choice of support or not willing to support businesses from the country of origin as a result of issues bordering trust. In such a situation, therefore, people might be predisposed to supporting

only the people they are close to. Similarity disposes individuals toward greater levels of interpersonal attraction, trust, and understanding [27]. Trust involves confidence or faith in the reliability of people, systems or principles [28]. The homophily hypothesis assumes that stronger ties are formed among those who share similar characteristics and lifestyles. It is also assumed that contact between similar people occurs at higher rate than among dissimilar people [29]. Ruef [30] defines choice homophily as “in-group bias generated purely by an individual’s propensity to associate with others that are similar to one-self”. Choice homophily is expected to exist between strong ties rather than weak ties. Strong ties are found in family relationships i.e. bonding social capital. Weak ties exist between friends and acquaintances i.e. bridging social capital [31]. Variation in tie strength is a reflection of the duration of a relationship and the amount of reciprocity exercised within it [30][32]. Nevertheless, not all community ties are supportive, and not all types of ties provide similar kinds of support. The provision of social support is believed to be influenced by factors such as, the familiarity based frequent contact, social pressure from peers, altruism toward families, and preferential selection of kin [30]. Family members may also satisfy requisites of shared identity that are generated through choice homophily because of they interact frequently and tend to share rewarding experiences [30]. With respect to entrepreneurial activities, family members have many opportunities to discuss starting a new business together, partially owing to the duration of these ties.

At the household level, the decision to migrate is sometimes seen by family members as a form of portfolio diversification and, as such, migrants have strong obligations to succeed and send money and other goods such as clothing, equipment and spare parts back to those left behind [10]. The norm of reciprocity draws attention to willingness to give support to others who lack access to resources as a form of payback. Reciprocity exists in cultures where it is usual for people to return the benefits they receive from others. It is believed that community ties with friends and relatives strengthen informal arrangements and provide social support that surpasses narrow reciprocity because they make up much of the social capital people use to deal with daily life, seize opportunities, and reduce uncertainties [33][34]. For example, gift giving support could be rendered as a result of feeling of indebtedness or moral obligation, indicating clear-cut reciprocity. It could also be influenced by a sense of obligation inspired by sympathetic feelings or feelings of being part of someone else’s life [35]

The support potential of the diaspora is based on the supposition that within the diaspora network are diasporans who can make financial investments, partner with small businesses and channel their acquired abilities and knowledge crucial for successful establishment and management of business enterprises. Others are capable of facilitating trade links, investing in production capacity in SMEs through contacts with business partners and potential investors in their host countries. However, Weiner [22] points out that the treatment of diaspora as a resource may seem limiting. This is because even though it brings to light the importance of transnational networks and everyday transnational practices of individuals and groups, the central values of cultural identity, symbolic belonging, sentimental ties, etc. are not emphasised. Strong kinship and friendship ties in a network are helpful for entrepreneurs [5][36], however, they also have constraining effects. For example, policy intervention cannot easily be promoted in such a network to facilitate the creation of institutions that could favour the development of stable market-based relationships, such as business and professional organisations [36]. This argument presents a fruitful lead to conceptualise diaspora support and entrepreneurial outcomes.

In this paper, diaspora support is presented as the support system made up of diasporans upon whom entrepreneurs can rely on for the mobilisation of network of resources (social capital) embedded in the diaspora. Three key components are presented as necessary for successful entrepreneurial outcomes through diaspora support. First is the structural component, i.e. the availability of support which depends on the nature of resources within the network. The structural component refers to the ‘wires’ in the network, the extent and intensity of associational links or activity. The basic idea is that the nature of ties embedded

in a diaspora network, defines the resources that can be accessed through the network [37][38]. Second is the cognitive component of social capital and it refers to the 'nodes' in the diaspora network i.e. the diasporans. In this case, it is the attitudes and values such as perceptions of support, reciprocity and trust that contribute to diaspora support [38]. This can be assessed through the willingness of diasporans to support and depend on congruence between the preferences and attitudes of diasporans towards support. Third is the acceptance of and satisfaction with the diaspora support available, which depends on the congruence between the support available through the diaspora network and the needs of entrepreneurs.

This empirical investigation in this paper focusses on the cognitive component of social capital and seeks to answer two questions:

1. To what extent is a diasporan's support preferences a reflection of attitude towards trust, reciprocity and duration of relationship with an entrepreneur?
2. What key issues emerge from support preference choices and attitude of diasporans that gives indication of the extent of diaspora entrepreneurship support?

### 3. Study Context

Nigeria offers a fruitful context for this research. As a developing country, it has included the diaspora in its enterprise development programme. Nigeria also leads the world in the proportion (90%) of adult population with the opinion that they have the skills to run a business and have the ability to become entrepreneurs. Out of every 100 Nigerian adults, 35 are engaged in some sort of entrepreneurial activities [39]. The country ranks third highest in the sub-Saharan region and fifth in the Global Entrepreneurship Monitor (GEM) global rankings of population running established businesses [39]. Every year new entrepreneurial businesses emerge in Nigeria. The majority of these enterprises are micro-sized and they are in the agriculture sector [40]. The total number of enterprises in Nigeria stands at about 17,284,671. Micro-businesses constitute about 17,261,753 or 99.87%, small enterprises are estimated at about 21,264 or 0.12%, while medium enterprises are about 1,654 or 0.01% [41].

Small-and medium-sized enterprises in Nigeria suffer growth constraints which affect them disproportionately more than large firms. Lack of funding is the most prominent resource constraint for SMEs in Nigeria because the biggest source of finance, the commercial banks, often shy away from financing small businesses [39]. A high proportion of SME activities in Nigeria as in other sub-Saharan economies, takes place in the informal sector, often because of excessive bureaucracy and regulation [42]. This restricts firms' access to opportunities and protections that the law provides. Even firms operating in the formal sector might not have sufficient access to these opportunities and protections because where regulation is burdensome and competition limited, success tends to depend on whom one knows. But where regulation is transparent, efficient and implemented in a simple way, it becomes easier for aspiring entrepreneurs to compete, innovate and grow. The productive capacities of SMEs in Nigeria are lowered by inadequate and erratic electricity supply. This places domestic firms at significant cost disadvantage relative to their foreign competitors and contributes to the lack of competitiveness of Nigeria's export goods [42][43]. SME export growth in Nigeria is also hindered by insufficient availability and accessibility to information on issues that need to be addressed in setting up and operating an export business, export start-up support and facilitating services [43][44].

Environmental disincentives such as policy inconsistencies, render Nigerian entrepreneurs ineffective because government agencies charged with assisting enterprise exports e.g. the Nigerian Export Promotion Council (NEPC) are themselves subject to these inconsistencies [45]. The Small and Medium Enterprises Development Agency of Nigeria (SMEDAN), a government agency established to facilitate the promotion and development of SMEs has recently been grappling with inadequate funding [46].

In 2013, the Nigerian government mapped out strategies to create 3.5 million jobs across the country through the development of the SME sector. The National Enterprise Development Programme (NEDEP) launched in 2013, hopes to address the challenges stifling the growth of the MSME sector in Nigeria. The challenges would be addressed by pulling together public sector capacity and private sector expertise. Through stakeholders' engagement, the holistic framework would ensure that enterprise barriers are directly addressed. Specifically, an Industrial training fund (ITF) would support SMEs through training to acquire essential skills. SMEDAN will work with MSMEs to provide business support services to help prepare bankable business plans and the Bank of Industry (BOI) will provide funding for eligible small businesses. The Nigerian diaspora is also co-opted into the NEDEP through the Diaspora Export Programme (DEP) to help SMEs overcome access to market barriers by capitalizing on Nigerian presence globally [40].

## 4. Methodology

### Data collection and sample

The survey is structured into three parts. The main part relates to the support preferences of diasporans in terms of type of entrepreneur they are willing to support – by introduction to business partner, providing information about business opportunities. Financial and emotional support was divided into three parts, namely: giving a personal loan, making equity investments and giving a gift. The second part relates to the diasporans' attitudes towards trust and reciprocity. The third part relates to conditions the diasporans would be willing to support an entrepreneur. The questions relates to – the extent of relationship with an entrepreneur and the number of years of business experience of the entrepreneur. It is proposed that willingness to support depends on the relationship between diasporans support preferences and attitudes towards entrepreneurship support in terms of issues relating to trust, reciprocity and conditions under which diasporans would be willing to offer support. The cross-sectional qualitative survey of Nigerian diasporans provides a context for investigating the extent of diaspora support.

Qualitative research is often interested in the opinions, feelings or experiences of human beings. The use of questionnaire survey in qualitative research is not as popular as other techniques often used namely, in-depth interviews, observations and focus groups. However, the survey method applied for data collection was the most practical considering the nature of the inquiry, in helping to obtain the diversity characteristics needed for the study.

There is lack of data about the Nigerian diaspora population however, diasporans are known to cluster in groups both online and offline. Kissau and Hunger [47] pointed out the Internet as a means of studying the diaspora because the online activities of migrants enhances their diaspora identity. A non-probability (diversity) sampling method was used, the aim of diversity sampling is to cover all existing relevant varieties of the phenomenon (saturation) specified [48][49]. The combination of offline and online data collection helped to increase the robustness of the data collection and ensure that responses from diasporans from various locations are obtained.

The on-line data was collected between 1st November 2014 and 31st January 2015 and it targeted Nigerian diasporans online. The offline data collection was carried out earlier in June 2014 at a diaspora conference. After an initial analysis of the offline sample (n=57) collected in the United Kingdom, it was decided that data collection would stop when no relevant new information is obtained from the analysis of the responses from uncovered categories i.e. diasporans from the online groups targeted. After the second analysis of the online sample (n=117) showed no relevant new information, data collection stopped. A total of 174 respondents took part in the survey.

The support preference variables consist of five items presented in Table 1 and reflect types of resource support [36]. Family and intra-ethnic friendships indicate strong ties i.e. network

closure and trust is expected to be 'strong' while intra-ethnic friendships and friend of a friend indicate weak ties i.e. structural holes and trust is expected to be 'thin' [32][37]. The scales are constructed as a series of items reflecting the strength of relationships ranging from close ties to distant ties e.g. family, intra-ethnic friendship (friends from same ethnic group, FSEG), inter-ethnic friendship (friends from different ethnic group, FDEG) and acquaintances (friend of a friend, FOAF). The attitudinal variables measuring trust and reciprocity consists of four items and were constructed using a Likert-type attitude scale of 1-5 (from strongly agree, to strongly disagree). The two variables measuring conditions under which diasporans would be willing to offer support were measured using the scales (yes, no and maybe). The respondents were given the opportunity to add their comments to ensure that those with different opinions are able to add them or to allow other respondents make further comment about their choices.

The CVM or Harman's one-factor test in SPSS was performed on the 11 variables using the sample (n=174) to check for spurious correlations. Instead of extracting using eigenvalues, the number of components to extract is constrained to one using no rotation. It is expected that a single component should not explain more than 50% of the variance. A variance above 50% suggests that the majority of the variance is explained by a single component. The CVM test result shows that one component accounts for only 30% of the variance.

**Table 12: Support Preference Variables**

Which type of Nigerian entrepreneur would you prefer to:					
	Family member	Friend from same ethnic group	Friend from different ethnic group	Friend of a friend	None
<b>1. Introduce to a prospective business partner in your country of residence</b>	47%	12%	14%	10%	17%
<b>2. Support by providing information about international trading opportunities</b>	46%	14%	16%	15%	9%
<b>3. Support financially by giving a personal loan</b>	51%	11%	9%	11%	18%
<b>4. Support financially by giving a gift</b>	55%	10%	11%	9%	15%
<b>5. Make equity investment in their entrepreneurial</b>	44%	10%	13%	13%	20%

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**Table 13: Trust and Reciprocity Variables**

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
<b>It is better to do business with family members because they can be trusted</b>	4%	19%	32%	30%	15%
<b>It is better to do business with friends because they can be trusted</b>	3%	17%	25%	40%	15%
<b>Generally speaking you can't be too careful in dealing with Nigerians</b>	33%	28%	16%	20%	3%
<b>I would be willing to help any entrepreneur who has helped me in the past</b>	30%	39%	16%	9%	6%

**Table 14: Conditional Variables**

	Yes	No	Maybe
<b>Would you be willing to help an entrepreneur because you have known him for long?</b>	61%	14%	25%
<b>Is the number of years of business experience of an entrepreneur a factor you would consider before investing in a business?</b>	62%	18%	20%

## 5. Results

In order to answer the research questions, the data analysis was carried out in four steps. The first and second steps attempted to answer the first research question: To what extent is a diasporan's support preferences a reflection of attitude towards trust, reciprocity and duration of relationship with an entrepreneur?

A non-linear (categorical) principal component analysis (CATPCA) using variable principal nominalisation method was performed to identify the relationships between the dimensions

representing cognitive social capital. Categorical regression analysis (CATREG) is then carried out to assess whether there is significant relationship between the transformed variables. The results shown in Table 6 confirm that there is significant relationship between support preference choices, and the attitude of diasporans towards entrepreneurial support. The third step attempted to answer the second question: What key issues emerge from support preference choices and attitude of diasporans that gives indication of the extent of diaspora entrepreneurship support?

A correspondence analysis (CA) using symmetrical nominalisation was used to examine the nature of these relationships. The final step involves colour coding of comments and creating themes from the responses.

**5.1. To what extent is a diasporan’s support preferences a reflection of attitude towards trust, reciprocity and duration of relationship with an entrepreneur?**

The component solution is graphically represented by the scree plot in Figure 1. This shows the elbow point at 3 (point after which the remaining eigenvalues becomes less than 1). The component model summary is presented in Table 4.

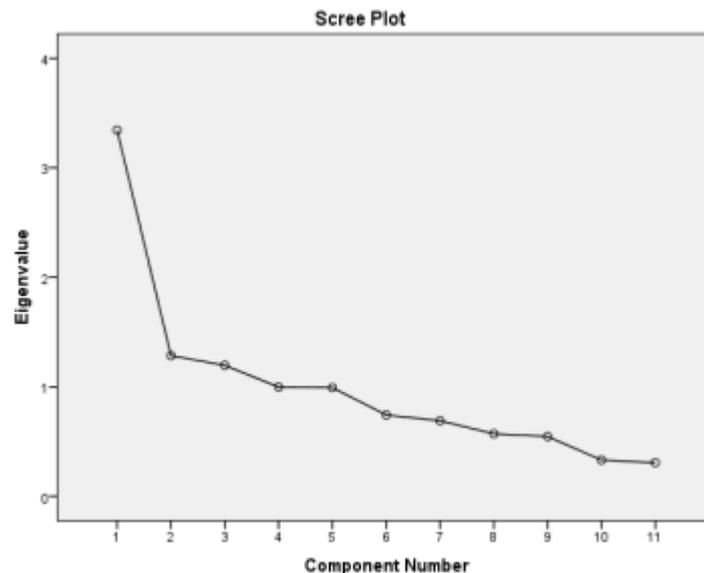


Figure 25: Components Scree Plot

Table 15: Component Model Summary

Model Summary				
Component	Cronbach's Alpha	Variance Accounted For		
		Total (Eigenvalue)	% of Variance	
1	.781	3.45	31	
2	.477	1.77	16	
3	.252	1.30	11	
Total	.931	6.52	59	

Table 4 above shows the model summary. Each component (dimension) is a composite variable summarising the original variables. Variance is a measure of variation in the total sample explained by each component. The eigenvalues indicate how successful the summary is and represents the overall variance accounted for by each component. Component loadings represent Pearson correlations between the quantified variables and the principal components, they range between -1 and 1[50]. The model summary and scree plot shows that the data has a three –component solution. As shown in Table 5, all the variables in component 1 are correlated except variables 10 and 11. The two variables were therefore removed reducing the number of variables in the component to nine and number of dimensions to two. For the categorical regression (CATREG) analysis, the support preference variables were the dependent variables while attitudinal variables: two trust variables, reciprocity and willingness to support were the independent variables. Table 6 shows the statistics of the component. The CATREG analysis shows that all the correlations are significant except between reciprocity and preference for making equity investments.

**Table 16: Component loadings of variables**

	Dimension	
	1	2
<b>Give personal loan</b>	0.807	-0.006
<b>Provide information about business opportunities</b>	0.791	-0.153
<b>Make equity investment</b>	0.791	-0.059
<b>Introduce to a prospective business partner</b>	0.752	-0.211
<b>Give Gift</b>	0.705	-0.133
<b>Would you be willing to help an entrepreneur because you have known him for long?</b>	0.521	0.191
<b>It is better to do business with family members because they can be trusted</b>	0.35	0.731
<b>It is better to do business with friends because they can be trusted</b>	0.259	-0.091
<b>I would be willing to help any entrepreneur who has helped me in the past</b>	0.144	0.794
<b>Generally speaking you can't be too careful in dealing with Nigerians</b>	0.036	-0.685
<b>Is the number of years of business experience of an entrepreneur a factor you would consider before investing in a business?</b>	-0.041	-0.018

Table 17: Correlations and significance of transformed variables

Variables	1	2	3	4	5
Personal Loan					
Information					
Equity Investment					
Business Partner					
Give Gift					
Would you be willing to help an entrepreneur because you have known him for long?	0.374*	0.213*	0.416*	0.226*	0.252*
I would be willing to help any entrepreneur who has helped me in the past	0.173*	0.137*	0.08	0.169*	0.158*
It is better to do business with family members because they can be trusted	0.248*	0.158*	0.185*	0.089*	0.179*
It is better to do business with friends because they can be trusted	0.026*	0.023*	0.05*	0.024*	-0.001*
Note: CATREG sig (*p<0.05)					

## 5.2. What key issues emerge from support preference choices and attitude of diasporans that gives indication of the extent of diaspora entrepreneurship support?

The previous analysis confirms that attitudes towards trust, reciprocity and length of relationship with an entrepreneur contribute to diaspora support. However, the underlying relationships between them are unknown.

Correspondence analysis (CA) shows the underlying relationship between pairs of variables and helps to interpret the relationships between them. CA applies the chi-square statistics to test the variance and a high chi-square indicates a correspondence between row and column responses. The total inertial represents the total variance explained by the model. The analysis shows that the highest proportion of total inertia were accounted for in dimensions 1 and 2.

In CA, active margins gives the summation for the row and column categories and the mass indicates proportion of each support preference or attitudinal response with respect to all responses in each category. Preference for supporting family had the highest mass across all five support variables and significantly contributed to the models, suggesting that more diasporans would prefer to support an entrepreneur who is close to them. Diasporans with no preference choice accounts for the highest variance across the attitudinal variables. The ratings for trust showed that more people were neutral or disagreed that family members were more trusted. More respondents disagreed that friends were more trusted. Table 7 presents the correspondence analysis summary showing the total inertia of the model. The column point (attitudinal responses) with the highest mass, the dimension with the highest scores and the contribution of that dimension to inertia point are also reported.

For personal loan support and equity investment support, the mass of neutral attitudes to trusting family for business was highest at (.322) while length of relationship with entrepreneur (yes) was highest at (.609). The findings suggest that diasporans with neutral attitude to trusting family would prefer to give personal loan and make equity investments. The length of relationship i.e. how well known the entrepreneur is to the diasporan contributes significantly to preferences for providing such support.

Information support showed that the mass of positive attitudes (agree) to reciprocity was highest at (.385). This suggests that information support could be given to reciprocate help received in the past.

Business partner support had the mass of negative attitudes (disagree) to trusting friends for business highest at (.397) and the mass for neutral attitudes to trusting family for business highest at (.322) and length of relationship with entrepreneur (yes) was highest at (.609). The findings suggest that diasporans who have negative attitude to trusting friends and neutral attitude to trusting family for business would prefer to give business partner support and the length of relationship i.e. how well known the entrepreneur is to the diasporan is a significant condition for giving the support.

Gift Support: the mass of positive attitudes (yes) to length of relationship with entrepreneur was highest at (.609). The findings suggest that more diasporans would prefer to give gift support to an entrepreneur that is well known to them.

**Table 18: Correspondence Analysis Summary**

<b>Personal Loan Support</b>	Chi-Square	Total Inertia	Dimension	Proportion of Inertia accounted for by dimension	Sig
<b>It is better to do business with family members because they can be trusted</b>	40.39	23%	2	61%	0.0001
<b>It is better to do business with friends because they can be trusted</b>	20.99	1.20%			0.18
<b>I would be willing to help any entrepreneur who has helped me in the past</b>	17.93	10%			0.33
<b>Would you be willing to help an entrepreneur because you have known him for long?</b>	29.37	17%	1	36%	0.0001
<b>Information Support</b>	Chi-Square	Total Inertia			Sig
<b>It is better to do business with family members because they can be trusted</b>	39.2	23%	1	32%	0.001
<b>It is better to do business with friends because they can be trusted</b>	16.11	9%			0.45
<b>I would be willing to help any entrepreneur who has helped me in the past</b>	33.99	20%	2	35%	0.005
<b>Would you be willing to help an entrepreneur because you have known him for long?</b>	2.49	2%			0.645
<b>Equity Investment Support</b>	Chi-Square	Total Inertia			Sig
<b>It is better to do business with family members</b>					

because they can be trusted	35.69	21%	2	34%	0.003
<b>It is better to do business with friends because they can be trusted</b>	24.71	14%			0.08
<b>I would be willing to help any entrepreneur who has helped me in the past</b>	18.33	11%			0.31
<b>Would you be willing to help an entrepreneur because you have known him for long?</b>	35.89	21%	1	27%	0.0001
<b>Business Partner Support</b>	Chi-Square	Total Inertia			Sig
<b>It is better to do business with family members because they can be trusted</b>	40.39	23%	2	38%	0.001
<b>It is better to do business with friends because they can be trusted</b>	34.56	20%	1	15%	0.005
<b>I would be willing to help any entrepreneur who has helped me in the past</b>	22.52	13%			0.127
<b>Would you be willing to help an entrepreneur because you have known him for long?</b>	16.07	9%	1	39%	0.041
<b>Gift Support</b>	Chi-Square	Total Inertia			Sig
<b>It is better to do business with family members because they can be trusted</b>	25.73	15%			0.06
<b>It is better to do business with friends because they can be trusted</b>	17.07	9.8%			0.381
<b>I would be willing to help any entrepreneur who has helped me in the past</b>	17.05	10%			0.70
<b>Would you be willing to help an entrepreneur because you have known him for long?</b>	22.45	13%	1	36%	0.004

### 5.3. Comments from subset of respondents about preference choices

A total of 65 respondents (37%) made comments about their support preferences. The responses were colour coded. Three diasporan categories emerged and the themes that emerged from the responses are discussed below. Three groups of commenters were identified namely:

#### 5.3.1. Comments made by respondents to buttress their entrepreneur support choice

Respondents who made comments to emphasise their choice numbered 24 out of 65 (37%). Comments made by those that prefer to support family members indicated that they were of the opinion that even though they can help anybody, family members comes first. This is not because they are more trusted but because it is easier to monitor investments with a family member. Preference for supporting family may also not be because of trust but to help him or her find a footing. A similar point of view was presented by a respondent who commented that, "a family member could easily be tracked down should he start to misbehave or bring the business into disrepute". Another view close to the preceding one is that investing in a family member's business is less risky because you know family member well and if anything goes wrong, it can be settled within the family.

A respondent commented that if he helps a family members business to be successful he or she will, "help me firm my transition into the country because it's a terrain which he/her understands the business culture more than I do I will be willing to assist". Also investing with or in a family member can help the family's overall prosperity, "even when there might be risks but all will still go back to our family". Another perspective reflects a strong sense of obligation pointing out that blood relationship obligates one to his family members and

therefore one has to be available for them regardless of whether they appreciate you or not. Other respondents who made non-family choice explained that supporting non-family members would give the freedom to deal with issues without sentiment getting in the way. Investing in ethnic friends businesses is an easy choice for some, especially those that have known each other for a long time. However, some would only limit support for friends to information because of the perception that some of them are not reliable and trustworthy.

5.3.2. Comments made by respondents whose 'no preference' choice means they have no preference choice e.g. it is not applicable to them

Nine respondents were in this group (14%). Most of the diasporans in this group felt that the questions were not applicable to them. Some commented on the basis of negative past experiences of how people place excessive demands on them when they are perceived to be in a position to help them. Another who also commented about past experience said that he would prefer to do business with outsiders (non-Nigerians) because Nigerians are never straight forward with their business partners.

5.3.3. Comments made by respondents whose 'no preference' choice means they can support any or all types of entrepreneur

The group of respondents who made comments about their non-bias or non-subjective position numbered 32 (49%). One respondent commented that none of the preference options are good guides to go by if you want the business to have longevity. Another respondent said "I do not discriminate on who to help based on any of those criteria". The attitude of these group of diasporans centres on willingness to invest in any viable business irrespective of personal relationship. One respondent said that "relationship status to me is irrelevant, I'd carry out proper checks and balances, skills and expertise before investing". Themes based on important words that emerge from their comments are: trusted references, business idea, good track record, and compliance with business rules, good chance of succeeding, entrepreneur's experience or the experience of their team members.

## 6. Findings and Conclusion

The correlations and tests of significance of the transformed variables (Table 6) show that there are significant correlations between the preference variables and attitudinal variables except for the relationship between preference for equity investment and reciprocity. The correspondence analysis revealed the underlying relationships between the rows and column categories of the variables. The analysis showed the differences in preference according to tie strength. Preference for supporting family was the highest across all five support preference categories suggesting that bonding social capital is strong. This finding supports the notion that choice homophily is expected to be strong because of in-group bias generated as a result of propensity to associate with others that are similar to oneself [30]. Diasporans with neutral attitudes to whether it is better to trust family for business would give instrumental support (personal loan and equity investment) on the condition of length of relationship. For business partner support, diasporans with neutral attitudes to whether it is better to trust family for business and those that disagree that it is better to do business with friends would also introduce an entrepreneur to a business partner on condition of length of relationship. These findings suggest that even though the overall response to trust is not in the affirmative, the strong contribution of length of relationship suggests that the duration of ties with an entrepreneur is a necessary condition for establishing trust. The comments suggest that because family members are well known, it is a less risky choice. Based on the comments also, preference for supporting strong ties suggest a strong sense of obligation to family members.

Gift support corresponds with length of relationship. There is no correspondence between gift giving support and trust or reciprocity, suggesting that gift giving is not characterised by

expectations of reciprocity and is not an economic transaction. Reciprocity is the only significant contributor to information support because information support is a less costly form of mutual exchange and could be given to any type of entrepreneur, irrespective of the level of trust or length of relationship.

Information support could be provided as a result of feelings of moral obligation to give back indicating a clear-cut form of reciprocity. However, for the other support types, reciprocity is not a significant contributor showing that obligation to support is altruistic and is inspired by feelings of being a part of the lives of those well known by the diasporan. Support for sentimental ties therefore overrides pure rational or goal oriented support.

The findings show a strong preference for close ties. It also shows that trust, reciprocity and duration of relationship with an entrepreneur are considerations of support preferences. This implies resources in the diaspora would be more accessible to entrepreneurs who have close ties in diaspora, who they have known for a considerable amount of time. The data also gave insights into three types of diasporans. Firstly, are the significant few or the instigator-diasporans. They offer bridging social capital because of their preference to support any type of entrepreneur. They might be willing to work with policy makers in promoting diaspora support. These diasporans could pioneer the diaspora entrepreneurship support programme before others would begin to join creating a sort of bandwagon effect. Secondly, the insignificant majority are diasporans who offer bonding social capital which are good for getting by. Such support are targeted at people they feel strongly connected to (choice homophily) e.g. family members or members of same ethnic group. This group follow after the instigators, but are initially insignificant to diaspora support from a policy perspective because strong kinship ties cannot be easily promoted through policy intervention [36]. Thirdly, the insignificant few diasporans are those who are not willing to support any type of entrepreneur either because they do not want to be involved or are not in a position to do so. Ex- ante questions about support preferences and the qualitative nature of the data limits the ability to generalise beyond theoretical dimensions. However, this paper serves as a reference for further studies. Such studies should pay attention to the findings and develop instruments that would capture the dimensions identified in this paper, to carry out further studies that would further aid policy decisions about diaspora support.

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## **Funding and support for ICT start-ups in the Middle East: A case study of Palestine**

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**This paper discusses the potential of technology entrepreneurship in Palestine through identifying and evaluating the characteristics of its ecosystem. Following the model introduced by the World Economic Forum (2013), we define the ecosystem under six characteristics: funding matters; human resources; market potential; legal and government policies; support and organisations; and challenges facing the entrepreneurs. The study focuses on two of the six characteristics, namely funding matters and support and organisations, analysing the different funding possibilities and available support from various organisations in Palestine. Entrepreneurship is**

gaining an increasing importance in the Middle East which can be seen in the recent boom; most of the entrepreneurship activity is either ICT centred or has some link to ICT. As a result, many countries are making efforts to become the main tech hub for ICT start-ups; Palestine is one of those. This makes studying the ecosystem behind the boom both interesting and important. However, to date, the case of Palestine has not been studied extensively. This research assesses two of the ecosystem pillars characteristics in Palestine through a qualitative study based on interviews with experts and entrepreneurs in the Palestinian entrepreneurial scene. Although many countries are trying to imitate the Silicon Valley model, this research finds that it may not be universally applicable; instead many organisations in Palestine are pushing toward an ecosystem more fit for the local economic and political situation. We also demonstrate, through this, that Palestine can develop a viable and successful entrepreneurial ecosystem, with ICT being the primary field.

## Keywords

ICT in developing countries, Regional development, Start-ups in Palestine, Venture funding.

## Abbreviations

GDP: Gross Domestic Product

ICT: Information and Communication Technology

IT: Information Technology

KPI: Key Performance Indicators

MENA: Middle East and North Africa

PNB: Palestine for a New Beginning

## 1. Introduction

This research analyses the entrepreneurial situation in Palestine identifies factors affecting the financing and support of entrepreneurship, and how they can be enhanced to better support the ecosystem development, thus allowing the ecosystem to produce higher quality ICT ventures with a higher success rate.

At the community level in Palestine Information and Communication Technology (ICT) entrepreneurship is gaining an accelerated importance and acceptance, with most newspapers dedicating monthly or fortnightly columns to introducing new start-ups or interviewing key personnel who contribute to the entrepreneurship scene. The main newspaper in Palestine, AlQuds, even used to issue a quarterly magazine called 'Digital AlQuds' between 2012 and 2013 dedicated to ICT news in Palestine and in the world.

Moreover, there is a growing interest in ICT entrepreneurship proved by the increased interest in activities like start-up weekends and Hackathons [1], and the increasing importance of guest speakers who address the developers as part of such activities [2]. Furthermore, these activities are usually sponsored by international companies like Google and Microsoft which show global interest in the area's ICT capabilities.

Palestine has a unique political situation resulting in a small and fragile economy. The Israeli occupation has imposed a series of closures on the country since 2000, resulting in the collapse of the tourism industry and the barred flow of most exports and imports [3]. With no way for an economy to survive under these conditions and with a national education levels among the highest in the Middle East North Africa (MENA) region, directing efforts toward ICT internet-based entrepreneurship was a logical decision. In 2011 the ICT sector contributed 6.4% of the Palestinian Gross Domestic Product (GDP) compared to 0.8% in 2008 with an annual growth of 25%. It is expected that the ICT sector will eventually account for as much as 21% of GDP [4].

Palestine offers significant advantages and incentives for companies that want to outsource their Information Technology (IT) operations to locally initiated start-ups, as the workforce has a relatively wide range of IT skills, and the banking environment is well-regulated, making Palestine relatively investor-friendly from a financial point of view. The workforce in Palestine is its main strength as highly educated employees are relatively cheap in the ICT sector. Hiring an ICT professional in Palestine costs 75% less than Western Europe or the US, 70% less than the occupying state of Israel and even 25% less than a similar professional in India or China. When such low cost is combined with the relatively close proximity to Europe and US, good language skills and cultural awareness of the workforce, Palestine could be considered a rich land that fits the international ICT industry requirements [4].

## 2. Conceptual framework

Entrepreneurship literature mainly defines six pillars for ecosystems: policy; finance; culture; infrastructure support; human resources; and markets [5]. Each pillar contains many variables which influence the ecosystem. This paper will discuss financial matters and infrastructure support.

Financial support is a vital aspect of the ecosystem. Money can be considered to be the blood vessel for any company, and no company can survive without it. Financial support comes in different forms; start-ups.co.uk [6] identified various funding including peer-funding, bootstrapping, crowd-funding, investment banks and even multi-million pound venture capitals (VCs). The amount of funding raised and what the entrepreneurs have to provide in return depends on the stage the start-up is at in the firm cycle. Generally start-ups raise funds over six stages: seed financing at the pre-initiation stage; start-up financing to establish the business and initiate production; first round financing to establish the direction of the new venture side by side to start-up financing; second round financing is used to expand the start-up core activities and operations; and mezzanine financing is required to improve products and services of the start-up firm [7]. Finally, once the company passes the initiation stages and starts approaching maturity stage, risk is lowered, allowing VCs and investment banks to come into view and pump large amounts of money into the firm to help it cross the chasm to maturity.

Entrepreneurship infrastructure, such as a set of supportive organisations, is another vital pillar that supports healthy ICT entrepreneurship ecosystem. The supportive infrastructure provides telecommunication networks, transportation, incubators, accelerators, education and mentorship, networking services and much more [5]. Infrastructure support provides ventures with information about the market, surrounding environment, information and knowledge, legal advice, technical support, resource endowment, competitive skilled labour, and supportive regulations. Ho and Tseng [8] argue that if support organizations did not provide those services then ventures are more likely to fail, while ones that do get access to all the support facilities are more likely to succeed. Van de Ven [9] attributes this to the reduced risk, time and cost incurred by these entrepreneurs which also explains why they tend to prefer to work in packs. Legislative and governmental support is of special interest, as many countries try to actively develop their culture and ecosystems further as a way to create jobs and economic development, nevertheless most countries' policies to create a supportive infrastructure fail to achieve their goals [10]. Michael and Pearce [10] argue that the most important support action governments should do is reduce the risk of entrepreneurship financially by means of tax incentives and legally by means of regulations that protect them and reduce bureaucracy. It is important to realize that an efficient and supportive infrastructure cannot emerge instantly and cannot mature by the efforts of entrepreneurs only. Instead, it requires the collaboration of various institutions over an extended period of time. When such a well-established infrastructure exists, it will enable firms to rapidly and more easily catch up with competitors in other countries [9].

### 3. Methodology

The research is based on eight in-depth Skype interviews which were held between August 2014 and October 2014. Interviews discussed all ecosystem pillars and extended over an average time of 1:22 hours, totalling 10:58 hours. The relevant parts used for this paper were the discussions of funding, which extended over 62 minutes, and the discussions of support organisations which extended over 73 minutes.

Analysis was done thematically using NVivo10. The researchers went through the imported audio recordings and tagged them with thematic descriptions. Questions revolved around the available funding, how hard securing funding is, how funded start-ups are chosen and the source and purpose of funding. Support organisations discussion revolved around which organisations exist and what facilities are available or missing in terms of logistics, infrastructure and mentorship.

Palestine has multiple incubators, one technology oriented VC, and few other investment organizations. Many NGOs are also funding and pushing entrepreneurial activities including USAID, Welfare Association, Mercy Corps. and others. Currently there are tens of ICT start-ups existing in Palestine.

The target interviewees were picked to represent all levels of the ecosystem; that is at least one incubator or accelerator, one VC, one NGO, one technology expert, and one entrepreneur. The researcher followed a snowball methodology to interview people. An established contact, a principal at a VC, was asked to introduce the researcher to other experts, and each expert was asked to make introductions to others at the end of the interview. In total eleven personnel were contacted; eight of them were able to take part in the research. The researcher could not get a reply from anyone working at the government sector. All personnel were chosen based on their reputation in the Palestinian entrepreneurship scene and expertise in the field, all held senior roles in their respective organizations and had been involved in entrepreneurship in general and specifically in Palestine for few years. The interviewees list and their respective positions at the time of the interview are as follows:

- Ambar Amleh: Digital Entrepreneurship Program Manager at Leaders Organization & Programs Manager at Palestine for a New Beginning (PNB)
- Faris Zaher: CEO at YaMsafer (entrepreneur)
- George Khadder: CMO at Yafa Energy, freelance consultant and co-founder of Peek
- Khaled Abu AlKheir: CEO at Pinch Point (entrepreneur)
- currently a freelance consultant. Mohammed Musleh: Ex-Head of Palestinian Information Technology Association, and
- Taylor Valore: Principal at Sadara Ventures
- Tova Scherr: Ex-Program Manager at Mercy Corps, and an expert in the ICT start-ups ecosystem.
- Younis Hammoudeh: Entrepreneurship project manager and business coach at NZITCE

All interviewees signed a consent form approving the use of their real name and quotes.

Interviews were conducted either in Arabic or in English depending on the preference of the interviewee and to match their native language.

### 4. Palestinian entrepreneurship scene overview

There is diversity in the way people see the potential in Palestine. There is a deep belief that Palestine could become a successful ICT entrepreneurship hub; otherwise they would not continue working in it. Although most of them believe that Palestine has a few competitive advantages compared to the world or to other regional countries, others believe that no real

advantages exist over other places. Despite the fact that many conferences and discussions were held to look into formulating a national ICT entrepreneurship strategy, none of the decisions were ever applied on the ground according to Younis.

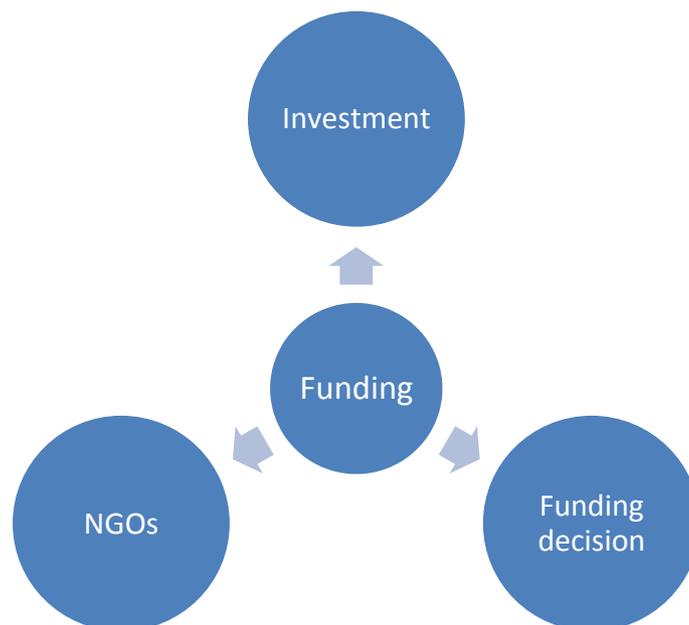
The Palestinian ecosystem could be portrayed as a dynamic, continuously growing and changing system that is mainly caused by an increasing number of organisations that get involved with the ecosystem. Nevertheless, change does not have to always be in the positive direction on all levels all the time. As Tova pointed out, a couple of years ago there were many more grassroots and community activities compared to today. George, as a co-founder of Peeks, explained that grassroots organisations faded out mainly due to vague organisation structure and conflicts within the steering committees.

Palestine as an ICT entrepreneurship hub benefits from a wide range of advantages, starting from human resources to the time zone being comfortable with the redundant network infrastructure from various countries; according to Mohammad this raises network availability compared to other locations most regional countries. The ICT field in Palestine is the 'most fortunate sector' (Khalid, Entrepreneur) as many people and organisations are working to create an infrastructure that supports ICT ventures and allows them to grow. The interest in ICT start-ups of those organisations originates in their interest to create a regional or global success story from Palestine in terms of the 'digital economy and knowledge based economy' (Ambar, Accelerator). In addition, such ventures are believed to have the highest success potential in the current digitally globalised world.

The advantages of creating a start-up in Palestine do not stop at the facilities available. Faris considers the environment in general provides low starting costs, less post-work distractions, and Arabic speaking developers. The latter is an advantage due to Palestine having the potential to lead the development of Arabic content on the internet. Ambar also agrees that this is one of the main opportunities for ICT start-ups.

## 5. Funding

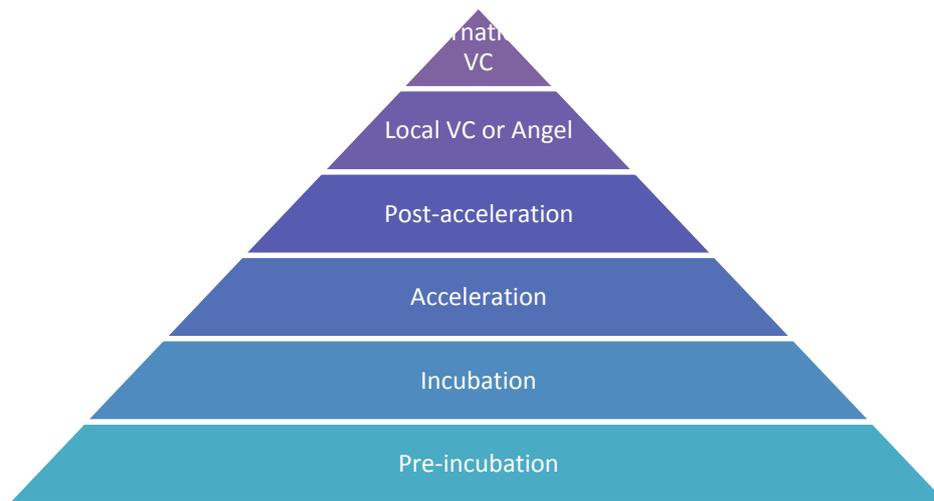
This section will discuss funding from three points: NGOs and donor-driven funding, profit-driven investments, and picking start-ups to invest in as shown in Figure 1.



**Figure 1** Funding axes

In Palestine the funding scene is dominated by two realities. Firstly, the funding scene is

glutted with NGO and donor money, with, apart from a very few exceptions, an evident lack of profit driven entrepreneurship organisations. This fact was agreed on by all the interviewees. The reason for this was explained by Tova who noted that the ‘private sector have not stepped up’, with barely any Angels or companies offering support to start-ups, leaving the burden to NGOs and donors. Such a reality has its benefits alongside its drawbacks. The nature and advantages/disadvantages of the funding structure and its spending ways in Palestine was debated by interviewees. Secondly, as mentioned by Khaled, most funds are directed towards ICT ventures as it is thought that they can survive better in Palestine.



**Figure 2** Funding pyramid

### **5.1. Donor-driven funding**

All the interviewees agreed that relying on donor money is a huge problem. Currently at the idea level three types of organisations offer help-pre-incubators, incubators, and accelerators- all of which are donor funded NGOs or university-based centres. Being donor funded means that the organisations are ‘subject to the wills of funders’ (Ambar, Accelerator) which means those organisations have to abide to their funders’ guidelines on where and how to spend the money. What’s more, the organisations’ goals should be easily measurable: ‘you need clear metrics that you can measure that you can put in a report to a donor’ (Tova, NGO), such requirements direct both donors and organisations to think about and focus on non-entrepreneurship optimal directions. George noted that donors do not put too much thought into the programs they are funding and tend to ‘put all their eggs in one basket’; ‘the funders do not understand how long does it take to get a win in this type of work’ (Ambar, Accelerator).

The problem of being donor funded extends to the operations and decisions made by the NGO support organisations. Those organisations are not-for-profit, thus even if one of the companies produced by that organisation succeeded the organisation would not get any financial benefit; this according to Ambar reduces the organisation’s management incentives. According to Khaled the first step to start fixing the funding scene is to have a purely business oriented accelerator.

Moreover, aid and NGO driven funds mean that it is easier to dissipate the money either on useless events as mentioned by Mohammad, or lower the funding bar as ‘the risk profile of those organisations is lower... they are willing to tolerate more risk’ (George, Community leader). This tendency to profligately spend the money is explained by a concept called “burn-rate” which is explained by Mohammad as a need to spend the allocated budget by the end of the year.

However, despite all the problems caused by the excess funding it has its advantages. Most of the NGO donor funding is concentrated on the early stage resulting in 'more money on offer than there is on demand' (Faris, Entrepreneur) which allow entrepreneurs to easily get seed funding and start their venture. Yet this was objected by Faris who considered the funding abundance to be very bad and creates "undying zombie start-ups" where those failing start-ups keep getting rounds of small funds, thus effectively draining the entrepreneurs by preventing them from moving on and working on new ideas. Another benefit according to Tova of the high availability of donor funds was that it resulted in lots of services and programs being available to potential entrepreneurs, some of which exist only in Palestine and do not have to exist on the same scale everywhere else in the region.

Everyone agreed that either current donor funding should be replaced by business oriented funding or at least the donor funding directed in smarter, more optimal ways: 'it would be stupid to say no we do not want your money, I think we should use it better' (Ambar, Accelerator). The importance of being privately funded comes from the higher risk which raises the incentive to invest in better teams and work harder to target success. Tova and Younis also raised a huge concern regarding the sustainability of donor funding as it would 'eventually dry-up'.

To conclude on donor funding, it was agreed by most of the interviewees to be "wrong and misplaced". It is affecting the ecosystem badly meaning it is the wrong type of funding, but it will persist as long as it is not replaced with profit driven funding.

## **5.2. Profit-driven funding**

Profit-driven organisations offer various levels of funding. The first level is Pre-incubators which focuses on coaching with barely any micro-funding available. Mohammad mentioned that funders should inject more money into micro-fund projects to provide \$5,000 for each venture. Incubators and accelerators provide office space and funding for ventures at a level around \$20,000 for an equity share. No concerns were raised regarding the amount of funding and equity taken, and it was considered to be fair and good by the interviewees.

Arabreneur also works at the acceleration level but as they work at a seed level instead of idea level they were considered to be close to the post-acceleration level. George considered that the need for post-accelerator funding to be covered by the introduction of Arabreneur which effectively created a smooth pipeline, Mohammad and Taylor considered that a post-acceleration funding gap still exists with a need for more organisations to come into play. Arabreneur funding is considered to be a mix of both the NGO and profit world which frees them from many donor constraints.

Purely business driven funding is very rare and mainly concentrated on the VC level with Sadara being the only tech-focused in Palestine. Achieving VC sponsorship from Sadara was thought to be a little bit easier compared to the world as there is much less competition according to Faris and Khaled, as a VC has to 'deploy some capital' (Faris, Entrepreneur) which forced them to go a little bit easier on entrepreneurs. Nevertheless, Taylor did not think it is easy at all as no one will give someone a million dollars easily. Still, being easier to get invested in does not mean it is not complicated, as Khaled noted that when a VC comes into play the company will be registered abroad which requires lots of paper work and complications which first time entrepreneurs will not be used to. Sadara would sometimes seed fund ventures, so they are actively working to partially cover the post-acceleration level. Nonetheless, this was argued by Ambar to be wrong: 'They are actually hurting the ecosystem by not remaining, I think, at the one million dollar level'.

The second form of business driven investment existing in Palestine is angel investment, and although according to Taylor wealthy Palestinians did invest on some occasions, still both Ambar and Mohammad considered it to be very weak and rare. Khaled noted that entrepreneurs tend to lean towards VC and funding rather than angels as they tend to take lower equity than angels, in addition to the fact that the concept of angel investment is yet to mature among local investors.

Normally there would be regional or international VCs and angels taking part in rising ecosystems, yet in the case of Palestine, outside investors are not encouraged to invest in Palestine due to it being seen as a “war-zone” (Mohammad, Expert) which caused the mentality of considering investing in Palestine a “taboo” (Faris, Entrepreneur). Khaled added that angels are generally discouraged from investing in over-seas companies as they naturally tend to prefer being located in the same geographical area with entrepreneurs so as to be able to efficiently guide and help them.

### 5.3. Choosing who to fund

Regardless of the funding sources, the funders should have a way to decide who to fund and who to not. At the very early stages of the ecosystem, funding decisions were based on business plans and the entrepreneurs’ ability to pitch their idea. This methodology is currently highly criticised and even was described as ‘dumb’ (George, Community leader), for ‘business plans are based on unfounded assumptions’ (Younis, Pre-Incubator), and a ‘pitch is a terrible way to select the best companies to invest in’ (Taylor, VC). Many proposals were made on how funding decisions should be made. George proposed a start-up weekend style competition to pick ventures. Younis said they moved to a business model strategy, while Mohammad and Taylor went to considering pitching to be more like a “nominal tool” which could be part of a set of tools used by the funder when combined with a due diligence study. In fact Taylor mentioned that most organisations currently employ a selection process where entrepreneurs have to go through a specific process of activities over the span of several days.

On the VC level investment decisions are made after reviewing detailed documents, interviewing the team, learning about the company and its market. The venture’s market penetration strategy accounts for great importance when making investment decisions, there should be a match between the venture’s strategy and the VC’s criteria. First, they look for organisations with, potentially, regional or global reach: ‘We only invest in companies that target non local markets, they target the region or the world’ (Taylor, VC). Second, an investor always considers the risk profile of the venture’s target market; this will be linked to the revenue potential from the venture target segment. Third and most importantly is market growth, as even if a venture with a regional product approached a VC they will not be funded if the market is very small or the market is ‘not growing quickly or significantly’ (Taylor, VC). This is important according to Mohammad as it will result in higher ability to expand in the future. Markets’ maturity level could be visually demonstrated in terms of Rogers’ S-Curve in Figure 3; according to the research findings a very fresh technology involves lots of risks, higher than most investors are naturally willing to tolerate, while technologies at the end of the curve can’t yield enough growth rates. VCs ideally invest in ventures targeting markets at their take-off phase, there the risk is manageable and growth rates are decent to yield good return on investment.

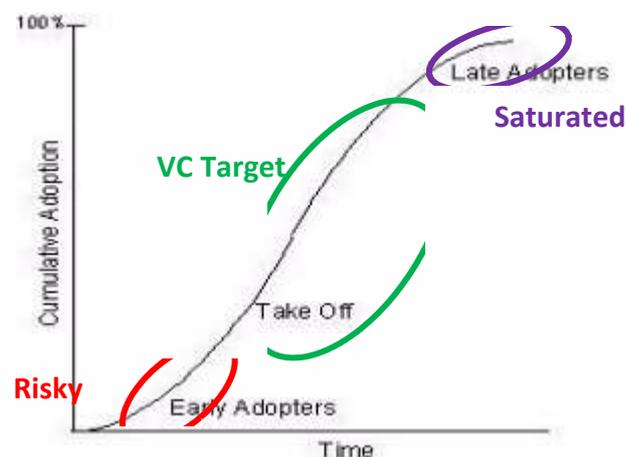


Figure 3 Market phases of interest to investors

## 6. Support organisations

There are various types of support offered through organisations operating at various levels. Each organisation provides different types of support to entrepreneurs pursuing ICT ventures, whether material or non-material support and over various time lengths. As seen in Figure 4 the material support is more straightforward, while the non-material support has more variation from extended mentorship by incubators to generic community support like PEEKS. Taylor noted that the support organisations' role is stronger and wider in Palestine than it is usually in other countries, caused by weak government involvement in the ecosystem.

It is worth mentioning that not all support organisations are operating at their best, in fact PICTI which was the first incubator is currently suffering stagnation and as many of the interviewees noted is no longer adding much value. There was some discussion with some of the interviewees around keeping an organisation that no longer provides as much added value as it should. This caused them to suggest that much like anything else in the world, if something does not provide value, it should be re-evaluated and, if expedient, stopped to allow its funds to be redirected into more useful activities. Currently there are a few active university based incubators who focus on students and as there is nearly an incubator at every university, Taylor thought that the incubator segment is currently saturated and no more incubators are needed. University based incubators offer office space incubation and could help entrepreneurs get access to university labs.

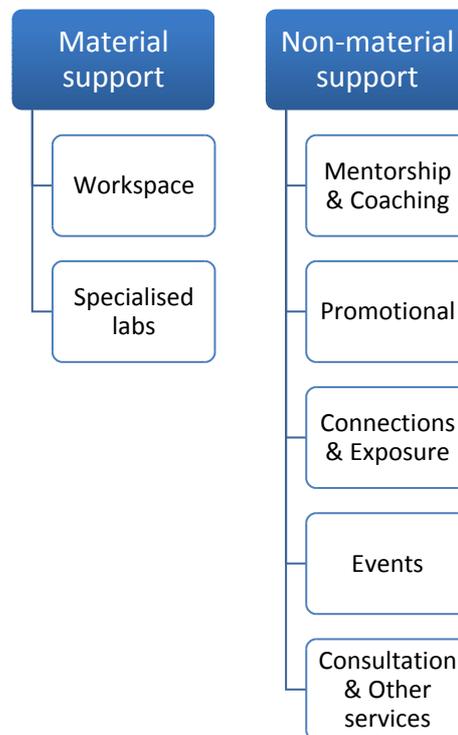


Figure 4 Types of support

### 6.1. Material support beyond financing

Material support is usually thought of as funding. This is true for organisations operating past the idea-level such as VCs and angels. Nevertheless, material support also comes in other forms.

Leaders is one of the main active organisations in providing material services; they have established a co-working space called e-Zone. Co-working spaces offer ventures office space for low price with internet access, secretarial services and few other office logistics, the importance of such spaces was stressed by most of the interviewees who noted their huge role in knowledge transfer and facilitating office logistics for entrepreneurs. A famous similar workspace is the iPark in Jordan; such co-working spaces have two major benefits, firstly they relieve the co-founding team from the headache of dealing with landlords and costly office spaces, secondly they provide a work place where entrepreneurs can meet and diffusion of knowledge and experience could happen. This is the reason why such spaces aim to have around 30% of its occupants from experienced serial entrepreneurs [11] which Leaders tries to achieve in e-Zone. Nevertheless, Younis criticised the current level and number of co-working spaces, and stressed that there should be even more push towards creating more industrial and tech parks that could hatch successful ventures, adding that the current, growing, parks in Jordan and their rarity in Palestine may explain the huge difference between the two in terms of ICT exports where the former exports three times more than the latter.

Organisations operating past the idea-level acceleration provide only material support in terms of monetary support.

The weakest link in material support lies in specialised labs. Since it was established that hardware products could be marketed more easily for the regional market, it is important to have 3D printing facilities to create product prototypes, the purpose of which would be both better to explain the product to potential investors and do some market testing.

Entrepreneurs lack access to such facilities which Younis attributed to the lack of interest from donors to fund such facilities that their success yield is not easily quantifiable.

## **6.2. Non-material support**

Non-material support is offered by the same organisations offering material support plus few other organisations. Some organisations provide all types of support while others focus on special services. The most common non-material support is mentorship. Mentorship and coaching exist from the earliest stage of pre-incubators to the latest stage of VCs, where for the latter it would become more of guidance. According to the experience of Faris and Khalid, Sadara Ventures goes beyond what normal VCs do as it provided them with lots of mentorship and consultation.

The second thing organisations focus on most is attracting new entrepreneurs. This is generally thought of as one of the main roles for university based excellence centres which target the pool of graduate students and provide them with basic coaching to encourage them to diffuse to the entrepreneurship cycle. Nevertheless, the relative scarcity of entrepreneurs at the ecosystem pushed the problem to be a concern for almost everyone, and forced most organisations to do lots of events and outreach activities to encourage more people to become entrepreneurs. Even a VC like Sadara according to Taylor does lots of events and community outreach and establishes connections with professionals working in technology companies who have the potential to become entrepreneurs to encourage them to consider entrepreneurship. Despite what has been said, Faris criticised the way organisations promote entrepreneurship, where they do not work to attract new, good, entrepreneurs or give them the right image of entrepreneurship, but rather they employ 'a spray and pray approach' where organizations glorify cofounders life making everyone want to be a CEO but no one willing to work for a start-up as an employee. To support that, a recent article by The Economist [12] revealed that having extremely high start-ups per capita, as in the case of Israel, doesn't mean the economy is gaining any benefit. Israel has an advanced ecosystem and high-level entrepreneurs, but they are focusing on the number of start-ups created which causes a high churn rate rather than a high level of achieved success; many of those start-ups are sold at an early stage before they have the chance to make any economic impact. This leads to a conclusion that the critical factor isn't the number

of start-ups but the level of success those start-ups can, and do, achieve.

The third type is providing connections and exposure to the external markets; the type and level of exposure varies depending on who is providing it and at what level is the venture. This type of support is vital as movement affects entrepreneurs' ability to build relations with potential international customers or suppliers due to the fact that a virtual relation could never replace a real face-to-face relation, with the latter resulting in the venture being part of the customer "consideration set".

Leaders among its various programs manages the "Palestinian House" program which aims to provide local entrepreneurs with exposure to the US market by sending the most brilliant entrepreneurs to the Bay Area, introducing them to the US market. The program also brings American experts to Palestine to give lectures and one-on-one training sessions. Ambar noted that although the Palestinian House exists to facilitate the US market penetration, there is no similar program to facilitate exposure to, and penetration of, the European market.

Arabpreneur provides similar exposure to Leaders where they send entrepreneurs to compete internationally at SeedStart and link entrepreneurs with Angel investors [13]; this allows entrepreneurs to be exposed to the external markets and know what other entrepreneurs are doing and how they are doing it. Sadara Ventures much like any VC provides exposure and connections to external entities; this is normally the case as a VC will usually do whatever it takes to make their ventures succeed. Khalid and Faris noted that Sadara provided them with excellent value in terms of connections, and it used to even go beyond that by providing extensive consultation.

A few also related the difficulty of penetrating regional and international markets to the inability to do effective remote market research without existing in that market physically: 'you need to have boots on the ground' (George, Community leader); 'it is really important to get there to understand the market, you can only do so much market research online without experiencing it, without seeing it' (Tova, NGO). This is even more important for complex products like enterprise software. Taylor also linked the harder market penetration of the EU and US to the entrepreneurs themselves, where the local entrepreneurs have less work experience and exposure to technology trends which puts them at a disadvantaged position compared to their western peers. Interestingly Younis drew attention to the many aid organisations such as USAID, JICA, the Dutch Government and others who have programs to help companies reach external markets, but target well established companies that have both been operating for many years and have a minimum revenue level which disqualifies start-ups. He explained that those organisations are reluctant to deal with start-ups because of the higher risk of failure linked to those ventures.

The fourth support are events, which usually overlap with more than one of the previous support types, but will be mentioned separately as all the interviewees stressed their importance. Regardless of the event they all create a spark in the community which slowly affects the culture and makes people become more accepting of the idea of entrepreneurship, according to Tova. The most known and most important event of all is Start-up Weekend; there a group of people simulate working on a start-up over the course of a weekend. Start-up Weekend's first benefit is promotional where it is one of the ways to attract people into entrepreneurship, second it is a way where entrepreneurs meet, network, and create connections. Therefore many venture founders go to Start-up Weekends to find co-founders or to find talented employees, as is the case with Faris and Khalid. Third according to Taylor Start-up Weekends affect the mentality of those who attend them, and encourage them to think more creatively and innovatively while keeping their skills sharp and up-to-date. At the same time, many of the interviewees also agreed that Start-up Weekends teach entrepreneurs practical things like brainstorming ideas, creating teams, working collaboratively, market testing, prototyping...etc. The positive effect of Start-up Weekends extends beyond the event as many noted that many teams who created ventures initially met and created ideas during the event, then kept on working on their ideas and turned them into start-up companies, one of which is *socialdice.net*.

Despite all the advantages of Start-up Weekends, poor organisation of the event could deem it to failure. George noted that the Start-up Weekends that had a constraint on the number of students attending and targeted people from various cities, national and international, various backgrounds in technology, business and design were the most successful. Tova noted that people who come for Start-up Weekends generally come for the thrill, for that George noted that Start-up Weekend events that provide monetary prizes are making a wrong move as entrepreneurs are not (and should not be) there for the money.

Another event that was mentioned by Ambar is the “celebration of innovation” which is an innovation competition held by PNB and over the past couple of years mainly focused on entrepreneurial initiatives. During the competition semi-finalists would be provided with training that would help them on the final level while the winner would get extended coaching and mentorship support. Despite what has been said, Mohammad mentioned that not every event is a positive one. On the contrary there have been events which did not add value and were so bad that they were a total waste of money. For reasons of diplomacy such events could not be named.

The final is consultation and general support. Such support does not have to be arranged or provided in a structured manner as is usually the case of the previous support types. On the contrary it is provided many times by individuals. Khalid noted that during their journey of creating Pinch Point they asked many professionals and experts to help them, and they usually were very helpful. According to him, this is even easier as the ecosystem is small and hence everyone knows everyone. For general legal and accountancy services Faris and Younis gave opposing opinions: Faris said there is a lack of experts who could provide such services while Younis said there is. A deep look at their fields of expertise and operations could explain the contradiction as for Younis the experts and services provided are probably for the local or regional market, while for Faris, as an owner of a venture registered in the US, his need is for experts in US regulations and laws. Such expertise is important because companies that receive VC funding work often register in Delaware, USA, as they will then benefit from advanced investment regulations which allow the VC to hold preferred stock, and employees to receive stock options, with the additional bonus of it being a tax haven and providing a supportive legal framework.

Non-material support programs target youth, mainly fresh university graduates, which is highly criticised due to a notion that entrepreneurship should come from experienced professionals and hence those are the ones that programs should target. The reason behind targeting the youth, and steering the support in the way it currently is relates to the fact that most organisations are largely donor funded which ties their hands and forces them to abide to the donor’s agendas rather than what is best to help the ecosystem. Earlier it was introduced that there is an agreement that the NGO funding is misplaced and has to be corrected. To do that, Ambar noted that it would be smarter if NGOs focused on building technology capacity for entrepreneurs, Faris was the main supporter to that ‘Do not teach them how to pitch, teach them how to write a piece of code’. Faris explained that the problem starts from the Key Performance Indicators (KPIs) of NGOs: ‘KPIs are wrong’ (Faris, Entrepreneur). KPIs have to be corrected from being based on the number of small businesses initiated to more realistic long term impact such as the industry worth after few years.

Another way to leverage the financial support is to direct it into bilateral government initiatives which should aim to develop the legal and governmental support structure for entrepreneurship, something which Ambar thought would be ‘a worthwhile investment’, as: ‘All the players that support this ecosystem need to think long term and more strategically’ (Ambar, Accelerator). Such investments would be more worthy than investing in accelerators or incubators, unfortunately ‘aid organisations’ concept of development many times is not what the country really needs’ (Mohammad, Expert).

To conclude, Ambar explained that Leaders among other organisations are trying to provide as much support to entrepreneurs as possible while trying not to cross the fine line of support to doing the job for the entrepreneurs. Moreover, Ambar noted that the most important thing

that should exist in all organisations programs is quality, not the amount of support, number of co-working spaces, number of training programs or anything; it is meaningless to have too many programs without decent quality that really adds value. Taylor gave a similar notion that the big number of support organisations diffuses the resources, which made him prefer fewer concentrated organisations.

## 7. Conclusions and recommendations

Despite being rarely studied before, ICT entrepreneurship is seen as critical to the economic future of Palestine, a view which this research supports. It is found that there are many individuals and entities working to help start-up ventures grow and prosper through leading many initiatives and setting mechanisms to support ICT start-ups. Those mechanisms and initiatives are spread across various stages from the initial idea to the international expansion. Comparing them with the common levels found everywhere else, Palestine is found to have very few of each, where it lacks the quantity and concentration of important funders. However, at least it has one of each level. Clearly, Palestine still has a long way before a wider, more efficient, pipeline is introduced.

Support organisations' services are also far from mature, although the current services match most of the services literature suggests is needed for start-ups to succeed. This research found they are crucial for the way the ecosystem is currently set although there is a need to reform and refine those services to hit the exact problems entrepreneurs face. Moreover, as the government involvement in Palestine is weak, which is beyond the scope of this paper, the importance of strong collaborative work among support organisations as suggested by Van de Ven [9] becomes even more important. Currently there are signs of some collaborative interaction between organisations, yet it is still not at the optimum level. It can be noticed that new grassroots activities are starting to emerge, of those is Reyadi 2.0 (which is Arabic for entrepreneur) that is a founder club where entrepreneurs meet to network and discuss problems they face and try to find solutions to them. Another rising community activity is Start-up Grind which invites a highly successful professional to inspire others interested in starting their own businesses.

Moreover, despite the limitation that this researched faced in not being able to interview every support organisation, like Arabpreneur or the other newly established ones, the research is not at a disadvantage as the interviewees discussed most of the organisations. The research also discussed cases beyond that specific to Palestinian. The research looked into how targeted markets affect VCs' investment decision by linking it to Rogers' adoption model; empirically proving an implied rule that investors have but many entrepreneurs don't know.

Also, the research uncovered an interesting fact. Effective financial support to start-ups and abundance of such support are not the same thing: on the contrary too much funding, especially donor/development-oriented, may end up causing more harm due to promoting a culture of incompetency or profligacy. In contrast, profit-oriented funding is only available to those who are judged worth it, forcing those who seek it to work harder.

Having identified the ecosystem, and analysed in depth the financing of, and support for, entrepreneurs in Palestine, we recommend that:

- Donors should also invest money in programs that promote organic development and sustainability. This can be done through an insurance fund for external investors to boost their confidence in the system, and sponsoring activities and events without managing them directly.
- All parties interested in the ICT entrepreneurship should work on attracting investors who can establish profit oriented organisations, especially at the accelerator and incubator levels.
- Investors of all forms should not ask for too much in return for their investment; otherwise they might drive entrepreneurs away.

- Early stage investors like incubators and accelerators should choose which ventures to support based on 75% for the team capabilities and their previous professional and educational experience, and 25% on the business idea.

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## **Innovative Agricultural Entrepreneurship Enhancing Regional Value Added Partnerships in Mountain Regions**

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**Peripheral mountain communities in the Alps face problems of depopulation, ageing population, lack of jobs and farm abandonment due to out-migration of skilled persons towards urban areas. Sinking product prices and decreasing public support call for a more diversified agricultural sector, cooperation and regional added value partnerships. Improved accessibility and communication facilities as well as the trend for regional products open new opportunities for inter-sectorial collaboration benefiting from urban-rural interrelations. The authors will present good-practice examples of horizontal and vertical cooperation at different levels and in diverse mountain regions. Framework conditions and enabling environments will be analysed. Innovative initiatives emerged at the interface of agriculture and tourism, gastronomy, and the health sector. Cooperative, collective and citizen-driven actions like community supported agriculture and innovative crowd-funding schemes result in a higher added value along the whole regional supply chain. Social services like green care agriculture support the re-socialisation of people and provide therapeutic care taking. Finally, new business approaches such as touristic holiday packages for farm stays and a major integration of agricultural products or services like tasting sessions by farmers in accommodation facilities increase local economic benefit.**

**Keywords**

Mountain agriculture, diversification strategies, cooperation, enabling environment, entrepreneurship

### **Abbreviations**

CSA Community Supported Agriculture

FSCA Food Security through Commercialization of Agriculture

GAS Gruppi di acquisto solidale

IYC The international UN Year of Cooperatives

KTN Kärnten

LINSA Learning and Innovation Network for Sustainable Agriculture

LOM Lombardy

PIE Piedmont

STM Steiermark

TIR Austrian Bundesländer Tyrol

TIS Techno Innovation South Tyrol

VEN Veneto

## Introduction

Socioeconomic development in mountain areas is a highly interlinked and complex system with various individuals and institutions involved. Compared to other rural areas, rural areas in mountainous areas may be more strongly influenced by aspects related to accessibility and remoteness. Access to markets and working places is greatly dependent on the quality of infrastructure and distance to urban centres. Phenomena such as brain drain, amenity migration, over-aging and structural economic problems are common patterns in many rural areas. At the same time topography and related effects limit economic activity due to lower space availability and harsher climate conditions.

But the specific feature “topography” of mountain rural areas and the challenging consequences it brings to daily life and economic development represents only one side of the coin. In fact, compared to others, rural areas in the Alps or other mountain ranges, are characterized by numerous endogenous potentials, in particular positive direct and indirect impacts related to their mountain landscapes. Mountain agriculture is considered multifunctional agriculture because several desired outcomes such as ecosystem services - to mention one of the most known aspects - depend upon the maintenance of specific farming practices and consequently, the maintenance of traditional landscape patterns (Table 19). The natural and human shaped beauty of mountain landscapes attracts visitors and guests, with positive and negative impacts on the agricultural and touristic sector. Other linkages, such as farming and rural development, are less clear but nonetheless relevant. One may think about the inter-correlation between the vitality of rural areas and agricultural activities. Non-agricultural externalities and the provision of public goods become more and more important for rural development and quality of life today.

**Table 19** Multifunctional services of agriculture and farm households [1]

<b>Functions of Agriculture/ Farm Households Identified in TOP-MARD</b>	<b>Predominant Market or Non-market Aspects of Functions</b>
<b>Processed Food, Fibre</b>	Market
<b>Farm Household Accommodation</b>	Market
<b>Farm Household Labour to the Local Economy</b>	Market
<b>On-farm Tourism and Recreation</b>	Market
<b>Public Access to Countryside</b>	Non-market
<b>‘Green Care’</b>	Mainly Market
<b>Landscape ‘Quality’</b>	Non-market
<b>Water (Quantity and Quality)</b>	Non-market
<b>Recycling of Phosphates/Nitrates from Human Waste</b>	Mainly Non-market
<b>Soil Quality</b>	Non-market
<b>Air Quality</b>	Non-market
<b>Wildlife (Biodiversity)</b>	Non-market
<b>Greenhouse Gases/Carbon Sequestration/ Renewable Energy</b>	Now Partly Market
<b>Archaeology/History</b>	Mainly Non-market
<b>Entrepreneurial Capital</b>	Market/Non-market
<b>Social Cohesion</b>	Non-market
<b>Food Security</b>	Non-market
<b>Culture Bearing</b>	Non-market
<b>Food Quality</b>	Partly Market
<b>Animal Welfare</b>	Non-market

Food Safety	Partly Market
Protection from Avalanches and Landslides	Non-market

The economic framework conditions force mountain farmers to improve business management. Entrepreneurial thinking and innovation are becoming increasingly important. Especially for mountain regions, innovative agricultural entrepreneurship, diversification and the need to discover niche markets play a crucial role because the increase in production is limited due to natural and structural production conditions. Smallholder farming and limited production capacities, e.g. due to sloped hills and high altitudes, naturally constrain agricultural production for small farms in mountains. Hence, the end of the milk quota directive may lead to a challenging future for mountain farming. In these areas, farmers face challenging production conditions and are confronted with increased competition from global food producers benefiting from low-cost production factors and economies of scale. In this regard, the further integration and combination of agricultural activities with other sectors to better exploit endogenous potentials becomes more and more a central, respectively, life-and-death issue. Farmers are thus well advised to diversify their product offer towards regional quality products and specialties but also to engage in vertical and horizontal cooperation at different levels. Developing/Exploiting new production niches will become an important future strategy to optimise the entrepreneurial value added [2].

Before this background, in the main chapters the authors of the article will analyse and discuss the following principal theses:

- 1) Apart from the challenges related to missing successors, due to various internal and external influencing factors, mountain agriculture is under pressure economically and innovative entrepreneurship is needed to maintain competitiveness ( “framework conditions”).
- 2) There are heterogeneous and very different framework conditions changing from region to region influencing the development of agriculture which result in heterogeneous but also, often due to diverse reasons, coinciding development patterns. What functions in one region may not function in another, hence why generalising and explaining key driving factors and their relative impact on agro-structural change is a complex task.
- 3) The local and regional framework conditions as well as managerial skills influence successful strategies and management practices, e.g. in the framework of diversification, which allow farmers to handle economic pressure and to react appropriately (“successful strategies and management practices”).
- 4) These strategies, however, depend on specific framework conditions, enabling environments and success factors which transferability to other regional contexts has to be proven from case to case (“enabling environment”).

## **The Framework Conditions of Mountain Agriculture in the Alps**

*“The agriculture sector is becoming more technologically sophisticated, commercially oriented and globally integrated; at the same time, migration patterns and climate variability are changing the rural landscape across the developing world. These forces pose challenges and present opportunities for all agricultural producers”* [3, p3]. Major challenges include the globalization of the food sector, climate change, lack of suitable financial services, insecure land tenure and lack of public support, unfavourable policies [4], absence of commercialization and market access, imperfect markets and high transaction costs [5]. The need for commercialization is highlighted by various programs like the FAO/Italy cooperation strategy Food Security through Commercialization of Agriculture (FSCA). The first sector loses in the context of the ongoing structural change towards the tertiary sector steadily in importance for total employment and the local economy. The production aspect recedes at a multifunctional agriculture in favor of the provision of public services. The offer of regional

quality products becomes more important because of the increasing demand by consumers and turns out to be a profitable niche offer.

The development of mountain agriculture in the Alps is dependent on a complex system of internal and external driving factors. The key concerns in this context are land-use, maintenance of open cultural landscapes and multifunctional services [6]. More specific, the discussion on the future of mountain farming deals with the aspects 1) “trends and existing driving forces for land-use ”) “conservation of specific forms of utilisation ” and 3) “more comprehensive solutions” [6, p112ff].

Due to its central geographic position, the Alps are particularly interconnected with the pre-alpine areas and urban centers at the fringe ( Figure 26). Firstly, this is relevant for the human presence in the form of day visitors, tourists, multi-locals, amenity migrators and second home owners. This may cause positive impacts (income possibilities) and negative environmental ones (traffic). Secondly, this situation results in intensive economic exchanges, not only international and interregional but transalpine, mainly between north and south along the often frequented Brenner Pass. Concerning agriculture, this means opportunities (on- and off-farm employment, e.g. in the touristic sector, urban markets for quality products) and threats (low priced products, land use changes). Generally, the population in the Alps has increased. But there are distinct development patterns ( Figure 26) with an east-west contrast, population increases at the edges of the Alps, in traditional out-migration areas in Italy, Styria and Lower Austria and in the French Alpine region known as an immigration area.

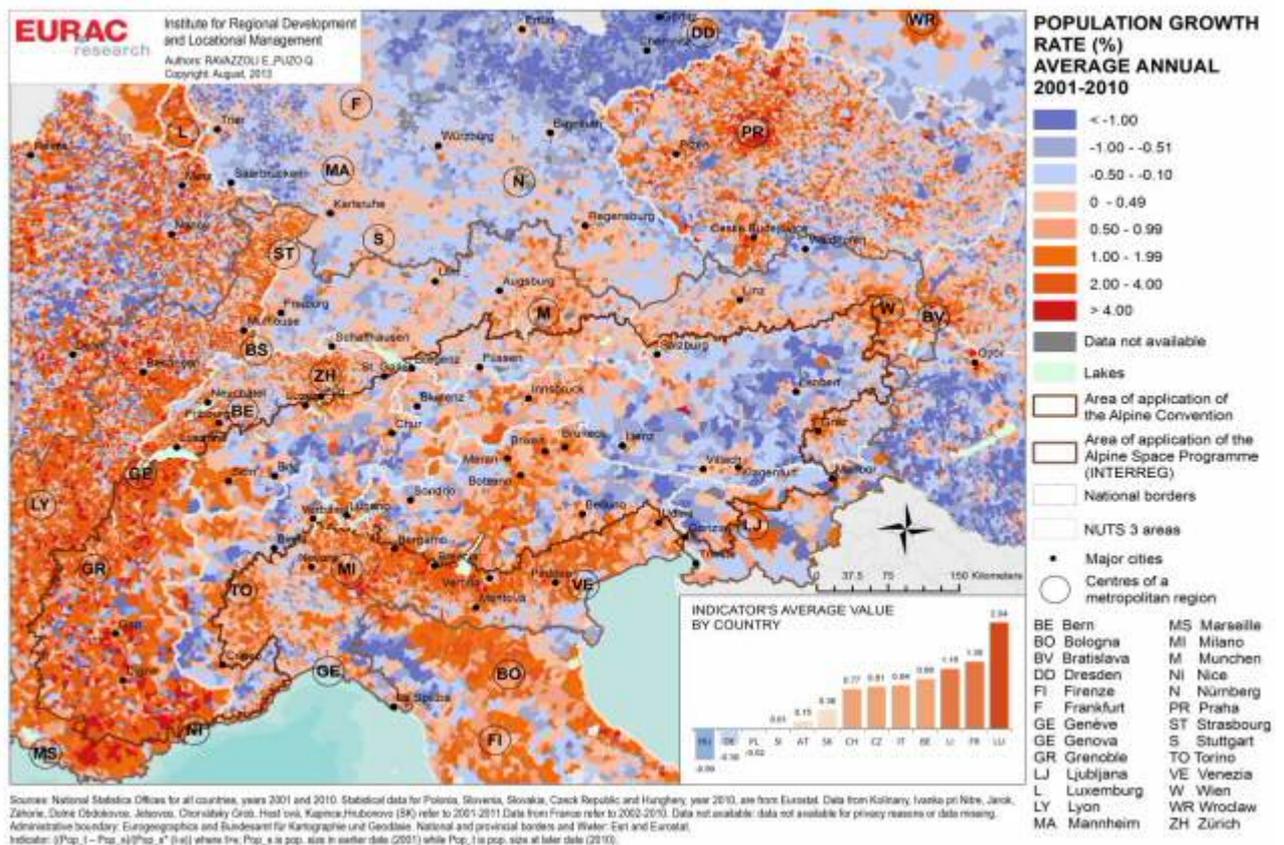


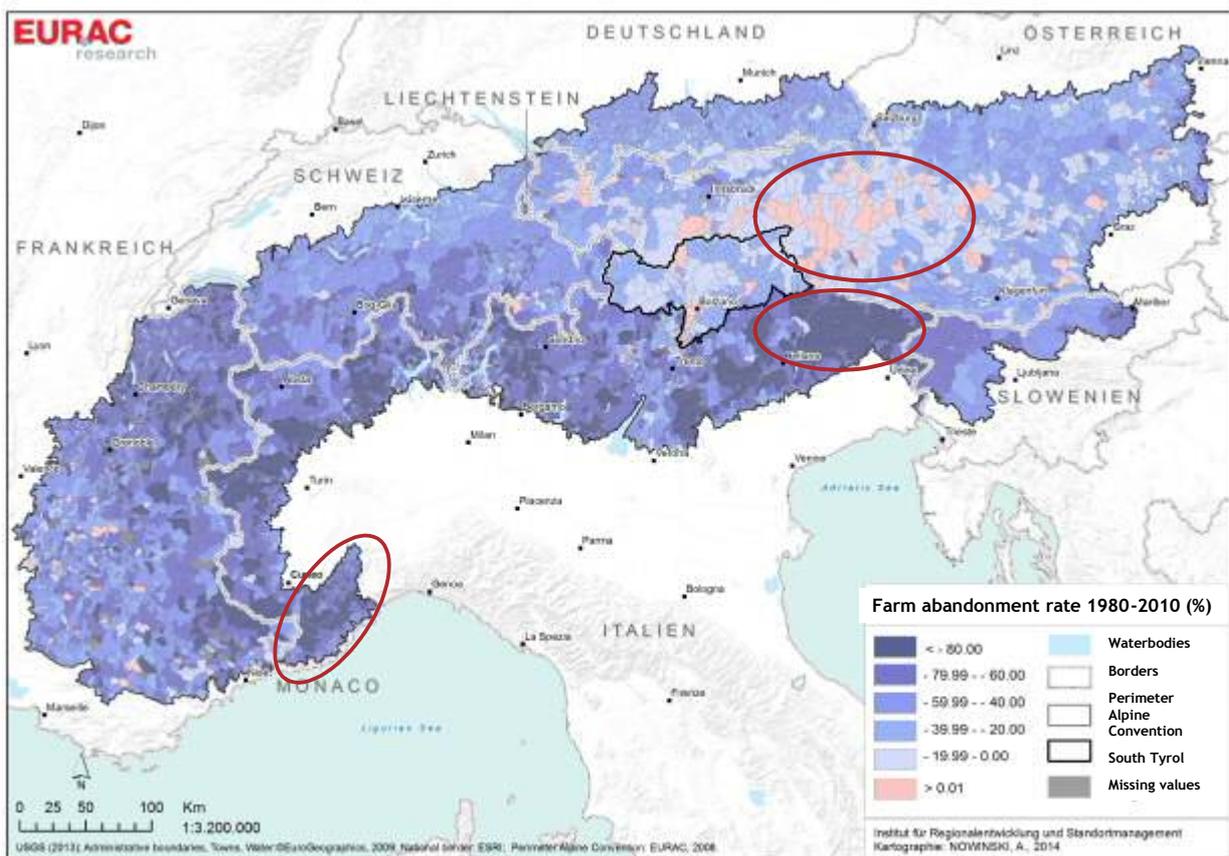
Figure 26 The Alps and its geographic context

The development of agriculture in the Alps shows a significant decline in the last 30 years with more than the half of the farms disappearing ( Table 20). However, the following figures and maps depict interesting similarities and divergences as an outcome of varying framework conditions (thesis 2): The Italian alpine arc heavily affected - the red outlined circles highlight the eastern region of Friuli Venezia-Giulia and the western Liguria region as one of the most impacted ones - and central areas with quite moderate changes like the east-

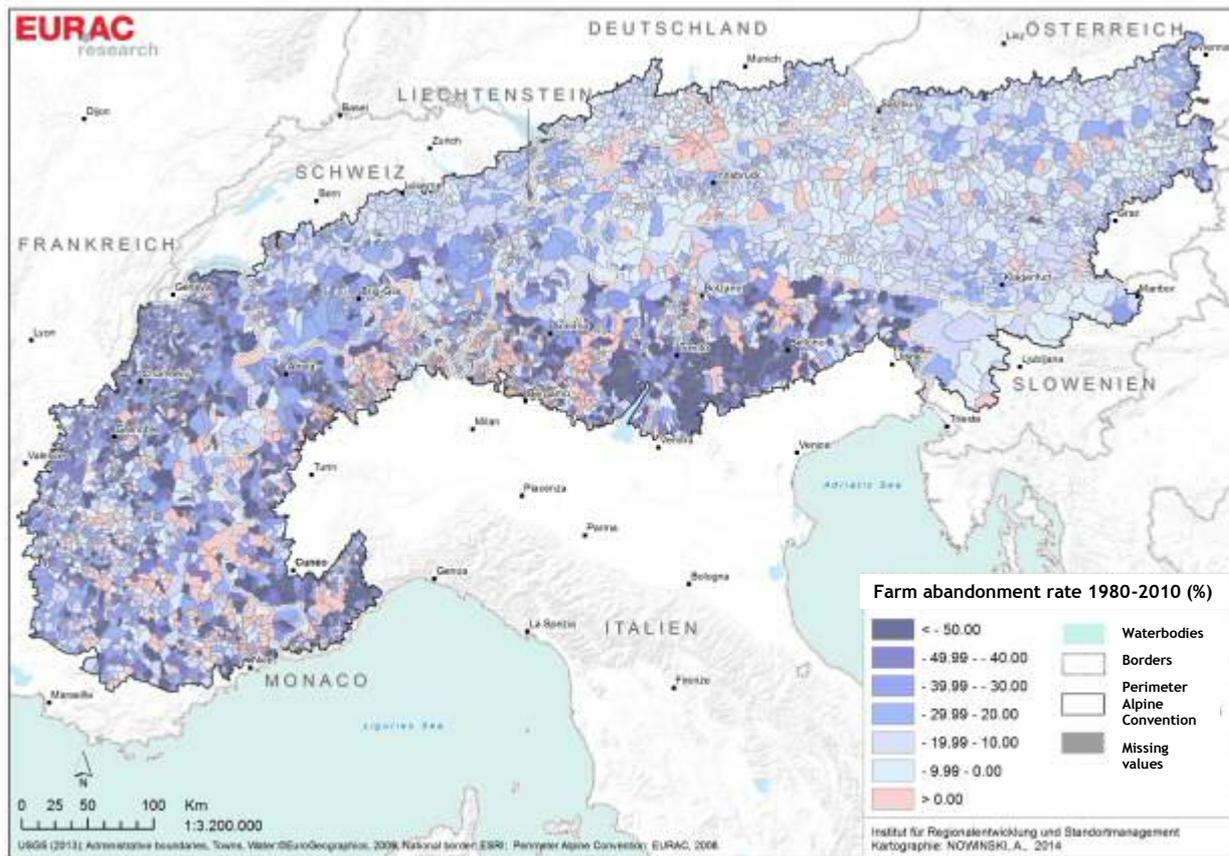
central areas in Austria. The last decade even documents increasing numbers, but they refer to very low absolute increases as most of these areas have been strongly affected by previous abandonments.

**Table 20** Farm abandonment rates of the national areas of the Alps

Country	1980-2010 (%)
Austria	-30.4
Swiss	-48.3
Germany	-40.4
France	-62.1
Liechtenstein	-76.1
Italy	-64.4
Slovenia	-63.2
<b>Alps</b>	<b>-54.4</b>

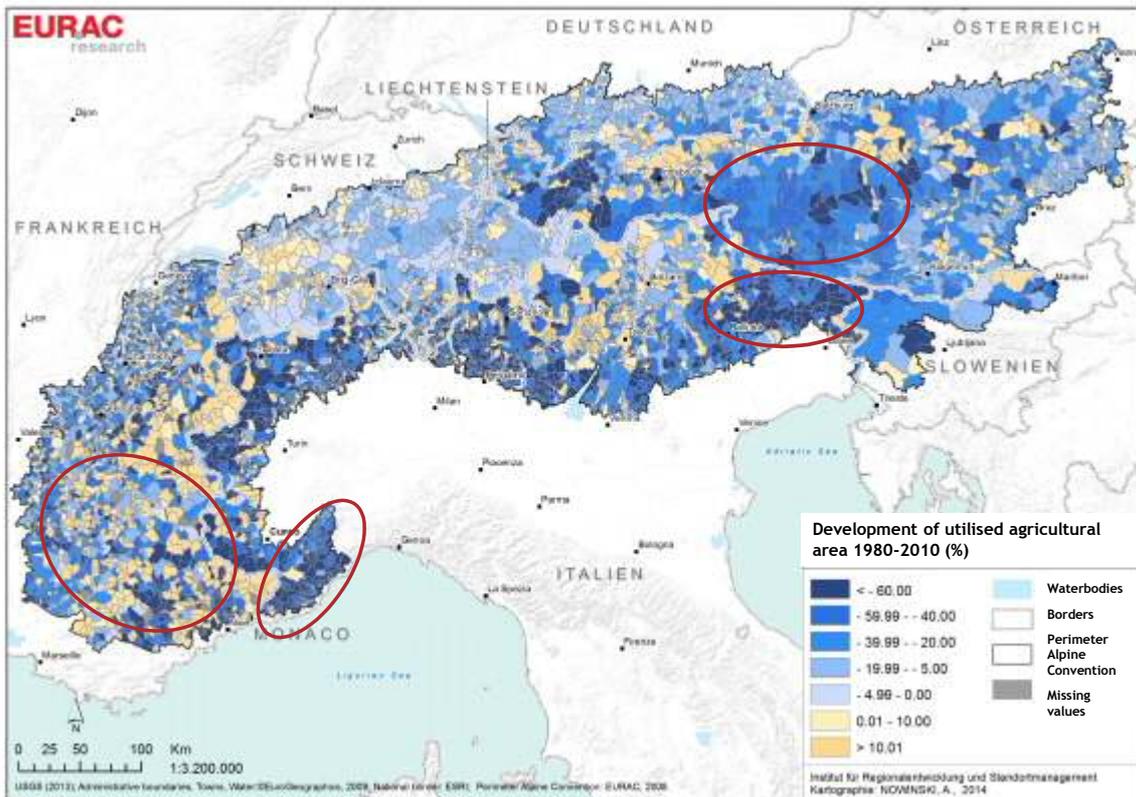


**Figure 27** Farm abandonment 1980-2010



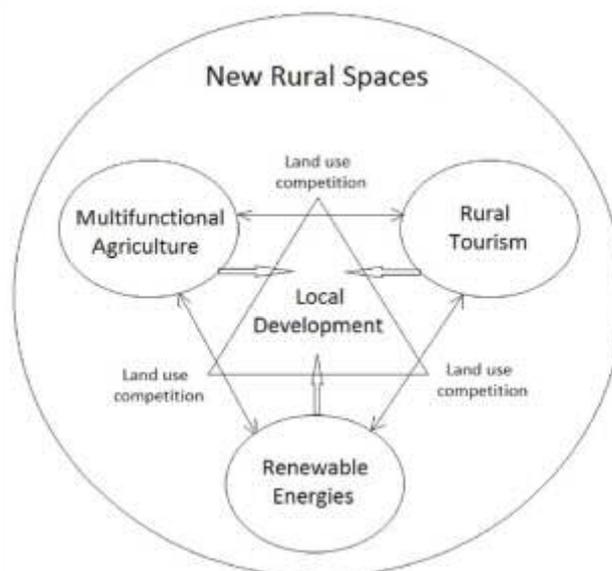
**Figure 28** Farm abandonment 2000-2010

Agricultural land has not always been taken over through the process in which the remaining farms are becoming larger and larger ( Figure 29). Again, the Italian Alps shows negative figures. The negative development in the Austrian areas is due to the fact that farmers previously declared more agricultural areas than they effectively possess in order to receive more funding. It was the EU, which, based on satellite images, constrained Austria to adapt surface data. Hence, the eye-catching decline of farmland in Austria is not legitimate, it is mostly based on a statistical adaption of surface numbers.



**Figure 29** Development of utilised agricultural area 2000-2010

At the same time, food security and the negative environmental effects of the agricultural sector is increasingly discussed. Intensive operating, conventional and non-sustainable agricultural production systems are criticized by society as increasingly harmful to public health and the environment and rejected, because they adversely affect the quality of life and hinder alternative, environmentally friendly production methods. In addition to the migration-related and structural processes, climate change, the development of renewable energy and the production of renewable raw materials ("energy landscapes") altered mobility or accessibility options / needs and tourist structural changes had profound impacts on the rural mountain areas and land demand as well as usage claims (Figure 30; 7).



**Figure 30** Conflicts on land use in rural areas [8, p7]

## Successful Strategies and Management Practices

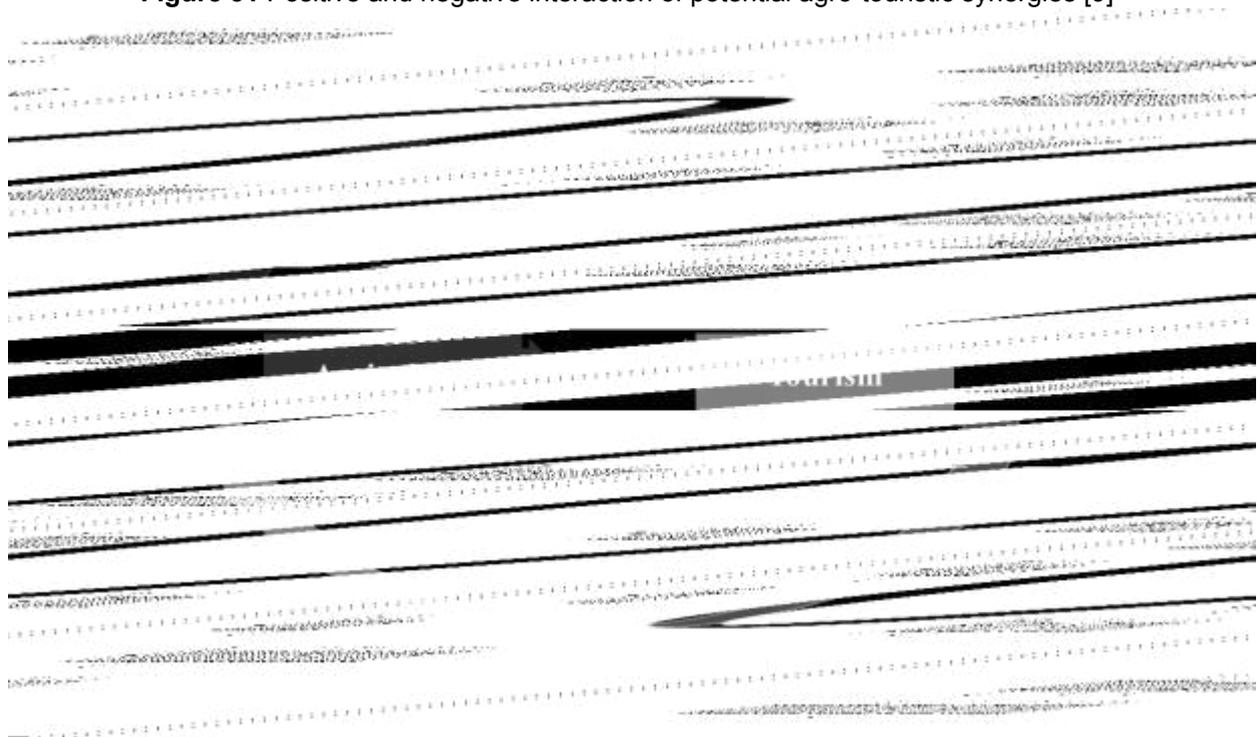
The following sections report selected experiences and good practices from not only the Alps, which turned out to be valuable levers and instruments for maintaining mountain farming and generating regional added value. Supporting the third thesis of this paper, they should serve as applied and practical showcases on what has turned out to be successful in different Alpine regions. It is clear that these examples depend on certain framework conditions. Hence, it is obvious that they are not easily transferrable to other regions. However, the central theoretical background of the following section is that various new economic activities are emerging, which demonstrate that under certain circumstances change and competitiveness is feasible.

### ***Diversification and Specialisation***

Diversifying agricultural and non-agricultural activities and/or specialising on-farm operations resulted to be a common strategy and “*a conditio sine qua non*” of the outmost number of farms to maintain farming activities, gain sufficient income and increase competitiveness. We focus on the following cross-sectorial cooperation between agriculture and tourism, which seems to be one of the most reciprocal benefiting areas.

There are various ways in which agriculture and other sectors can benefit from each other, enhance regional partnerships and increase regional value added. For example, there are synergies at the interface of agriculture and tourism ( Figure 31 ). Farmers benefit from the touristic presence as it offers new job opportunities due to the demand for infrastructure facilities and services. Cooperation of agriculture and tourism can also affect or involve non-touristic branches like architecture, care taking, wholesaling or crafts. At the same time, however, it is also possible for conflicts to arise if agricultural activities result in noise, odors or health related disturbances; or from the farmer’s point of view, due to rising land prices or the consumption of agricultural land.

**Figure 31** Positive and negative interaction of potential agro-touristic synergies [9]



It was able to show that in regions with high tourism intensity the agricultural sector is very stable, while high abandonment rates exist in areas with poor levels of tourism resources. Important factors are the EU policies for the agricultural sector and rural development and all relevant national policies and specific mountain region policies [10].

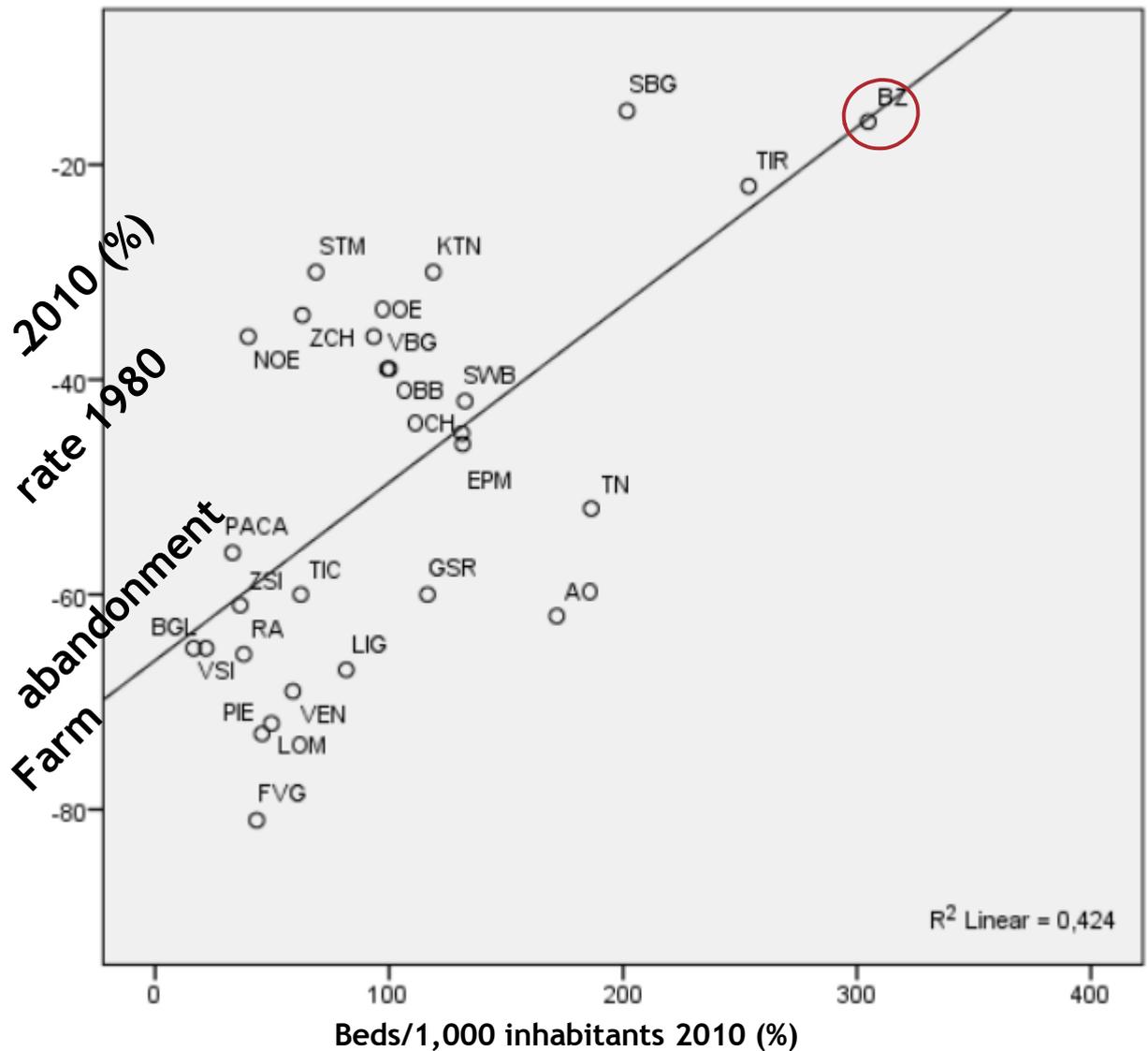


Figure 32 Farm abandonment and tourism intensity

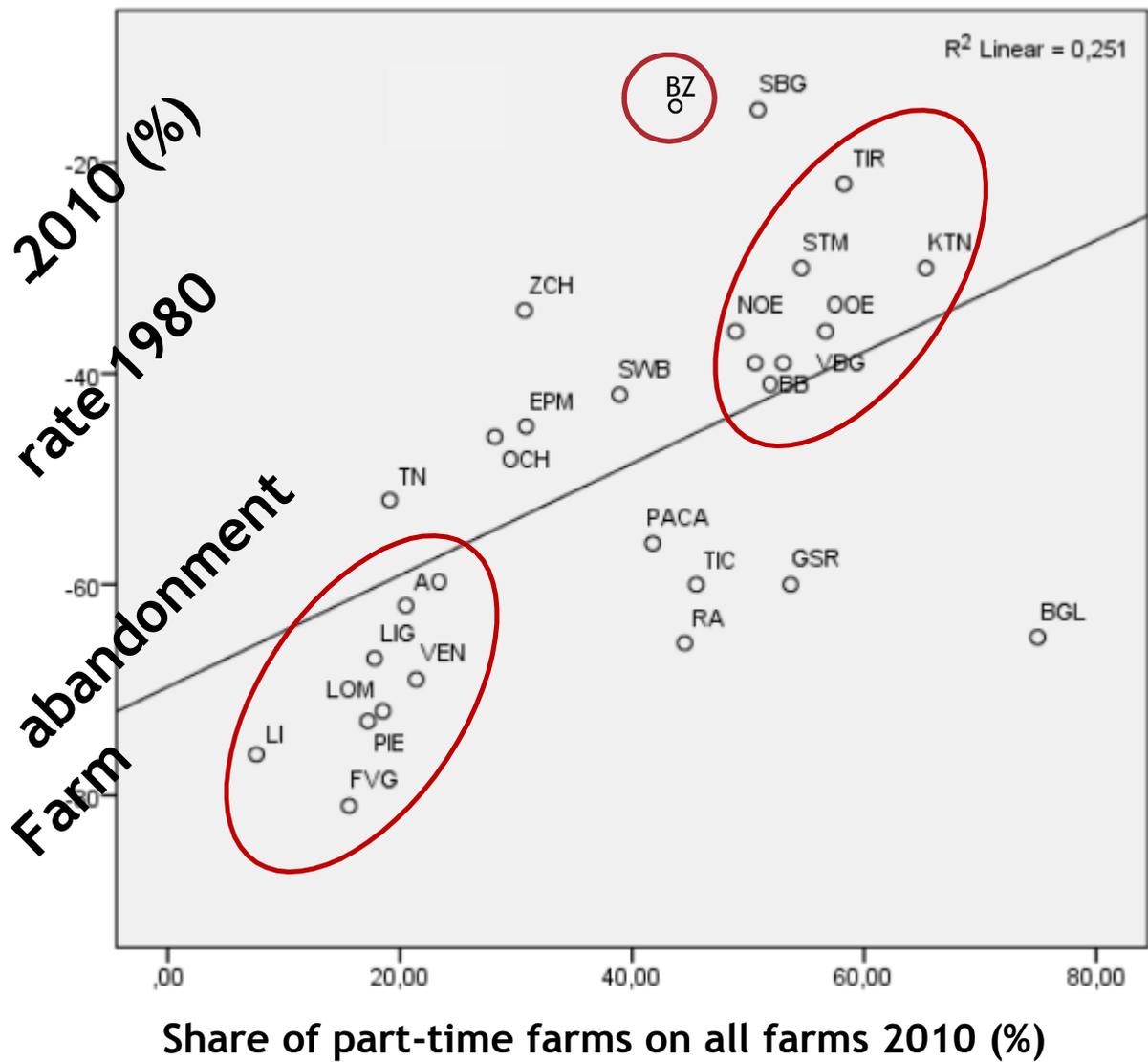
### Regional and High Quality Products

As a response to the major trend known as globalization and its impacts on the environment (greenhouse gas emissions, biodiversity loss, intensive agriculture) and with that on the global food production, regionality has emerged as a consumption trend and counter-movement [11]. The regionality trend aims at regionalizing food systems and the economy again so that knowledge about provenience, cultivation and processing of products that has been disappearing in fast-moving, busy societies and open markets, can slowly be regained [12, p141, 13]. Re-socialization and re-spatialisation of food is favourable as it becomes

more important again for consumers to know where and how products they consume are being cultivated and processed [13]. Knox & Mayer attach importance to the valorisation of local products as a factor in the development of rural areas [12]. Both horizontal and vertical cooperation schemes within agriculture and between agriculture and other sectors can enable farmers to better balance supply and demand of regional products so that all parties involved can realize economic benefits and contribute to an increased regional value added. In fact, in the future, it is likely that farmers will need to show more presence in accommodations, shops and supermarkets in the framework of tasting and marketing sessions or similar services to respond to the regionality trend and demand for authenticity on the part of consumers and guests. On the other hand, tourists may also demand to be part of the daily life and cultural traditions of farmers by taking cooking and processing classes in an agricultural, rural environment.

Regional food logistics systems are also widespread between farmers and accommodations as well as between farmers, wholesale traders and accommodations [14]. Various local food systems have emerged, which offer farmers alternative sales channels and respond to the increasing consumer demand for regional products [14, 15]. Looking at the literature and good practice examples, regional value added cooperation schemes are largely promoted as a leverage for regional development [14, 16]. It remains scientifically disputable, though, whether the aspired multiplier effects and benefits of closed regional economic cycles can be realized and empirically proven [17, 18].

Streifeneder [10] proved that part-time farming turned out to be more stable than full-time farming (Figures 8, 9): The Autonomous province of Bolzano (BZ) as well as the Austrian Bundesländer Tyrol (TIR), Kärnten (KTN) and Steiermark (STM) with high shares of part-time farmers, to name a few examples, registered low abandonment rates compared to many Italian regions (LOM, PIE, VEN) where part-time farming accounts for around 20% of total farming. Regional labour markets, diversification and specific supporting agricultural policies created a favourable enabling environments.



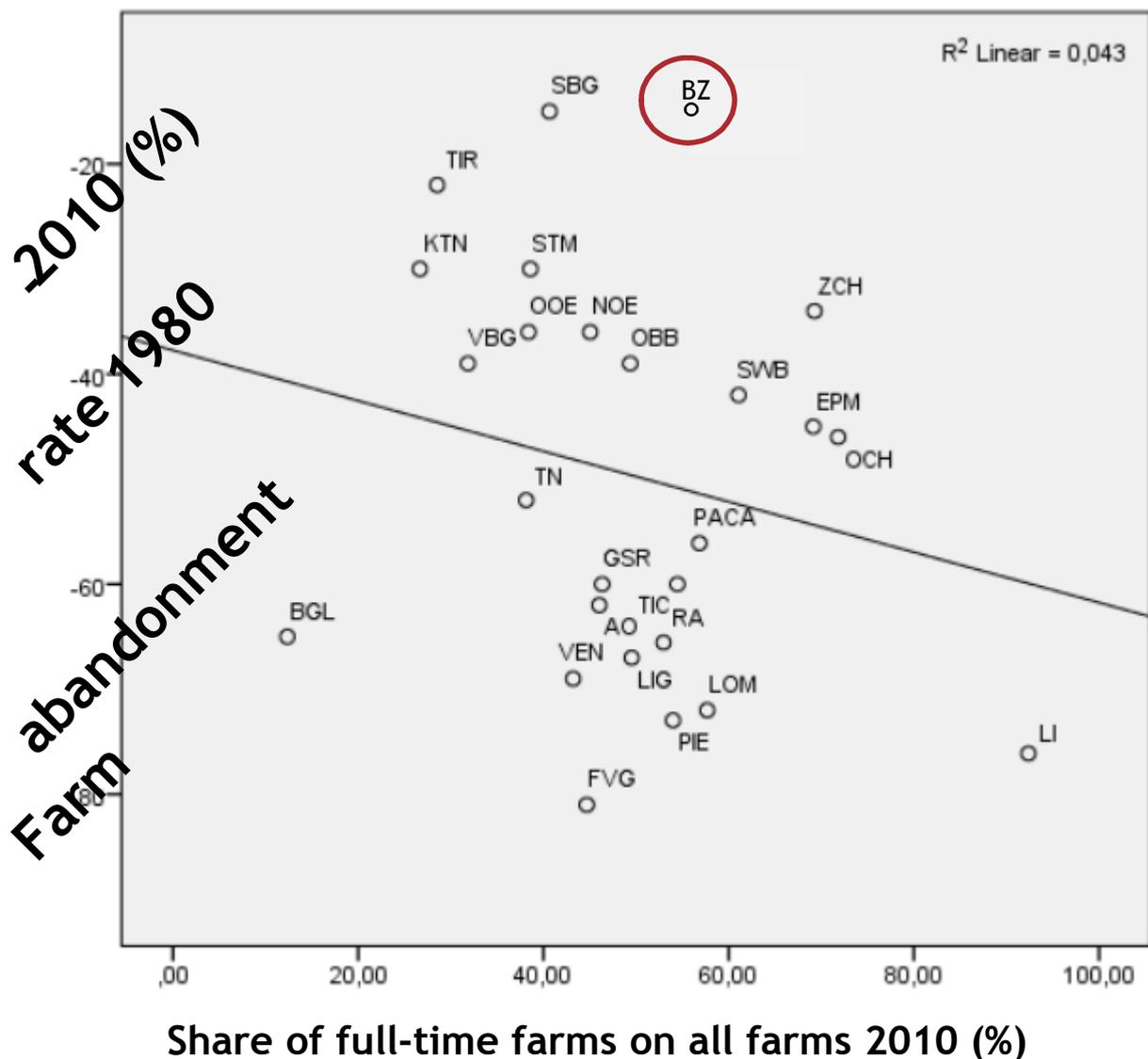
BZ Autonome Provinz Bozen-Südtirol  
BGL Burgenland  
EPM Espace Mittelland  
FVG Autonome Region Friuli-Ven.Giulia  
GSR Genferseeregion  
KTN Kärnten  
LI Liechtenstein

LIG Ligurien  
LOM Lombardei  
NOE Niederösterreich  
OBB Oberbayern  
OOE Oberösterreich  
OCH Ostschweiz  
PIE Piemonte

PACA Provence-Alpes-Côte d'Azur  
RA Rhône-Alpes  
SBG Salzburg  
SWB Schwaben  
STM Steiermark  
TIC Ticino/Tessin  
TIR Tirol

TN Autonome Provinz Trient  
AO Auton. Reg.Valle d'Aosta  
VBG Vorarlberg  
VEN Veneto  
VSI Vzhodna Slovenija  
ZCH Zentralschweiz  
ZSI Zahodna Slovenija

Figure 33 Farm abandonment and part-time farming [10]



BZ Autonome Provinz Bozen-Südtirol	LIG Ligurien	PACA Provence-Alpes-Côte d'Azur	TN Autonome Provinz Trient
BGL Burgenland	LOM Lombardei	RA Rhône-Alpes	AO Auton. Reg. Valle d'Aosta
EPM Espace Mittelland	NOE Niederösterreich	SBG Salzburg	VBG Vorarlberg
FVG Autonome Region Friuli-Ven. Giulia	OBB Oberbayern	SWB Schwaben	VEN Veneto
GSR Genferseeregion	OOE Oberösterreich	STM Steiermark	VSI Vzhodna Slovenija
KTN Kärnten	OCH Ostschweiz	TIC Ticino/Tessin	ZCH Zentralschweiz
LI Liechtenstein	PIE Piemonte	TIR Tirol	ZSI Zahodna Slovenija

Figure 34 Farm abandonment and full-time farming [10]

### ***Regional Innovation Systems and Knowledge Networks - Learning and Innovation Network for Sustainable Agriculture (LINSa)***

The exchange between regional institutions and the creation of networks plays a crucial role for enhancing competitiveness and generating regional value added. A systematic lever for regional development is linked to communication in networks and the development of specialized knowledge. Regional cooperation can represent important company information networks to individuals or institutions in the region, widely available via the communication structures beyond. Together, with all these regional initiatives and networks is the broad participation of all regional operators - producers, processors, distributors and retailers to customers - along the value chain of one or more products as well as other regional actors from politics, administration and society.

In Northern Italy's Autonomous Province of Bolzano-South Tyrol, a considerable institutional framework has been established over the past years that allows farmers to benefit from a varied expert knowledge in the agriculture, forestry and food research, marketing and production branches. This can help farmers to grow and position their products and communicate information on the value added of the product (provenance, identity, cultural integrity) [14]. Despite very small structured family owned farms (8,000) with an average of 2-3 ha, the region has become the biggest single area producing apples in Europe (on 19,000 ha South Tyrol supplies up to 50% of the national Italian, 15% of the European and 2% of the global apple market). This agro-industrial apple production has been able to flourish and has consistently responded to market demands and competition in the European and global markets because all stakeholders of this sector are well connected. The FAO [19, pviif] highlights the "...*efficient and effective Learning and Innovation Network for Sustainable Agriculture (LINSA)* ", which sees the cooperative involvement of various stakeholders, producers, their cooperatives and associations; research; agricultural advisory services and other public and private actors (Table 3). Hence, LINSA represents a knowledge and exchange network aiming at developing new knowledge and innovations. The core element of LINSA is the producer cooperatives, based on "...*the principles of self-help, self-administration, self-responsibility and member's promotion.*" But these dynamics could not have been implemented without further relevant framework conditions particular to the Autonomous Province: agriculture is deeply embedded in society and public institutions resulting in a strong pro-agriculture policy based on a stable political landscape. The farmers, mostly operating part-time, diversified income and benefit from manifold formal and informal mechanisms with a strong social learning component. "*The research and extension system as well as the education system, have evolved and supported the innovation process with capacity development initiatives, with the provision of rural advisory services or by inventing or adapting technologies relevant for the producers. The apple producers in South Tyrol have created a LINSA guided by human relationships, trust, common vision and interest where information and knowledge are transferred easily and underpinned by rapid and collective action for innovation*" [ibid. 19].

**Table 21** The members and stakeholders of LINSa in South Tyrol [19]

NAME AND AIM	OTHER INFORMATION
<p><b>AGRIOS</b>  <b>(WORKGROUP FOR INTEGRATED FRUIT PRODUCTION IN SOUTH TYROL)</b>            AGRIOS is responsible for managing the quality, the law and regulations for integrated management.</p>	<p>Founded in 1977, AGRIOS is a private company with non-profit status. It is losing a little of its influence as the directives for integrated management are now dictated from Rome (or from the buyers in the case of GlobalG.A.P.), and the quality control function has now been separated and is being implemented by a not-for-profit company (Konsortium 'Südtiroler Qualitätskontrolle').</p>
<p><b>BAUERNBUND</b>            Farmers' association of the province, with the aim of strengthening the farming community in economic, social, cultural and political terms, and to represent the interest of its members</p>	<p>Founded originally in 1904, had to be re-established in 1919 when Sud Tirol became Italian and has continued to evolve since then. It today has 21 000 members. The majority of the association's income is derived from their services.</p>
<p><b>BERATUNSRING</b>            They offer a private and independent extension system.</p>	<p>Rural advisory service provider established in 1957. Budget of € 3.2 million, with 70% of the budget coming from the farmers and 30% from local government. Some 90% of the local farmers are members, and they work through 31 consultants.</p>
<p><b>COOPERATIVES</b>            Their aim is to store and market apples for their members.</p>	<p>There are 23 cooperatives for apple production in South Tyrol that cover 95% of the growers. The first cooperative for apple production was created in 1893 (Algund), and today includes VOG Product – Europe's largest fruit processing company. The primary aim of the cooperatives is storage, processing and commercialization of the fruit delivered by the members.</p>
<p><b>FEDERATION OF COOPERATIVES</b>            Two (The Association of South Tyrolean Fruit Growers' Cooperatives (VOG) and The Association of Val Venosta Fruit Growers' Cooperatives (Vi.P)) federations of cooperatives are present, for marketing and for invoicing.</p>	<p>Vi.P and VOG are producer organizations in the sense of the EU legislation. VOG was founded in 1945, it has 1 558 employees and is composed of 16 cooperatives with 5 200 members and 10 700 ha. VOG sells 735 000 tonne of apples per year with a turnover of € 433 million. Vi.P was founded in 1990. It has 700 employees and is composed of 7 cooperatives with a total of 1 750 members and 5 110 ha. Vi.P sells 284 000 tonne of apples per year with a turnover of € 225 million.</p>
<p><b>INDUSTRY AND SERVICES</b>            A vibrant industry is attached to the apple production in the province. It was built to provide the necessary tools for apple production, but many small enterprises have evolved to become leaders in their field.</p>	<p>One such company is Isolcell, that is now a 50-year-old company based in Bolzano and is at the forefront of apple conservation techniques, marketing the Dynamic Controlled Atmosphere (DCA) process developed with the Laimburg Research Station. DCA is the most widely-known and used method for optimising controlled atmosphere storage conditions. It is marketed by Isolcell Italia S.p.A. and it is used around the world in commercial apple production (Zanella, Cazzanelli and Rossi, 2008; Prange, Delong and Harrison, 2005).</p>

NAME AND AIM	OTHER INFORMATION
<p><b>LANDES KONSORTIUM FÜR DEN SCHUTZ VOR WITTERUNGSUNBILDEN</b> This cooperative implements initiatives for its members to support any active and passive defence against weather adversities.</p>	<p>This cooperative was established in 2004 and has a membership of 95% of the apple producers and 75% of the vine producers.</p>
<p><b>PRODUCER</b> Apple-producing farmers. There are 8 000 land owners with orchards in South Tyrol, of which 5 000 are active growers of apples.</p>	<p>South Tyrol has a long tradition of fruit growing. As far back as the 16th century, couriers from the region around the River Adige brought fresh and preserved fruits to the courts of the Austrian and Russian monarchs.</p>
<p><b>SOUTH TYROL (AUTONOMOUS PROVINCE)</b> The provincial administration has competences for social and economic factors, including with regard to agriculture and forestry. The second autonomy statute gave the province extended power to decide its own future.</p>	<p>The province was founded with the annexation by Italy in 1919, included in the Regione Trentino Alto Adige with the first autonomy statute, and acquired extended powers with the second Statute of Autonomy in 1972.</p>
<p><b>LAIMBURG RESEARCH CENTRE FOR AGRICULTURE AND FORESTRY</b> Laimburg Research Centre for Agriculture and Forestry regards itself as the lead research Institution for Agriculture in South Tyrol. The mission is to improve the competitiveness and sustainability of agriculture through creating a critical head start in terms of knowledge.</p>	<p>Since its inception in 1975, Laimburg Research Centre has earned a place among the leading agricultural Research Institutes not only in Italy but also in German-speaking Europe. This has been substantially due to the commitment of scientists and experts, who conduct approximately 400 projects and activities annually and worked up the insights gleaned in order to pass them to the South Tyrolen farming community.</p>
<p><b>TRADE AND KNOWLEDGE FAIRS</b> The aim of the fairs is to present the latest innovations and to exchange knowledge</p>	<p>Various organizations in the province regularly organize fairs, the most important one being the biennial Interpoma, a fair about everything to do with apples. In 2012, it had 364 exhibitors from 17 different nations, with 16 017 professional visitors from over 60 different countries.</p>
<p><b>TREE NURSERIES</b> The nurseries are part of the services provided by private companies to the growers. Their aim is to provide virus-free and good quality planting material of the varieties requested by the growers.</p>	<p>Konsortium der Südtiroler Baumschule (KSB) is a union of nurseries that was established by provincial law, with responsibility for the propagation and distribution of propagation material. These include GRIBA, a cooperative of nurseries. Total production from the South Tyrolean nurseries is over 10 million trees a year. For internal educational information's and studies, the nurseries are united in the Bund Südtiroler Baumschulen (BSB).</p>
<p><b>VARIETY INNOVATION CONSORTIUM (SK)</b> SK's objective is to test, introduce and promote new varieties. It is the variety information arm of VI.P and VOG.</p>	<p>Established in 2002, it is a not-for-profit entity, with its objective being to find good varieties for the region, promoting them and direction growers, in collaboration with Laimburg research station and Beratungsring, to the best varieties through the cooperative group.</p>

## **The Cooperative System**

The international UN Year of Cooperatives (IYC) in 2012 recognised the impact of cooperatives on economic and social development due to their democratic organisational structure. They contribute in many mountain regions, among others, to an increase of social capital and social integration. This serves to help stabilize economic cycles and strengthen local employment. Several mountain regions, for example in Italy and Austria, have a historic tradition and also a relevant presence of cooperative systems. Furthermore, one can register a growth of cooperatives in times of economic crises [20].

A strong interrelationship characterizes local development and smallholder farmers. To guarantee competitiveness and market access of the latter, producer cooperatives proved to play a crucial role in developed as well as developing countries. Due to specific framework conditions, producer cooperatives are an integrative part in several mountain regions contributing to local identity, landscape stewardship, biodiversity conservation and regional development. Their role respective to sustainability and resilience within the socio-ecological system depends on the institutional profile, management and internal governance system as well external aspects such as financial, administrative and legal supporting systems. Several successful horizontal and vertical examples of cooperation exist in mountain contexts, witnessing the successful interplay between smallholder farmers and the local environment. In South Tyrol/Italy, nearly all apple producers are members of producer cooperatives, which effectively manage storage, processing, and commercialization of the products.

Global and national market competitiveness of small farms within Farmers' cooperatives and collectives can be documented as in the example of South Tyrol's apple production and marketing on global markets. The same holds true, on a lower scale, for the wine sector (average utilized agricultural area 1.1 ha), which developed as one of the top Italian wine producing regions. Finally, the small-structured dairy farms fully organized in cooperatives sell their highly appreciated products in all of Italy. As a consequence, the cooperatives can pay quite high milk prices to the farmers.

## **Marketing Agricultural Products**

In South Tyrol, small- and medium-sized trading companies like *Biokistl* and *Pur Südtirol* sell in-store and deliver regional products to private homes, offices, restaurants and hotels. They purchase their products from more than 140 producers (*Biokistl* > 50 producers; *Pur Südtirol* > 90 producers), with whom they conclude individual delivery contracts. Some producers deliver to both companies. *Biokistl* disposes of a warehouse and their own logistics center. It sells foodstuffs from organic farms in South Tyrol, the Lake Garda region as well as other organic food companies from South Tyrol, other Italian regions and Germany. *Pur Südtirol* sells only products produced in South Tyrol; online and in its three flagship stores in South Tyrol. One supplier is the 'Red Rooster' trademark for high quality South Tyrolean farmers' products, developed from within the South Tyrol Farmers' Association. *Ahrntal Natur*, a former private distribution network aimed at introducing farmers' products to regional supermarkets, hotels and restaurants, initiated and co-founded in 1998 by an organic farmer, was recently integrated into the *Pur Südtirol* company. Another supplier of regional foodstuffs, *Gastrofresh*, caters to almost 80% of all South Tyrolean hotels and restaurants. It also sells quality products from South Tyrol, which are mainly industrially produced – in contrast to small quantities from regional producers/suppliers. Actors involved in regional food cooperation schemes in South Tyrol have recognized the societal, cultural and innovation benefits of these cooperation forms as also identified by a study of the European Commission as major benefits of local food systems and short supply chains [14]. These are, amongst others, sustainable community development, support of biodiversity and cultural tradition, revitalized relationships between rural and urban areas and reduced need for transportation and refrigeration to minimize greenhouse gas emissions as well.

Two other examples are located in Austria and Switzerland: 1) Gran Alpin and 2) Bio vom Berg (Organics from the mountains). “*Gran Alpin (<http://www.granalpin.ch/home/>) provides a secure premium price for cereal producers in Graubünden linked to the uniqueness of local organic mountain cropping systems, and all the values of local identity, landscape stewardship, biodiversity conservation and regional development that such systems represent. Gran Alpin is enabling an alternative approach for rural development to evolve around key elements, including: high quality breads, pastas, flours and beer; the mountains; the extreme production system; organic production and animal welfare; landscapes aesthetics in a core tourism region; and the cooperation of like-minded farmers*” [21, p11]. Bio vom Berg (<http://www.biovomberg.at/>) is a brand which has been able to market organic food in selected supermarkets produced by organic farmers and small-scale processors. This has occurred for more than ten years within the cooperative and trading platform Bioalpin: “It coordinates production, negotiates price and quantity with its purchasing partners and organizes logistics” [22, p30]. The common goal is “network growth”.

### **Certified Agrotourism and Farm Products**

In the Carpathians and the Alps, a large variety of good practices concerning marketing and agri-touristic holiday packages aim at enhancing regional value added through innovative cooperation partnerships, e.g. Syrex Agrofarm – Slovakia, Traditional fruits “Székely Fruit” – Romania, Ecoherba Society (Arnica project) – Romania, Organic beef production in a Natura 2000 site – Romania [23, p33ff]. A well-known and widespread example in the Alpine region is the farm stay or farm visit (*Urlaub auf dem Bauernhof*). Generally, next to holidaying, farm visits are an opportunity for people to gain hands-on experience and learn about production processes and for farmers to communicate traditional procedures and values. It is commonly offered by individual farms or by a network of farms. Networks can have organizational advantages as booking or marketing activities can be realized at a lower cost at the interface of agriculture and tourism and lead to a better visibility on the market with web 2.0 solutions, which single farms might not be able to sustain.

Similarly, other personal contacts with consumers at cooking demonstrations, farmers’ markets or farm festivals, raise awareness for regional products and farming activities. As a welcoming gesture, hotels could hand out special gift cards (so-called Gourmet Cards) with which to acquire exclusively regional products, together with a ‘gourmet map’ indicating at which farms, restaurants and stores regional agricultural products can be purchased. The card could also be sold to inhabitants as gift vouchers or presents.

In the following, we present an example from South Tyrol/Italy where the “Red Rooster consortium”, an initiative introduced by the regional Farmer’s Union, successfully supports touristic on-farm activities as well the marketing of certified agricultural quality products [24, p79f]. These are additionally supported by regional investment funding from the regional department of agriculture. In South Tyrol agriculture is small scale, which means that it is becoming more and more difficult for farmers to make a living exclusively from farming. An increasing number of farmers are finding it necessary to earn additional income from non-farming activities due to the falling prices of their products. The necessity of working both on the farm and elsewhere puts family life under strain, therefore the “Red Rooster” association aim is to support local farmers by creating extra income from the farm, thus guaranteeing the sustainable development of South Tyrol’s rural culture and putting people in touch with the rural world. “Red Rooster” tries to ensure that farm life carries on in a sustainable manner with the successful combination of agriculture and tourism. The “Red Rooster” trademark was created in 1999 by the Farmer’s Union of South Tyrol for farms offering Farm Holidays in South Tyrol. Since 2003, “Red Rooster” has also competed in “Farm Inns and Bars” and “Quality Farm Products” in South Tyrol. Its three mainstays do not only generate additional income for local farmers’ directly from their farms, but they benefit holidaymakers too. Strict criteria and regular monitoring by “Red Rooster” ensure the highest quality for guests and the continued survival and development of South Tyrol’s rural culture – for future generations as

well. The most important, basic criteria at a glance are the authentic, unspoilt nature in the picturesque countryside, personal atmosphere, family-friendly, small farms, pleasant, comfortable environment involving natural materials, “visible” direct experience of agriculture, farm produce, a “hands-on” rural experience and good value for money.

The *Höfe-Tour* (“farm tour”) aims at valorising the particular construction method and architecture of traditional mountain farms in the Ultimo Valley in South Tyrol by developing a tour targeted at tourists, the local population as well as a specialist public (architects, designers, technicians, entrepreneurs, university students). They will be reached through integration in the framework of the Enertour project of the Techno Innovation South Tyrol (TIS), a centre for innovation, cooperation and technology transfer located in the Province. The tour enables participants to obtain first-hand information on renovation methods that meet contemporary requirements for energy-efficiency (according to the EU building directive 2002/91/EC), mountain farming and agricultural production methods on valley farms that have a long tradition and are still being operated. Participants are invited to taste (and purchase) agricultural products. This contributes to preserving the traditional way of constructing farm houses and processing farm products, to valorising traditional farm buildings and with that, safeguarding the cultural landscape. Local hiking guides, who provide information about the valley’s history, traditions and nature, accompany the guests. In this way, the initiative offers an additional source of income for this group of freelancers. Regarding the tasting of products, the *Höfe-Tour* is similar to wine taverns called *Buschenschank* (guesthouse on the farm offering typical seasonal meals) that have a long tradition in South Tyrol but also in other Alpine regions (e.g. *Heuriger* in Austria, *Straußen-, Hecken- or Besenwirtschaft* in Germany). The Provincial Law No. 7, 19 September 2008, Arts. 2, 4, 6 regulates the operation of *Buschenschank*: serving food and drinks in a *Buschenschank* is limited to the wine-growing areas that are defined by the Provincial Department for Agriculture. For this activity, wine must be produced from their own grapes; other wine that is served has to stem from the surrounding area. The maximal opening time for *Buschenschank* activities is 180 days per year. Opening times can vary from one *Buschenschank* to the other. Typically, however, it is open after the new wine is produced (between mid-September and mid-December) and in the first half of the year (mid-January to May). Nevertheless, some also open during the summer months. The *Höfe-Tour* concept and the possibility to visit selected mountain farms and chat with mountain farmers goes beyond the *Buschenschank* tradition. The tour offers visits to farms that are not regularly open to the public or serve food on a regular basis. In this way, it is more intimate and responds more sensitively to the demands of a specialist public or the tourist who seeks the personal contact and a specific information exchange with the farmer and his family. Farmers on the *Höfe-Tour* remain in their main business of farming, offering occasional food tasting and information exchange, while a *Buschenschank* serves food and drinks as a regular activity. A proper website presenting the participating mountain farms was established and distributed via Facebook, the valley’s tourist office homepage as well as local/regional newspaper articles.

### **Social/Green Care Agriculture**

A study of Hoffmann & Streifeneder [25] reveals opportunities and limits of an interesting niche for on-farm diversification: Green care. It refers to offering patient-oriented activities that promote physical and mental health and well-being through contact with nature. It recognizes the importance of “social agriculture” activities worldwide. The farms provide various services, such as caretaking, rehabilitation, therapy, education and health care, based on the interplay between people and nature [26]. Offering green care has also proven an innovative agricultural diversification strategy for family farms in the mountain regions of South Tyrol and Trentino in northern Italy. Social agriculture is a part of green care. Farms following this diversification option fit perfectly in the entrepreneurial concept of multifunctional farming. In addition to their agricultural activities, farmers engaged in social

agriculture offer therapeutic, pedagogic or integrative services, which are complementary to professional health care or educational services. Engagement in social agriculture provides additional income to farmers and appreciation alongside agricultural work [27]. However, social farming still represents a niche and is integrated in farming activities by a limited number of farm holders (Figure 10). Social agriculture is a promising area of diversification for family farms in mountain areas, because [25, p81]:

- 1) The required investments and costs of complying with regulations are only affordable if farmers receive direct public compensation or income from institutions financing these farm activities.
- 2) Decision-makers and policy-makers should be made more aware of the need for legal and administrative policies that promote social farm services to complement the services of professional health care providers.
- 3) Farmers who plan to engage in social agriculture must be sure that the farm site, structure and staff are capable of managing the administrative needs and psychological and physical stress.
- 4) Pedagogic, therapeutic or integrative services offered by family farms are promising innovative diversification strategies that can yield inclusive economic growth.

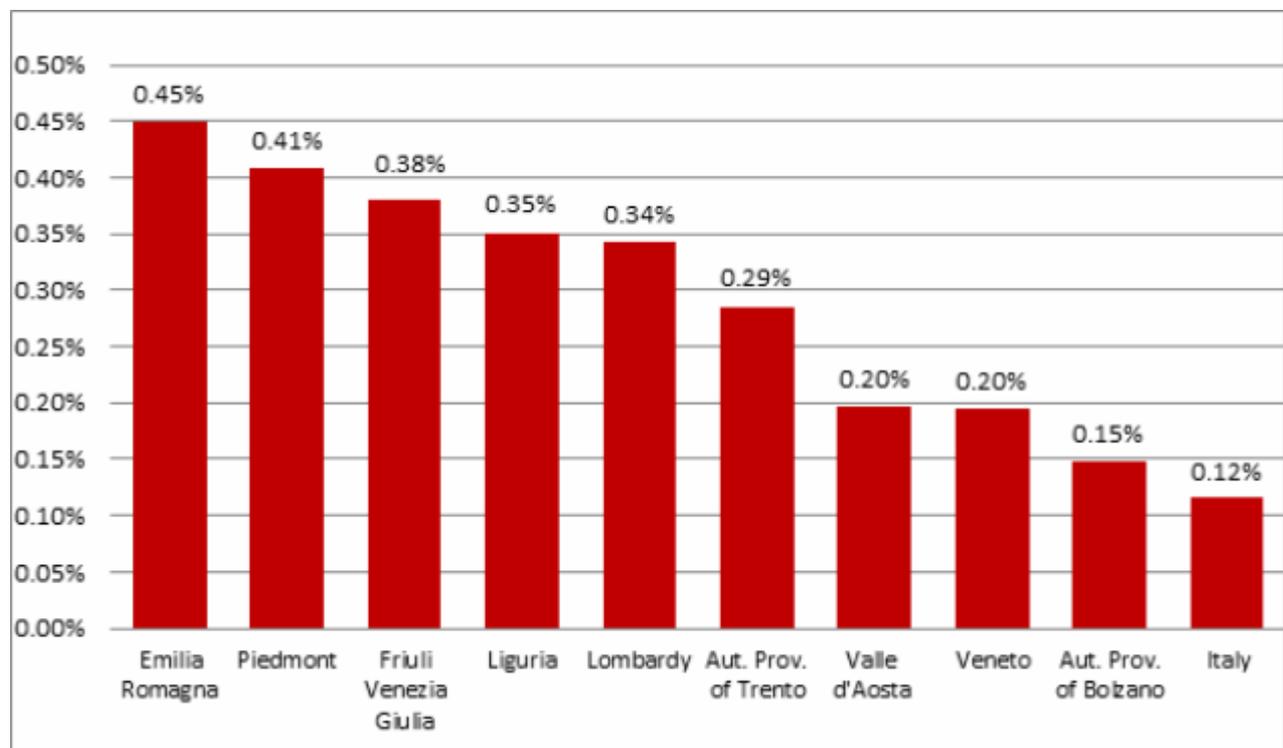


Figure 35 Share of “Pedagogic Farms” in North Italian regions [29]

### ***Urban-Rural Interrelations - Community Supported Agriculture***

A more formalized model of locally-based food distribution is Community Supported Agriculture (CSA), in which (a network of) individuals enter in a contractual partnership with a farmer, allowing the latter to sustain the agricultural holding and the former to acquire products directly from the farm, with the outcome of sharing risks and benefits of food production. CSA can also contribute to fostering urban-rural relationships, as argued by Jarosz [30]. Some farmers use specific forms of crowdfunding to realise big investments: based on an initial funding of the donors, they pay annual interest in naturalia, i.e. instead of money, they pay the equivalent value with their products which can be acquired on the farm or in stores trading vouchers. An interesting and successful example is the cheese dairy farm Englhorn in the South Tyrolean Venosta Valley. In order to make investments, one can

participate in their cheese sales. You may buy coupons for cheese on any day, which will be reimbursed yearly over the next ten years. The actual cheese price is calculated for the year of participation and the donor gets - regardless of inflation and currency devaluation – the best bio-logical raw milk cheese. For 500 €, one gets a total of 110 coupons (each one has the value of one Englhorn). The donor gets the first 10 vouchers immediately after the transfer of money. The other vouchers - 10 per year - will be sent at the beginning of each of the next ten years. One Englhorn is equivalent to 200 grams of cheese. With a pre-purchase of 500 €, one gets 11 x 2kg cheese during the next ten years. It is possible to get other products from the farm (butter, cereals) instead of cheese [31]. Similar are private initiatives such as the “*gruppi di acquisto solidale*” (GAS; Italian for ethical purchasing groups) which are found in South Tyrol and beyond. These are alternative ways to jointly acquire sustainably produced goods from local farmers and entrepreneurs, ranging from foodstuffs to clothing.

## **The Enabling Environment and Success Factors**

Different demographic, socio-cultural and economic driving forces have been responsible in the past and will continue to play a key role in the future for different forms and dimensions of agricultural development [6]. Economic growth and demand for food are decisive external influences, which result in quantitative effects and collide with the qualitative and territorial aspects as distinctive characteristics of mountain agriculture [6]. However, regional economic and spatial conditions – presence of tourism, productive zones in commuting distance – as well as familiar aspects – existence of farm successor, number of on-farm working family members, educational skills of farm holder - may be crucial. Societal driven demands and urban-rural relationships will become more relevant and may be a source for conflicts. It is less the quantity of farms and areas but more the quality of land and production type, which influences the value and status of agriculture and its direct (food) and indirect (landscape) externalities. Rural and agricultural policy should consider these qualitative aspects more strongly. Furthermore, they should support cooperative and collaborative actions which are based on sustainable land use approaches and the generation of regional added value in the framework of suitable horizontal and vertical cooperations. As mountain farming cannot compete with the low land economy of scale driven agriculture of the low lands, the only way of a sustainable future in the mountains is dependent on diversification and the production and provision of high quality outcomes (ibid.). Recent land use conflicts showed that transsectoral co-ordination of spatial planning is needed in order to find sustainable spatial solutions between agro-industrial specialisation, other operational practices and maintenance of social ecosystem services. It is an outcome of many research studies that public support should consider regional conditions and call for regionally and locally beneficial measures. Regional knowledge networks may play a crucial role. Extension services should aim at enhancing entrepreneurial farm management and support collective and cooperative initiatives. The latter proved to positively impact market access and income of small holder farms, characteristic in many mountain areas. Single initiatives demonstrated, however, that farmers can benefit from innovative contractual agreements with (urban) consumers, donors and credit institutions (ethical banking).

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# Mind the Skills Gap

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**This paper will explore the significance of findings from the Eliemental Project. The project has been funded by the EU and has partners in Greece, Poland and Romania. We have been working with a wide range of groups vulnerable to social exclusion including older women who are outside the labour market, ex-offenders, recovering substance abusers, minority ethnic groups and people living with long-term health problems. This paper takes some of our research findings and will discuss the identification of soft-skills shortfalls, consider what types of support and intervention might address such a skills gap, explore the implications of the findings of Eliemental for policy with regards to enterprise and employability and show how community action is central in developing effective responses to support groups vulnerable to social exclusion.**

## 1. Introduction

It is well understood that some minority groups and older women are particularly under-represented in small business start-ups; currently women account for only 34.4% of the self-employed in Europe, with rates in some countries far lower than this average; in the UK only 30% of self-employed people are women (ONS, 2013). Similarly, some minority ethnic groups, the disabled and socially disadvantaged groups such as the long-term unemployed are significantly less likely than average to either be employed or self-employed. However, the potential for entrepreneurship to; 'Reduce unemployment and resolve the problematic employment situation of women and young people in the ethnic segment, but also reduces social exclusion and raise living standards' (Levent et al, 2003, p. 28) is well recognised. It is also widely accepted that 'Entrepreneurship creates value in society ...disproportionate to its role within the economy' (Sarasvathy, 2004: 708). Work on barriers to entrepreneurship often addresses structural obstacles; access to capital, institutionalised racism or lack of childcare etc (Klapper, 2004; Kannianen & Poutvaara, 2007). There has been much research focussed on barriers caused by poor business infrastructure, or the bureaucracy involved in setting up and running a business (Georgiou, 2010, Kannianen and Poutvaara, 2007; Waldinger et al, 2009 amongst many others). Structural barriers to enterprise require policy and practice changes but these efforts may be of limited relevance in supporting underrepresented groups into entrepreneurship if socio-cultural barriers are not also addressed. Social and cultural barriers to entrepreneurship have been less studied, although Liao and Sohmen, (2001) and Rivera-Vazquez et al, (2009) are examples of good practice in exploring this area. It has been noted that an important problem with much work on entrepreneurship, unemployment and economic growth is the tendency to 'neglect on-going structures of social relations' (Granovetter, 1985, p.481), and it is this shortfall that both projects aimed to address.

This paper is based on the work of two Lifelong Learning-funded projects, ELIE (Employability: Learning from Immigrant Entrepreneurs) and Eliemental: Breaking down barriers to enterprise. The ELIE project found socio-cultural barriers to entrepreneurship hindered or delayed some people in starting up their businesses, or held them in marginal businesses, but also noted that many of the immigrant entrepreneurs within our study had

found ways to overcome socio-cultural barriers to entrepreneurship and had made a success of their business. One of the surprising factors was the universality of experience amongst the ELIE participants, who came from over fifty different countries of origin and were based in the UK, Poland, Finland and Greece. Eliemental built on the foundations of ELIE, conducting further qualitative research amongst groups vulnerable to social exclusion in order to identify socio-cultural barriers to enterprise and to develop enterprise education materials that would specifically assist people in overcoming socio-cultural barriers to enterprise. Eliemental proposed a pre-enterprise education solution to enable participants to move onto the types of enterprise support programmes more commonly available throughout the European Union.

## 2. Methodology

The underpinning research methodology for both projects was a participatory action research approach. The two projects were concerned with studying the phenomena of routes into entrepreneurship amongst groups under-represented in business start-ups to develop new understandings of sociocultural barriers to enterprise. The projects aimed to create the potential for change and to learn from the development and implementation of interventions that could help people overcome barriers to enterprise (Baburoglu and Ravn, 1992). Our overarching project aim of developing an understanding of sociocultural barriers to enterprise in order to advance theory-generation and propose new methods of enterprise education required a methodology that allowed participants conceptualisations of enterprise to be placed at the heart of theory creation and at the centre of the development of interventions. Since one purpose of the projects was to provide a space where co-creation of enterprise education materials could flourish it was essential that new knowledge was co-created through integrating the lived experience and needs of end-users with the complementary expertise of the research team in a dynamic process of user engagement and researcher reflection that developed continuous feedback loops. This took place both *in* and *during* the design of the research, throughout the project, as part of the process of reflective analysis and then through the development and trial of education materials.

Following the work of Baskerville and Myers (2004) our methodology took a two-stage approach where collaborative analysis of the situation was undertaken by the research team and our participants to allow the development of theories apropos the central research questions, followed by a process of collaborative change in the iterations of learning materials and new modes of community-based action learning networks based around Community Access Points (CAPS). The inclusion of a wide variety of stakeholders from the planning stages onwards was critical in allowing us to develop acceptable and effective research methods within a participatory action research framework so as to access difficult to reach target groups. One of the advantages of an action research approach in researching socio-cultural barriers to enterprise is its suitability for 'testing hypothesis about how the behaviour can be changed' (Ng and Coakes 2013, p.130). Our methodology allowed us to make use of a sociotechnical paradigm through our adoption of project advisory panels made up of project participants whose feedback was actively reflected upon by the research team and fed back into the data collected. We have worked closely with our participants and a wider range of stakeholders in order to develop a detailed understanding of the environments in which our participants are social actors so as to fully explore the lived experience of our contributors. It was critically important that our choice of methodology allowed the research to support innovative theory development and to ensure that an equal balance of both action and research took place throughout the project. In this we were assisted by the nature of the problem identified which underpinned our initial research questions; our primary research question with our first project, ELIE (Employability: Learning through International Entrepreneurship) was 'what barriers do migrants overcome to succeed as entrepreneurs?' This led directly to the central research question of the second project, ELIEMENTAL, 'Is it possible to identify and overcome sociocultural barriers to enterprise

amongst groups vulnerable to social exclusion? Within the ELIE project we found that despite many of our immigrant entrepreneurs being motivated by necessity they were nevertheless reasonably successful in establishing and maintaining a business, but that although they had clearly overcome sociocultural barrier to enterprise to a certain extent (driven by necessity) these barriers were still in place, and impacted on the ways in which business decisions were made, hindering strategic thinking and restricting growth. In our second project we wanted to find out if the sociocultural barriers to enterprise observed amongst immigrant entrepreneurs were common amongst groups under-represented in SME start-ups, and if so, what type of enterprise education might mitigate against these.

### 3. Research

The ELIE (Employability: Learning through International Entrepreneurship) Project used participatory action research approaches together with qualitative research methods to explore the lived experiences of immigrant entrepreneurs from four EU countries with more than 50 countries of origin. The entrepreneurs within the ELIE project arrived in their destination countries between 1960 and 2010, with the reasons for migration including education, marriage, fleeing war or persecution, economic migration and joining family. We interviewed 198 entrepreneurs across four countries and developed 40 representative case studies and conducted eight interactive workshops with immigrant and indigenous entrepreneurs and students in higher education, to explore social attitudes towards enterprise. The reason for working with students was to enable the project team to understand what factors would encourage graduates to employ themselves, an issue of particular importance in a global environment where youth unemployment is rapidly increasing and young people (aged under 24) are the social group least likely to start a business (Schoof, 2006), while the workshops with indigenous and international entrepreneurs enabled the project team to develop themes that emerged from the 198 interviews in greater depth and to allow additional triangulation of responses with the extant literature and across the four countries taking part in the study. A key finding was that many of our immigrant entrepreneurs experienced a soft-skills shortfall that hindered their progress and impacted on their business development but that in some cases individuals developed their own model of entrepreneurial socialisation and that this supported them in becoming more effective at developing their business.

The follow-on study, Eliemental was concerned to explore is the relationship between barriers to enterprise, to establish if there was a soft-skills shortfall amongst various groups vulnerable to social exclusion and to co-develop enterprise education to address identified shortfalls. In developing the project it was important to have a robust definition of social exclusion; the definition we adopted included the important point that social exclusion was linked to unemployment or under employment; 'Groups that experience a higher risk of poverty and social exclusion than the general population. Ethnic minorities, migrants, disabled people, the homeless, those struggling with substance abuse, isolated elderly people and children all often face difficulties that can lead to further social exclusion, such as low levels of education and unemployment or underemployment' (di Nardo, Cortese and McAnaney, 2010).

The Eliemental project commenced with a baseline survey of 142 participants to explore further the key themes identified in the ELIE project. This enabled a measure of the social cognitive aspects of entrepreneurship (attitudes, social norms, self-efficacy, and intentions) to be developed. The questionnaire was based on work by Linan and Chen (2009), Linan (2008), and McGee et al. (2009). Using a five-point continuous scale self-assessment measures were taken of

- a) Soft skills, including the capacities, knowledge and skills needed to start and maintain an enterprise
- b) Resilience

- c) Attitudes towards entrepreneurship
- d) Self-efficacy to start a business
- e) Perceived social support for entrepreneurial activity
- f) Demographic characteristics, including age, gender, and education status.

**Table 1**

	<b>UK</b>	<b>Poland</b>	<b>Greece</b>	<b>Romania</b>	<b>Totals</b>
Number in Sample	53	34	25	30	142
Males	60	38	0	37	
Females	40	62	100	63	
Ethnic Origin White	92	94	100*	0	
BME origin	8	6	0	100**	
Higher Education	34	20	44	7	
Higher vocational education	0	0	32	40	
Level 2/3 Education	56	73	24	53	
Level 1 or no level stated	10	7	nil	***	
Previous enterprise experience	22	3	68	13	
Relative with enterprise experience	41	32	62	20	

\*The Greek team focused on older women

\*\*The Romanian team focused on Roma

\*\*\*In Romania there are no education level descriptors, so all school-based qualifications were included together.

Data from the questionnaires showed psycho-social correlates of entrepreneurship across the four countries varied slightly, but indicated strongly that confidence, problem solving and creativity were significant weaknesses amongst our target groups. The questionnaire data fed into targeted interview matrix with 40 participants from our target groups (older women out of the labour market, young people not in education, training or employment, minority ethnic groups and people with a long-term disability) participating in detailed interviews. Our sample included recovering substance users, ex-offenders, Roma, people with mental health problems and people with physical disabilities. We worked closely with our participants, who took part in our advisory panel and who actively participated as volunteer co-researchers. This was particularly important in establishing the lived experience of our target group and in enabling us to identify community places that could act as conduits for information about enterprise. This work was conducted alongside a study of the communities where our target groups lived which would enable the best routes for engaging with our hard-to-reach target groups. Working with community-based co-researchers from within our target groups enabled effective identification of community places that could become access points for information about enterprise and enterprise education for our target groups. Our co-researchers also each collected information from their family and friends about perceptions of enterprise and entrepreneurship. This was incorporated into the qualitative data analysis.

## 4. Analysis

We had an extremely rich data set, with interviews lasting around one hour. Interviews were conducted by the academic research team and alongside the interview matrix the interview team worked from written protocols to help ensure consistency of approach. We interviewed forty individuals across Poland, the UK, Greece and Romania. Aside from our Greek sample that comprised older women not currently in employment our sample included young people not in education, training or employment, minority ethnic women and men, male and female migrants from communities under-represented in SME start-ups, people with mental and physical health problems and recovering substance users. A breakdown of participant's

biographical details can be found in the appendices. Data from all partners strongly supported our initial ideas regarding likely social and cultural barriers to enterprise and employability but importantly also provided several previously overlooked areas (that linked back to our questionnaire findings) where soft-skills training could be tailored to assist in equipping those vulnerable to social exclusion with skills to support them into enterprise or employment.

Our qualitative data highlighted the extent of the soft-skills gap amongst our participants. Consistently, in all countries, we found people from our target groups experienced

- Low self- confidence
- Limited networking skills / restricted networks (family, people from very small geographic area)
- Socially constructed perceptions of enterprise that act as a barrier to considering it as an option
- Little adaptability and flexibility, set habits/set ways of approaching problems linking to weak future-planning abilities

The lack of confidence was both internal and also often socially imposed, with society having expectations or prejudices regarding people from within certain groups. Interviewees would highlight they had nothing to be proud of when asked a direct question, 'That's terrible, I can't think of anything' (UK4), or they would highlight their lack of expertise or experience as a reason for not being able to start up a business, this was even the case where people had a good idea for a business. Their perception that expertise was required clearly diminished their confidence in the idea. Socially imposed lack of confidence was evidenced through comments about social status, or the place where people lived. A migrant in Poland said he could not start a business because 'Polish don't take me seriously, only other Somali's', while a long-term unemployed man in the UK who lived on a very large and deprived social housing estate said, 'No one from round here is self-employed, they work on the side – everyone does if they can, going legit is risky' while a well-educated woman from the same estate, noted 'You need a job round here and there aren't jobs. It's difficult to get out for work [talking about working off the estate] when they see your address they won't employ you.'

There were noticeable and unsurprising difficulties for people coping with problematic life circumstances to sustain motivation or to develop personal ambition which in the past has been linked to theories such as 'learned helplessness' (Kane, 1987). However, the desire to work (or at least ambitions for a better life) was found in all cases but there were underlying problems that appeared overwhelming to the person living in the situation. Often people did not know how to achieve their ambition or if they did know they had no confidence.

Sometimes people only had a partial idea of what they should do to achieve their ambition, and were unable to set out the steps clearly (linking to poor future planning ability). Examples include such comments as, 'I came here (Poland) for a better life, I am determined to succeed but I need help to work out the systems.' It was noticeable that where challenges to achieving the ambition appear these seem insurmountable and there was an inability to break challenges into manageable chunks. The inability to set out a clear plan and follow it led to repeated failure which in turn leads to goals being abandoned (lack of resilience). 'My ambition would be a bit, what's the word? 'Pie- in- the- sky', 'I get disheartened' commented one UK interviewee.

A need for 'people skills' was identified by participants and by those working with our vulnerable groups (Links to interpersonal skills). Some of our participants were very confident and articulate but commented that this was only the case when they were in a familiar place and amongst people where they felt accepted, suggesting both lack of confidence and also poor social observation skills and lack of weak networks where they could develop these skills with a wide variety of acquaintances (Granovetter, 1973). Amongst some participants ability to collaborate is hindered by deficiency in spoken language skills (both Polish and UK) and also problems with spoken language amongst native speakers with

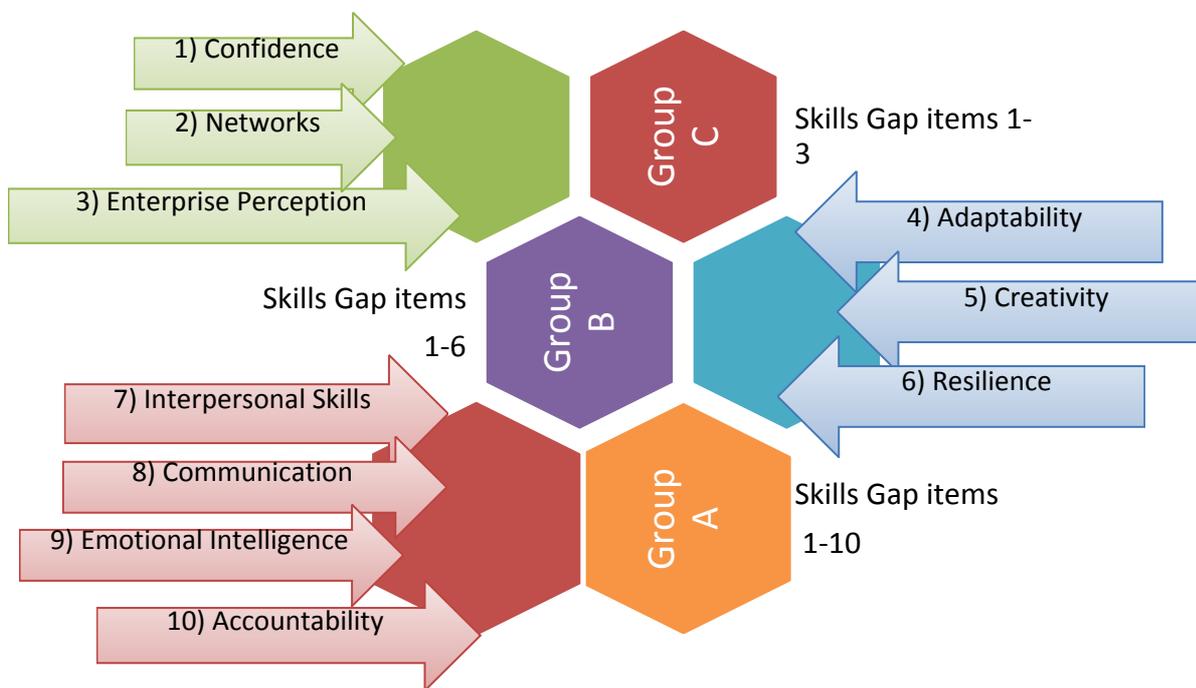
social communication disorders (such as Autistic Spectrum Disorders). The decline in funding for language learning amongst migrants is part of the problem here but this also links to networks and confidence. Similarly participants had limited critical observation skills which lack of ability at identifying obvious skills they possess made it difficult for them to identify opportunities in their local area and often unable to link their skills with local opportunities. For example interviewee with severe schizophrenia showed us his excellent maths and accounting skills, but did not identify this as a skill that could help him collaborate with someone in enterprise even though he regularly helped his landlady with her accounting. A key skill in business is negotiation (and to a lesser extent, conflict resolution), and again this was an area of weakness amongst interviewees. Significant numbers of our interviewees have experienced bullying, discrimination and victimisation of various sorts, linking to self-confidence being generally low amongst participants. Negotiation skills are particularly lacking amongst older women, ethnic minorities and those experiencing mental illness. Interestingly, a significant subset of participants had excellent adaptability and flexibility skills, these were amongst young participants and a number of our older women participants. 'I've moved about, lived in different places, left an abusive partner and started again, I always manage'. People were proud of being able to manage on very limited incomes, to cope with new circumstances as they arose.

## 5. The Soft Skills Gap Model

It was clear that given the identification of a significant soft skills gap conventional models of enterprise support such as that provided for newly-redundant individuals via government schemes, or training schemes for enterprise running in Higher or Further Education (such as enterprise boot camp) was not sufficient or suitable for our sample. We were able to further break our data down to identify ten critical soft skills that were missing or not well developed amongst our sample and correlate these with the interview and questionnaire data to establish three clear sub-groups of participants:

- a. **Group A** (almost 18% of our sample) have the highest level of soft skills shortfall and lowest capacity to move into either enterprise or employment over the medium to long term.
- b. **Group B** (the majority just over 62%) have moderate levels of soft-skills need and higher capability to move into supported enterprise or employment in the short to medium term with potential for minimally supported enterprise in the long term to ensure sustainability
- c. **Group C** (just under 20%) have some soft skills shortfall, which is hindering their ability to move into employability or training but would not need significant levels of long term support. A small group (mainly older women and younger migrants/BME groups, and found in all partner countries) who were often well-educated were best placed to be easily supported into enterprise.

Building on the data from our questionnaire we found that aspects of soft skills were lacking across all interviewees but that those in group C above were generally better equipped with a range of soft skills, while those in group A were generally those whose soft skills gap would prove a significant hindrance to employment or self-employment, with soft skills often only part of a more complex picture of mental and physical health needs that acted as a barrier to enterprise and employment.



The identification of a soft-skills gap in the research part of Eliemental is important as it enabled us to develop our learning materials to closely target the necessary skills. However, the needs of our target groups are very complex and wide-ranging. It is very important to realise that for many people in groups vulnerable to social exclusion while education can begin to support people into both enterprise and employment it is likely to be only the very first step on a pathway. Across all our groups of interviewees mentoring is an extremely popular idea, but conventional mentoring at the point of business start-up will not be useful, a more tailored approach is required which is longer term and may require several mentors (changing over time) for each individual

## 6. Community Access Points and Co-development of Learning Materials

Our research showed us that while there is an assumption of digital by default in the delivery of many services nowadays this was not in fact going to be an ideal or even suitable approach for many people from groups vulnerable to social exclusion. Often people do not have reliable internet access. Many of our participants relied on smart phone technology and on pay- as- you- go plans. If they had no credit they had no internet. Furthermore, they did not use the internet to help them access education or learning and had no real idea that it could be used as a resource for learning. We had conducted research amongst community access points used by our target groups with the initial plan of using these to promote our learning materials and tools but as the project progressed it became clear that these might also be a valuable tool in delivering education and support via mentoring.

Community Access Points (CAPS) are an idea based upon the work of Oldenburg (1989) on Great Good Places. We wanted to identify points in people's communities where they felt comfortable meeting others, stopping for a chat and learning about what was happening in their community. For many of our target group's traditional access points provided by local government are inaccessible, due to fear of authority or disinclination to engage with the services on offer, this meant libraries, community centres, colleges or second chance schools were not ideal CAPS for our target groups. We found that types of CAP varied

according to the group conducting the research. For older women in Greece a local bakery by the school their children attended was an ideal CAP, whereas for the recovering substance users in the UK a local market was identified as a CAP. One thing many CAPS had in common was access to food, although this was not a prerequisite as launderettes were also identified as a possible CAP, and so were betting shops, as a place where young males not in education, training or employment felt they could go without being judged.

## 7. Learning Resources Pilot

Our learning resources will eventually be available online, although we do not feel this is an ideal location for them. However, our pilot is currently underway in CAPS based in the four participating countries. We have also recruited and trained mentors who come, where possible, from the similar backgrounds to our target groups. Our learning materials focus on the ten soft skills identified by our research and are collaborative in their mode of delivery, allowing people to learn from each other as they learn from the materials. The types of assessment are also non-traditional and open, recognising that for some of our target group reading and writing are an issue and that therefore other methods of recording evidence of learning will be needed. We also recognise that people in groups vulnerable to social marginalisation are not necessarily poorly educated, and so our materials offer the potential for individuals to extend their learning through open-ended assignments. Our learning materials are ECVET (European Credit System for Vocational Education and Training) compliant, being based on level descriptors and with rigorous learning outcomes that fit with the level descriptors. This means they are transferable within the EU28. We had envisaged our learning materials being validated in participating countries in accordance with the ECVET but this is not possible at this stage because Greece and Romania have not yet incorporated ECVET principles into their education system and Poland is moving towards ECVET but has not yet finalised their system. Nevertheless, our pilot trainees will receive a recognised Level One certificate through our UK partners, Taemside College.

## 8. Conclusion

Enterprise could provide a route into employment for groups vulnerable to social exclusion. However, existing models of enterprise education are not suitable for many in this group. The soft-skills gap presents a challenge both in developing enterprise skills and also in improving employability for these social groups. Furthermore, almost 40% of participants with the greatest soft skills gap would not realistically be able to move into either enterprise or employment without significant levels of ongoing support over several years. This suggests that current UK government policy of moving people with mental health problems from disability benefits onto conditional unemployment benefits is unlikely to succeed in getting this group in particular into employment or enterprise as their needs are extremely complex. However, our work does highlight the potential of soft skills training, followed by more traditional enterprise education and mentoring to support a significant proportion of people from groups vulnerable to social exclusion into enterprise or employment.

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## Promoting Women Entrepreneurship – Towards an

# Inclusive Growth of India.

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**Entrepreneurship — setting up new businesses — can stimulate innovation and invigorate local markets. Entrepreneurs assemble resources including innovations, finance and business acumen in an effort to transform innovations into economic goods. Entrepreneurship is now widely recognized as a tool of economic development in India. Because of this recognition, congenial supportive environment has been created over the years for the women and thus more and more women entrepreneur are getting involved in business as well as in self employment activities. Though media sings hymns of stories of a very few successful female professionals or entrepreneurs, the reality is scary. Literacy rate among women continues to be very low. Despite several claims and policies about their emancipation, only 10% of the entrepreneurs are women. Women’s entrepreneurship needs to be studied separately for two main reasons. The first reason is that women’s entrepreneurship has been recognized during the last decade as an important untapped source of economic growth. The second reason is that the topic of women in entrepreneurship has been largely neglected both in society in general and in the social sciences. Not only have women lower participation rates in entrepreneurship than men but they also generally choose to start and manage firms in different industries than men tend to do. Women’s entrepreneurship is both about women’s position in society and the role of entrepreneurship in the same society. Women are faced with specific obstacles (such as family responsibilities) that have to be overcome in order to give them access to the same opportunities as men. Increased participation of women in the labour force is a prerequisite for improving the position of women in society and self-employed women. Even though, policies have been formulated to promote and encourage spirit of entrepreneurship among women, there is still lot more to be done in this direction.**

## **Keywords**

Entrepreneurship, Empowerment, Women development.

## **1. Introduction**

Women have always been passionate about work, right from the evolution of humans. However, they have mostly been ignored, and their contributions have been rarely acknowledged. Today, most of them regard themselves as humans first and females next. They have learnt to distinguish between financial independence and being in the shadow of someone else. Earlier, any work was regarded as a hobby or a pastime and any income as something extra. The global financial slowdown proved that many families were run by the income of women. The recession made the world wake upto the significance of women’s contribution to economy and households. However, there are many women who are associated with fields that are female-oriented. The recession showed that one of the major reasons for women not going jobless was that they were working in female-oriented fields. Women are now breaking the glass-ceiling in every area. They are preferred in communication, research, health care and the creative field. Thanks to the advent of

technology and the internet, the world without borders has become a boon to women who seek and give advice and support in every aspect of entrepreneurship.

While without a doubt the economic impact of women is substantial, women's entrepreneurship needs to be studied separately for two main reasons. The first reason is that women's entrepreneurship has been recognised during the last decade as an important untapped source of economic growth. Women entrepreneurs create new jobs for themselves and others and by being different also provide society with different solutions to management, organisation and business problems as well as to the exploitation of entrepreneurial opportunities. However, they still represent a minority of all entrepreneurs. Thus there exists a market failure discriminating against women's possibility to become entrepreneurs and their possibility to become successful entrepreneurs. This market failure needs to be addressed by policy makers so that the economic potential of this group can be fully utilised.

The second reason is that the topic of women in entrepreneurship has been largely neglected both in society in general and in the social sciences. Not only have women lower participation rate in entrepreneurship than men but they also generally choose to start and manage firms in different industries than men tend to do. The industries (primarily retail, education and other service industries) chosen by women are often or have until recently been perceived as being less important to economic development and growth than high-technology and manufacturing.

Economic growth is both a cause and an effect with respect to the nature and volume of women's entrepreneurship realised in an economy. Economic growth can be measured in a number of ways: job creation, change in GDP (per capita), innovation, economies of scale, level of education and capital accumulation. Women's entrepreneurship deals with both the situation of women in society and the role of entrepreneurship in that same society.

## **2. Supply and Demand Side of Women's Entrepreneurship**

The entrepreneurship literature as well as the literature on sex segregation can be classified into two schools: one examining the supply-side processes and the other examining the demand-side processes. The supply-side school focuses on the availability of suitable individuals to occupy entrepreneurial roles. That is, what are the processes by which men and women move differently into various activities associated with entrepreneurship? For example we know that women entrepreneurs tend to exploit opportunities in some specific industries such as education and health care rather than manufacturing. Behaviour is assumed to be intentional, but is limited by the demands made by society.

The demand-side school focuses on the number and nature of the entrepreneurial roles that can be filled. That is, the processes such as statistical discrimination, internal labour markets and the gendering of jobs that affects the kind of entrepreneurial opportunities which are offered to women in comparison to men. More specifically, the demand side can be developed as three major framework conditions to gender inequality: political and institutional framework, family policy and market sources.

Promoting entrepreneurship among women will require a reversal of the traditional attitudes than a mere creation of jobs. This does not mean that we should wait for societal change. It implies that women-oriented programmes should go beyond subsidies and credit allocation to attitudinal changes, group formation, training and other support services.

A major challenge for trained women is their initiation into independent professional work. Families routinely provide financial and emotional support to sons that they seldom extend to daughters. To encourage passive women entrepreneurs whose menfolk run businesses in the names of the former, and to actively involve women in their businesses, it is important to aim at covering all women who claim to run 'women's enterprises' in training programmes.

Association with women who are successfully managing enterprises might prompt at least some passive to get involved to a greater extent in enterprises to which they have lent their

name. The availability of finance and facilities like industrial sheds and land is often constrained by restrictions that have nothing to do with practical realities. Funding is often available for activities in which women are predominantly involved. State finance corporations and financing

institutions are not permitted by the statute to extend purely trade-related finance not linked to asset creation. Women's development corporations, however, are fully aware of the significant presence of women in this area, but they have only a catalytic role in financing. Shared cultural beliefs do not only channel individuals into particular careers based on what others believe, but also they lead individuals to self-select into occupational relevant activities. This implies that the gender-segregated labour force will be reproduced partially through the different and seemingly voluntary choices men and women make.

### **3. Motivation of Women Entrepreneurs**

Because women have different demands on them than men they also have different priorities and motivation when starting firms. Women still have the major responsibility for family and children, which means that they have fewer possibilities to be flexible with their day-to-day time management. Therefore they are more prone to start home-based businesses and they are more prone to start part-time businesses.

Women tend to self-select from self-employment because they do not perceive that they have the competence needed to start and manage firms, that entrepreneurship is often perceived and portrayed as a male occupation. The lack of perceived competence will also diminish the motivation of women as the perception of competence and motivation are closely related to each other. If they decide to start firms they will to a higher degree choose to start more part-time and home-based firms in order to balance professional responsibilities with family responsibilities. Saying this, it is also necessary to remember that individual women may well act differently, that is some women will always behave in a non-typical way, resembling men in their pattern of behaviour.

The demand-side school focuses on the number and nature of the entrepreneurial roles that can be filled. That is which are the processes such as statistical discrimination, internal labour markets and the gendering of jobs that affect the kind of entrepreneurial opportunities offered to women in comparison to men. More specifically, the demand side can be developed as three major framework conditions to gender inequality: political and institutional framework, family policy and market sources. Occupational closure creates a structural framework of gender inequality. By confining women's roles in economic development or by hindering access to occupations, governments indirectly discourage entrepreneurial behaviour.

The difference in training creates a deep-seated barrier for women to gain the needed experience and networks in many of the industries in which scientific and technological progress repeatedly create new entrepreneurial opportunities. Public government policies such as the European Commission's Equal Programme are aimed at diminishing this kind of gender inequality. This would hasten the development of increased numbers of women well-placed to recognise entrepreneurial opportunities as they evolve around technological innovations and developments. Actions targeted at eliminating gender inequality in the technological domain will probably have the strongest effect in developed economies as they have relied more on technological development as a motor for economic growth than economies in development or economies in transition.

Not having enough access to latest information also has adverse impact on women's entrepreneurial capabilities. If a person is not able to fully assess what is happening around her or him and that she or he need to rely on others for this, then this person runs an important risk of being exploited. This is unfortunately the case for many women entrepreneurs in developing economies, both in Africa and Asia. The combination of high levels of illiteracy and low social position exposes women to a high risk of exploitation and

violence. On a daily basis, women entrepreneurs are exploited because they are not able to protect their venture in any kind of effective way from others. One reason may be that they are still not able to own property and property is controlled by either their husband or another male family member. A closely related problem here is the informal sector, which in many developing economies is large and dominated by women. The informal sector is unregulated, highly competitive, based on low-level technology and small scale. Basically, illiterate women are pushed into this sector because they have no alternative. The only experience and education they have comes from their traditional role as a woman. As a result, when they go into business they find themselves involved in types of activities which are extensions of those roles. Many women work in bakeries, restaurants kiosks, poultry farming and simple textile and jewellery manufacturing. They enter the informal sector as unskilled because they lack education; and the usual lack of inputs such as credit, supplies, new technology and being outside a regulated market, in combination with a low social position, all lead to important negative effects on the probability of the firm to survive.

## **4. Obstacles to Women's Entrepreneurship**

Women in business are recent phenomenon in India. By and large they had to confine themselves to petty businesses and cottage industries. Women entrepreneurs turn to business due to push and pull factors. A sense of independent decision-making on life and career is the motivational factor behind this urge. According to a report of the United Nations Industrial Development Organisation (UNIDO), "despite evidence that women loan repayment rates are higher than men's, women still face more difficulties in obtaining credit," often due to discriminatory attitudes of banks and informal lending groups. But with special focus on women entrepreneurs through finance ministry and special financial cells, this gap is also reducing. The obstacles being generally faced by women entrepreneurs can be broadly categorized as discussed below:

### **4.1 Lack of Role Models in Entrepreneurship**

There exists a strong connection between the presence of role models and the emergence of entrepreneurs and women as they historically have not been present as entrepreneurs in general lack close role models. Role models are persons that by their attitudes, behaviours and actions establish the desirability and credibility of a choice (in this case becoming an entrepreneur) for an individual. Furthermore, the influence of role models is gender related. That is, an individual will be more influenced by another individual of the same sex, as one's aspirations and choices tend to be more influenced by persons of the same sex.

According to Bandura's Social Cognitive theory, role models create interest and critical experience. This basic argument has been adapted to career choice behaviour by Lent, Brown and Hackett (1994). The theory specifies that interests, academic and career choice options and performance and persistence in educational and occupational options are influenced by the person's self-efficacy and outcome expectations. Personal factors, learning experiences and contextual background have an effect on a person's self-efficacy. Self-efficacy is proposed as a mediating factor between the predicting factor and the criteria variable. In terms of self-employment, a person chooses to become self-employed because he or she feels confident in that area; this confidence leads to an interest in self-employment. The person's confidence is shaped by his/her contextual factors such as ethnicity, age, gender, support system and past learning experiences. Specifically, acculturation, family socio-economic background and family involvement influence self-efficacy.

Perceived self-efficacy has been proposed as a central concept in entrepreneurship because it is proximal in nature and has been proven to be associated with initiating and persisting in achievement-related behaviours such as business settings. Perceived self-efficacy has been found to be positively related to the intention of starting one's own business and exploring new opportunities.

Vicarious experience is the second best way of learning, after individually enacted mastery experiences. Vicarious experience affects self-efficacy because it enables the person to judge one's perceived capabilities in relation to the attainment of others. Working in a small firm enables a person to gain both mastery experience and vicarious experience. The mastery experience comes from learning and mastering the trade and the vicarious experience from observing the management of the small firm.

The greater the assumed similarities between the role model and the observer, the more persuasive are the role model's successes and failures. If people see the role models as very different from themselves, their perceived self-efficacy will not be heavily influenced by the model's behaviour and performance. Hence, parents (of the same gender) are persuasive as role models because the child can assume close similarity.

#### **4.2 Lack of Experience**

All stages in entrepreneurship are dependent on relevant experience, from the identification of opportunities to the execution of running a business. Human capital theory posits that individuals with more or higher quality human capital achieve higher performance in executing relevant tasks. Human capital refers here to the knowledge and skills that assist people in successfully discovering and exploiting opportunities.

Here, recent research on developed economies has identified a potential problem when it comes to women's entrepreneurship: highly educated women seem to choose other career options than self-employment and entrepreneurship. Entrepreneurship is therefore relatively more dominated by unskilled women or very skilled and already wealthy women. Skilled women must therefore become more attracted to entrepreneurship. If women are relatively less skilled than their male counterparts, *ceteris paribus*, then the firms they will create will have a lower probability of survival and growth than firms created by men.

#### **4.3 Lack of Relevant Networks and of Societal Position**

Individual's network provides the emotional support, social persuasion and vicarious experience, which are central to whether or not a person engages in entrepreneurship and does so successfully. The social network provides different useful resources for both the aspiring and practising entrepreneur in the form of instrumental and financial assistance; such as experience, know-how, encouragement, financing and idea generation.

Social network theory has as its objective to explain how status is attained in society or how social capital can be utilised to achieve personal goals. The process by which individuals mobilise and invest resources defines status attainment. There are two important types of resources here: (i) personal resources possessed by the individual which he or she is free to use and (ii) social resources, which are accessible through one's direct and indirect network ties. Together they form a person's social capital, i.e., the sum of resources accessible to a person directly through strong ties and indirectly through weak ties.

The theory stipulates that two processes determine the relationship between the status attainment of an individual (e.g. succeeding in becoming an entrepreneur) and his or her social resources. The first process focuses on the access to social capital. The individual's human capital (experience, education), initial position (parental status, prior jobs) and the individual's social ties (e.g. extent of ties) are supposed to determine the extent of the resource available to the individual through his or her network. The second process focuses on the mobilisation of the social capital in the process of status attainment, in this case becoming an entrepreneur; the use of social contacts and the resources provided by the network. The combination of access to social capital and the willingness to mobilise those resources will determine the status of the individual.

#### **4.4 Lack of Wealth**

A prerequisite for starting a firm is to have capital in terms of financial assets and in terms of relevant knowledge assets. Women's position in society has led to a lack of assets in both these aspects. The constraints of family obligations make it harder for women to take on work on a full time basis and to engage in a career. This in turn decreases the range of possible work opportunities for women, leading to jobs in lower paid sectors. Being a part-time worker with low pay is not a good basis for creating personal wealth.

Obviously, the perceived availability of capital to invest in a firm also determines what kind of opportunity the entrepreneur is ready to engage in. Entrepreneurs with lower amounts of financial resources will opt for a less capital intensive opportunity, whereas entrepreneurs with larger amounts of financial resources will opt for more capital intensive opportunities (which often have a higher growth potential). Hence, if women have less (or no) access to capital they will opt for opportunities with less growth potential.

#### ***4.5 Lack of adequate Financial Support***

Entrepreneurs usually require financial assistance of some kind to launch their ventures, be it formal bank loan or money from a savings account. Women in developing nations have little access to funds, due to the fact that they are concentrated in poor rural communities with few opportunities to borrow money. Women entrepreneurs suffer due to inadequate financial resources. They lack access to external funds, mainly due to their inability to provide tangible security. Very few women have tangible property – land or house – in hand. The changes will happen only when women are made the landowners through legislation. Till then micro-finance is the only available external source of finance for rural women.

#### ***4.6 Family Obligations***

Family obligations also bar women from becoming successful entrepreneurs. Having the primary responsibility for children, home and older dependent family members, and few women can devote their time and energy to their businesses. Financial institutions discourage women entrepreneurs in the belief that they can at any time leave their business and become housewives again. The result is that they are forced to rely on their own savings and loan from relatives and family friends. The new generation understands the importance of women entrepreneurs, and the new urban set of males do not mind sharing family responsibilities. Indian women are forced to lay more emphasis on family ties and relationships. Married women have to strike a balance between business and home. Moreover, their business success depends on the support the family members extend to women in the business process and management. The interest of the family members is a determinant factor in the realization of the business aspirations of women. Fortunately, though at smaller levels, families have started recognizing this and do support women. Therefore, many women actually start their ventures in their late thirties or forties when the house no longer needs her attention.

#### ***4.7 Gender Discrimination***

Another perception is that women entrepreneurs have low-level management skills. They have to depend on office staff and intermediaries to get things done, especially the marketing and sales aspects of the business. Here, there is more probability for business fallacies like the intermediaries taking a major portion of the profit. Marketing means mobility and confidence in dealing with external world, both of which women have been discouraged for developing by social conditioning. Even when they are otherwise in control of an enterprise, they often depend on male members of the family. The male-female competition is another factor, which causes hurdles for women entrepreneurs in the business management process. This is despite the fact that women entrepreneurs are good professionals. Women also lack the confidence to travel during day and night and to different regions and states.

## **4.8 Competing Demands on Time**

Another recurring obstacle for women to engage in entrepreneurship is the perceived lack of time or competing demands on time. Because women are responsible for so many different domestic chores and the raising of children, they do not have enough free time to develop either their entrepreneurial skills to become entrepreneurs or to develop an existing business. The lack of free time does not allow them time to travel to support institutions, banks and other finance houses for advice and information on credit, to attend training programmes to acquire skills, or to seek out better customers or suppliers.

From the above, it can be concluded that saddled with household chores and domestic responsibilities, women want to gain financial independence. The greatest deterrent to women entrepreneurs is that they are women. A kind of patriarchal male-dominant social order is the building block for them in their way to success in business. Male members think it is a big risk financing ventures by women. However, a slow change towards such an outlook is now happening across urban areas and established business houses. Many financial institutions are skeptical about the entrepreneurial abilities of women. Bankers consider women loanee as higher risk than men loanee and put unrealistic and unreasonable securities to issue loans to women entrepreneurs. A specific problem of women entrepreneurs seems to be their inability to achieve growth especially sales growth. Women often have a difficult time to assemble external resources, they start less ambitious firms that can be financed to a greater degree by their own available resources. As discussed hitherto, lack of motivation might be a contributing factor. Achievement motivation of the women has been found to be less compared to males. The lack of confidence leads to low levels of achievement and motivation among women to engage in business operations. This becomes even worse when there is opposition from all quarters. Also, basically, women because of having a greater day-to-day responsibility for the family have less time to invest in the development of their firms.

## **5. Conclusion**

The advice seems therefore to be that in developing economies, work needs to be focused on improving women's rights in society so they can start to access education, personal income and the possibility of controlling their own life. Work on creating better possibilities for women entrepreneurs and would-be entrepreneurs can also be engaged, but the major benefits will be achieved when equal opportunities apply to all sectors of the economy. Only then can variation be optimized. In other words, it is about changing the economy from push incentives to pull incentives to entrepreneurship. In transition economies and in developed economies, it is more a question of opening up yet another option for women in which they can invest. Work must here focus more on creating better possibilities for women entrepreneurs and would-be entrepreneurs. Hence, further work to increase the pull incentives to entrepreneurship for women. Eventually, everything depends on the education and exposure and the access to funding, guidance and support from the government. The new generation – especially the urban woman – is facing fewer such problems, thanks to the direct access to modern technology, changing world trends and family outlook.

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- 7 <http://www.womenentrepreneurship.org>
- 8 <http://www.oecd.org>
- 9 <http://www.entrepreneurs.about.com>
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- 11 <http://www.indiaedunews.net>
- 12 <http://www.awakeindia.org.in>
- 13 <http://www.wcd.nic.in>
- 14 <http://www.indiastat.com>
- 15 <http://www.india.vc/businessinformation>
- 16 <http://www.amazon.com/Maura-McAdam/e/B009AKHNFQ>

## **Running out of money, inadequate planning, electing wrong business partners... Understanding the main factors behind entrepreneurship failure**

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This article is motivated by a very simple question – “from their own point of view, why do entrepreneurs fail to succeed in business?” The growing interest in this topic arises due to the fact that, by understanding the causes and consequences of failure, entrepreneurs may enhance their ability to manage them, reduce their costs, capitalize their benefits, and even be able to avoid disaster. The participants self-reported a failure in a business and items were constructed based on a literature review and on interviews. A 41-item questionnaire was developed and applied to 814 participants. After results data were collected, validation was made with a factor analysis, supported with Kaiser-Meyer-Olkin Bartlett's Test (KMO), and Cronbach's Alpha. From the factorial analysis to a useful sample of size 814, eight categories of failure were extracted: business planning and management, marketing, product design and fabrication, suppliers, legal business environment, human resources, customers and industry competition; these factors explain 55.4% of the variance. Based on Learning Theory and Effectuation Theory an explanation of the findings is presented in the context of an emerging economy, such as Mexico.

## Keywords

Effectuation theory, Entrepreneurial failure, Factor analysis, Learning from failure, Learning theory.

## Abbreviations

- Average variance extracted (AVE)
- Comparative Fit Index (CFI)
- Confirmatory Factor Analysis (CFA)
- Exploratory Factor Analysis (EFA)
- Global Entrepreneurship Monitor [GEM]
- Instituto Nacional del Emprendedor [INADEM]
- Instituto Nacional de Estadística Geografía e Informática (INEGI)
- Kaiser-Meyer-Olkin (KMO)
- The Organization for Economic Co-Operation and Development (OECD)
- Root Mean Square Error of Approximation (RMSEA)

## 1. Introduction

“Success consists of going from failure to failure without loss of enthusiasm.” Winston Churchill

### 1.1 Introducing the concept of failure

Failure and entrepreneurship are natural siblings [ <sup>13</sup>]. Entrepreneurs act in environments of great risk and high uncertainty, and as a result, failure is a common occurrence. By understanding the causes and consequences of failures, entrepreneurs may become better able to manage them, reduce their costs and capitalize their benefits. Although, almost always, failure is a painful and damaging experience for entrepreneurs , it is a learning process due to the information and rich knowledge contained within this experience [ <sup>14</sup>]

<sup>13</sup> Mantere, S., Aula, P., Schildt, H., & Vaara, E. (2013). Narrative attributions of entrepreneurial failure. *Journal of Business Venturing*, 28(4), 459-473.

<sup>14</sup> Cardon, M. S., & McGrath, R. G. 1999. When the going gets tough...Toward a psychology of entrepreneurial

<sup>15</sup>].

According with a World Economic Forum report [ <sup>16</sup>], society plays a major role in promoting entrepreneurship among its citizens. Failing is part of the process of becoming an entrepreneur and it is important that they have the opportunity to experience both successes and failures – and to learn from both. Another research from Kauffman Foundation showed that the most important factors for entrepreneurial success are prior work experience, learning from successes and failures, management teams, and luck. The same research showed that 88 percent of the entrepreneurs said that learning from previous successes, and 78 percent said that learning from previous failures, played an important role in their present successes [<sup>17</sup>].

The value of entrepreneurship in regards to economic development, job creation, and innovation is well documented [ <sup>18</sup>]. Yet a significant proportion of new ventures fail [<sup>19</sup>]. According with Coelho and McClure [<sup>20</sup>], dynamic ecosystems depend on death to replace old or weak organisms with vigorous growth, because the termination of uneconomic ventures is essential to wealth creation. Numerous scholars have shown that business failure is good for the economy and society overall due to the release of knowledge and resources from dead businesses [<sup>21</sup>] [<sup>22</sup>], and business failure can lead to reduced costs for surviving businesses by learning [<sup>23</sup>].

The effects of business failure on the individual entrepreneur, however, are more complex. While failure may lead to a potentially valuable learning opportunity for the entrepreneur who founded the failed business [<sup>24</sup>], it may also be an emotional and traumatic experience [<sup>25</sup>] [<sup>26</sup>]

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failure and re-motivation. *Frontiers of Entrepreneurship Research*, Paul Reynolds (Ed.), Wellesley, MA: 58-72.

<sup>15</sup> Shepherd, D. A. 2003. Learning from business failure: Propositions about the grief recovery process for the self-employed. *Academy of Management Review*, 28: 318–329.

<sup>16</sup> Volkmann, C., Wilson, K., Mariotti, S., Rabuzzi, D., Vyakarnam, S., & Sepulveda, A. (2009). *Educating the Next Wave of Entrepreneurs. Unlocking entrepreneurial capabilities to meet the global challenges of the 21st Century*. World Economic Forum.

<sup>17</sup> Wadhwa, V., Aggarwal, R., Holly, K., & Salkever, A. (2009). *The Anatomy of an Entrepreneur. Making of a Successful Entrepreneur*. Kansas City: Kauffman Foundation.

<sup>18</sup> Lee, S.-H., Yamakawa, Y., Peng, M., & Barney, J. (2011). How do bankruptcy laws affect entrepreneurship development around. *Journal of Business Venturing*, 505–520.

<sup>19</sup> Wiklund, J., Baker, T., & Shepherd, D. (2010). The age-effect of financial indicators as buffers against the liability of newness. *Journal of Business Venturing*, 423-437.

<sup>20</sup> Coelho, P.R.P., McClure, J.E., 2005. Learning from failure. *Mid-American Journal of Business* 20 (1), 13–20.

<sup>21</sup> Hoetker, G., & Agarwal, R. (2007). Death hurts, but it isn't fatal: the postexit diffusion of Knowledge Created by Innovative Companies. *Academy of Management Journal*, 446-467.

<sup>22</sup> Knott, A., & Posen, H. (2005). Is Failure Good? *Strategic Management Journal*, 617–641.

<sup>26</sup> Shepherd, D. A. 2003. Learning from business failure: Propositions about the grief recovery process for the self-employed. *Academy of Management Review*, 28: 318–329.

that obstructs learning.

In defining failure, it is vital not to conflate failure with business closure [ <sup>27</sup>], which may involve the voluntary termination of a venture for reasons such as retirement or the pursuit of other activities, including more lucrative or interesting entrepreneurial ventures [ <sup>28</sup>]. For the purposes of this study, we define failure as *the termination of a business that has fallen short of its goals* [ <sup>29</sup>] [ <sup>30</sup>], *thereby failing to satisfy principal shareholder expectations* [ <sup>31</sup>].

According to Minniti, M., & Bygrave, W. [ <sup>32</sup>], by learning from past experience, entrepreneurs may even increase their probabilities of reaching success in subsequent business projects. Timmons [ <sup>33</sup>] argues that in order to be successful an entrepreneur has to fail first.

Emotional reactions to past experience and their consequences are also discussed by Ucbasaran, Westhead and Wright [ <sup>34</sup>]. These authors analyze the concept of over optimism, which is defined as “the tendency to believe that one is more likely than others to experience positive events and less likely to experience negative ones ”. The authors support the idea that this tendency can be extremely positive when bringing the projects to the start-up level. However excess of confidence can also lead to business negligence. In order to minimize this tendency among entrepreneurs to feel “unbeatable”, failures may be useful. Facing failures can mitigate this surplus of optimism and increase the odds of future success [ <sup>35</sup>].

## **1.2 The entrepreneurial life in Mexico**

Before heading on to fully understand the factors that explain failure it is important to analyze some important aspects of entrepreneurship. Through time we have learned that undertaking a new business is much more than seeking self-employment, it is about pursuing independence, self-realization, innovation, gaining respect from peers and promoting growth and development.

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<sup>27</sup> Headd, B. (2003). Redefining business success: Distinguishing between closure and failure. *Small Business Economics*, 21(1), 51-61.

<sup>28</sup> Stokes, D., Blackburn, R., 2002. Learning the hard way: the lessons of owner–managers who have closed their businesses. *Journal of Small Business and Enterprise Development* 9 (1), 17–27.

<sup>29</sup> McGrath, R. 1999. Falling forward: Real options reasoning and entrepreneurial failure. *Academy of Management Review*, 24: 13–30.

<sup>30</sup> Politis, D., Gabrielsson, J., 2009. Entrepreneurs' attitudes towards failure: an experiential learning approach. *International Journal of Entrepreneurial Behaviour and Research* 5 (4), 364–383.

<sup>31</sup> Beaver, G., Jennings, P.L., 1996. The abuse of entrepreneurial power—an explanation of management failure? *Strategic Change* 5 (3), 151–164.

<sup>32</sup> Minniti, M., & Bygrave, W. (2001). A dynamic model of entrepreneurial learning. *Entrepreneurship Theory and Practice*, 25(3), 5-16.

<sup>33</sup> Timmons J.A., (1994), *New Venture Creation: entrepreneurship for the 21st century*, Chicago, Irwin

<sup>34</sup> Ucbasaran, D., Westhead, P., & Wright, M. (2011). Why entrepreneurs don't learn from failure? *Harvard Business Review*, 26

<sup>35</sup> Ucbasaran, D., Westhead, P., & Wright, M. (2011). Why entrepreneurs don't learn from failure? *Harvard Business Review*, 26

The Organization for Economic Co-Operation and Development (OECD) defines entrepreneurship as: “the act of generating value through the identification and exploitation of new products, process and/or markets [ <sup>36</sup>]. This value can be generated by small, medium, big and recently created companies. Throughout the world there are many entrepreneurs, many of which are focused on self-employment. Amway, firm specialized in multilevel sales, partnered with the Technical University of Munich, and Gesellschaft fuer Konsumforschung Nuremberg, a leading international research company, to publish their Global Entrepreneurship report, in which more than 26,000 people from 24 different countries were surveyed. In the report, 70% of the people surveyed they have a positive attitude towards undertaking a new business and that 39% could see themselves as self-employed [ <sup>37</sup>].

In fact, recently, in both developed and developing countries, there has been an important expansion in increasing entrepreneurship as an alternative for job creation, especially for younger generations. On the other side, in 2013, the Global Entrepreneurship Monitor (GEM) reported that the growth rate of new entrepreneurs was 7.53%. GEM defines this rate as the percentage of population ages 18 to 64 that are involved in the creation or co-creation of a business without having to paying salaries in more than three months [ <sup>38</sup>].

New ventures are born every day all around, however there are almost as many failures. In Spain for example, 80% of new businesses fail within the first five years, in the US, companies have an average life of six years and 30% don't make it to their third year. In Latin America, the situation is similar, in Argentina only 7% of new ventures make it to their second year and in Chile, 25% disappear within the first year [ <sup>39</sup>].

In México, 75% of new companies close after two years of operations. If we concentrate the data in small and medium companies, Mexico's most numerous type of firms, between April 2009 and May 2012, for every 100 businesses, 22 closed and 28 began operations. This means that for every 100 firms, six new ventures are being born. In that same period, 1,135,089 firms were created within three major sectors: 30.7% for private non-financial services, 28.4% for commerce and finally 20.4% for manufacturing firms. On the closing side, 884,240 firms concluded operations in which commerce represented 22.9%, services 22.7% and manufacturing firms with 16.7% [ <sup>40</sup>].

Meanwhile, the previous mentioned Amway report, determined that from 24 countries that were studied, the average potential for entrepreneurship is 39%. After Colombia, Mexico is the second country with most potential for new ventures due to the fact that 56% of Mexicans imagine themselves beginning a new business (Colombia rounds up to 63%) % [ <sup>41</sup>]. Additionally, the 2014 Global Entrepreneurship Monitor [GEM] Report [ <sup>42</sup>], stressed that the fear of failure can be a strong inhibitor for seizing opportunities and transforming

<sup>36</sup> OCDE. (2010). The OECD Innovation Strategy: Getting a head start on tomorrow.

<sup>37</sup> Amway. (2013). *Amway Global Entrepreneurship Report 2013 Encouraging Entrepreneurs – Eliminating the Fear of Failure*. Extracted July 2014 from: [www.amwayentrepreneurshipreport.com](http://www.amwayentrepreneurshipreport.com)

<sup>38</sup> GEM (2013). Key Indicators. *Global Entrepreneurship Monitor*. Extracted July 2014 from <http://www.gemconsortium.org/key-indicators>

<sup>39</sup> Velázquez Valadez, G. (2008). ¿Las pequeñas y medianas empresas mexicanas requieren aplicar diagnósticos organizacionales?, *Mundo siglo XXI*, 13, 73–90.

<sup>40</sup> INEGI (2013). Análisis de la demografía de los establecimientos 2012. Resultados, 2013. Instituto Nacional de Estadística y Geografía. Extracted July 2014 from [www.inegi.org.mx](http://www.inegi.org.mx)

<sup>41</sup> Amway. (2013). *Amway Global Entrepreneurship Report 2013 Encouraging Entrepreneurs – Eliminating the Fear of Failure*. Extracted July 2014 from: [www.amwayentrepreneurshipreport.com](http://www.amwayentrepreneurshipreport.com)

<sup>42</sup> Singer, S., Amorós, J., & Moska, D. (2014). GEM 2014 Global Report. GEM Consortium

entrepreneurial intentions into entrepreneurial activity. By regions, the highest fear of failure was expressed by respondents in 2014 GEM European Union economies (40.7%). In the case of Mexico, the rate was of 29.6%, a low failure index. This implies that in Mexico, entrepreneurs are allowed to fail, recover from their failure, and get at least a second chance and often rebound.

In Mexico there has been recent efforts to promote a culture of entrepreneurship, the Mexican Government created in the beginning of 2013 the “Instituto Nacional del Emprendedor” (Translates to: The National Institute of Entrepreneurship). This institution works four specific areas: 1) promotes the obtainment of credits and capital; 2) promotes training to develop management abilities; 3) Supports access to technology; and 4) secures access to adequate information in terms of entrepreneurship [43]

Experiences of failure and the culture of accepting and embracing business disaster must open itself gradually. In this sense, research on failure becomes ever more relevant, especially when several interest movements have risen to fill the gap on failure learning. Particularly in México, the recently established *Institute of Failure*, our partner and inspiration in this research, founded the movement of F\*ckup Nights where entrepreneurs have share publicly business failure stories since 2012.

### **1.3 The path to understanding the main causes of failure in entrepreneurs**

In these F\*ckup Nights, thousands of entrepreneurs from almost 100 cities worldwide share in front of hundreds of people their individual story of failure. In each event, three to four entrepreneurs open their wounds and in 7 minutes each of them must tell the audience about their business and according to their own perception why did it fail. After each speaker, there's a question/answer session, as well as time for networking. Since its foundation in 2012, hundreds of entrepreneurs have shared their stories, resulting in an important “golden” vein for rigorous academic research to step in.

These networking nights in which stories are shared are useful for a variety of purposes. In management they are used to trigger memories, enforce call to actions, persuade, to induce emotions and even to entertain listeners when a point is being illustrated. It has been said that storytelling has become an essential component of an entrepreneur's toolkit [44]. Academics have also stated that organizations are made up of many stories [45]. It has been indicated by other authors that it is equally important at an organizational level to tell the stories of the villains and the reasons that successful leaders fail [46].

In spite of having several hundreds of stories, it was still difficult to share widely common knowledge in regards of what to avoid or manage in an orderly fashion. As explained later in the Research methodology section, we began by performing several in depth interviews, in which, just as in the F\*ckup Nights events, different entrepreneurs “blamed” several and dissimilar factors.

Some held responsible financial aspects:

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<sup>43</sup> Dosal C., Guitérrez C. I. & Saracho A. (s.f.). *¿Quiénes son los emprendedores innovadores mexicanos?* USAID, Fundación Idea.

<sup>44</sup> Martens, M. L., Jennings, J. E., & Jennings, P. D. (2007). Do the stories they tell get them the money they need? The role of entrepreneurial narratives in resource acquisition. *Academy of Management Journal*, 50(5), 1107-1132.

<sup>45</sup> Boje, D. M. (1995). Stories of the storytelling organization: A postmodern analysis of Disney as “Tamara-Land”. *Academy of Management journal*, 38(4), 997-1035.

<sup>46</sup> Ludwig, D. C., & Longenecker, C. O. (1993). The Bathsheba syndrome: The ethical failure of successful leaders. *Journal of Business Ethics*, 12(4), 265-273.

*“Cash flow was my problem. My operational costs consumed like wildfire all the initial investment”*

Others blamed it on not having objectives:

*“We lacked clear objectives, why and for what are we working for”*

Another interviewee stated that he was careless in his planning aspect

*“It was my first business, and even though I had absorbed a lot of knowledge from my college career and previous job, being responsible of your business is very different from being an employee. Nowadays I would pay more attention on elaborating a thorough business plan”*

In contrast, others stated they planned too much:

*“I think we invested too much time in planning. We never went to the market and confirmed if our beliefs and hypothesis were logical for the final consumer”*

A different interview resulted in poor management skills as being the main cause of failure:

*“This project failed due to poor financial planning and for not having a professional team according to the real needs of the project”.*

Another group indicated they had a lot problems with their business partners:

*“One of the founding partners suddenly lost interest in our business and he quitted, the burden he left on the rest of the partners was too heavy to carry and we all decided to quit.*

Others had problems in the marketing department:

*“We did not achieve the correct marketing mix, place, concept, costumers. We tried to work out a very wide concept that was very difficult to communicate”.*

A different group of entrepreneurs stated they had problems in the human resources department:

*“We had a lot of petty theft from dishonest employees”.*

Some others blamed their failure on external factors not controlled by them:

*“The economic crisis of 2008-2009 resulted in a heavy blow for the market to which my products were directed”*

In summary, many causes of failure popped up in the in depth interviews so logically a more quantitative approach was needed to pinpoint the main causes of failure in Mexican entrepreneurs and with it many questions arise: is it possible to find one main cause of failure? Is it only one reason or a group of problems? Where do entrepreneurs face more problems in finance or strategy? All these questions are addressed in our study but first it is important to understand the theoretical overview in which we analyzed the learning and effectuation theory.

## **2. Theoretical Overview**

### **2.1 The conceptual basis**

In this paper, as was described since the beginning, the research purpose is to know what are the main reasons related to failure from the entrepreneur´s perspective. In the case of our research, the same person is participant and judge, so we must be able to explore about the learning issues as attitudes connected with the phenomena as it is understood by him or her. Additionally, is clear that every entrepreneur is exposed to risk, and with failure like a possibility, new approaches are needed to explain the phenomena. In our case, we use Learning Theory and Effectuation Theory to build an explanation; as is described below.

### **2.2 Learning theory**

For entrepreneurial learning theory, discontinuous experiences during the entrepreneurial

process can stimulate distinctive forms of higher-level learning that are fundamental for entrepreneurs [ 47] [ 48]. Some kind of experiences can contribute substantially to the entrepreneur's knowledge [ 49], entrepreneurs learn by updating a subjective stock of knowledge accumulated on the basis of past experiences. Entrepreneurial learning is increasingly being proposed as a relational process [50] [51] [52], where the situation of practice determines what is understood by learning [53].

Within the field of entrepreneurship, some early conceptual work established the importance of failure as a learning experience [ 54]. Cardon and McGrath [ 55] explain that it is crucial to recognize failure as a “learning journey”. For them, learning from failure takes time and represents a dynamic sense-making process. Other researchers like Shepherd [56] [57] [58] [59] propose that in order to learn from failure, entrepreneurs must first overcome the loss of their venture and engage in distinctive processes of grief recovery. Gartner [ 60] recognizes that entrepreneurship involves a process of learning, particularly in terms of acquiring knowledge

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<sup>47</sup> Cope, J., 2003. Entrepreneurial learning and critical reflection: discontinuous events as triggers for higher-level learning. *Management Learning* 34 (4), 429–450.

<sup>48</sup> Deakins, D., Freel, M., 1998. Entrepreneurial learning and the growth process in SMEs. *The Learning Organisation* 5 (3), 144–155.

<sup>49</sup> Minniti, M., Bygrave, W., 2001. A dynamic model of entrepreneurial learning. *Entrepreneurship: Theory and Practice* 25 (3), 5–16.

<sup>50</sup> Hamilton, E., 2004. Socially situated entrepreneurial learning in family business. *Proceedings of the 27th National Small Firms Policy and Research Conference, Newcastle*. November.

<sup>51</sup> Pittaway, L., Rose, M., 2006. Learning and relationships in small firms: introduction to the special issue. *International Small Business Journal* 24 (3), 227–231.

<sup>52</sup> Thorpe, R., Gold, J., Holt, R., Clarke, J., 2006. Immaturity: the constraining of entrepreneurship. *International Small Business Journal* 24 (3), 232–252.

<sup>53</sup> Devins, D., Gold, J., 2002. Social constructionism: a theoretical framework to underpin support for the development of managers in SMEs? *Journal of Small Business and Enterprise Development* 9 (2), 111–119.

<sup>54</sup> Scott, M., Lewis, J., 1984. Re-thinking entrepreneurial failure. In: Lewis, J., Stanworth, J., Gibb, A. (Eds.), *Success and Failure in Small Business*. Gower, Hampshire

<sup>55</sup> Cardon, M., McGrath, R.G., 1999. When the going gets tough...Toward a psychology of entrepreneurial failure and re-motivation, paper presented at the *Frontiers of Entrepreneurship Research Conference*. Babson College.

<sup>56</sup> Shepherd, D.A., 2003. Learning from business failure: propositions of grief recovery for the self-employed. *Academy of Management Review* 28 (2), 318–328.

<sup>57</sup> Shepherd, D.A., 2009. Grief recovery from the loss of a family business: a multi- and meso-level study. *Journal of Business Venturing* 24 (1), 81–97.

<sup>58</sup> Shepherd, D.A., Wiklund, J., Haynie, M., 2009a. Moving forward: balancing the financial and emotional costs of business failure. *Journal of Business Venturing* 24 (2), 134–148.

<sup>59</sup> Shepherd, D.A., Covin, J.G., Kuratko, D.F., 2009b. Project failure from corporate entrepreneurship: managing the grief process. *Journal of Business Venturing* 24 (6), 588–600.

<sup>60</sup> Gartner, W. B. (1988), Who is an entrepreneur? Is the wrong question, *American Journal of Small Business*, 13(1), 11-32.

and skills. Politis [61] and Politis and Gabrielsson [62] have shown that habitual entrepreneurs are more likely to view failure as a source of learning with embedded lessons for improved performance in subsequent ventures. In the same sense, Zacharakis [63] explain that failure is invaluable in understanding alternative and more effective ways of acting in the future. Additionally, Shepherd [64] has established the emotionality of failure but in relative isolation from the wider social context in which entrepreneurs are naturally embedded [65]. For other researchers, failure acts as a “stepping stone” to spot new opportunities and improve business processes [66], increasing the probabilities of future success, especially if failure is used by entrepreneur as an instrument to learn what works [67].

Unfortunately, learning from failure is not automatic or instantaneous [68], and significant psychological and emotional barriers can accompany a failure experience. These barriers can be self-imposed due to associated pain [69]. Additional barriers are socially situated and relate primarily to fears of stigmatization [70] [71].

Some researchers argue that in comprehending how entrepreneurs learn, there is a widely endorsed view that entrepreneurs are action-oriented and much of their learning is experientially based [72]. Several theorists have emphasized that entrepreneurs learn primarily through “learning by doing” [73] [74], including learning processes as trial and error,

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<sup>61</sup> Politis, D., 2008. Does prior start-up experience matter for entrepreneur's learning? A comparison between novice and habitual entrepreneurs. *Journal of Small Business and Enterprise Development* 15 (3), 472–489.

<sup>62</sup> Politis, D., Gabrielsson, J., 2009. Entrepreneurs' attitudes towards failure: an experiential learning approach. *International Journal of Entrepreneurial Behaviour and Research* 5 (4), 364–383.

<sup>63</sup> Zacharakis, A.L., Meyer, G., DeCastro, J., 1999. Differing perceptions of new venture failure: a matched exploratory study of venture capitalists and entrepreneurs. *Journal of Small Business Management* 37 (3), 1–14.

<sup>64</sup> Shepherd, D.A., 2003. Learning from business failure: propositions of grief recovery for the self-employed. *Academy of Management Review* 28 (2), 318–328.

<sup>65</sup> Aldrich, H.E., Cliff, J.E., 2003. The pervasive effects of family on entrepreneurship: toward a family embeddedness perspective. *Journal of Business Venturing* 18 (5), 573–596.

<sup>66</sup> Gupta, A., 2005. Is failure so bad? *Mid-American Journal of Business* 20 (1), 3–4.

<sup>67</sup> Sarasvathy, S., Menon, A., 2002. Failing firms and successful entrepreneurs: serial entrepreneurship as a temporal portfolio. *Darden Business School Working Paper*, 4–5.

<sup>68</sup> Wilkinson, A., Mellahi, K., 2005. Organizational failure: introduction to the special issue. *Long Range Planning* 38 (3), 233–238.

<sup>69</sup> Cardon, M., McGrath, R.G., 1999. When the going gets tough...Toward a psychology of entrepreneurial failure and re-motivation, paper presented at the *Frontiers of Entrepreneurship Research Conference*. Babson College.

<sup>70</sup> Cannon, M.D., Edmondson, A.M., 2005. Failing to learn and learning to fail (intelligently): how great organizations put failure to work to innovate and improve. *Long Range Planning* 38 (2), 299–319.

<sup>71</sup> Savitsky, K., Epley, N., Gilovich, T., 2001. Do others judge us as harshly as we think? Overestimating the impact of our failures, shortcomings and mishaps. *Journal of Personality and Social Psychology* 81 (1), 44–56.

<sup>72</sup> Rae, D. and Carswell, M. (2001), Towards a conceptual understanding of entrepreneurial learning, *Journal of Small Business and Enterprise Development*, 8(2), 150-158.

<sup>73</sup> Cope, J., Watts, G., 2000. Learning by doing: an exploration of experience, critical incidents and reflection in entrepreneurial learning. *International Journal of Entrepreneurial Behaviour and Research* 6 (3), 104–124.

explicit problem solving and discovery [<sup>75</sup>] [<sup>76</sup>].

For Shepherd [<sup>77</sup>], the process and content of learning from failure has not been clearly described. And Cope [<sup>78</sup>], establish that further research is required to understand what the reasons of failure are, what stages are involved and what obstacles exists from a learning perspective. There is a need for re-focusing research away from the emphasis on picking successful entrepreneurs or picking winners, to identifying key issues in the learning and developmental process of entrepreneurship' [<sup>79</sup>].

### **2.3 Effectuation theory**

The "rudimentary theory of effectuation" has been described by Sarasvathy [<sup>80</sup>] as a special theory that explain the creation of new firms, but it could also be used to explain either related phenomena or unrelated ones. Sarasvathy's effectuation "theory" differentiates between two different types of decision making modes that entrepreneurs can choose at the early stages of a start-up, effectual and causal. The former is characterized when someone has the intentions to produce a particular effect (goal or objective), the goal is given, and choose between the different available means to obtain that effect which is wanted. On the other hand, effectuation processes occur when someone dispose of certain means (entrepreneur's given resources), hence means are given, and the individual must focus on choosing between creating alternative effects/outcomes (such as, products or services) with the means that dispose in the present.

In order to have a better understanding of the differences between the two processes, it is possible to imagine a hypothetical situation which we based on one given by Sarasvathy [<sup>81</sup>]. This example it is not just illustrated the differences between the effectual and causal processes, but also how failure can surge from any of them.

Imagine a chef, assigned with the task of making dinner for a customer. The task could be organized in two ways. In the first case, the exemplification of causation, the client select a specific dish and ask the chef to follow a specific recipe. All the chef has to do is select the ingredients that he will need to prepare the plate, get the ingredients, follow the instructions and then actually cook the dish. In this case of causation, the process begun with a given objective (making a specific dinner), and the process main objective is to find out the way to

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<sup>74</sup> Smilor, R. W. (1997). Entrepreneurship: Reflections on a subversive activity. *Journal of Business Venturing*, 12, 341–346.

<sup>75</sup> Deakins, D., Freel, M., 1998. Entrepreneurial learning and the growth process in SMEs. *The Learning Organisation* 5 (3), 144–155.

<sup>76</sup> Young, J.E., Sexton, D.L., 1997. Entrepreneurial learning: a conceptual framework. *Journal of Enterprising Culture* 5 (3), 223–248.

<sup>77</sup> Shepherd, D.A., 2003. Learning from business failure: propositions of grief recovery for the self-employed. *Academy of Management Review* 28 (2), 318–328.

<sup>78</sup> Cope, J., Watts, G., 2000. Learning by doing: an exploration of experience, critical incidents and reflection in entrepreneurial learning. *International Journal of Entrepreneurial Behaviour and Research* 6 (3), 104–124.

<sup>79</sup> Deakins, D. (1996), *Entrepreneurship and Small Firms*, Maidenhead: McGraw-Hill.

<sup>80</sup> Sarasvathy, S. D. (2001). Causation and effectuation: Toward a theoretical shift from economic inevitability to entrepreneurial contingency. *Academy of management Review*, 26(2), 243-263.

<sup>81</sup> Sarasvathy, S. D. (2001). Causation and effectuation: Toward a theoretical shift from economic inevitability to entrepreneurial contingency. *Academy of management Review*, 26(2), 243-263.

obtain that specific given goal.

In the second case, the client arrives at the restaurant and has no idea what he wants to eat, but tells the chef that whatever he makes has to be made with the combination of certain specific ingredients recommended by a nutritionist and a doctor, since he has many allergies to most of the other typical ingredients. He then, asks the chef to prepare something tasty with the ingredients he gives and not from any other ingredients. In this case, the chef has to imagine the best way to use the given items and be able to make a fine dinner and dessert with them. Once the chef has the idea of how to combine the ingredients to prepare the meal taking into account the available means, all the chef has to do is to prepare them. This is an exemplification of effectuation, it begins with a given means and then the individual focuses on building one of many different alternatives.

Following Sarasvathy's reasoning [ 82], in each example of our hypothetical case the "generalized end goal or aspiration remains the same both in causation and effectuation"; this is that in both situations the goal of the chef was preparing a delicious dinner and dessert, the great difference in both of the cases was the set of choices, "choosing between means to create a particular effect, versus choosing between many possible effects using a particular set of means"[83].

The important point to highlight here is that regardless of the entrepreneurs' decision to follow either an effectual or causal process, both alternatives can result in a failure of achieving the desired objectives. For instance, in the causation mode, the chef could simply not be able to make a complex recipe, or not being able to get all the ingredients in a good state, and as a consequence not being able to make a decent dinner for his client. So even when he knew what the customer demanded and was willing to pay a price which implied a huge profit for the chef, he was simply not able to follow the instructions correctly or get the right ingredients. In the case of the effectuation mode, the chef could simply ordered the finest ingredients available in the area, but the end result might be not tasty for his client. In either case, the chef could failed, in both cases the chef could also learned from his failure, and if the customer gives a second chance, prepare a satisfactory dinner eventually.

To conclude our description of the effectual process, it is important to mention which are the four basic principles that according to Sarasvathy [ 84] characterizes such processes in comparison to causal ones.

1. The first principle is that of "affordable loss rather than expected returns". Contrary to the focus of causal models where profit maximization is crucial in deciding the optimal strategy, in the effectual model the entrepreneur predetermine the level of risk or the amount of loss he is willing to take, and then focuses on experimenting with alternate strategies or alternate effects with the given available means.
2. The second principle is that of strategic alliances rather than competitive analyses".
3. The third principle is that of "exploitation of contingencies rather than exploitation of preexisting knowledge.
4. The fourth principle is that of "controlling an unpredictable future rather than predicting an uncertain one".

In causation the ability to predict the future is essential to control it and to obtain financial

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<sup>82</sup> Sarasvathy, S. D. (2001). Causation and effectuation: Toward a theoretical shift from economic inevitability to entrepreneurial contingency. *Academy of management Review*, 26(2), 243-263.

<sup>83</sup> Sarasvathy, S. D. (2001). Causation and effectuation: Toward a theoretical shift from economic inevitability to entrepreneurial contingency. *Academy of management Review*, 26(2), 243-263.

<sup>84</sup> Sarasvathy, S. D. (2001). Causation and effectuation: Toward a theoretical shift from economic inevitability to entrepreneurial contingency. *Academy of management Review*, 26(2), 243-263.

profits. On the other hand, effectual process focus on the aspects that are controllable of the unforeseen future. From this perspective, the key aspect for business success is related to the ability of controlling and being able to shape the future, hence prediction of the futures become irrelevant.

## **2.4 Learning theory and Effectuation theory and their relationship to entrepreneurs**

In summary, the learning and effectuation paradigms are related to entrepreneurs' failures in a way that failure from learning can occur at effectual or causal process. Perhaps the best way to define the state of failure is as a state where success has not yet been achieved. Failure, and the learning it produces is just a specific and special stage of causal and effectual modes of decision making and of the whole entrepreneurship process. The only way of not failing is just by not doing anything, hence entrepreneurship is the act of trying to accomplish something, and consequently it must be accepted that failure is part of the process, but what entrepreneurs must understand is that failure is a natural stage between setting the objective and achieving it, and that when failure is presented it must be seen as an opportunity to learn how success is not achieved.

By combining the learning and effectuation theory we made an interesting inquiry: which type of decision making mode is more related with learning from failure, causal or effectual one? According to our analysis, effectual decision makers should be more apt to learn from failure than causal entrepreneurs. We make this assumption because the whole effectual process is more related with the entrepreneur considering the possibility of temporal failure as an alternative of success.

There are two main specific reasons of why we think about this characteristic of effectual entrepreneurs. One is Sarasvathy's <sup>[85]</sup> first principle, "affordable loss rather than expected returns". From the very beginning, effectual entrepreneurs consider a level of acceptable failure, this very reason is the principal one of why we think that effectual entrepreneurs are better in facing and learning from failure. Second, Sarasvathy's <sup>[86]</sup> fourth principle, "controlling an unpredictable future rather than predicting an uncertain one"; we assume that by attempting to control the future, effectual entrepreneurs understand that it is impossible to control everything, so again, failure of controlling must be assumed by the individual. On contrast, causal entrepreneurs can think that if they don't predict the market correctly, then they will fail.

If that was to be confirmed by future studies that effectual entrepreneurs are more prone to learn from failure than causal ones, it will imply an important advantage and characteristic of the effectual decision making process, and something that can also be of advantage for the entrepreneurs.

## **3. Research Methodology – the instrument design and validation**

The purpose of this section is to describe the methodology we followed to create and validate an instrument for measuring entrepreneurship failure. In order to create a useful instrument we divided the process into two sections: development of the instrument and validation. The research has taken Churchill <sup>[87]</sup> and De Vellis <sup>[88]</sup> as a base to develop the

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<sup>85</sup> Sarasvathy, S. D. (2001). Causation and effectuation: Toward a theoretical shift from economic inevitability to entrepreneurial contingency. *Academy of management Review*, 26(2), 243-263.

<sup>86</sup> Sarasvathy, S. D. (2001). Causation and effectuation: Toward a theoretical shift from economic inevitability to entrepreneurial contingency. *Academy of management Review*, 26(2), 243-263.

causes of start-up failure measurement scale. We also employed in-depth interviews [ <sup>89</sup>] and structural equation modeling [ <sup>90</sup>] in order to generate and validate the constructed instrument. Each of the two phases is described in depth in the following paragraphs, in addition we present a description of the instrument.

### **3.1 Development of the instrument**

We followed the Clark and Watson`s [ <sup>91</sup>] methodology to develop a scale. This methodology consists in three steps: conceptualization, literature review, and creation of an item pool. We mixed, in a concomitant way, the steps of conceptualization and literature review. For the conceptualization step we performed in-depth interviews. The literature review was referent to business failure and entrepreneur failure which has been already described in a previous section of this paper. And finally, we created the item pool.

In the development phase of this study, nine in-depth interviews took place [ <sup>92</sup>]. The main objective of this phase was to enrich the pool of items for entrepreneurial failure dimensions that were previously taken from the literature. As well as revising the items contained in each dimension, and to explore the possibility of the existence of new dimensions that were not previously considered. The in-depth interviews were applied to entrepreneurs who have had at least one failure experience (failure was defined as the ceasing of operations of a start-up); the interview focused on the unsuccessful star-up experience of each of the interviewed. The duration of the interviews was of approximately 30 minutes and took place at a neutral environment.

The types of failed start-ups were three from the food industry, two from the software development industry, three from commerce, and one from telecommunications. The interviews were semi structured and identify different aspects related to the failure start-up experience, (such as the entrepreneur personality, entrepreneurs source of finance, etc ...) but the main focus of the interview were the types of common errors in the start-up operation that largely caused the venture to fail.

After the steps of conceptualization and literature review, we developed an item pool. In the beginning of this stage we had a total of 25 items from the literature review and from the result of conducting the in-depth interviews we ended with 41 items. The 41 items were divided into 7 categories: finance, administration, marketing, technical aspects, human resources, external environment and others.

The next phase of the instrument development was to look the face and expert content validity for the overall dimensions and the specific items. Just as performed by Hawkins, Swanson, Kremer, & Fogg [ <sup>93</sup>], an expert panel was used to perform face validity with them, although we were able to consult five instead of six experts, as suggested by the literature.

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<sup>87</sup> Churchill, G.A. (1979a), "A paradigm for developing better measures of marketing constructs", Journal of Marketing Research, Vol. 16 No. 1, pp. 64-73.

<sup>88</sup> De Vellis, R.F. (1991), Scale Development: Theory and Applications, Sage Publications, Newbury Park, CA.

<sup>89</sup> Guion, L. A., Diehl, D. C., & McDonald, D. (2011). Conducting an in-depth interview.

<sup>90</sup> Ullman, J. B., & Bentler, P. M. (2003). Structural equation modeling. John Wiley & Sons, Inc..

<sup>91</sup> Clark, L. A., & Watson, D. (1995). Constructing validity: Basic issues in objective scale development. Psychological assessment, 7(3), 309.

<sup>92</sup> Johnson, J. M. (2002). In-depth interviewing. Handbook of interview research: Context and method, 103-119.

<sup>93</sup> Hawkins, R. J., Swanson, B., Kremer, M. J., & Fogg, L. (2014). Content Validity Testing of industry, Institute of Work, Health and Organisations, Nottingham, U.K

Therefore, we performed an expert face validity instead of an expert content validity due to practical and time constrains issues.

The expert panel was the one that evaluate the content validity of our instrument until this stage. The experts we consulted were academics, consultants and practitioners that have had much experience somehow in the area of entrepreneurship and business management. Based on the suggestions made by the literature review, the in-depth interviews, and the panel of experts our final instrument for this stage consists of a total of 41 questions that are intended to measure the main causes of start-up failure. The next section deals with the stage of the instrument's development process.

### **3.2. The instrument**

As we previously explained, the final instrument consisted in a 41 Likert- type scale survey, the target audience were entrepreneurs who had failed at least in one business. Demographics such as gender, age, industry type and education were also collected. The instrument was written and distributed in Spanish and was applied only to entrepreneurs who have done business in Mexico. The responses were collected through Qualtrics online platform. More than 1800 respondents started the survey but, after dismissing the uncompleted surveys, the final and useful sample consisted in 814 responses.

### **3.3 Factor Analysis**

To validate the instrument we used Exploratory (EFA) and Confirmatory Factor Analysis (CFA). Before performing the confirmatory (CFA) and exploratory (EFA) factor analysis, we calculated the KMO and Bartlett's Test. This test indicates the suitability of the data for structure detection, which, for our sample, is high (92.2 percent) and statistical significant (at 1%, 5% and 10 % level). The test confirms that the usage of factor analysis is suitable for our sample.

First we performed an exploratory (EFA) factor analysis. The purpose of the EFA is to determine (but not to confirm) the main categories that contribute the most to explained variance. The total number of factors resulted after applying the EFA to our database are nine. We used principal component analysis, with varimax rotation to perform the factorial analysis. The percentage of explained variance by these nine factors was 55.4%. The resulting 9 factors contain 37 of the 41 original variables. To reduce the sample into nine factors we rely on three statistical criteria (Hair, Babin, Anderson and Tatham, 2006): eigenvalues values higher than one, scree plot, and percentage of cumulative variance.

As we explained before, in the earliest stage of the research we divided the items into 7 categories of entrepreneurial failure: finance, administration, marketing, technical aspects, human resources external environment and others. But from the EFA we did not obtained seven, but nine factors. Each of the nine factor are related to certain items. Table 1 contains the explained variance of each factors, the number of items related to the factors and the Cronbach's alpha. An item is related to a factor only if its loading value is superior to .45.

Because according to Comrey and Lee [ <sup>94</sup>], loadings of .71 or higher can be considered "excellent", .63 is "very good", .55 is "good", .45 is "fair", and .32 is "poor". We named those factors after the items' characteristics related to each factor. Those nine factors are: business planning and management, marketing, product design and price, external leverage and financing, business environment, human resources, customers, industry competition and

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<sup>94</sup> Comrey, A. L., & Lee, H. B. (1992). A first course in factor analysis (2nd ed.). Hillsdale, NJ: Lawrence Erlbaum Associates.

governance. The nine factors describe new and different characteristics dissimilar from original 7 categories, but we further analyze this characteristics in the discussion section.

In order to determine the reliability of each of the nine factors analysis, we calculate Cronbach's alpha. Commonly, researchers establish (as a rule of thumb) that Cronbach's alpha values higher than .7, have good consistency [ 95] [96]. In our calculations, four factors report Cronbach's alpha superior to .7; the rest of them (Business environment, Human Resources, Customers, Industry competition and Governance) reported Cronbach's alpha values higher than .5, which remains in the boundaries of acceptable consistency. Table 1 also resumes the Cronbach's alpha of each of the nine factors.

**Table 1:** Factors` name, Cronbach`s alpha, number of item and percentage of explained variance

Factor	Name	Number of items	Eigenvalue	Percentage of Variance	Cumulative %	Cronbach`s alpha
1	Business planning and management	10	9.489107002	23.1441634	23.1441634	0.855306025
2	Marketing	4	3.56432209	8.69346851	31.8376319	0.792496455
3	Product design	5	2.280957398	5.56331073	37.4009427	0.735583917
4	Suppliers	3	1.67295264	4.08037229	41.481315	0.706681149
5	Business environment	5	1.39483364	3.40203327	44.8833482	0.693102232
6	Human Resources	4	1.149694209	2.80413222	47.6874804	0.680627715
7	Customers	3	1.127325924	2.74957542	50.4370559	0.595549049
8	Industry competition	2	1.038565843	2.53308742	52.9701433	0.632822414
9	Governance	3	1.000000	2.43875129	55.4088946	0.545993351

As we previously mentioned, the purpose of the EFA is to detect the categories that explain the most the variance of the data. On another hand, the main purpose of the CFA is to "confirm" by the use of statistical techniques the results obtained by exploratory techniques of dimension reduction (EFA). We used Amos software package to implement a confirmatory factor analysis. First we tested the model obtained from EFA, this model captures the relations between the items and each of the dimensions given by the EFA, and it is also able to relate each of the dimensions (or factors) obtained from EFA.

After we establish the model (obtained from EFA), we run the model on the statistical software AMOS. From the software calculation output, we were able to confirm and validate the model. We relied on the fit of the model criterions to find the best model. We then, describe the convergent and discriminant validity to confirm the final model. The final calculations results in a confirmation of eight of the nine, previously propose, factors (before identified). After validation we lost the last factor: governance. We also lose a total of 9 variables in order to achieve superiority in the model. The final model has 8 factors explained by 26 variables.

To evaluate the fit of the model, we performed the chi-squared fit test and calculated various fit indexes. It is important to highlight that the fit indexes were used as a reference for achieving the best model: we chose the model that, based on the calculations, showed the best fit indexes. The Chi-test provides the fit of the model, which for our model and data is statistically significant at 5%. Although there are different options to test the model fit, scholars recommend reporting the RMSEA, the CFI, and the SRMR [ 97] (Kline, 2011). A value of about 0.08 or less for the RMSEA would indicate a reasonable error of

<sup>95</sup> Peterson, R. A. (1994). A meta-analysis of Cronbach's coefficient alpha. *Journal of consumer research*, 381-391.

<sup>96</sup> Kline, R. B. (2011). *Principles and practice of structural equation modeling*. Guilford press

approximation, the value of RMSEA of our model is .048. Chi-squared of degrees of freedom ratios in the range of 2 to 1 or 3 to 1 are indicative of an acceptable fit between the hypothetical model and the sample data. The Chi-square we obtained is 2.8. And finally, CFI values close to 1 indicate a very good fit. We report a CFI value of .92.

Now we explain the convergent and discriminant validity of the instrument. The convergent validity was checked by three criteria: the loading validity, the AVE, and the construct reliability. According to the loading validity criterion the loading estimates should be .5 or higher, ideally .7. In relation to this criterion we found that all of the 26 final items were higher than .5. The second criterion, the AVE, should be calculated as average of squared sums of loadings and in order to indicate convergent validity should not be greater than .5. None of our 8 factors show values of Ave superior than .5. The last criteria is the construct reliability (should be .7 or higher, and between .6 and .7 is acceptable). All of the dimensions had a construct reliability measure greater than .7. So, 2 of the 3 criteria of convergent validity were checked. In regards to discriminant validity we employed a criteria that the smallest AVE value between two constructs should be greater than the estimated correlation squared and the chi-squared criterion. Employing the first criterion we found that from the twenty-eight combinations of pairs possible between the eight dimensions there are only eight combinations that do not fulfill the test and criteria established, which remains as acceptable.

## 4. Findings and discussion

This section resumes the findings, and is divided into two discussion subsections: descriptive statistics and instrument. First, we describe and analyze the basic descriptive statistics. And then, we discuss the results from the Exploratory Factor Analysis and the Confirmatory Factor Analysis (CFA).

### 4.1 Descriptive statistics

As we previously stated, in addition of the survey questions we collected demographic data. The demographic questions in the survey are presented in the following lines. What was your age (when you started failed the business venture)? Which college degree did you have (when you started the failed business venture)? What was your marital status (when you started the failed business venture)? In which state you started the failed business venture? Maximum number of employees. What was the peak of annual sales of your failed business? Where did the initial funding for your fail business come from? And To what industry your failed business belong to? Table 2 shows the main results of the demographic data.

**Table 2:** Summary of demographics in the survey

Findings		
Age	32.30 % of respondents reported ages between 23 to 30	And 26.28 % of respondents reported their age 31 to 40
College Degree	20.51 % of respondents reported unfinished College degree	35.99 % of respondents reported to have College degree
Marital status	4.8 % of respondents reported to be divorced	44.6 % of respondents reported to be married
State (just for Mexico)	28.5 % of respondents reported to established their failed business in Mexico City	Another 11.9 % of the respondents reported to had a business nearby Mexico City area

<sup>97</sup> Kline, R. B. (2011). Principles and practice of structural equation modeling. Guilford press.

Maximum number of employees	38 % of respondents reported to had a business with 1 to 3 employees	29.6 % of respondents reported to had a business with 4-10 employees
The peak annual sales of your failed business	55.2 % of respondents reported sales below 500,000 pesos	11.2 % of respondents reported sales between 500,000 and 1,000,000 pesos (At the time the survey was distributed the rate was about 13 Mexican pesos per one us dollar)
Initial funding	52.3 % of respondents said that they provided the founding for their own business	17.6 % of respondents said that their family and friends provided the founding for the business
Industry	58.1 % of respondents reported "Services" as the main industry of their business	22.5 % of respondents reported "Services" as the main industry of their business

The basic statistics showed that out of the respondents that report a failure, most of them are male, single and young entrepreneurs that established a small service-business and at some time in their life they enrolled or graduated from college.

We also calculated some basic statistics for the total Likert-type questions in the survey. According to Boone and Bonne [<sup>98</sup>] the basic statistics analysis for a Likert-type data should differ from numerical data, because we cannot rely on the traditional dispersion, central tendency and relation measures. In order to analyze the central tendency we used the median and the mode, and to analyze the association we used the Kendall's tau measure of correlation. According to the analysis of correlation between items (calculated through Kendall's tau) there was not any statistically significant correlation between survey items. We also calculate the mode and the median for all items. Table 3 shows the 15 items of the survey with the higher values of median and mode, which can be a sign of what respondents, in average, evaluate with higher values according to the Likert Scale; but it is not a sign of causality or explanation of business failure. According to Table 3, entrepreneurs report that problems with planning, management and promotion and placement of the product have the higher medians and modes, which can be explained as a short sight view of the implications of the business operations. From this statistics, we can infer that entrepreneurs do not take into account, from the beginning, the implications and consequences of running a business. They report lack of planning, management skills and even a lack of income to face the business requirement. They also report a lack of skills in placing, promoting and designing the product or service.

**Table 3:** Summary of items with higher median and mode

	<b>Item</b>	<b>Median</b>	<b>Mode</b>
P5_6	The business could not provide sufficient income for survival	6.00	7
P7_4	We had an inadequate organizational structure	5.00	7
P7_6	There was a lack of indicators or methods for measuring performance, efficiency, etc.	5.00	7
P8_3	We made a weak market study	5.00	7
P8_7	We had problems with financing (loans)	5.00	7
P8_9	We struggled with excess in operating expenses	5.00	7
P9_6	We struggled with a poor financial management	5.00	7
P9_7	We did not develop a "Business Plan"	5.00	7
P7_7	We fail to place the product	5.00	6

<sup>98</sup> Boone, H. N., & Boone, D. A. (2012). Analyzing likert data. *Journal of Extension*, 50(2), 1-5.

P9_3	There were problems with the promotion and advertising of the service or product	5.00	6
P9_9	We had problems in implementing the Business Plan	5.00	6
P8_4	There were problems because of lack of training	5.00	5
P8_5	There was a poor time management	5.00	5
P8_10	We had poor planning	5.00	5
P9_10	We had a poor selection of the target market	5.00	5

## 4.2 Discussion

The last section explained, step by step, the techniques we used to obtain a valid instrument for measuring the main factors involved in the failure of a business venture. To present a deeper analysis, in this section we discuss and analyze the important traits of the final instrument that we propose and discuss the results from the methods section.

The main purpose of this research was to offer an instrument that can be used to measure the main factors that contribute to a business failure from the entrepreneur point of view. In summary for obtaining those factors, we used the following steps: creation of an item pool and failure categories, exploratory factor analysis and confirmatory factor analysis. In the first step, we developed items and categories responding to what we think were the most important traits in a failure. In this stage we proposed 7 categories and 41 items. In the next step, through factor analysis techniques we obtained 37 items in 9 categories. And in the final step we obtained 26 items explained in 8 categories shown in Table 4. Table 5 resumes the steps we followed to obtain the final instrument.

**Table 4:** Items and factors of the final instrument

Factor 1 Business Planning	
P5_8	We had poor information management
P7_4	We had an inadequate organizational structure
P7_6	There was a lack of indicators or methods for measuring performance, efficiency, etc.
P8_10	We had poor planning
P9_7	We did not develop a "Business Plan"
P9_9	We had problems in implementing the Business Plan
P8_4	There were problems because of lack of training
P8_5	There was a poor management of time
Factor 2 Marketing	
P7_7	We fail to place the product
P9_10	We had a poor selection of the target market
P8_3	We made a weak market study
P9_3	There were problems with the promotion and advertising of the service or product
Factor 3 Product design and fabrication	
P5_11	We had problems with the application of patents
P5_9	We had problems with the packaging and design
P5_1	We had problems with raw materials
Factor 4 Suppliers	
P7_10	We had credit problems with suppliers (eg. Days to pay)
P8_8	We had problems with suppliers or contractors
Factor 5 Legal business environment	

P9_2	We struggled with the legislative reforms
P9_5	We had legal problems (labor, commercial, contracts, etc.).
Factor 6 Human Resources	
P9_1	We did not meet rigorous selection steps when recruiting personal
P5_10	We had problems with the staff compensation (salary, benefits, etc.)
Factor 7 Customers	
P5_4	We lost customers, dramatically
P9_11	We struggled with sudden customer changes in one (or some) of these: attitudes, tastes, preferences, habits, etc.
Factor 8 Industry competition	
P7_5	We struggled with entry of a strong competitor
P7_9	We had problems because of the emergence of new and improved techniques / technologies

**Table 5:** Stages used to obtain the final instrument

Step 1	Step 2	Step 3
41 items	37 items	26 items
7 categories: finance, administration, marketing, technical aspects, human resources external environment and others	9 categories: business planning and management, marketing, product design, external leverage and financing, business environment, human resources, customers, industry competition and governance	8 categories business planning and management, marketing, product design and fabrication, , suppliers , legal business environment, human resources, customers and industry competition
Categories obtained from literature review, interviews and experts validations	Categories obtained from exploratory factor analysis	Categories obtained from confirmatory factor analysis

Table 4 is useful as a characterization, not only of the analytical process we followed in order to get the final instrument, but as comparison of the factors that we extracted from literature compared to the factors we found statistically significant and valid. In the first stage of the research we highlighted factors such as finance, human resources, etc. In the second and third step we found some factors that did not come out in the first stage of the research. For example, in the final stage we divided the factors into two marketing categories: marketing and product design, and not only one. . We also found that customers and suppliers (in the last stage we added a factor for suppliers) have their own category when talking about business failure. An important finding was that two categories emerge, that had not being considered previously: business environment and industry competition. In the next paragraphs we discuss the emergent categories.

Entrepreneurial activity does not exist in a vacuum, the entrepreneur and the entrepreneurial activities are developed in an environment full of relationships and networks. From this point of view we can explain the categories of customers and industry competition. The category of customers refer to several items related to customer adherence and loyalty to the business and also to changes in the preferences of the customers. On the other hand, the competition that a particular business faces is also an important factor to take into account when talking about business failure. We named this factor industry competition, based on Michael Porter and industrial organization`s idea of competition and entry barriers. According to Porter [99] the industry rivalry is determined by the competitors in the same industry and by

the availability of substitute products. From our research and findings both factors are important determinants of the business failure (competitors and available of substitute products).

According to Lee, Peng, and Barney [ <sup>100</sup>] the entrepreneurial failure and also the levels of entrepreneurial activity cannot be explained as an aggregate generalized across contexts, but instead there are different institutional frameworks that need to be considered. Vaillant and Lafuente [ <sup>101</sup>] analyze how different institutional frameworks condition the influence of selected social traits: the social stigma to entrepreneurial failure and the presence of entrepreneurial role models, over entrepreneurial activity levels in a rural area with strong industrial and entrepreneurial history. In this sense, the prevailing institutional framework, shapes the entrepreneur`s societal role, but also hampers his or her ability to establishing a successful business. Our failure category: external environment, has to do with the struggle entrepreneurs have with legal reforms and legal contracts. In an emergent market, such as Mexico the legal system does not support business activities, and according to our statistical evidence that is a contributor factor to business failure.

## 5. Conclusions and future research

The purpose of this research was to present and discuss the main factors that, according to the entrepreneurs, are the main contributors to business failure. With a sample of 814 surveys, we validate an instrument that highlights the special traits of business failure in an emergent economy, like Mexico. The validated instrument is a 26 Likert-scale survey that shows 8 failure categories.

From the statistical and numerical analysis, we derive two conclusions: first entrepreneurs do not take into account that planning and foresight in all business areas will be decisive to their business survival. And second, external factors of the business (such as customers, competitors and environmental factors) are also a decisive factors that have to be taken into account when researching business failure in emergent markets.

In the same sense , we first found that, from the basic statistics analysis, the entrepreneurs do not take into account, from the beginning of their business venture, the implications and consequences of running a business. From their own perception they reported lack of planning, management skills and even a lack of income to face the business requirement as their main causes of failure . They also report a lack of skills in placing, promoting and designing the product or service. Second, we found that external factors also play an important role as untraditional contributors to business failure. Not only the costumer relationship and the analysis of the competition conditions of a particular industry are important factors in business failure, but also the business environment and the industry competitors.

To continue researching the concept of failure it is important to explain our limitations in this study and suggest other lines of untapped academic research:

1. The 41 items were constructed through understanding causes of failure from the own entrepreneur`s perspective. To validate our findings, further research could be done by triangulating the data with information obtained from another source.
2. Also, in a similar matter, to validate our findings these main causes of failure could be compared to the main causes of success in entrepreneurs.
3. Our research does not focus any particular attention to what entrepreneurs could say

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<sup>99</sup> Porter, M. E. (2008). The five competitive forces that shape strategy. *Harvard business review*, 86(1), 25-40.

<sup>100</sup> Lee, S. H., Peng, M. W., & Barney, J. B. (2007). Bankruptcy law and entrepreneurship development: A real options perspective. *Academy of Management Review*, 32(1), 257-272.

about their learning outcomes applied to their next business (if such) or the process of recovery of their failure.

4. Through our main partner, The Institute of Failure A.C. we are able to distribute our electronic survey broadly. However, as seen in the main demographic data, the sample is composed mainly of entrepreneurs that graduated from college or at least attended college which does not represent the vast majority of micro entrepreneurs in Mexico. Further research could be done by focusing on a broader sample by possibly surveying in a physical manner.
5. This exploratory research did not focus on any particular industry or type of business. Further research could be one by focusing on a particular type of business i.e. only services or industry i.e. financial related business. This research could narrow the factors presented here and prove to be even more helpful to rising entrepreneurs.

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# Science and Innovation in Scotland: A study on the Impact of Enhanced Autonomy

*Alessandro Rosiello, Michele Mastroeni, Omid Omidvar, Joyce Tait and David Wield*

The Scottish referendum of 2014 encouraged massive public debate, including on Scotland's scientific performance and its ability to harness innovation and increase global competitiveness. The science base in Scotland has traditionally been strong with world leading universities driving development of science. However, the science base has not translated well into innovation. This paper uses statistical data, over 30 interviews and two workshops/focus groups with business and policy leaders to analyse the key scientific and industrial dynamics feeding into the debate and investigate the potential impact of enhanced autonomy on the Scottish innovation system.

## Keywords

enhanced autonomy, industrial innovation, science, Scotland

## Introduction

In the wake of the Scottish Referendum of September 2014, there is a risk that attention to some of the issues facing the Scottish economy may fade. The referendum was the setting for arguments regarding Scotland's strengths and weaknesses, and projections of what could happen in different scenarios. Areas of debate included those on Scotland's scientific performance and how to harness innovation to increase its competitiveness in the global economy. It encouraged a high degree of public engagement and prompted the three main political parties in London to promise enhanced devolution of powers and fiscal autonomy if Scotland decided to stay part of the UK.

Regardless of the results of the referendum, Scotland's ability to be a top-level knowledge producer and innovative region is still a matter of interest, and form part of its national image regardless of whether it is independent or continues as a nation and part of the United Kingdom (SCOTTISH ENTERPRISE, 2006; ROPER et al., 2007; SCOTTISH GOVERNMENT, 2008; 2013). The UK Government *Command Paper* (HM GOVERNMENT 2015) contained clauses to implement the devolution commitments on further powers for the Scottish Parliament/Executive, made by the three main UK political parties. In particular, regarding borrowing and income tax powers, the Scottish Government will be able to collect roughly 40% of its own budget and become directly responsible for about 60% of all public expenditure.

Based on this evidence, Scotland is set to enjoy a very high degree of fiscal autonomy, in an otherwise fairly centralised national system of governance. For these reasons revisiting

Scotland's scientific and innovation capacities, and the perceptions held by different stakeholders on how these capacities may be impacted by changes in Scotland's institutional structures, can help future research and policymaking.

This paper outlines the perception of Scotland as a strong scientific and innovative society, and outlines the images of Scotland as a region and nation both distinct from England in culture and attitude, and as a participant in the knowledge economy. It will summarise the strengths and weaknesses perceived and measured in its science and innovation systems, briefly recount policy initiatives to improve them, and outline the main arguments made by the Scottish Government regarding how independence could lead to a more prosperous Scotland.

How can an innovative Scotland best be achieved, as argued during the referendum debate of 2014. The science system has been strengthened during the 2000s as devolution brought a set of new and expanded funding streams in conjunction with existing UK-based institutions. There are questions, however, about the relationship between the science base and Scotland's innovation system, and the lack of coherent policy to address that 'disconnect'. The questions are particularly related to the impact that enhanced autonomy may have on the absorptive and innovation capacities of

Scottish business:

What impact would increased autonomy have on the ability of Scottish business to absorb knowledge and apply it to innovative activity?

What impact would increased autonomy have on the organisations that support Scottish businesses in their innovative activities, R&D, technology transfer, commercialisation and finance?

What impact would independence, or increased devolution, have on Scotland's economy in terms of diversity of industry, specialisation and resilience?

Beginning with the concept of imagined community, the paper first traces key background elements of the Scottish science system, and the relationship between science and innovation. Then, it details the present situation regarding Scotland's science base, mapping the institutions that exist to integrate Scottish science policy. It shows that the science system already operates with some autonomy from the rest of the UK. This is followed by an analysis of the tenuous level of connection between science and innovation. The paper will outline the different concerns and opinions of the business and policy communities regarding Scotland's innovation system, and it will summarise the questions being posed by different stakeholders regarding proposed independence and its possible impact on the Scottish Innovation System (SIS). Finally, it presents a summary of the future prospects for science and innovation and an evidenced argument for a less science-led policy led by a focus on new and transformed industrial sectors.

## Method

*To address the research questions, we started by examining the existing conditions for science and innovation in Scotland. Our data collection was framed by two theoretical perspectives. The first is the concept of imagined communities; it draws on anthropological insights to delineate how large communities (i.e. nations) identify and create points of commonality and political development (ANDERSON, 1991). The second is a regional innovation system perspective that includes awareness of evolutionary system change and the importance of institutional factors beyond the region in terms of market access, knowledge creation and other inputs (COOKE et al., 1997). This included extensive review of the primary and secondary literature, as well as analysing the policy documents concerning science and innovation in Scotland over the past 20 years. We also analysed the data for science and innovation in Scotland, together with data on innovation infrastructure and structural features of the economy. We used the Scopus database, OECD iLibrary, Office of National Statistics (ONS) figures, and Higher Education Information Database for Institutions*

*(HEIDI) to develop an overview of publication record, patent data, research funding, and higher education income in Scotland.*

This data collection was then supplemented with information gathering from engaged practitioners, using in-depth semi-structured interviews, undertaken in 2013 and early 2014 before the referendum. The overall approach in selecting interviewees was: first, we interviewed 10 people who held overview knowledge and experience of Scottish science and innovation, as well as practitioners positioned at the interface of science and innovation in Scotland. Second, we undertook a further 20 interviews with senior business leaders, policymakers and academics. The interviewees worked in six key industrial sectors of the Scottish economy – life sciences, information and communication technology (ICT), energy, engineering, food/drink, and financial services. Where possible interviews were taped and transcribed but some interviewees declined recording. The material collected was interpreted through analysis and coding to bring out major themes.

Finally, two workshops were held. First, in November 2013, a full day workshop of 16 invited researchers, government, and industry on the future of Scottish science and innovation ran scenarios in two breakout sessions. In the morning, the participants were asked to think about the future of science and innovation in Scotland under Yes/No scenarios concerning possible independence and also leaving the EU. In the afternoon session they were asked to discuss in more detail the barriers and opportunities for Scottish science and innovation under a Yes scenario. A final workshop was held in March 2014 with the objective of testing our results with senior policy makers and business leaders. Both workshops were fully recorded for transcription and analysis.

### *Imagined communities and Scotland as a scientific centre*

The concept of an Imagined Community (ANDERSON, 1991) is useful to outline the different characteristics that a community shares among its members and the accompanying expectations of that community. Regarding Scotland, the concept has been used by different authors to discuss its national image, and its regional distinctiveness in Britain. Scotland as an innovative nation/region has been an established image, held up as an example of scientific excellence within an ancient university tradition, which has also been put forward as a source of potential cultural, social and economic strength. The strength of Scottish science and industry was lauded during the Edwardian era, and continued up to the Second World War, from which point a narrowing of performance between English and Scottish science occurred, and industrial fortunes began to shift away from Scotland (EDGERTON and HUGHES, 1993).

Despite these changes during the 20<sup>th</sup> century, Scotland in the 1980s was still described as 'an economy carrying out substantial levels of research in both the private and public sectors, with a total R&D intensity significantly higher than that for economies of comparable size' (EDGERTON and HUGHES, 1993 p. 11). Yet the scientific strength, R&D capacity, and innovative activity were mostly concentrated in the universities, and in the subsidiaries of large multinational companies (MNCs). The Scottish imagined community has contributed to a sense that Scotland can achieve clusters of technological or innovative excellence, regardless of the real limitations it may face. An imagined community, as described by Anderson (1991) is based on some historical facts, but more importantly on community myths which may be imperfect.

Edgerton and Hughes (1993) mapped the massive drop in government R&D in the 1980s, particularly the fall in government support for industrial R&D but showed that 1.8% of Scotland's GDP was spent on R&D, and that Scotland did as much R&D as Austria, Norway and Denmark. They also showed Scotland's 'comparative advantage' in university education with about 14% of the UK academic staff, though Scotland's share of research council funding at that time was lower than now at no more than its population share (8.8%) in 1991 and 8.3% in 2013.

The research was a useful benchmark from which to analyse the post-devolution period, compare its policy proposals with what has happened in the last twenty years, but also with the possibilities for the science and technology future of Scotland. Edgerton and Hughes welcomed the proposal for a Scottish university funding system (which was set up and is now the Scottish Funding Council - SFC), argued against university selectivity and concentration, and called for more government funds towards industry R&D to create a diversified industrial R&D base.

## **UK and Scottish science and innovation policy**

Devolution in 1999 brought autonomy for the Scottish parliament and government on a range of issues that relate to knowledge base development, research and science funding. The Scottish Government allocates the budget for the economic growth strategy, which covers the research and innovation strategy, and funding policies. The SFC is the body responsible for teaching and learning, science and research, knowledge exchange, innovation and other activities in Scotland's universities and higher education institutes. It has developed some original approaches, for example:

A 'pooling' initiative, developed after 2001, to strengthen a diverse range of research in subject areas where the SFC felt that scale and strength could be improved through Scotland-wide collaboration. Subjects such as chemistry, physics, engineering, geoscience and environment, economics and the life sciences were supported and the research evaluation results of 2008 and 2014 showed significant improvement.

A fund for innovative activities, used to attract big research initiatives to Scotland.

A set of Innovation Centres, from 2012, to help link Scottish research with industrial innovation, with eight centres so far (digital health, stratified medicine, sensors and imaging systems, industrial biotechnology, oil and gas, construction, aquaculture, and data lab).

In addition, Scotland benefits from the support provided by UK-wide bodies, including: the seven research councils that fund research across the UK, collectively called Research Councils UK (RCUK); and, the Technology Strategy Board (TSB)/ Innovate UK, the UK agency that supports UK-wide development and commercialisation of research.

In industrial innovation there have also been a series of initiatives. The Scottish Development Agency (SDA) was established in 1975 in response to the significant decline of Scotland's traditional industries. In the 1980s, it moved from supporting the restructuring of traditional industries to encouragement of new high tech industries into Scotland. Its early success was not sustained into the 1990s as much relocated industry could not compete with East Asia. The SDA's successor, Scottish Enterprise (SE), attempted to build on the strength of a range of industries, such as oil and gas, finance, chemicals, electronics, food and drink (beef, fish, whisky), and start a life science sector. SE took up a cluster development strategy (SE 1996) and began to build networks and support structures, an approach recommended by the Monitor Group (1996). The cluster strategy aimed to build on areas of knowledge strength, and Scotland's image as a producer of good science; for example, the biotechnology sector was identified by SE as a high priority mostly based on the research capacity in Scotland's university sector rather than any actual industrial presence.

These interventionist approaches in Scotland stood out well before devolution in 1999 and continued thereafter (ASHCROFT et al., 2006). SE pursued a multi-strand innovation strategy, outlined in *Smart, Successful Scotland*, (SCOTTISH EXECUTIVE, 2001). This included a Business Growth Fund, Proof of Concept Fund, Scottish Co-Investment Fund, and creating the Intermediary Technology Institutes (ITIs) in three cluster areas, though these had quite a short and less successful life, as analysed by BROWN et al., 2015. It developed programmes, such as Careers Scotland for skills and learning, and programmes to attract FDI and talent to Scotland, such as the Scottish Development International and the Global Scot network. SE programmes have been successful in creating a funding base for new firms, including an extensive business angel network; encouraging growth in different

technology sectors; facilitating spin-outs from universities; and raising Scotland's profile in the knowledge economy.

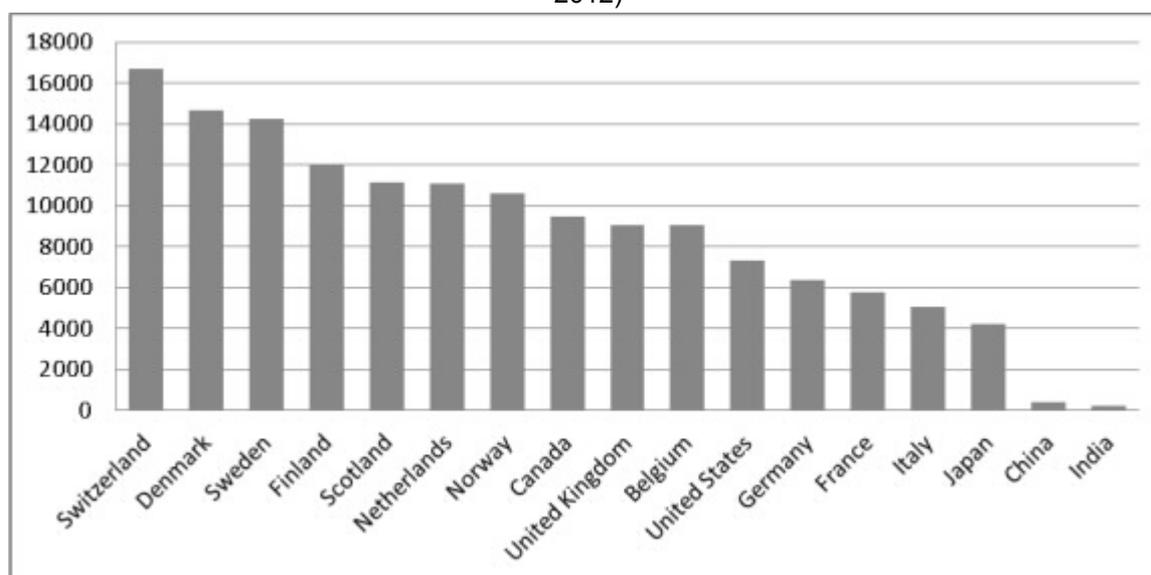
Several reviews of the Scottish innovation system have been published (ROPER *et al*, 2007; COAD and REID, 2012; LEVIE *et al*, 2013), which praise Scotland's scientific R&D performance in the universities, but highlight bottlenecks and a disconnect between the scientific knowledge created in Scottish universities and the knowledge demands and capacities of local Scottish firms.

### Strong Science

Corresponding to the image of scientific excellence, the science base in Scotland has traditionally been strong, with world-leading universities driving the development of science. Various studies have confirmed the achievements and significance of Scottish science (SCOTTISH SCIENCE ADVISORY COUNCIL - SSAC, 2009; THE SCOTTISH GOVERNMENT OFFICE of the CHIEF SCIENTIFIC ADVISOR, 2007). We used research publications per million population as an indicator of this strength. We use this indicator to avoid the problem with absolute publication records and output per GDP as comparators of countries with different populations and income. We analysed the publication record from 1996-2012.

We begin with the life sciences because of the strong reputation that Scotland holds for research in life sciences globally. Figure 1 presents the data from 1996-2012. Scotland performs very well in this area of science, though not quite so well as other small prosperous European nations, such as Switzerland, Denmark and Sweden.

**Figure 36:** Publications in life sciences per million population (1996-2012)



Source: Authors analysis of Web of Science data

However, not all areas within the life sciences rank equally well. Table 1 presents publication record data in different areas of life sciences. It shows that Scotland publishes particularly well in agriculture and biological sciences, biochemistry, and immunology, but is not as competitive in pharmacology, toxicology, pharmaceuticals, and medicine.

**Table 22:** Publications per million population in different areas of life sciences

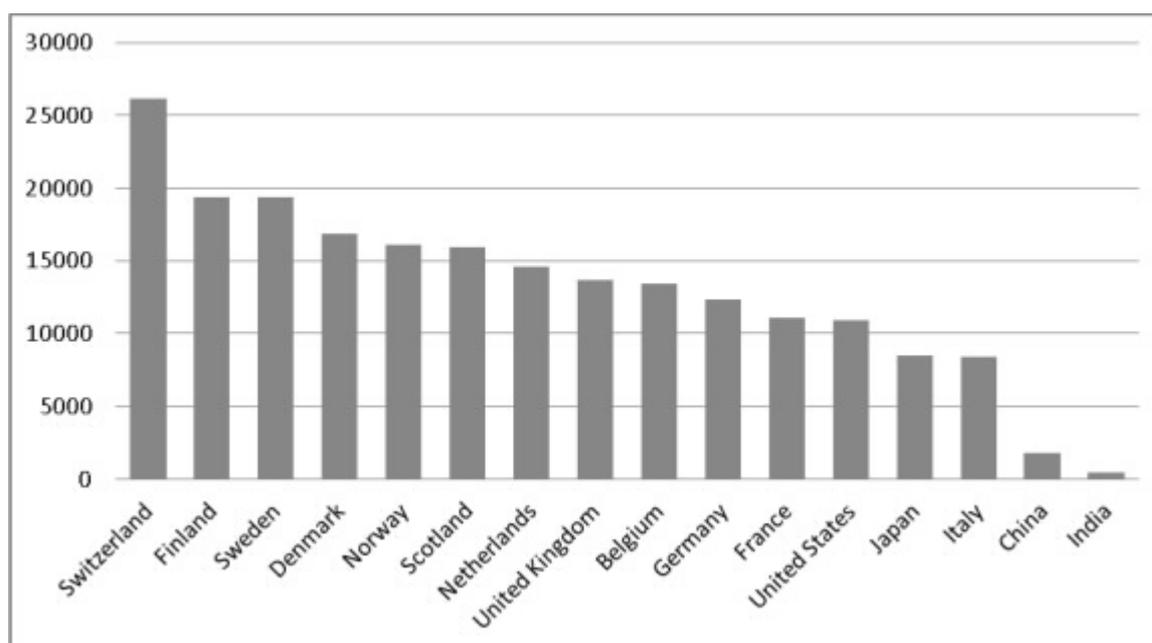
Country	Total publication in Life sciences	Agriculture and biological sciences	Biochemistry, genetics and molecular biology	Pharmacology, Toxicology, and Pharmaceuticals	Medicine	Immunology and microbiology

Switzerland	16673	3827	8607	1965	5215	198
Denmark	14685	4652	7329	1499	4648	312
Sweden	14232	3735	7319	1516	4775	194
Finland	12025	4069	5547	1212	3848	188
Scotland	<b>11171</b>	<b>4217</b>	<b>6153</b>	<b>1058</b>	<b>3144</b>	<b>172</b>
Netherlands	11109	2794	5409	1273	4131	170
Norway	10613	4453	4404	807	3179	130
United Kingdom	9044	2417	4526	1178	3005	109
Belgium	9039	2639	3821	1226	2874	130
United States	7308	1745	3821	879	2212	76
Germany	6391	1545	3353	774	1911	86
France	5807	1567	3014	657	1737	71
Italy	5042	1171	2667	712	1807	46
Japan	4256	953	2467	684	1250	105
China	387	116	202	61	91	5
India	208	76	84	56	37	4

Source: authors analysis of Web of Science

Scotland's performance in physical sciences is excellent: Figure/Table 2 present Scotland's publication record in the area of physical sciences. The table suggests that Scotland's science base is stronger in physics and astronomy, computer science, chemistry, chemical engineering, and energy whilst weaker in engineering and material sciences.

**Figure 37:** Physical sciences publications per million population (1996-2012)



Source: Scopus database

**Table 23:** Publication in science in different areas of physical sciences

Country	Physical Sciences	Engineering	Physics and astronomy	Material Sciences	Computer science	Chemistry	Environmental sciences	Chemical engineering	Energy
Switzerland	26124	6254	8483	3775	3671	4541	2547	1684	812
Finland	19388	5590	4693	2601	3933	2339	2825	1473	583
Sweden	19357	5497	5233	2947	2689	2963	2663	1332	805
Denmark	16900	3877	4413	1779	2482	2622	2630	1092	770
Norway	16115	4116	2665	1438	2493	1671	2927	1092	1117
<b>Scotland</b>	<b>15907</b>	<b>3542</b>	<b>4495</b>	<b>1853</b>	<b>2688</b>	<b>2488</b>	<b>2032</b>	<b>1465</b>	<b>601</b>
Netherlands	14573	4060	3671	1829	2487	1984	1857	1101	531
United Kingdom	13668	3975	3371	1807	2120	1937	1526	840	466
Belgium	13410	3804	3948	2179	2171	2342	1348	886	431
Germany	12310	3085	4033	2239	1693	2161	949	860	392
France	11127	2849	3505	1889	1683	1865	776	739	329
United States	10899	3807	2564	1391	1730	1406	1140	720	406
Japan	8450	2839	2653	1866	1087	1603	399	650	320
Italy	8387	2350	2564	1069	1355	1315	632	474	261
China	1774	773	349	337	342	255	89	134	91
India	414	110	97	84	59	104	42	40	18

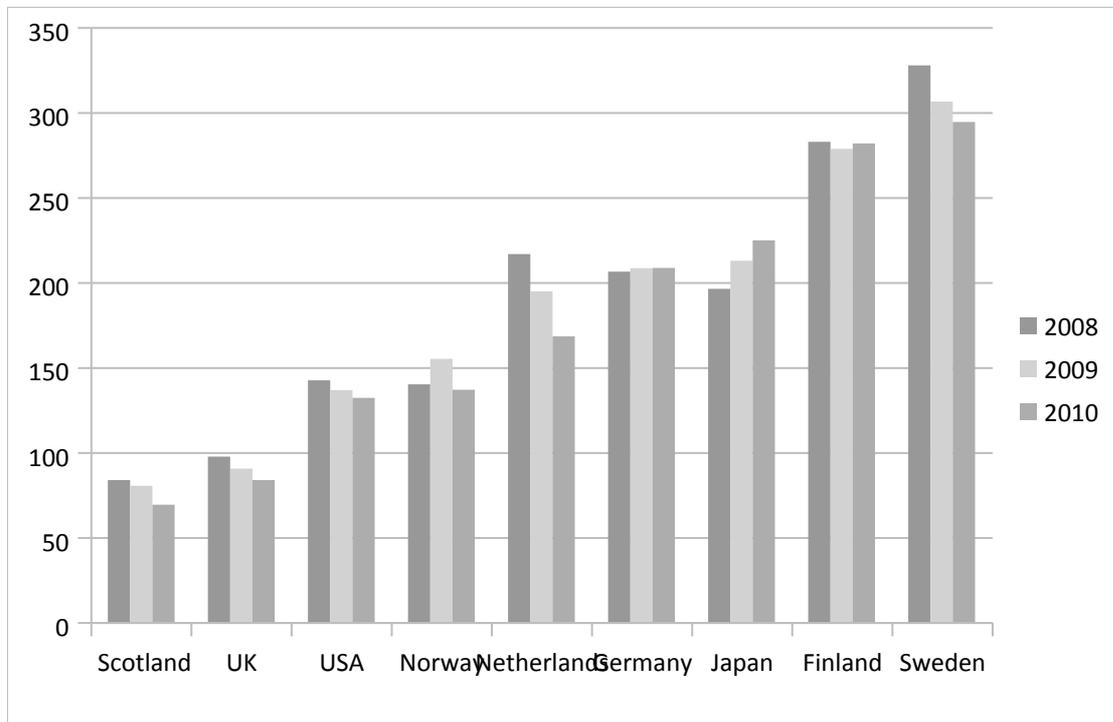
Source: authors analysis of Web of Science

### ***Innovation in Scotland: a 'disconnect' between science and innovation***

Scotland's science is relatively strong, though perhaps not necessarily best suited to its local industrial needs. Different innovation indicators show a mixed message.

One indicator of innovation – albeit contested – is the patent record, which is relatively poor for Scotland (see figure 3). For instance, with 68.5 patents per million head of population, Scotland generates four times fewer patents than Finland, significantly fewer than countries like Sweden, Japan, Germany, US and even less than the UK average (OECD, 2015).

**Figure 38:** Patent applications per million head of population



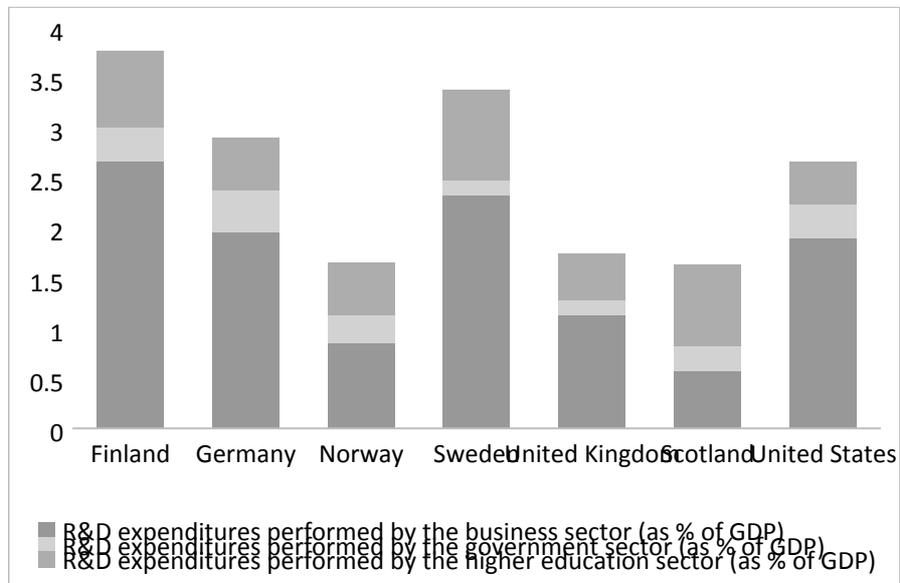
Source: OECD iLibrary

Our research suggests several reasons for a weak relationship between science and innovation. First, Scotland does not exploit its human capital as much as it potentially could. 36.9% of Scotland's labour force has tertiary education, which compares well with some other innovative countries (e.g. 35.3 in Finland, 30.4 in Sweden and 25 in Germany). However, while Scotland fares well in employment in knowledge-intensive services (42.8% of its total employment) in comparison to other countries (e.g. Finland with 41.1% and Germany with 35.3%), in relative terms the highly educated labour force in Scotland has been less significantly employed in high and medium-high technology manufacturing sectors. Scotland's 3.9% employment in high and medium-high manufacturing is considerably lower than other innovative countries (e.g. Germany with 10.9%, Finland with 7%, and Norway with 4.3%) (OECD, 2015). In addition, there is evidence that Scotland is weak in cultivating commercial and managerial skills that are critical for developing innovations out of basic science (DANSON, 1995; ROPER *et al*, 2007; FREEL and HARRISON, 2007; COAD and REID, 2012; LEVIE *et al*, 2013). As one engineering business leader interviewee argued: 'There is an issue with skills for growth and there is lack of leadership, finance, operation, and organisational skills [which has resulted in start-ups ] filled with entrepreneurs with technical knowledge but lacking commercial experience'.

Interviewees cited the dearth of senior managers capable of running large-scale corporations and starting big initiatives, and there are few large companies in Scotland to attract or retain experienced managers. Few large companies means that there are not enough role models for SMEs to emulate which, in turn, means that more experienced entrepreneurs leave Scotland creating a hole in the entrepreneurial skills base.

Another problem relates to the level of funding for R&D. Scotland's percentage of total R&D expenditures to GDP (at 1.7% lower than in the early 1990s) is lower than other innovative countries (e.g. 3.9% Finland, 3.3% Japan 2.8% Germany) - see figure 4 –

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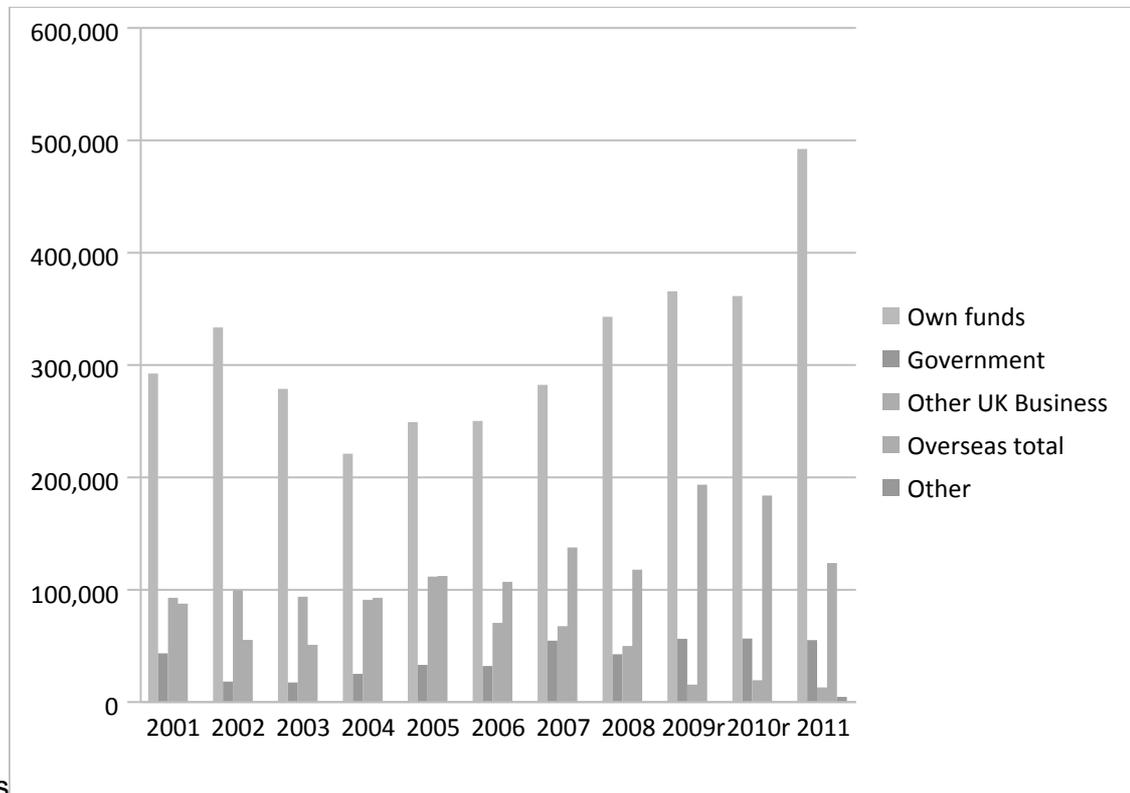


Source: OECD iLibrary

lower than other strong science regions within the UK (e.g. East and South England with 4.3% and East of England with 2.1%) in 2010. The data reveal that this disparity is mostly driven by the lower performance of the business sector. The percentage of R&D expenditure to GDP performed in Scottish higher education (0.81%) is higher than the UK average (0.52%) and is akin to other benchmarked countries (0.9% in Sweden, 0.72% in Finland and 0.56% in Norway). However, R&D expenditure by business in Scotland (0.59% of GDP) is considerably less than other innovative countries or other innovative regions within the UK, and is even less than the UK average (1.1%) (OECD, 2015).

Figure 5 shows the breakdown of Business Enterprise R&D (BERD) sources in Scotland from 2001-2011. As the figure suggests, in general, the level of own funding and government funding has been increasing, while the level of funding by other UK businesses has significantly declined especially since 2005. The level of BERD has increased over the last decade. However, the increase in Scotland was from an extremely low base. Scotland spent less than 4% of total UK BERD in 2011, relative to its size (8.3% of population and 8.0% of GDP).

**Figure 39:** Sources of Business R&D in Scotland-



£000s

Source: Office of National Statistics  
r: denotes revised figures

Over recent years, the business angel investment model in Scotland has matured and has contributed to the growth of investment. However, the situation is not so good with larger venture capital investments (over £2 million) (HARRISON and MASON, 2012; MASON et al., 2013). In 2009, 2010, and 2011, only 11, 15, and 10 deals, respectively, over £2 million were reached and most investors do not invest on a regular basis. These figures suggest that Scotland fares worse than other UK regions in securing large VC funds. The limited level of VC support makes it hard for angel investments to lead to ‘companies of scale’. As one of our angel business leader interviewees articulated: ‘Penetrating global markets needs VC investment which is absent in Scotland’.

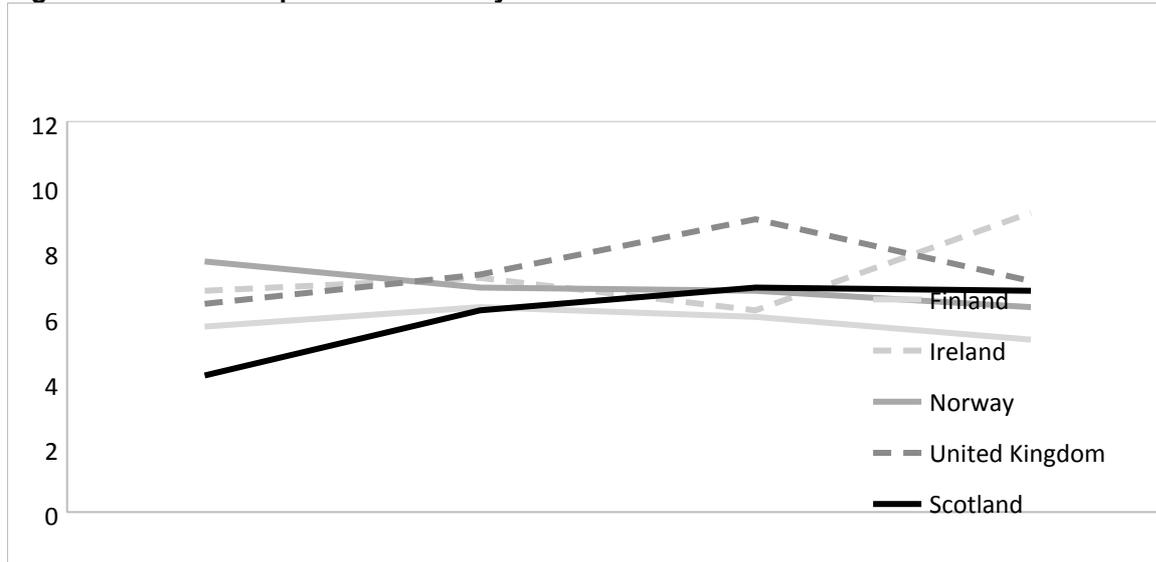
Finally, the strengths in science do not map onto the existing industrial system in Scotland. One example is the concentration of research council funding on biology and the medical sciences (53%) in relation to the main sectors of the economy. The life sciences industrial sector is growing but not yet firmly linked to the research base. Scotland has articulated a strategy of diversification from finance and oil and gas towards sectors such as information and communication, life sciences, engineering and renewables. A recent strategic priority has been to encourage internally driven growth based on local capabilities, to use Scottish capabilities to bridge the gap between science and innovation. This approach depends strongly on building entrepreneurial capacity - to which we now turn – in areas such as biotechnology and renewal energies, and expanding it in areas such as ICT.

### ***Entrepreneurial activities***

The reason VC investment is important is that entrepreneurial activities and aspirations in small and medium size enterprises are also known to be a driver for innovation. Total early-stage Entrepreneurial Activity (TEA) is a measure used by the GEM (Global Entrepreneurship Monitor) team for evaluating and comparing entrepreneurial activities in 69

countries. TEA is the proportion of people who are involved in setting up a business or owner-managers of new businesses. Among the Arc of Prosperity AOP countries, Finland and Denmark show signs of increased TEA (figure 6). The TEA rate in Scotland grew by 11% from 2011 to 2012, lower than the UK but higher than the other comparator countries.

**Figure 40: Total entrepreneurial activity 2010-2013**

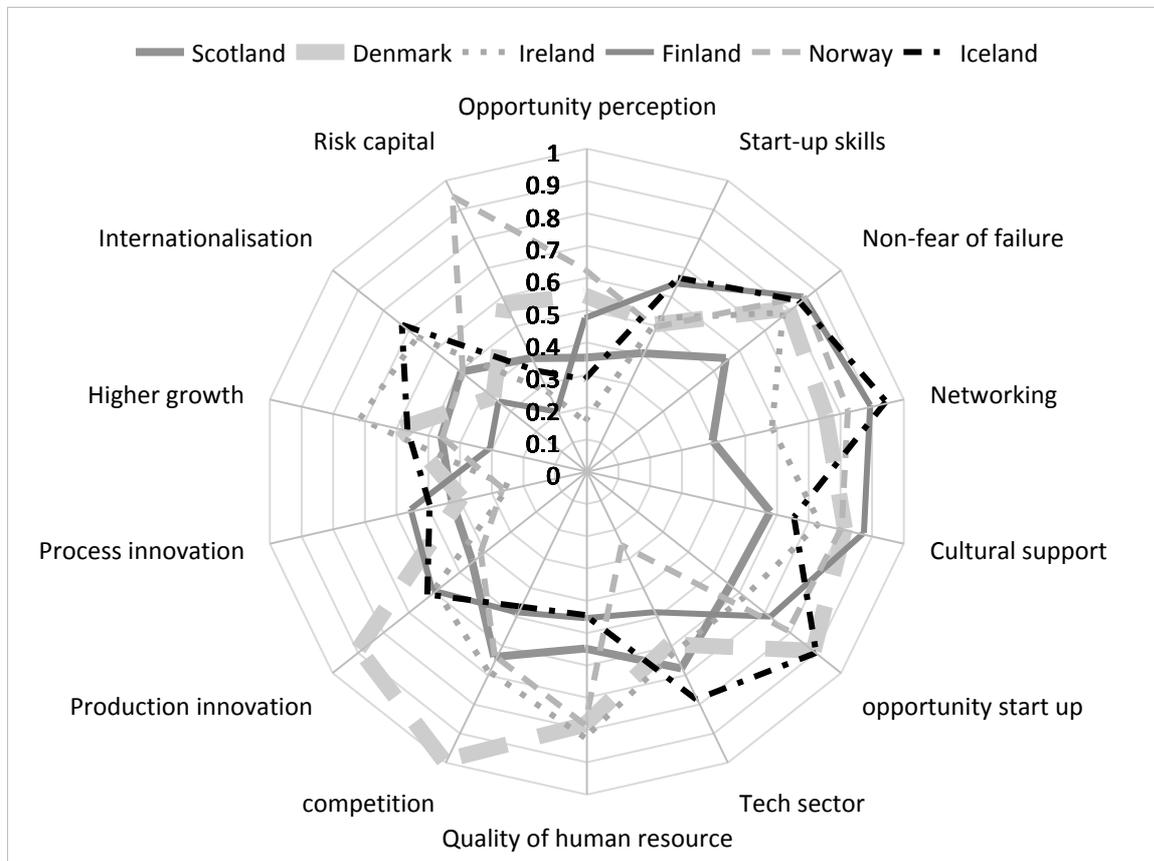


Source: GEM database and GEM 2013 report

In comparison to the arc of prosperity (Scandinavian) countries Scotland appears to be weak in networking, opportunity perception, process innovation, product innovation, high-growth aspirations, and quality of human resource, while it is strong in technology, competition, opportunity start up, and cultural support variables. In general, the data suggest that Scotland is weaker in areas that relate to attitudes and aspirations and is not particularly strong in forming and harnessing collaborations and networking (figure 7). Lack of collaboration between companies and academia can decrease the capacity of companies to acquire and absorb knowledge from academia and each other.

Overall, our use of patent, industrial R&D, business investment and entrepreneurship data shows weak industrial innovation capabilities in Scotland with rather weak improvement since devolution.

**Figure 41: Scotland's innovation-based entrepreneurship ecosystem compared with 'Arc of Prosperity' economies**



Source: GEDI (the Global Entrepreneurship and Development Institute)- 2013 Values

### *The future of Scottish science and innovation*

The 2014 referendum drove a significant debate about the nature of innovation in Scottish society and economy, and under what conditions it could better harness its scientific strengths and correct its weaknesses and bottlenecks. The UK government and Scottish government detailed very different scenarios for science after independence. The Scottish Government white paper argued for retaining the current integrated research system that it called the 'common research area' (SCOTTISH GOVERNMENT, 2013). It claimed that independence would lead to a stronger Scottish economy through Scottish control of fiscal and monetary policy, and thereby provide a more business and innovation friendly environment. It argued that a more 'coherent framework for supporting innovation across the economy' would be possible, and that it could be targeted specifically at key areas of strength and weakness (p. 111). It also argued that it would be better able to use specific policy levers, including 'financing levers such as the provision of loans and guarantees, competitive grants, innovation vouchers, the establishment of an Innovation Agency or Institute' and the indirect levers of tax-based incentives (p. 111).

In its report, the UK government warned that independence would have meant the abolition of the integrated research system, meaning that Scotland would have to build its own research system (HM GOVERNMENT, 2013). In this case the Scottish universities would have lost their access to the disproportionately high research funding they enjoy. The UK government noted that together, Scotland and the rest of the UK have a thriving research base which is highly respected across the world. Furthermore, 'Researchers from across the UK currently benefit from a highly integrated and interdependent, well-aligned system. This facilitates collaborations between researchers across the UK, as well as projects with industry and overseas academics'. (p. 7).

Given these diverging visions, a number of cogent questions remain open. What might

enhanced autonomy mean for Scotland and its system of innovation? Will there be more cohesion in innovation policy, and will it address the bottlenecks in the system? Will the changing boundaries of markets and policy regions have a positive, negative or no effect on Scotland's ability to be innovative?

With the above discussion in mind, we address our three major questions:

What impact would enhanced autonomy have on the ability of Scottish businesses to absorb knowledge and apply it to their own innovative activity?

What impact would enhanced autonomy have on the organisations that support Scottish businesses in their innovation activities, R&D, technology transfer, commercialisation, and finance?

What impact would independence, or more devolution, have on Scotland's economy in terms of diversity of industry, specialisation, and resilience?

### ***Impact of enhanced autonomy on science base and industry innovation***

We have shown that there is a clear discrepancy between the disciplinary focus of the research base, and the structural features of local industry. BERD within the company base is generally low, although there is wide variation across different sectors. The absorptive capacity in the local business base is weak. There is interaction between larger Scottish-based international firms and the research base, but growth of indigenous technology firms remains weak. So, one of the issues we addressed with interviewees is whether a more devolved Scotland would be better able to alter elements of its innovation system, or whether removing itself from the large market and resource base of the UK would have a negative impact.

In the sections that follow, we outline the thoughts of different industrial, policy and academic leaders in Scotland on how a changed status for Scotland would impact organizations innovative capacity, as well as the institutional structures that make-up Scotland's system of innovation.

One interview focus was whether enhanced autonomy would make any substantial difference in local firms' ability to absorb knowledge and skills from local and/or external sources. The issues of 'learning' and 'absorptive capacity' (COHEN and LEVINTHAL 1998) are seen as crucial in the systems of innovation and knowledge-based view of the firm literatures. The regional system itself is often depicted as a complex configuration of knowledge assets and cognitive networks, whose architecture and internal routines shape research/industrial activities *vis-à-vis* processes of knowledge creation, transfer and exploitation, as well as determining asymmetries in knowledge endowments which ultimately lead to competitive advantage (FLORIDA, 1995; MORGAN, 2007).

In terms of organizational ability to generate knowledge, our interview data exposed the concern that independence may jeopardise the ability of Scottish HEIs to attract funding from a variety of UK sources, including research councils, UK government and charities.

Furthermore, in terms of exchanging knowledge, Scotland was seen by some of our interviewees as benefiting from the UK-wide support infrastructure and networks, which allow local HEIs to expand their networks throughout the UK and beyond. While our interviews included representatives from five different industrial sectors, fears were particularly acute in the life sciences area, where local players sense that Scotland is yet to reach a critical mass of firms, individuals and accessible capital. As markets and opportunities for strategic collaborations are clearly global, the industry appears to be partly reliant on UK-wide scientific and financial networks. Similar – albeit milder – concerns were expressed for the ICT sector.

In contrast, training and absorption of skills (including graduates) were not seen as a problem which would be particularly affected by more autonomy (be it independence or devolution). Some interviewees felt that more autonomy could provide the tools for developing further programmes (e.g. more investment in vocational training), with the needs

of the key sectors of the Scottish Economy in mind. Training is already devolved, and the current economic strategy (SCOTTISH GOVERNMENT, 2011) already aims to create an education system that is 'responsive and aligned to demand ... to support employers by better understanding and assessing the skills required for future success and ensuring that the supply of skills, training and qualifications is sufficiently responsive' (p. 126). In this sense, more autonomy regarding the overall budget was seen as a potentially positive factor, as it would allow for a wider margin of manoeuvre and the development of an approach more tailored to Scottish needs. This position seems in line with the result of the Heseltine Review (BIS 2013) and also Gardiner et al (2013) on rebalancing the British economy from a geographical standpoint.

Interviewees from both the life sciences and ICT sectors lamented a lack of critical mass and soft infrastructure (such as financial networks) for cluster emergence. Reflecting on the possible impact of more autonomy with enhanced powers provided to the Scottish Government, one key factor pinpointed by interviewees was access to quality human resources (experienced managers, as well as scientists and technicians). For instance, the paucity of managerial skills to be employed by new ventures is an ongoing problem for emerging sectors of the Scottish economy (ROSIELLO, 2005), whereas Levie (2013) points to the relatively low number of female and senior entrepreneurs compared to the rest of the UK..

Some of the research-intensive fields in Scotland do attract significant research funding and are highly competitive, but a stronger industrial base is needed to retain the graduates of these programmes, and, as a consequence, Scotland is a net exporter of this talent. One industrial association interviewee noted that: 'While it's acknowledged that we do have the world class research base, there's a real and persistent challenge about absorption of that knowledge particularly among our SMEs'.

Another interviewee, from IT, added that:

the issue on management talent is we do not have multi-nationals running the business from here. We have satellite R&D teams, not complete bits of the business, so we don't have managerial training effectively on taking risk and getting product definition right, and that's one of the big inhibitors on the whole management stream, and the ICT space, I think the management skills issue is the biggest issue we have, not finances.

Other interviewees had the view that fully-fledged independence would aggravate existing difficulties in recruiting and retaining business and scientific talent. One of them, from biotech business, referred to the 'Commercialisation Enquiry Final Research Report' (ROYAL SOCIETY of EDINBURGH, 1996) on lack of financial management skills and noted that:

It's worth reading it again and seeing what the position is compared to the early 90s. The companies have changed position, the tools are better. There's more availability of venture capital, there's definitely more availability of business angels, you can fund businesses to a certain extent, but there are fewer public companies. Now we all know the issue, the marketplace. But the ability to raise money and float a company is seen as another tick in your management expertise. There are very few people in Scotland, particularly within the life science sector, that have actually done that in the last 15 years. So we've effectively no flotation. So that's a key management skill that does not exist in the community in Scotland; you would have to go outside to find those sorts of things.

Other business leader interviewees commented that their business perspective was already international, and that they make investments and draw on talent outside of Scotland's borders. Independence might cause some operational changes, but the strategy would stay the same.

Oil/gas and financial services are key sectors of the economy that seem less reliant on the local education/research base and training institutions. Interviewees from these sectors felt that processes of cluster emergence, cumulative learning and competence/skills

development had occurred over the past decades within the business environment. The oil/gas cluster located in Aberdeen and the financial services industry situated around the city of Edinburgh have nurtured the production of personal skills and technological capabilities that are now deeply anchored within the local economies. Nevertheless, a frequently cited example of dysfunctional elements within the Westminster/Edinburgh system of governance is the current immigration policy framework. A significant number of interviewees felt this was preventing the Scottish economy from attracting much needed skilled workers.

In summary, the views of business leaders on the likely impact of independence on absorption of knowledge to build improved innovative capability in firms vary by sector and skill. There is general awareness of the mismatch between the research and knowledge base and the industrial system in Scotland, but less specific consensus on what might be done. This may be because businesses can tap into research and knowledge anywhere and not just within Scotland. But it also may be because there are weak systems to make businesses aware of what knowledge exists. Overall, business leaders and policy makers tended to speak more terms of science and its application than of a pulled together innovation system. On the other hand, there is clear agreement that new policies and practices are needed as further devolution unfolds.

### ***Impact of independence on innovation infrastructure***

Sustaining and growing successful and innovative industries depends on a range of services and policies (MULLER and ZENKES 2001; MORGAN 2007). Our interviewees emphasised that a key factor shaping the innovative capacity of local firms and sectors is the preservation and expansion of the existing infrastructure for supporting innovation, alongside changes in the tax regime, changes in the regulatory environment, and preserving excellence in the higher education system. A wide range of such powers and services are already devolved, including:

Development of a skills base that is responsive to the needs of business

Tailored support to key sectors – creative industries, energy (including renewables), financial and business services, food and drink (including agriculture, and fisheries), life sciences, sustainable tourism, and universities

Horizontal support of innovation and its commercialisation, such as the SMART, the Proof of Concept Programme, and the financial products available to local businesses.

The Scottish Department for Enterprise, Energy and Tourism, the responsible government department, had a budget of £410.7m in 2011. This included £45.2m for industry and technology grants, £283.4m to the enterprise bodies (Scottish Enterprise & Highlands and Islands Enterprise) and an Innovation & Industries budget of £5.8m.

In spite of the currently devolved powers, the Scottish Government argued that independence was essential to develop a more effective policy mix to support innovation: 'Independence would provide an opportunity to [ ...] develop a more aligned and coherent framework for innovation in Scotland. A key goal must be to develop a virtuous cycle of activity with close collaboration between key partners in the innovation system – including universities, funding providers, firms and public sectors agencies – behind coherent strategic priorities linked to additional economic levers.' (SCOTTISH GOVERNMENT, 2013, p 118).

Those who support more devolution or independence focus on the advantages brought by a more comprehensive and better coordinated strategy, tax incentives for innovation, an immigration policy aimed at attracting skilled workers, and a more active role for the public sector in promoting innovation. With regard to this coherent industrial strategy approach, one oil and gas business interviewee made the following observation:

If I can take you back a moment to the early days of North Sea oil and gas development, at the time, Scotland and England were characteristically different. [ ...] They were not in the short-term markets of the City of London. They were in it for long-term capital growth. [ ...]

Now it seems to me there's an element of that in the current debate about what happens next. Scotland is still wealthy in a lot of resources. For instance, it is land-rich, huge potential in terms of the next 100 years when land is going to be at a premium, wherever you look anywhere in the world.

The cases of Norway, Switzerland and Denmark were also cited as examples of small countries with frameworks of innovation support that have been strategically and coherently developed according to the evolving needs. An IT business interviewee observed that:

I think there's every reason to suppose that it won't be easy, it might be a messy period for a while. So, the whole of the Scottish economy might not do very well for 10, 15, 20 years. Hopefully not longer than 10 years. But then, I do think there's no reason on earth why Scotland couldn't configure its economy to be more like a Scandinavian country. ... These are among the most prosperous countries in the world and the quality of life in them is very good, there's no particular reason why we shouldn't be in that situation.

Sceptics of enhanced powers to the Scottish Government and an autonomous Scottish innovation strategy pointed out that emerging sectors of the local economy are currently reliant on the support of Innovate UK (IUK). IUK has taken on a wide range of innovation support. IUK also facilitates the delivery of Knowledge Transfer Networks (KTNs) and a variety of *Catapult* sectorial activities, and have very significant funding (£1bn per annum). IUK spans a greater policy and delivery range than Scottish Enterprise, acting as a more equal partner to funding councils and medical charities in UK science and innovation policy. Scotland received some 10% of IUK funding in 2012.

Finally, some interviewees felt that the UK Government had more potential in public procurement, for instance in defence-related contracts to Scottish engineering companies. But even the skeptics were in favour of improved innovation infrastructure and spoke of their willingness to support initiatives.

To sum up, our interview data allow identification of key issues of particular concern regarding the preservation/expansion of existing innovation infrastructure - namely the need for an effective mix of policies that needs to be context-specific and ranges from procurement, to instruments which glue the local innovation systems to global markets, to the creation of centres of technological excellence where public and private players are able to mix knowledge and collaborate. The general consensus was that the strengthening of such infrastructure in Scotland should not come at the expense of a reduced access UK level infrastructure, which provides a series of benefits arising from its larger scale.

### ***Innovation and structural change***

Interviewees from emerging sectors voiced different concerns regarding devolution or independence. Research-intensive industries, such as ICT and life sciences were more interested in R&D tax credits, grants for innovative projects, and private equity/credit available for risky projects/entrepreneurial ventures. In this sense, the existence of a Scottish Investment Bank was seen as a positive feature of the existing Scottish innovation system. The recession of the past five years created profound challenges for many companies in accessing capital beyond the early stage equity market. In response, the Scottish Executive rebranded Scottish Enterprise's investment team as the Scottish Investment Bank in December 2010. Crucially, it expanded its remit to support the development of Scotland's private sector SME funding market to ensure that both early stage and established companies with growth and export potential have adequate access to growth capital. Some of our interviewees saw this as an important development, a model for supporting investment in local ventures that should be preserved and extended in an independent Scotland alongside tax reliefs such as the Enterprise Investment Scheme and R&D tax credits.

According to our interview data, innovation and structural change will take time since emerging sectors, such as life sciences and renewable energies are in an embryonic stage of development, whilst ICT has not yet reached critical mass. Further, they not only depend

on increased investments, but also on crucial factors in the regulatory environment. Economic activities in sectors such as oil/gas, financial services, ICT and bio-pharmaceuticals are critically dependent on rules dictating how natural resources can be extracted/handled, drugs safely produced, financial services prudently and transparently offered, and intellectual property used. Some interviewees raised the issue of new regulatory frameworks, the time needed to develop them, and whether Scotland has the financial/human resources to put them in place. One biotech company interviewee said: Currently in the healthcare system for example, when you invest in a company in the UK that's got a UK market, you deal with the MHRA. You know how the process works. In an independent Scotland the regulator is not based in Scotland. You may contract with the MHRA, but how does that work? My biggest concern is anything that creates doubt in the venture capital organisation.

The Scottish Government highlighted that nurturing and promoting an entrepreneurial culture would constitute a strategic priority, to boost competitiveness and reindustrialise the new country. Many interviewees agreed that this constitutes a desirable target, very much in line with the existing economic literature, which shows that the combination of innovative investment and entrepreneurial capacity is a key driver of growth in developed economies (CORRADO et al 2009).

Crucially, as autonomy is enhanced, our interview data suggests that the current infrastructure to support innovation and entrepreneurship would have to be maintained and improved. Some interviewees felt that independence would push local economic agents to take more direct responsibilities and policymakers to develop the conditions for a stronger entrepreneurial culture. At the same time, our interview data shows that issues concerning access to the UK/European market and scientific/industrial networks.

## Conclusions

The paper set out to understand the key issues regarding innovativeness within the Scottish economy in the wake of the referendum of 2014. It used the concept 'imagined community' to frame the lasting image of Scotland as a strong scientific and innovative society both distinct from England in culture and attitude, and a major participant in the UK's knowledge economy. The paper provided strong evidence for Scotland's world class science. But the image of a strongly innovative Scotland is less evidenced. We describe perceptions of the serious 'disconnect' between scientific/educational capacity on the one hand, and innovative entrepreneurial capacity on the other. The paper has provided data on the main concerns and informed opinions of the business, policy and research communities concerning the Scottish innovation system.

After Scotland decided to stay part of the UK, much enhanced fiscal autonomy is under way. On the basis of such imminent transformation, the questions raised in our interview-based study remain open and extremely relevant. What are the prospects for science and innovation? and how could enhanced autonomy improve innovation in the Scottish economy? Our interviews, workshops, and policy and secondary data, point to a series of conclusions. First, the interviews and workshops showed that the desire for a more aligned and coherent innovation policy is generally shared among the business community. However opinions diverge as to whether such strategy could be more effectively delivered by a Scottish Government benefiting from full autonomy vis a vis micro-economic and innovation policy, or through a realignment of the responsibilities and powers within the UK-wide system of innovation.

Second, the researcher community see possible reductions in research funding as a major threat to the Scottish research universities and research institutes. The business community see the Scottish universities as a huge advantage to economic competitiveness, but some, a minority, also think that an innovation-led policy might also change research priorities, at least to an extent.

Third, there is a general awareness of the current disconnect between the science base and

the industrial sectors of the Scottish economy.

Fourth, there was also a general consensus that structural change within the Scottish economy is required to secure long-term prosperity. The emergence of a stronger entrepreneurial culture is seen as a *sine qua non* condition to take advantage of the potential for innovation that resides within/at the interfaces of emerging sectors of the economy such as life sciences, ICT, renewables and engineering, but also food/drinks and tourism.

Fifth, there was major uncertainty about the options as the process of enhanced autonomy gets under way. One uncertainty related to possible changes to the tax regime. In this respect, views tend to vary dramatically depending on the needs of different industrial sectors. There was a general consensus, however, that the options available to the Government of a more devolved or even independent Scotland would be highly restricted.

In general, our research questions, focused though were on the independence debate, brought a series of answers that showed concerns and pressure for change under any form of governance. The status quo received no support though independence was not seen as a panacea either. The debate brought out a wide range of concerns about future innovativeness in the Scottish economy. It is our contention that the ongoing debates around enhanced autonomy should provide opportunities to broaden arguments and bring changes to innovation policy and practice. The independence debate might have provided an opportunity to move from the traditional argument that in Scotland 'science is good, innovation is weak' towards a policy debate based on how to bridge the science-innovation gap and thus how to translate from science to commercialisation.

An alternative policy approach that has received much less attention in Scottish policy circles is how to go beyond starting with 'good science' and instead look at existing and potential economic activity in Scotland so as to improve the innovative potential across the broadest range of industrial sectors – an integrated innovation systems approach.

An innovation systems perspective could build on specific application areas, such as food and drink, oil and offshore resources, industrial biotechnology, renewables, construction, finance, higher education, and so on, to support the diverse capacities and linkages needed to strengthen the connections between industry and Scotland's science, business and innovation base. The imaged community of Scotland as a global scientific and innovation centre will depend on an entrepreneurial state (MAZZUCATO, 2013) with an integrated raft of 'smart specialisation' activities and institutions (FORAY et al, 2009) focused on existing and emerging industries and services.

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## **SME SUPPORT MODALITIES – EXAMPLES FROM SELECTED SOUTHEAST EUROPEAN COUNTRIES**

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**In order to increase their competitiveness, small and medium sized entrepreneurs (SMEs) across the globe do have a need for structured information regarding potential financial and non-financial support offered in their respective countries, both by public and private sector. Although considered as one of the most developed continents, Europe faces quite a diverse state of play from country to country in this sense. Definitely one of the least developed regions in Europe regarding SME and entrepreneurship culture and structured SME support ecosystem is the region of South East Europe (SEE). This paper tends to present an overview of the most common SME support modalities, both in financial and non-financial way given by public and private sector in three SEE countries, namely Serbia, Croatia and Montenegro. The authors conclude that these three countries that were once united under the same economic system are dealing with the very similar issues and problems that present an obstacle for proper SME and entrepreneurship culture development. Nevertheless, there are positive signals that should be considered.**

## **Keywords**

Entrepreneurship, support, SME, SEE

## **1. Introduction**

The entrepreneurship as an idea is as old as society and is not exclusively an economic phenomenon. It is connected to all the aspects of human behavior and acting where creativity is necessary, as well as innovation, new ideas, solving the problems in a new way, with the aim of the fulfillment of human needs. The entrepreneurship is a willingness of an individual or a few partners to start a business with the aim of making a profit, with the investment of capital and undertaking the risk because of partial uncertainty.

The contemporary entrepreneurship exceeds limits of the term economy, the economic activity, expanding on all fields of the society, and among them there is a connection. This is the way of business acting in which the entrepreneur decides what, how and for whom creates something (product, service), with his own expense and a certain risk, with the aim of gaining the profit [1].

According to a document of European Commission *EU Green paper*, the entrepreneurship is defined as a way of thinking, that is a process of making and developing of economic activities combining risks, creativity or innovation in a present organization [2].

### **1.1 The importance of the entrepreneurship and SME sector**

Among the experts in the field it is well known that the small and medium sized (SME) sector is an important element, very often a moving power of each economy. There are lot of ways how a company can influence the increase of the society prosperity, where obvious is a pure material influence – through the profit, income and earnings. However, prosperity can be increased in other ways: starting with the employment, the support of the community in which the business is held, through the fulfillment of different needs of the society with various products and services, ending with spreading of the innovations, technologies, knowledge, workers advanced training and some other positive effects of the activities of companies.

Taking into account the current economic situation in the South East European (SEE) region, where a lot of citizens have no jobs or work in the “grey” zone (i.e. where employers strive for a tax evasion) without poor possibility for the opportunity of showing their own skills, creating

new jobs is one of the most important contributions of companies to prosperity of the society [3]. The important role of the SME in creating new jobs during the transition is a main characteristic of most former socialist countries. In fact, for the former socialist countries the domination of big conglomerate state companies was a main characteristic. As they had a big surplus of labor, those companies during the transition reduced a lot the employees even though in the meanwhile some of them were privatized successfully. Mostly small and medium sized companies made new jobs.

There are two ways of starting the business. One is connected with the entrepreneurs that do all by themselves. They start the business without making a business plan with the resources they have. They ask nonfinancial help, and when financial help is considered, they rely on the private loans. The other way is related to the entrepreneurs who accept the available forms of nonfinancial help. Nonfinancial help is related to various forms of trainings, the use of advisory services and hiring consultants who help them make the business plan.

According to the business plan, the entrepreneur asks for the financial help in public or private sector. There are two models of getting the missing financial resources. The first one is the "debt" model in which the entrepreneur gets in debt at the financial institutions in public sector (fund for "start-up" by a development bank or specialized micro credit institutions) or the specialized banks in the private sector [4].

An entrepreneur often decides to combine the both available models, when the whole expense of getting the necessary capital is lower than the one available on the market, and the whole amount of the financial help is bigger than the limit that exists in the state developing institutions. The other model is "equity" in which the specialized investor gets a stake in the company's ownership in return to his/her initial business boosting investment.

As investors appear as venture capitalists or business angels they do have a significant role in a company's business decision-making process. An entrepreneur always needs financials, but as his/her business in most of the cases could not be financed completely from the external source of financing, the entrepreneur first counts the own financials he/she has. In the first phase of development, for the additional financial help he/she seeks the help of institutionalized models of financial help or of business partners.

It is important to realize that SMEs face the bigger obstacles in business than the big companies. A lot of expenses of the improving the business, like going out to the common market or fulfillment of regulated conditions are the same for all the companies regardless their size. For big companies these expenses are acceptable while for small companies they can be insurmountable obstacle in the business [5].

## **1.2 Selected SEE countries**

This paper analyses the entrepreneurship support in three former republics of the Socialist Federative Republic of Yugoslavia, namely in Serbia, Croatia and Montenegro. Nowadays, they are independent countries with their own economy. Each of these countries replaced socialism planned economy for capitalism in a very turbulent period of transition. After getting the independence these countries started the path of joining European Union (EU) and they have different positions in the process of euro integrations, where Croatia is a member state, while Serbia and Montenegro are official candidate countries.

Croatia became the member of EU in 2013, Montenegro has been a candidate for the membership since 2010, and Serbia has been working intensively on the harmonization of its laws and the approach to the euro integration. Economies of these countries, as well as SME sector, differ in the degree of development relating to EU.

Observed ways of entrepreneurship support by the public and private sector are shown through financial and nonfinancial activities. Selected criterions were evaluated from the standpoint of the level of presence/representation reviewing the activities of selected institutions in the public and private sectors. The data were extracted from the several online sources [6], [7], [8], [9], [10].

## 2. Research

The aim of research is to show the connection of euro integrations and the development of the entrepreneurship in the countries in the transition. The selected countries from the research sample had the common economy up to 1990-s and today they have the different degree of economic development and position with respect to the EU. The country that is a member of EU is observed, as well as the country that has been a candidate for five years and the country that is at the beginning of EU integration process. Croatia is a member of EU, Montenegro has been a candidate since 2010 and has had different ways of support, and Serbia got candidate status last year and because of that in the previous period it was without a possibility to use many of supportive measures of EU in developing its economy. These mentioned countries during the Socialist Federative Republic of Yugoslavia had the identical problem of economic closing and a very poor orientation to the markets of the other countries especially western European countries. The only important difference was related to the degree of dependence of the common market: the most developed republics, Slovenia and Croatia, were less dependent on Yugoslav market than Montenegro and Serbia. These countries got the status of independent countries periodically, and the main aim of this research is to see if there is differences regarding support to entrepreneurship and SME sector now when they are independent countries.

The study included an analysis of the number and types of institutions which provide support to the sector of small and medium-sized enterprises in selected countries. The level of present activity was evaluated based on the description of activities of institutions that are visible to entrepreneurs at web-sites selected institutions. The following tables will show the level of presence of selected activities of financial and non-financial support to small and medium-sized enterprises in the public or private sector in the countries selected for comparison.

### 2.1 Analyzed activities of financial and nonfinancial support in Republic of Serbia

The monitored parameters are part of the overall support. Some parameters describe the support necessary for the development of the country (EU projects, export-oriented companies, business incubators, technology parks) then includes new entrepreneurship with an increasing influence (social, women, youth, self-employment, business angels, venture capital) and some of them are part of traditional support (business consulting, training seminars, credits, funds, etc.).

**Table 1** Public sector – nonfinancial support

<b>Public sector</b>			
<b>Nonfinancial sector</b>	<b>Present</b>	<b>Partly present</b>	<b>Not present</b>
Business consulting	X		
Consulting service about national projects		X	
Consulting service regarding EU projects		X	
Help for networking and promotion of companies	X		
Educational lectures – training seminars	X		
Simulation of the operation of companies			X

Support of special section of entrepreneurship (social, women, youth, self-employment...)		X	
Support to export oriented companies		X	
Consolidated overview financial and nonfinancial support on web presentation		X	
Introduction of entrepreneurship in the schools		X	
Development business incubators, technology parks and center for entrepreneurship		X	

The results from Table 1 show that nonfinancial support by public sector has a partial level of representation. There is a lack of enterprise simulation support on the web. On the other hand, business consulting and educational lectures are highly represented.

**Table 2** Private sector – nonfinancial support

<b>Private sector</b>			
<b>Nonfinancial sector</b>	<b>Present</b>	<b>Partly present</b>	<b>Not present</b>
Business consulting	X		
Consulting service about national projects		X	
Consulting service about EU projects			X
Help for networking and promotion of companies	X		
Educational lectures – training seminars	X		
Simulation of the operation of companies			X
Support of special section of entrepreneurship (social, women, youth, self-employment...)	X		
Support to export oriented companies			X
Consolidated overview financial and nonfinancial support on web presentation			X
Introduction of entrepreneurship in the schools			X
Cluster development		X	

According to Table 2, there is a high level of not represented nonfinancial support in private sector. It could be noticed the lack of commercial companies, focused on providing consulting services about EU projects, and supporting export oriented companies. Business consulting, networking and promotion of companies are present.

**Table 3** Public sector – financial support

<b>Public sector</b>			
<b>Financial sector</b>	<b>Present</b>	<b>Partly present</b>	<b>Not present</b>
Projects for grants at national level	X		
Credit support at national level	X		

**Table 4** Private sector – financial support

<b>Private sector</b>			
<b>Financial sector</b>	<b>Present</b>	<b>Partly present</b>	<b>Not present</b>
Credit support	X		
Business angels		X	
Venture capital and private equity fund			X
Leasing companies	X		
Factoring companies	X		

Table 4 shows that the financial support is present but also it shows the lack of venture capital and private equity fund.

## **2.2. Analyzed activities of financial and nonfinancial support in Montenegro**

**Table 5** Public sector – nonfinancial support

<b>Public sector</b>			
<b>Nonfinancial sector</b>	<b>Present</b>	<b>Partly present</b>	<b>Not present</b>
Business consulting	X		
Consulting service about national projects		X	
Consulting service about EU projects		X	
Help for networking and promotion of companies		X	
Educational lectures – training seminars	X		
Simulation of the operation of companies		X	
Support of special section of entrepreneurship (social, women, youth, self-employment...)		X	
Support to export oriented companies			X
Consolidated overview financial and nonfinancial support on web presentation			X
Introduction of entrepreneurship in the schools		X	
Development business incubators, technology parks and center for entrepreneurship		X	

According to Table 5, nonfinancial support by public sector has a partial level of representation. There is excellent representation of support through educational lectures and it is noticeable that there is a lack of support to export oriented companies and consolidated overview on web presentation.

**Table 6** Private sector – nonfinancial support

<b>Private sector</b>			
<b>Nonfinancial sector</b>	<b>Present</b>	<b>Partly present</b>	<b>Not present</b>
Business consulting	X		
Consulting service about national projects		X	
Consulting service about EU projects		X	
Help for networking and promotion of companies	X		
Educational lectures -seminars		X	
Simulation of the operation of companies			X

Support of special section of entrepreneurship (social, women, youth, self-employment...)		X	
Support to export oriented companies			X
Consolidated overview financial and nonfinancial support on web presentation		X	
Introduction of entrepreneurship in the schools			X
Cluster development		X	

The results of research in the Table 6 show that nonfinancial support by public sector has a partial level of representation. We can note the lack of commercial companies, focused support towards export-oriented companies and the people who encounter with entrepreneurship for the first time.

**Table 7** Public sector – financial support

<b>Public sector</b>			
<b>Financial sector</b>	<b>Present</b>	<b>Partly present</b>	<b>Not present</b>
Projects for grants at national level		X	
Credit support at national level		X	

**Table 8** Private sector – financial support

<b>Private sector</b>			
<b>Financial sector</b>	<b>Present</b>	<b>Partly present</b>	<b>Not present</b>
Credit support		X	
Business angels			X
Venture capital and private equity fund			X
Leasing companies		X	
Factoring companies		X	

The results of research in the Table 8 show that financial support by private sector has a partial level of representation. The support of business angels and venture capital and private equity fund is not present.

### **2.3 Analyzed activities of with financial and nonfinancial support in Croatia**

**Table 9** Public sector – nonfinancial support

<b>Public sector</b>			
<b>Nonfinancial sector</b>	<b>Present</b>	<b>Partly present</b>	<b>Not present</b>
Business consulting	X		
Consulting service about national projects		X	
Consulting service about EU projects	X		
Help for networking and promotion of companies		X	
Educational lectures – training seminars	X		
Simulation of the operation of companies		X	
Support of special section of entrepreneurship (social, women, youth, self-employment...)		X	

Support to export oriented companies		X	
Consolidated overview financial and nonfinancial support on web presentation	X		
Introduction of entrepreneurship in the schools	X		
Development business incubators, technology parks and center for entrepreneurship		X	

According to Table 9, nonfinancial support by public sector has a good level of representation. However, there is a lack of supporting the export-oriented companies.

**Table 10** Private sector – nonfinancial support

<b>Private sector</b>			
<b>Nonfinancial sector</b>	<b>Present</b>	<b>Partly present</b>	<b>Not present</b>
Business consulting	X		
Consulting service about national projects	X		
Consulting service about EU projects	X		
Help for networking and promotion of companies	X		
Educational lectures -seminars	X		
Simulation of the operation of companies			X
Support of special section of entrepreneurship (social, women, youth, self-employment...)		X	
Support to export oriented companies			X
Consolidated overview financial and nonfinancial support on web presentation			X
Introduction of entrepreneurship in the schools		X	
Cluster development	X		

According to Table 10, nonfinancial support is good. It is important to emphasize that there is a great support to entrepreneurs who need help about EU projects. There is a lack of supporting the export oriented companies and the people who first encounter with entrepreneurship.

**Table 11** Public sector – financial support

<b>Public sector</b>			
<b>Financial sector</b>	<b>Present</b>	<b>Partly present</b>	<b>Not present</b>
Projects for grants at national level	X		
Credit support at national level	X		

The results of research in the Table 11 show that financial support by private sector, has a great level of representation.

**Table 12** Private sector – financial support

<b>Private sector</b>			
<b>Financial sector</b>	<b>Present</b>	<b>Partly present</b>	<b>Not present</b>

Credit support	X		
Business angels		X	
Venture capital and private equity fund		X	
Leasing companies	X		
Factoring companies	X		

The results from Table 12 show that the financial support is represented. It is important that venture capital and private equity fund are present.

### 3. The comparative analysis of selected parameters

#### 3.1 The comparative analysis of selected parameters nonfinancial support - public sector

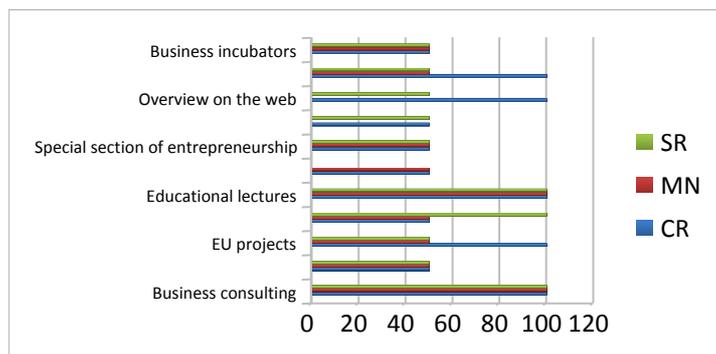


Figure 1 The comparative analysis of parameters nonfinancial support – public sector-

In Serbia, the public sector is present with non-financial support, but there is not a satisfactory level of simulation of entrepreneurial work through on-line workshops. On the other hand, these models of support are present in Croatia and Montenegro. It should be noted that the most common species in Serbia are business consulting, companies networking and educational lectures.

#### 3.2 The comparative analysis of selected parameters nonfinancial support - private sector

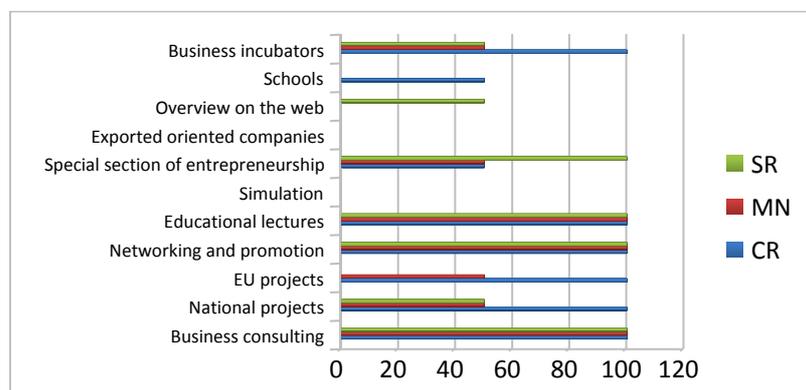
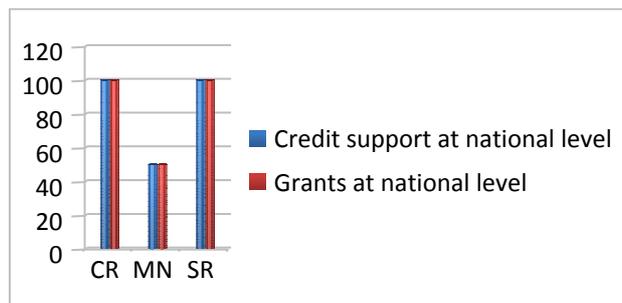


Figure 2 The comparative analysis of parameters nonfinancial support – private sector-

The characteristic of non-financial support in private sector in Republic of Serbia are insufficient or no present in the parameters: consulting services in relation to EU projects, simulation operation of the enterprise, support export-oriented enterprises, aggregate view of non-financial and financial support on a single web site. The aforementioned problem is also present in Montenegro and Croatia, but with good representation of private sector support to consulting projects of the European Union and the development of clusters.

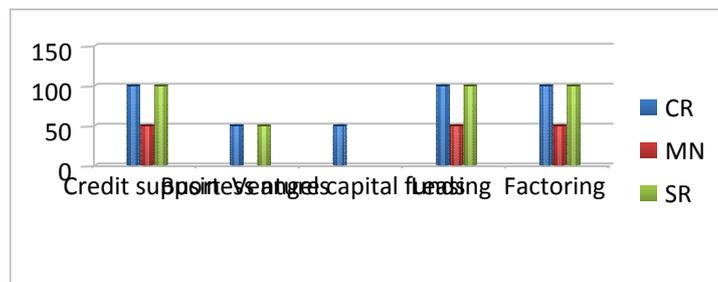
### 3.3 The comparative analysis of selected parameters financial support - public sector



**Figure 3** The comparative analysis of parameters financial support – public sector-

The public sector provides financial support. Two parameters are present in Serbia.

### 3.4 The comparative analysis of selected parameters financial support - private sector



**Figure 4** The comparative analysis of parameters financial support – private sector-

The private sector in Serbia generally provides a satisfactory level of financial support except for the presence of business angels and venture capital and lack of private funds, where Croatia is slightly ahead. Montenegro is in the same position with Serbia.

### 3.5 The comparative analysis of the global entrepreneurship and development sub index rank according to GEDI parameters (ATT, ASP) for 2011– 2012

The purpose of GEDI is to capture the essence of entrepreneurship, and thus to contribute to a richer understanding of economic development and to fill a gap in our ability to measure it. The GEDI offers a way to measure the quality and the scale of the entrepreneurial process in countries around the world. The first edition of the GEDI book containing 71 countries was published in 2011. The 2012 GEDI index has been expanded to include 79 countries. It also captures the contextual features of entrepreneurship by measuring entrepreneurial attitudes and aspirations.

Serbia is analyzed from 2011 as the country that had wished to participate in program and gave all necessary data [11].

**Table 13** The comparative analysis of the global entrepreneurship and development sub index rank according to GEDI parameters (ATT,ASO) for 2011- 2012

	2011			2012		
	SR	MN	CR	SR	MN	CR
ATT	29.0/100	-	32.0/100	28.0/100	29.0/100	31.0/100
ATT RANG	51/71	-	44/71	54/79	51/79	44/79
ASP	12.0/100	-	31.0/100	12.0/100	29.0/100	27/100
ASP RANG	63/71	-	32/71	60/79	29/79	31/79

Croatia is more advanced in ATT and ASP than Serbia in 2011, and in 2012, Montenegro has better position in ASP than Croatia and Serbia.

There are no results for Montenegro in 2011 because of the lack of proper Montenegro institutional variables.

### 3.5 The comparative analysis of the global entrepreneurship and development sub index rank according to GEDI parameters (ATT, ABT, ASP) for 2013– 2015

**Table 14** The comparative analysis of the global entrepreneurship and development sub index rank according to GEDI parameters (ATT, ASO) for 2013. - 2015.

	2013			2014			2015		
	SR	MN	CR	SR	MN	CR	SR	MN	CR
ATT	29.0/100	33.0/100	31.0/100	40.6/100	37.8/100	32.9/100	39.6/100	42.1/100	35.5/100
ATT RANG	64/117	55/117	60/117	50/130	58/130	72/130	57/130	47/130	71/130
ABT	16.0/100	26.0/100	40.0/100	28.1/100	32.5/100	38.8/100	22.6/100	31.9/100	36.1/100
ABT RANG	100/117	64/117	27/117	97/130	84/130	52/130	117/130	87/130	68/130
ASP	16.0/100	27.0/100	31.0/100	33.2/100	48.1/100	51.0/100	29.5/100	43.3/100	50.1/100
ASP RANG	66/117	27/117	39/117	62/130	44/130	38/130	80/130	46/130	38/130

**Legend:**

**ATT (Entrepreneurial Attitudes)** – Opportunity Perception, Start-up Skills, Risk Acceptance, Networking, Cultural Support

**ABT (Entrepreneurial Abilities)** – Opportunity Startup, Technology Absorption, Human Capital, Competition

**ASP/ (Entrepreneurial Aspirations)** – Product Innovation, Process Innovation, High Growth, Internationalization, Risk Capital

The entrepreneurial abilities (ABT) was placed in 2013 to improve research. It is sub-index, principally concerned with measuring some important characteristics of the entrepreneur and of start-ups with high growth potential. This high growth potential is approached by quality measures, including opportunity motivation for start-ups that belong to a technology intensive sector, the entrepreneur's level of education, and the level of competition.

Regarding values from Table 13 and Table 14, Serbia does not have a good tendency in any parameter in the past 5 years. In 2015, Republic of Serbia is expecting solid position in ATT, and even in front of the Croatia. On the other hand, Serbia has poor standing in ASP, especially in the area of ABT, where to GEDI source, occupies 117th place, out of 130 ranked countries.

### 3.5 The comparative analysis total index of entrepreneurship for 2011– 2015

**Table 15** The comparative analysis total index of entrepreneurship (GEI) 2011. -2015.

	2011			2012			2013			2014			2015		
	SR	MN	CR	SR	MN	CR	SR	MN	CR	SR	MN	CR	SR	MN	CR
GEI	18.0/	-	28.0/	18.0/	27.0/	29.0/	0.0/	32.0/	34.0/	33.9/	39.5/	40.9/	30.6/	39.1/	40.6/
INDE	100		100	100	100	100	100	100	100	100	100	100	100	100	100
X															
GEI	62/	-	38/	63/	40/	37/	80/	45/	37/	68/	52/	49/	78/	54/	51/
RAN	71		71	79	79	79	120	120	120	120	120	120	130	130	130
G															
WORLD															
GEI	28/	-	22/29	29/	25/	23/	37/	27/	23/	33/	30/	27/	38/	32/	31/
RAN	29			30	30	30	38	38	38	38	38	38	39	39	39
G															
EUR															
OPE															

The Global Entrepreneurship Index (GEI) gives us a detailed look at the national entrepreneurial ecosystem combining the data of individuals with components institution. It also captures the contextual features of entrepreneurship by measuring entrepreneurial attitudes, abilities, and aspirations. The methodology used for the GEI is significantly different from previous efforts to organize this data done by the Global Entrepreneurship Development Institute. In addition, since the number of countries in the Index has grown, it is able now to provide regional information.

Increased number of countries over the years is due to the evolution and transformation of consciousness about the importance of entrepreneurship.

Serbia has a trend that varies, but it is poorly positioned in the field of GEI at the global level (78th place out of 130 countries), and it is extremely poorly ranked in Europe (38th place out of 39 countries).

## 4. Conclusion

In the analysis which is done, three countries were observed which differ in the period of the status for the candidate of EU – Serbia, which has been a candidate for EU since 2014, Montenegro, which has been a candidate for EU since 2010. And Croatia, which was a candidate for EU since 2004 and has been a member of EU since 2013.

In countries which had previously begun to attach importance to entrepreneurship and where were conditions of market economy, entrepreneurship has its place in schools or universities much earlier. There was a long experience of private business that did not exist in the countries of former Yugoslavia.

Through the available data it can be concluded that the support in Serbia is not satisfactory. This teaching should be only a special subject at schools but also a new approach in education which develops creative, innovative thinking, business and practical skills of management. The non-formal entrepreneur education must be available in order to enable the present entrepreneurs to develop new skills that are necessary in different phases of entrepreneurial development, from the establishment, development and complexity of the business.

The results have shown that it is necessary in Serbia to activate activities in the consulting and preparations of the documentation relating to EU project. That shortage is present in the public as well as the private sector. The work on EU projects is very important for the entrepreneurs and SMEs in economic sense and developing the way of thinking (being systematic, innovative, precise and respecting time limits).

It is necessary to activate the support to exporting orientated companies. The export is

mainly related to the medium and big companies. In this period of time there are mostly IT entrepreneurs whose products are prepared for export. But, one of ways for the entrepreneurs in other fields to export is the education, support and stimulus for exporting products and services.

It could be noticed that one of the greatest problems in Republic of Serbia is that entrepreneurs and SMEs are not well informed about all possible ways of support, regardless of whether it is a financial or non-financial support. Problems of functioning of the external environment, the newly imposed conditions of production, intense change, crisis, significantly affect the results of operations. The comparative analysis of the values in the tables in this research, we observe the point of potential improvements. Of course, this process is long, necessary and inevitable.

## Acknowledgements

The authors acknowledge the financial support of the Ministry of Education, Science and Technological Development of the Republic of Serbia, within the Project No 47005. and TEMPUS project "iDEA LAB" (JPHEs 544373-1-2013-1) for enabling and supporting participation at the 8<sup>th</sup> International Conference for Entrepreneurship, Innovation and Regional Development organized by University of Sheffield, UK.

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## The role of entrepreneurship in the transition to sustainable development in developing countries with focus on energy sector: The case of Republic of Serbia

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The aim of this paper is to provide a detailed insight in the current state of Serbian energy sector as well as to point out main barriers and obstacles towards the transition to sustainable development. In addition, the relevant indicators of country profile and performance of entrepreneurship economy are presented as well as the main characteristics of Serbian energy sector. Likewise, major hypothesis is that, despite the huge barriers, Government of the Republic of Serbia can help in forming a small but financially viable nucleus of green business among entrepreneurs which could lead to green growth and removal or mitigation of key barriers. Special attention is devoted to the role of entrepreneurship as a driving force in the transition process of Serbian energy sector towards the sustainable development and green growth. Last but not the least, ensuring youth involvement in such a process will provide community with significant benefits, where young entrepreneurs in particular could benefit through the income generation opportunities as well as through the variety of social benefits that would be brought to the community. Lastly, the economic benefits will improve the overall living standard of the community in general.

## Keywords

Entrepreneurship, green growth, renewable energy, sustainable development.

## 1. Country profile and performances of entrepreneurship economy

Republic of Serbia belongs to the category of the developing countries, with average GDP per capita of 6,312 of dollars in 2011. In a period from 2008 to 2011, average real growth rates of GDP were low, or negative. Such a trend is a consequence of performing global financial and economic crisis, as well as still ongoing transition [1]. In addition, Serbia is a country where rising trend of poverty occurs (9.2% of population in 2011, against 6.1% in 2008), while the number of inhabitants amounts about 7.2 millions. Number of inhabitants decreases at a rate of 0.4% per year, which is mostly the consequence of negative natural increase in the population. Also, more than 50% of inhabitants live in urban areas and the life expectancy at birth amounts to around 75 years [2]. Likewise, country economic structure is very unfavourable mostly because relevant services take part with two thirds in GDP, while agriculture and industry take part with the remaining one third and the fact that economic structure has not significantly altered in observed period. Foreign direct investments amounted to 2.7 billion of US dollars in 2011 and due to a global crisis and unfavourable investment climate, these types of investments declined in 2009 and 2010. Similar declining trend is recorded in net official aid (Table 1) [3,4].

**Table 1** Serbian socio-economic indicators [3].

Indicators	2008	2009	2010	2011
Income and poverty				
GDP per capita, current USD	6,498	5,484	5,270	6,312
GDP per capita growth, annual %	3.8	(3.5)	1.0	2.0
Poverty headcount ratio at national poverty line (% of population)	6.1	6.9	9.2	N/A
Demography and health				
Population (million inhabitants)	7.35	7.32	7.29	7.26
Population growth (%)	(0.4)	(0.4)	(0.4)	(0.4)

Urban population (%)	55	56	56	56
Mortality rate, under 5 (per 1000 live births)	8	8	7	7
Life expectancy at birth, years	74	74	74	75
Economic structure (as % of GDP)				
Agriculture	11	10	9	9
Industry	28	28	27	27
Services	61	62	64	64
Financial flows				
FDI, net inflows (BOP, current \$ in billions)	2.996	1.936	1.34	2.7
Net ODA (% of GNI)	2.1	1.6	1.8	1.3

Adequate governance is crucial when it comes to the implementation of green growth of any country including Serbia. Governance can be defined as a juncture of tradition and institutions by which power is performed in one country. Here is very important to mention Worldwide Governmental Indicators (WGI) [5], an important instrument used to explore governance in more than 200 countries worldwide, during more than decade. WGI captures six dimensions of governance Voice and accountability capture the extent to which citizens are able to participate in selecting their government, as well as freedom of expression, freedom of association and freedom of media. Political stability and absence of violence/terrorism capture the likelihood that the government will be destabilized by unconstitutional or violence means, including terrorism. Government effectiveness represents the quality of public services, capacity of civil service and its independence from political pressures as well as quality of policy formulation. Regulatory quality means the ability of the government to provide sound policies and regulations that enable and promote private sector development. Rule of law means the extent to which actors have confidences in the rules of society, including the quality of contract enforcement and property rights, the police and the courts, as well as the likelihood of crime and violence. Control of corruption covers the extent to which public power is exercised for private gain. It includes small and big forms of corruption, as well as “capturing” of the state by elites and private interests [6]. The indicators of governance quality in Serbia in all six dimensions in a period 2008-2011 are shown in Table 2. Columns in Table 2 represent Serbia’s rank in compared to referent countries worldwide, by each dimension of governance. Rank is expressed as a percentile, where 0 is the lowest rank, and 100 is the highest rank. Serbia is positioned in the middle of the world’s scale concerning governance quality. In addition, political stability and rule of law are the worst ranked dimensions of governance, while declining trend is recorded regarding government effectiveness.

**Table 2** Serbian governance quality indicators [5].

Dimension	2009	2010	2011	Trend

[%]

Voice and accountability	56.9	55.9	56.3	-
Political stability and absence of violence	28.4	31.1	35.4	▲
Government effectiveness	51.7	51.7	49.8	▼
Regulatory quality	49.3	52.6	53.1	▲
Rule of law	42.2	43.1	46.5	▲
Control of corruption	50.7	49.3	55.0	▲

The level of technological development is represented by several indicators shown in Table 3. Less than the half of Serbian population has access to Internet, while the number of mobile cellular subscribers is greater than the number of inhabitants. Number of people that are engaged in R&D activities is very small, around 1,000 per million people. R&D expenditures are less than 1% of GDP, while the data for 2010 and 2011 are not available [3].

**Table 3** Serbian Technological development indicators [3].

Indicator	2008	2009	2010	2011
Number of Internet users (per 100 people)	36	38	41	42
Mobile cellular subscribers (per 100 people)	119	122	122	125
Researches in R&D (per million people)	1014	1060	N/A	N/A
Research and development expenditure (% of GDP)	0.38	0.92	N/A	N/A

## 2. The main characteristics of Serbian energy sector

The Republic of Serbia as a country in Western Balkan region, exhibits relatively high levels of energy intensity, a high energy savings potential among energy end users, and heavy dependence on imported hydrocarbons. Since most energy infrastructure was built during the 1960s and 1970s, inadequately maintained since the 1990s, and reaching the end of its useful lifespan, now is a crucial time to consider the way forward in the energy sector. Energy market would benefit from enhanced demand side efforts and integrated energy efficiency measures across all sectors. The signing of the Energy Community Treaty in 2003 marked the beginning of systematic energy sector liberalization among Western Balkan countries, allowing them to deal with widespread energy sector problems that included, on the demand side, low energy tariffs, lack of payment discipline and little incentive for energy users to invest in energy efficiency measures [7]. According to a study conducted by USAID, it was estimated that demand for energy will increase significantly in the coming decades. Also, this study points out that the demand in the countries of Southeast Europe will increase by more than 3% annually up to 2027. The fastest growth is expected in the commercial sector (140%), followed by the industrial sector (100%) and the residential sector (60%). However, even with the implemented measures for household energy efficiency, energy consumption will increase by at least 2% annually until 2027 [8,9]. From the time of the preparation of the current Strategy of Energy Development, Serbia signed the Energy Community of South East Europe agreement, the Kyoto Protocol and has ratified the Aarhus Convention. In addition, Serbia signed a Stabilization and Association Agreement with the EU and the Energy Agreement with Russia. These international treaties, agreements, conventions and protocols significantly alter the obligations of Serbia in the field of energy and set deadlines and commitments which are not foreseen by the Strategy. The mere fact

that the strategy is valid until 2015., indicates that it does not include the application of the core commitments of EU directives in the field of environmental protection (in particular Directive about big power plants focused on fossil fuel combustion - Large Combustion Plant Directive - LCPD) which must be in use from the end of 2017. Based on the Development Strategy, the Government adopted a Development Strategy of Energy in early 2007, which regulates the application of operational development strategy. Strategy and Program were prepared by the Ministry of Mining and Energy with a relatively modest share of other state institutions and civil society. The involvement of all authorities of the Government is anticipated by the Energy Law [10], which was renewed and improved from the time of adoption to the entry into force, while the participation of non-governmental sector provides recently ratified the Aarhus Convention and the Treaty of the Energy Community of Southeast Europe. After the entry into force of the current Strategy energy statistics has improved significantly within the National Statistics Office and may be expected that in the future there will be statistically coverage at the appropriate level for the development and implementation of appropriate energy policy. In addition to previously mentioned, the common features of the institutional framework of the Western Balkan countries are listed as follows [11,12]:

- Legal regulation of the energy sector in the EU must comply with the norms of the national legislation and / or implemented in full. Technical assistance in this process should be channelled through the Energy Agency, which requires highly trained personnel.
- Policies to encourage the establishment and development of energy-efficient enterprises do not exist (e.g. ESCOs, qualified installers, energy advisors, "green" architects, energy auditors, etc.), or a policy that provides for the construction of new and existing buildings Reconstruction of economic and non-economic nature.
- Lack of information about the potential benefits of measures to increase energy efficiency (hereinafter referred to as "EE measures") and technologies on consumer side (households, municipalities, companies ...)
- A very small quantity of energy users has the financial and technical ability to identify, plan and implement measures to increase energy efficiency, and technical assistance is not available or is scarce.
- To implement the energy efficiency measures at the level of consumer country must improve and provide the following:
  - professionals in the field of energy efficiency, electrical and electronic equipment / materials and quality control,
  - incentives for the user to adopt EE technologies, including technical and financial support,
  - Establishing an information system for the public that provides the necessary knowledge and information related to energy efficiency and the establishment of centres at the city level that would ensure the functioning of such a system.
- Strengthening of existing production and transformation capacity (mainly in terms of conventional plants) in the energy sector should be systematically implemented as soon as possible, as well as planning of new capacities, particularly oriented toward the exploitation of renewable energy sources.

## **2.1 Production of final energy**

Production of the final forms of energy in Serbia is largely based on the combustion of fossil fuels and coal in the first place, followed by natural gas, oil and oil products. However, a significant amount of energy is provided from rivers exploiting existing hydropower plants. Production of the final forms of energy from renewable sources in Serbia is so low, that it simply can be ignored. In the energy sector, the public company - Power Industry of Serbia

(EPS) is emphasized in particular. This company vertically integrates utilization of natural resources - coal extraction and power generation, coal transportation, power generation, power distribution and supply of energy to consumers, metering, billing and collection. There is a very complex, multifaceted relationship between the company and the Republic of Serbia, which is of very high macroeconomic and fiscal importance. EPS has maintained a high level of production during the period of sanctions and the 2000's to the present. In addition to EPS, there are several other producers, whose share in the production of final energy demand is very small in compared to previously mentioned one.

The total amount of primary energy needed for consumption in 2014 amounted to 15,594 Mtoe which is 1% higher than the estimated total amount of primary energy consumption in 2013, which amounted 15,366 Mtoe. The required amount of primary energy is provided 70% of domestic production and 30% of net imports. Domestic production of primary energy, covers the exploitation of domestic resources of coal, crude oil, natural gas and renewable energy sources (hydro potential, geothermal energy and firewood) annually. Planned production of primary energy in 2014 amounted to 10,897 Mtoe, which is 4% less of the estimated production in 2013 (11,389 Mtoe). In the structure of primary energy coal accounts for 67%, oil 12%, natural gas with 4.5% and 7% of hydropower potential, firewood from 9.5%, while geothermal, solar and wind energy as well as biogas with less than 1% [13].

Projected net imports of primary energy in 2014 amounted to 4,620 Mtoe which is 22% higher than the estimated net imports in 2013 (3,774 Mtoe). The largest share of net imports of 46.5% has natural gas, then the crude oil and oil derivatives 46% and the high calorific coals (coke and hard coal) of 9.5% [13].

## **2.2 Final Energy Consumption**

Final energy consumption in the non-energy purposes in 2014 was 0,369 Mtoe, which is 5% less than the consumption in 2013. The final energy consumption for energy purposes is the sum of the primary energy used in transformations (to be used directly in the sectors of consumption) and the energy gained in the process of transformation, minus the consumption of the energy sector, losses in transmission and distribution of electricity and primary energy as well as non-energy consumption. The final energy consumption for energy purposes in 2014 was planned to amount 9,463 Mtoe, which is 4% higher than in 2013 (9,092 Mtoe). In the structure of final energy consumption transportation accounts for 21%, industry 30%, while other sectors combined (household, agriculture, public and commercial) accounted 49%. The increase in consumption is planned in the industry in the amount of 9% in 2014 compared to the consumption of 2013, while in other sectors of consumption remains at the level of 2013 [13].

In addition, energy consumption per capita in Serbia is close to the world average, but it is about three times lower than the average of developed countries in the OECD (Organization for Economic Cooperation and Development). This indicates that labor productivity declined in Serbia, and that the labor force is available to utilize a small amount of energy. Likewise, consumption of electricity in Serbia is approximately 25% higher than the world average and only about 2.6 times less than the OECD average [14]. This is the best quality and potentially most productive source of energy. This ratio suggests that the Serbian economy could generate higher national income per unit of energy than the world average. This, however, is not true. Energy consumption per unit of the Serbian national product is more than three times higher than the world average and about five times higher than the OECD average. This indicates not only on the low energy efficiency but to very low efficiency of using the most efficient form of energy – electricity [7, 14].

### 3. Entrepreneurship in Serbia and barriers to green growth

At the first look, this is the only category in which Serbia scores above the EU average. When one looks more closely at the indicators, however, the picture is less clear-cut. Serbians are more likely than EU citizens to have entrepreneurial intentions, but the figures indicate that business owners have a worse reputation in Serbian society (about 10 percentage points below the EU average). The proportion of those currently running their own business is above average (10.1%), which might point to a positive entrepreneurial environment in the medium term, although the limited results on early-stage entrepreneurial activity, particularly for women (not even 3% of the female population, while the overall figure does not even reach 5%), suggest that start-ups find a difficult environment early on [15]. On the policy front, progress in this area in 2013 and the first quarter of 2014 was substantial, with three measures launched to promote entrepreneurship:

- A program of support for the activities of associations for the development of entrepreneurship was established in 2013, with the aim of raising awareness about entrepreneurship among women and young people, and creating a conducive environment for private initiative;
- Closely related to this was the training on companies investment readiness under the EU's Integrated Innovation Support Program; this was geared mainly to raising general awareness and providing access to information about financing based on venture capital and lending professional assistance. It is expected that this training will improve SME's, stakeholders and new entrepreneurs ability to make a sound judgment about the future development of their businesses; and
- Training was also given under the Integrated Innovation Support Program in the area of innovation. Its aim was to help companies determine their innovation priorities and provide them with knowledge of strategic aspects of business conduct.

However, as previously mentioned, entrepreneurship in Serbia faces numerous problems in doing business, where disturbed long-term financial safety is one of the most important problems. Entrepreneurs do not possess own net working capital, because investments in fixed assets are greater than own capital deducted for the losses. Shortage of assets for financing fixed assets is compensated by long-term liabilities, especially bank credits. Neither one dinar of inventories is not covered by own net working capital, while total net working capital is sufficient to finance only 3-6% of current assets [2]. Financing current reproduction of entrepreneurship sector is almost, in the whole, in the hands of external creditors (Table 4).

**Table 4** Net working capital of Serbian entrepreneurship sector in a period 2008-2011 (in 1000 of dinars).

Indicators	2008	2009	2010	2011
1 Capital	22,702,677	21,866,003	23,193,449	24,686,784
2 Cumulated losses	2,625,716	3,197,303	3,608,780	3,692,505
3 Net capital (2-1)	20,076,961	18,668,700	19,584,669	20,994,279
4 Fixed assets	24,957,936	24,942,005	25,725,888	26,155,829
5 Own net working capital (3-4)	-4,880,975	-6,273,305	-6,141,219	-5,161,550
6 Long-term provisions and liabilities	8,645,777	8,373,445	8,379,678	7,626,913
7 Net working capital (5+6)	3,764,802	2,100,140	2,238,459	2,465,363
8 Inventories	30.558.142	29.202.690	31.207.643	32.110.226

9	Excess (deficiency) NWC (7-8)	-26,793,340	-27,102,550	-28,969,184	-29,644,863
10	Own NWC/Inventories	-0.16	-0.21	-0.20	-0.16
11	NWC /Current assets	0.06	0.03	0.03	0.04

Profitability indicators of entrepreneurship sector are shown in Table 5 where the first group consists of revenue profitability indicators, while the second consists of profitability indicators of assets and capital.

**Table 5** Ratio indicators of profitability in a period 2008-2011.

Ratio indicators	2008	2009	2010	2011
Ratio analysis of revenue profitability [%]				
Net operating income rate	3.20	2.80	2.30	2.44
Net profit margin ratio	1.70	1.10	0.89	1.44
Gross profit margin ratio	3.30	3.00	2.36	2.66
Ratio analysis of assets and capital profitability [%]				
Return on Assets (ROA)	7.39	6.22	4.85	5.56
Return on Capital (ROE)	15.69	10.30	8.48	13.58

Net operating income rate shows profitability that entrepreneurs achieve in respect to their core business, i.e. dealing with the production and sale of products and services. Net operating income rate is exceptionally low in a whole observed period. This rate accounts from 2.30% (2010), to 3.20% (2008). It practically means that entrepreneurs have accounted net operating income from 2.3 dinars to 3.2 dinars for every 100 dinars of realized revenues from acting on the market. According to these indicators, entrepreneurship sector does not enough financial strength to carry on significantly higher level of indebtedness. Net profit margin ratio tells more accurately on profitability. This ratio shows which part of revenues from sales finally finds out a way to their owners. Values of this ratio in Table 6 are positive, but do not exceed 2% in a whole observed period.

Having this in mind, the entrepreneurship sector is forced to finance their property partly from liabilities. Consequently, profit or net income which entrepreneurs realize must be divided between them and the creditors. When profit margin is being calculated, it is reasonable to increase net income for interest costs. In such a way another profitability ratio called gross profit margin occurs. In the Table 5, gross profit margin is larger than net profit margin and accounts 2.36% (2010) to 3.30% (2008). Ratios of revenue profitability are needed, but insufficient condition for the profitability assessment of entrepreneurship sector. This is mainly because these ratios ignore the extent of capital needed to be engaged in creating revenues. Likewise, the most frequently used ratios are return on assets (ROA), and return on equity (ROE). The same table (Table 5) shows that ROA has the highest value of 7,39% in the beginning of 2008. During the next two years ROA declined, followed by its modest growth in 2011. Return on equity (ROE), shows the part of return in invested capital which belongs to the owners of enterprises. Generally, entrepreneurship sector can be satisfied with the fact that there exist positive financial leverage. Namely, return on equity exceeds return on assets in the whole of observed years. The highest ROE value of 15.69% is achieved in the beginning of 2008. Similar to ROA, value of this indicator declined during the next two years, followed by its recovery in 2011.

#### 4. The role of entrepreneurship in the Serbian energy sector transition towards sustainable development and green growth

It is generally known that growth and development of national economies have never been without challenges. The beginning of the XXI century is marked by global financial crisis, crisis of public debts, and the consequences of environmental changes, while the common characteristics of those challenges are unpredictability, long-term and inter-generational differences. Climate changes, energy dependency and security of supply represent a global challenges and their solving easily floods into domain of national economies [11]. These issues have a negative impact on economic growth and development where inertia in system, but also in the behaviour of government, individuals and organizations is the key reason why actions have to be taken as soon as possible.

Likewise, it is important to mention that energy sector represents the branch of economy which deals with the problems of secure production, transport, distribution and utilization of all forms of energy. It is a strategic and infrastructural economy branch of any country whose impact on all economic flows and development of other economic sectors (industry, transport, agriculture, etc.) is dominant [11]. Therefore, in the concept of development of the Republic of Serbia until 2020 (Table 6), from six development goals the two are directly related to energy and one of them (Investments in R&D) can significantly affect the improvement of the current situation in all other sectors, as well as in energy sector [16].

Table 6 shows the values of the objectives of this concept in comparison with the values of the same ones in the EU.

**Table 6** Serbia and the EU: current situation and development objectives [16].

Development goals	EU 2010	EU 2020	SERBIA 2010	SERBIA 2020
Employment of the population from 20 to 64 years old (%)	68	75	49	65
Investments in R&D (% of GDP)	1.9	3.0	0.3	2.0
The proportion of energy from renewable sources in total energy consumption (%)	16	20	12	18
Energy efficiency (toe/1000 \$ GDP)	0.21	0.17	0.96	0.57
Population from 30 to 34 years old with the university degree (%)	31	40	21	30
Poverty rate (below 60% of median disposable income)	16	12	17	14

Modernization of the energy sector and energy efficiency is planned and represents one of the generators of economic, but also social growth and development in the next decade. Energy efficiency of the Serbian economy is about four times smaller the EU average, while the consumption of primary energy per capita, which is often an indicator of the level of development of the country, is about two times smaller. In terms of rising energy prices and high production depending on the availability of energy sources, energy efficiency is becoming more and more important. Considering this fact, most countries tend to reduce power consumption and increase the overall energy efficiency. To achieve this it is necessary to put energy efficiency on the priority list when designing future economic policy of the Republic of Serbia. It is necessary to implement the Law on the Rational Use of

Energy and the Law on Amendments and Supplements to the Energy Law in order to set energy efficiency as a priority. In addition, it is necessary to consider the possibility of providing tax and other incentives for companies and entrepreneurs that implement projects to improve energy efficiency and provide the legal requirements for companies that implement austerity measures and their services are charged from the energy savings achieved. Increasing energy efficiency by 40% by 2020 saving would be about 1% of GDP per year (total of about 3 billion euro by 2020) through energy imports. This will provide achievement of not only efficiency and economic growth, but will also ensure increase of energy security through diversification of primary energy sources after the implementation of key infrastructure projects (gas and oil pipelines, etc.) [11].

Special attention should be paid to existing potential of renewable energy sources. On most of the territory of Serbia number of sunny days is much higher than in many European countries (between 1,500 and 2,200 hours per year) and potential of solar energy in Serbia is estimated at 0.64 million of toe per year (or about 16.7% of the total potential of renewable sources), while the largest potential for its use have cities in South part of Serbia - Nis, Kursumlija, Vranje. An annual average of daily global radiation energy on the horizontal surface is 5.4 kWh/m<sup>2</sup> and taking advantage of the total potential of solar energy for water heating, would reduce carbon dioxide emissions by 6.5 million tons per year. [17] In terms of biomass, technically feasible, annual energy potential in Serbia is around 2.7 Mtoe. The energy potential of biomass from forestry and wood industries (logging and wood residues produced during the primary and / or industrial processing of wood) is estimated to be approximately 1.0 Mtoe, while about 1.7 Mtoe is derived from agricultural biomass (agricultural waste and residues from crops, including the liquid manure). Biomass is traditionally used for the production of thermal energy in an amount of 0.3 Mtoe, which is 9 times less than the total technically exploitable potential [18]. When it comes to geothermal energy, it can be said that Serbia is extremely rich in these resources, which exploitation unfortunately decreased in compared to previous years. According to experiential criteria, only about 25% of potential hydro-geothermal resources can be effectively exploited, and therefore, the potential of hydro-geothermal resources available at the territory of Vojvodina, to a depth of "only" 1,200 m is about 1 EJ ( $\geq 24 \times 10^6$  toe). The best illustration of what kind of resources is about shows the fact that average overall annual energy consumption in last five years was about 0.63 EJ or approximately  $15 \times 10^6$  toe. [19,20] Wind energy as well represents a potential that is also absolutely unused. There are several locations in Serbia for which are made special studies based on detailed examination, but nothing was practically undertaken. Large water flows in the country are mostly exploited for energy purposes, but the potential of all other rivers is also significant. On Serbian territory there are about 870 sites suitable for the construction of micro and mini hydropower plants up to capacity of 10 MW [11]. It has been utilized less than 10% of this potential, and half of the existing facilities currently are not in operation. The problem is an already mentioned complicated procedure of issuing the permits, contracting, providing the necessary documentation, etc. Solving this problem would greatly speed up the process of building these plants in the mentioned locations. In the modern society in the near future there will be no plants such as today's power plants, which in its process of heat energy production use fossil fuels. All the energy from fossil fuels should be maximally exploit and transformed in exergy and then the remaining usable energy should be used in order to satisfy certain needs. Serbia is a country highly dependent on imports of certain fossil fuels (oil, natural gas, and coal) and the more efficient use of these energy sources could significantly influence on the reduction of dependency, and increase security of supply.

Given the aforementioned, it is quite obvious that renewable energy is a means to combine the goals of entrepreneurship promotion, youth self-employment (therefore income generation) and environmental protection, thereby contributing to sustainable development. One method to implement this potential link between youth employment and environmental

protection is to support development of youth-led enterprises in order to produce and market renewable energy to off-grid consumers. Youth-led renewable energy enterprises are a viable means of achieving sustainable development, as they promote technologies that are less harmful to the global environs (as compared to conventional technologies), while at the same time providing sustainable income-generating opportunities.

Thus renewable energy projects offer promising results and should be adopted on a global level. Ultimately, the need is to promote youth self-employment and entrepreneurship in renewable energy and energy efficiency field in as many national settings as possible. The development of renewable energy can bring positive and tangible effects on employment because this energy is local in nature and can usually be made available without the existence of heavy infrastructure. Developing countries have great potential for renewable energy, especially in rural areas. It is usually rural areas that are not connected to the electricity grid. Urban areas are usually well connected to the grid, even if the power generated is by conventional fuels such as coal. Rural inhabitation is often scattered non-uniformly, with many rural communities located far away from other rural communities. In such cases, it is not economical to try to connect these rural pockets to the grid. At the same time, these communities do need access to electricity. Renewable energy provides the solution to this. Thus it is the rural areas of developing countries that renewable energy should be focused in.

Apart from rural areas, another sector that holds promise is the tourism. This sector offers particularly good opportunities for the increased use of renewable energy. If a region enjoys tourist traffic, then the region's environment needs to be preserved while providing for the increased energy demand during peak periods due to the steady inflow of visitors. Furthermore, there is growth in tourism in isolated areas such as on islands and in mountainous regions, where fuel deliveries and grid connections are costly, leaving renewable energy as one of the most feasible options.

A term commonly used to signify employment that is environmentally friendly and ecologically sound is "eco-job". Eco-jobs are not restricted only to youth-entrepreneurs setting up renewable energy enterprises. Gainful employment with organizations that deal with or promote renewable energy is an equally significant option. Promoting alternative sources of energy must form a part of regional policies as it can bring employment to regions, which were not previously industrially developed. Studies worldwide have revealed the labor-intensive nature of the renewable sources of energy. According to the European Commission, that the employment impact of renewable energies can be five times higher than that achieved with further development of fossil fuels.

Most importantly, job creation takes place in the rural areas where unemployment is often very high. Availability of job opportunities in rural areas would prevent the rural youth from migrating to the cities to seek employment. This will not only ease the pressure on urban centres, but will ensure that the rural youth will not leave their villages, thereby ensuring the presence of a valuable asset needed for development – dynamic and hard working youth. Compare this to the contrast of the youth that migrate to the cities hoping for jobs, and become frustrated, discontent, and disenfranchised, threatening political and economic stability. Consisting predominantly of small and medium sized enterprises, the renewable energy sector is recognized as a major source of new employment opportunities.

According to the simple analysis of relevant values from the 2007 and 2008, in spite of economical depression in many countries worldwide, companies that were active in the field of developing and growing section of clean energy technologies and efficiency had growth of 53%. Studies that were conducted in relation to increase of income in the year 2008 in

comparison to year 2007 indicated that some effective factors have created this growth. Relevant factors included development of renewable energy systems and reduction of final energy price, increasing and developing market, high demand and low supply. In addition, for the first time income as a result of wind energy exploitation in the 2008 was more than \$50 billion, while income as a result of overall renewable energy utilization from \$75.8 billion in 2007 was increased to \$115.9 billion in 2008. The newest investment section in solar energy including equipment, supplying financial resources for projects, public markets and development section had a growth of 4.7% from \$148.4 billion in 2007 to \$155.4 billion in 2008. In 2008 there were 6043407 jobs created as result of renewable energy utilization worldwide, while this trend has a tendency to grow in both, developed and developing countries as well [21].

According to the IRENA REmap 2030 options, direct and indirect global employment in renewable energy used for power, buildings, transport and industry in 2030 would account for around 16.7 million jobs. Of these, 9.7 million would be in bio-energy, 2.1 million in wind energy, 2 million in solar photovoltaic, 1.8 million in solar water heating, 0.6 million in small hydropower and 0.5 million in the other renewable energy technologies (concentrated solar power, landfill gas, geothermal, tidal, wave and ocean). If the REmap business as usual scenario is assumed, the total direct and indirect jobs in the renewable energy industry would be 9.5 million only, still a considerable increase from the figure of 5.7 million achieved in 2013 [22].

Having this in mind, a numerous possibilities and chances of developing a business in the field are already recognized by entrepreneurs who are considered as a change agents in the economy, by serving new markets or creating new ways of doing things and thereby moving the economy forward [23,24].

#### **4.1 Significance of supporting entrepreneurship in energy sector field**

Energy focused entrepreneurs alleviate energy and environmentally relevant market failures through the discovery, evaluation, and exploitation of opportunities present in market failure. This conceptualization is based on a number of arguments which may be usefully summarized as follows [25]:

- Market failures represent a source of entrepreneurial opportunities – that is, unmet market demand exists as a result of discrepancies between private and social costs;
- Because of the natural characteristics of energy resources they are particularly susceptible to market failure and degradation – as a result, they represent a substantial source of entrepreneurial opportunity;
- Because the exploitation of these opportunities requires the elimination of barriers to the efficient functioning of markets, entrepreneurial action to exploit market failures serves to move markets toward states of superior efficiency;
- The exploitation of energy and environmentally relevant market failures reduces environmental impacts and moves markets closer to sustainability;
- Finally, the categories of market failure provide a foundation from which to gain a better understanding of the nature of these barriers and the manner in which entrepreneurial action may overcome them for economic gain.

According to the variety of studies, categories of market failure suggests that the barriers which must be overcome include the lack of sufficient property rights regimes, the existence of prohibitive transactions costs, the government support of monopolies or Pareto inefficient industries, and imperfect information. Energy entrepreneurs who establish more effective property rights regimes for energy resources stand to gain from the transformation of a public

good into a private one or from the elimination of externalities. Those who reduce transaction costs inherent in existing or potential markets enable the capturing of gains to trade which exist because of external effects. Others may create opportunities for themselves by finding ways to eliminate statutory support of competitive industries or firms. Likewise, energy entrepreneurs may find ways to perfect information in a manner that provides, creates, or develops markets or allows the entrepreneur to identify new markets or superior means for serving them. In each of these cases, in which a barrier to the efficient functioning of a market is creating environmental degradation, the act of exploitation has the potential to reduce environmental damage and enhance overall ecological sustainability.

On the other hand, it is important to emphasize the proposal that entrepreneur can help resolve market failures do not imply that all market failures may be resolved by entrepreneurial action or that all markets can work to the benefit of society and/or the environment. Instead, the main intention is to point out the possibility and manner in which entrepreneurial action is capable of alleviating market failures and environmental degradation. Accordingly, the conception of sustainable entrepreneurship should be viewed as a subset of the general concept of entrepreneurship, and energy entrepreneurship as a subset of the broader concept of sustainable entrepreneurship. However, many entrepreneurial actions can actually increase market failure and result in additional environmental degradation. While these actions may be classified as entrepreneurial, they do not fall within the domain of sustainable entrepreneurship. Examples of such market-degrading actions include efforts of entrepreneurs to monopolize industries or externalize costs by releasing pollution into waterways. Second, because not all market failures are relevant to environmental resources, a set of opportunities for the elimination of market failures exists which are classifiable as sustainable entrepreneurship but not environmentally relevant. In short, sustainable entrepreneurship represents a specific class of entrepreneurship which addresses, among other areas, the capturing of opportunities present in environmentally relevant market failures wherein the exploitation of the opportunity alleviates the market failure and reduces environmental degradation.

Lastly, start-ups play a key role in sustainable entrepreneurship. They have an impact on large firms. Since they have to compete with incumbents, they bring new innovation towards sustainability in order to be successful. Consequently, incumbents follow up with corporate sustainable entrepreneurship and innovate as well. As a result, new entrants manage to change the whole industry to become sustainable [26]. These start-ups are recognized as sustainable entrepreneurial start-ups defined as new business creations that are economically self-sustaining and examine opportunities of transition to a socially, economically and environmentally sustainable society [27].

## **5. Conclusions**

Nowadays, change-bringing technological ideas through variety of projects are accepted by the market and have the same value as creation of new knowledge. Experience from developed countries certifies that there is stable relationship among research and required production of market. Formation and development of entrepreneurship culture and encouraging energy entrepreneurs simultaneous with creating required mechanism can be regarded as effective solution in the process of commercialization and innovation in the field of clean energy technologies. Bearing in mind that current national scenario warrants immediate and effective action, the need for a coordination of activities to ensure a simultaneous approach to employment and environmental sustainability cannot be overstated. The links between protecting the global environment, reducing energy dependency and ensuring proper security of supply while providing employment opportunities to the youth is crucial in promoting sustainable development in the twenty-first century. Potential entrepreneurs must be well informed, trained and supported by relevant

governmental institutions in the development of renewable energy businesses. Energy needs are among the most basic needs of every community and the availability of energy resources can act as the driving force behind the transition from a developing economy to a developed one. Renewable energy is today one of the most promising options for combining the goals of employment and sustainable development. Youth involvement in renewable energy will provide community with significant benefits. Young entrepreneurs in particular will benefit by the income generating opportunities as well as by social benefits that would be brought to the community, while the economic benefits will improve the overall living standard on the national level. Lastly, viewing the economic systems as dynamically adapting to emerging energy and environmental challenges, it is quite obvious that entrepreneurs play a role in breaking down barriers to the efficient functioning of markets and eliminating the market failures which produce environmental degradation and sustainability. Guided by intelligent public policy which enables sustainable entrepreneurship, it seems that the innovative power of entrepreneurship could be captured to build a sustainable community. Given the substantial challenges facing the global environment, the environment presents a substantial opportunity for enterprise and invention, and it is about time to realize the importance of entrepreneurship to sustainability, and enable entrepreneurs to achieve its vision.

## Acknowledgements

The authors of this paper are very grateful to the TEMPUS project "iDEA LAB" (JPHE544373-1-2013-1) for enabling and supporting participation at the 8<sup>th</sup> International Conference for Entrepreneurship, Innovation and Regional Development organized by University of Sheffield, UK.

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## **Enterprise Education**

### **A Distributed Concurrent Design based e-Learning approach to Entrepreneurship Education**

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This paper describes the design of an intensive e-Learning course for Entrepreneurship Education, aiming to young ICT professionals willing to turn innovative ideas into a business.

During the course, entitled “*FLITE Innovation and Entrepreneurship*”, the aim is to choose an innovative idea and turn it into a business plan for forming a startup company. Towards this goal students are using a methodology called *ConCurrent Design (CCD)* process and specific tools for personal and business development, namely *Osterwalder Canvas Model YOU* and *Osterwalder Model Generation*. They are trained, in the early stages of the course, in the use of the above process and tools. Special emphasis is given on an effective combination of self-directed learning based on well prepared, well-structured courseware material and networked learning collaborative work in small groups (4-6 members/group). In the context of the group, which takes the form of a Personal Learning Network (PLN), they discuss and choose an innovative idea (also early during course delivery), which acts as the basis for their entrepreneurship learning process and the relevant Business Model and Business plan development. The paper also describes preliminary evaluation results of a pilot delivery of the course. The course was designed and delivered in the context of the EU/Life Long Learning Centralized funded project “*dCCDFLITE - distributed Concurrent Design Framework for eLearning in IT Entrepreneurship*” (*FLITE* for short).

### **Keywords**

Entrepreneurship Education, Concurrent Design Methodology, Computer Supported Collaborative Learning, Personal Learning Networks, Self-Directed Learning

## **1. Introduction**

During the last years it is well recognized that promoting Entrepreneurship in Higher and Vocational Education is of key importance to encourage more entrepreneurial attitude towards innovation and business development. The European Commission with the announced *Entrepreneurship 2020 Action Plan* [1] aims to enhance Europe's entrepreneurial potential, to remove existing obstacles and to revolutionise the culture of entrepreneurship in Europe, giving emphasis on three main pillars: (a) *Entrepreneurial education and training*, (b) *Creation of an environment where entrepreneurs can flourish and grow*, and (c) *Developing role models and reaching out to specific groups whose entrepreneurial potential is not being tapped to its fullest extent* [2].

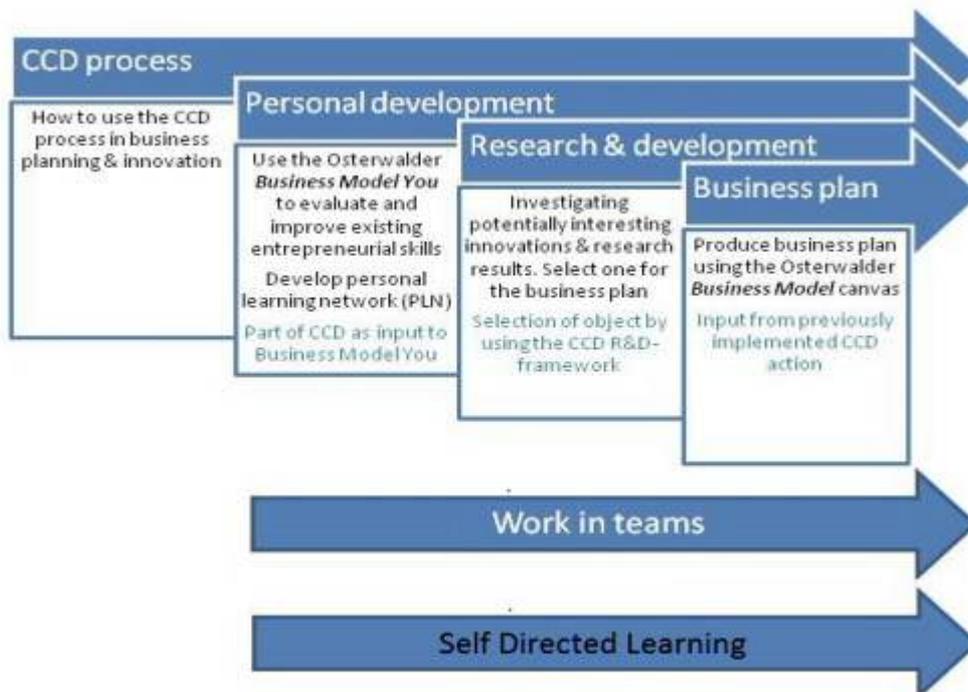
This paper describes the design of an intensive e-Learning course for Entrepreneurship Education, aiming to young ICT professionals willing to turn innovative ideas into a business. The course brings together Higher Education (HE) Information Technology (IT) students or fresh graduates, Vocational Trainees with young ICT professionals having a strong will to turn innovative ideas into a business. During the course students are trained to apply a *distributed ConCurrent Design (dCCD)* methodology together with tools for personal and business development. Special emphasis is given on an effective combination of self-directed learning based on well prepared, well-structured courseware material and networked learning collaborative work in small groups (4-6 members/group). In the context of the group, which takes the form of a Personal Learning Network (PLN), they discuss and choose an innovative idea (during the first stage of course delivery), which acts as the basis for their entrepreneurship learning process and the relevant Business Model and Business plan development.

In the next paragraph we discuss all the important issues which were considered for developing the “*Innovation and Entrepreneurship*” course, including aims and objectives, the course target group and methodology used. In paragraph 3 we present the Concurrent Design Methodology which plays a central role in our case. Paragraph 3 concerns the course delivery scenario, pedagogy issues of the course as well as evaluation results of a first pilot run of the course with a selected group of students. Conclusions and future work are discussed in the last paragraph of the paper.

## 2. Course Design Issues

Distance learning, on-line learning, and e-learning, nowadays, are considered similar terms having in common the fact that they provide a learning environment at a distance. A critical issue in such environments is that they require distance learners to be self-motivated and self-disciplined. In such occasions the more learner centered is the course the more successful we expect it to be [3], [4], [5]. There were many designing issues and choices that had to be made during the specific course development. The issues taken into consideration are strongly related to the profile of the students target group, to the domain subject of the course and they are both of technological and pedagogical nature:

Our starting point in developing the course was its target group: The main aim of the training developed was to promote cross-sectoral and cross-cultural collaboration on entrepreneurial knowledge transfer, on the domain of Information and Communication Technology (ICT), between Higher Education graduates and industry employees. This reflects on the one hand on an increasing need to work at a distance (remote working) experienced in many IT businesses in Europe (especially SMEs and Start-Up companies) and on the other hand on the need of young ICT graduates or fresh employees in building the entrepreneurial knowledge they lack, since business administration, marketing and finance issues were not among their first degree curriculum. Learners of such a target group are not seeking on acquiring a deep knowledge on entrepreneurship per se but they tend to focus on building knowledge and skills in an intensive way, explicitly in preparation for operating or starting a business company. In this respect their training should be *domain specific*, in the sense that we have to apply a methodology that could guide students to act as entrepreneurs from the very beginning of the delivery of the course and grog this way of acting in their learning. The self-directed learning approach and computer supported collaborative learning are key issues and should be incorporated in the course structure in an appropriate combination.



**Figure 1:** Learning scenario for course development

*Self Directed Learning (SDL)* is an instruction method where students are considered self-motivated and take responsibility for their own learning [6]. It can be defined in terms of the

degree of responsibility the students accept during course delivery for their own learning. They are able to define and investigate topics of their own choice and pace and they reflect on their past experience and their newly developed knowledge. Gerald Grow [7] in his Staged Self-Directed Learning (SSDL) model defines four stages of self-direction. Students belonging to the higher (fourth) level are able to “*exercise skills in time management, project management, goal-setting, self-evaluation, peer critique, information gathering, and use of educational resources*”. In our case during the initial phase of the course students have guidance from the tutors and gradually become more independent and self-directed.

*Computer Supported Collaborative Learning (CSCL)*, nowadays also termed simply as *Networked Learning*, denotes a paradigm shift in open learning where computer technology and networks are used to facilitate new forms of instruction that are not only learner-centered but are also strongly based on collaborative approaches [8]. CSCL encourages collaboration among the students, so that they are not simply reacting in isolation to uploaded e-learning material but their learning process is accomplished through interactions among them. Students learn by expressing their questions, pursuing lines of inquiry together, helping each other and sharing knowledge [9]. In our case students, in order to collaborate, are expected to participate in small groups in the form of Personal Learning Networks (PLN). Early in the course students are advised to suggest possible innovative ideas, which can be used as a basis for forming start-up companies. Group formation is then based on a common innovative idea choice and the target of the group becomes to evolve this idea into a business model and a business plan for the formation of the start-up company.

Figure 1 depicts the learning scenario upon which the course development was based. To facilitate both collaborative learning and self-directed learning during course delivery we have adapted a *Concurrent Design (CCD) process* methodology [10] together with Osterwalder Canvas tools [11] for personal and business plan development. This amalgamation of the CCD methodology with the specific tools has the additional goal of “injecting” entrepreneurial thinking to the students.

Based on the above the aim of the course is that by its end, students:

- are trained to use an appropriate methodology for writing a business model, using distributed collaboration.
- are trained to create a business model, using the Osterwalder Business Model Canvas.
- know ways to identify and analyze entrepreneurial opportunities.
- are able to define value propositions, market segmentation, strategic alliances.
- are able to collaborate with key people in order to deal with the appropriate processes and procedures for writing a business plan and be able to start the process of launching a new company

The course developed consists of the following modules:

- *Introduction*: An all in one introduction to the course, process methods and tools for distance collaborating and business plan development.
- *CCD - Concurrent Design*: Process methodology and tools for online collaboration, towards the implementation of a business model.
- *Osterwalder Business Model Canvas*: Tools for personal development and designing a business model.
- *Entrepreneurship*: Material on different aspects of entrepreneurship and innovation, and business modelling.
- *Presentation of group work on the business model*.

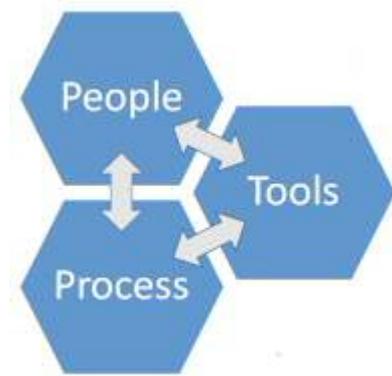
### **3. Concurrent Design Methodology and Tools**

Concurrent design is closely related to concurrent engineering, a methodology which has been applied successfully in the past for product development and manufacturing. It is based on the idea that several tasks regarding user requirements, quality and cost as well as tasks

of design and manufacturing engineering should be performed concurrently in order minimize the elapsed time required to bring a new product to the market. More formally Concurrent Engineering is defined in [12] as “a systematic approach to integrated product development that emphasises the response to customer expectations. It embodies team values of co-operation, trust and sharing in such a manner that decision making is by consensus, involving all perspectives in parallel, from the beginning of the product life-cycle”. Concurrent Design evolved as a general methodology to obtain effective multidisciplinary problem solving where time and costs can be saved while we are able to deliver products of better quality.

The basic premise for applying concurrent design revolves around three concepts: People, Process and Tools [13]. The desired results of the design (or problem to be solved) are achieved by means of a process, the right people and utilisation of appropriate tools for solving the problem. This is known as the PPT model (figure 3):

- *People*: Different experts representing their respective fields and having the authority to make decisions within the field they represent are collaborating for the design process.
- *Process*: The process typically describes what to do and when different events should happen. A very important part of this process is the implementation of a number of *concurrent working sessions* during the design process. The role of these sessions, which are realised as intensive and interdisciplinary synchronous collaboration videoconference meetings, is for decision making and future planning.
- *Tools*: Different experts will typically use specific tools (expert tools), but some general tools to support the interaction between participants are also required. These could be project administrative tools such as action lists, decision lists, or project planning tools. Additionally web tools for supporting the synchronous meetings as well as computer supported collaborative work tools for supporting the work between sessions meetings should be used.



**Figure 2:** The PPT model

Recently Concurrent Designed Methodology was adapted as a model to the area of e-learning course development, involving specialists in instructional design (pedagogy), knowledge (content) and technical delivery [13], [14], [15]. The adapted methodology is termed *distributed Concurrent e-learning Design* (*dCCD*), emphasising the fact that an e-learning course could be developed and delivered in a distributed way.

For the needs of the current e-learning course on Innovation and Entrepreneurship we have customized the dCCD methodology amalgamating it with tools for personal development and business modeling. We have selected Osterwalder Business Canvas which provides the appropriate means both for personal and business modeling. Osterwalder Business Canvas is based on the Business Model Ontology developed by Alexander Osterwalder [16] and it can be regarded both as a methodology and as a graphical modeling tool. “Osterwalder Business Model You” (BMY) is a tool to examine ones entrepreneurial skills and personal

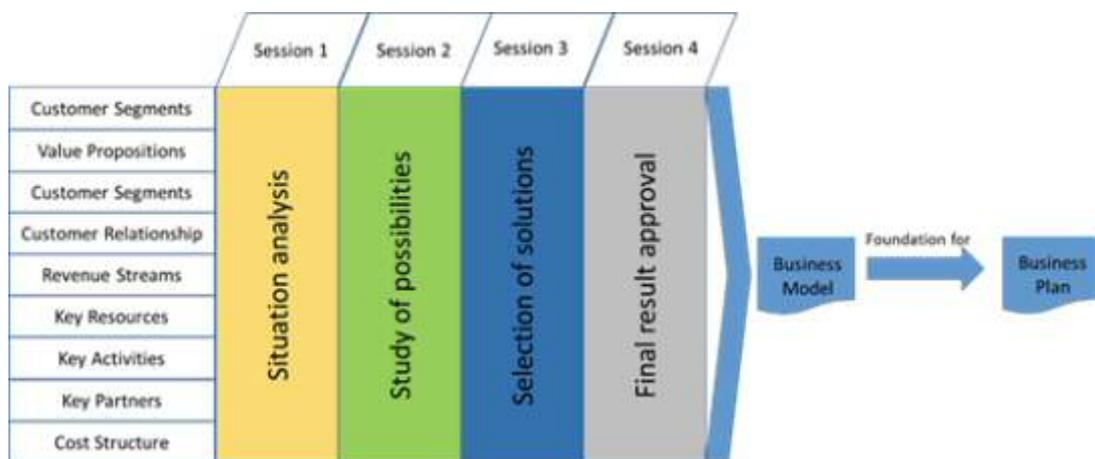
network [17]. One can get more insight into what his/her abilities are and how a personal entrepreneurial networking could be structured. Additionally Osterwalder Business Model Generation is an appropriate tool for group collaboration with the aim of developing a business model [18]. The business model is defined as consisting of the following nine (9) building blocks that constitute the business model canvas:

- The value proposition of what is offered to the market
- The segment(s) of clients that are addressed by the value proposition
- The communication and distribution channels to reach clients
- The relationships established with clients.
- The key resources needed to make the business model possible.
- The key activities necessary to implement the business model.
- The key partners and their motivations to participate in the business model.
- The revenue streams generated by the business model.
- The cost structure resulting from the business model.

The dCCD methodology is used to stimulate collaboration among the students taking the course in order to produce a business model based on the nine building blocks of canvas model. As mentioned above students belonging to a group have chosen an innovative idea and their goal is to collaborate towards the development of a business plan for forming a relevant start-up company. Following the process of the suggested dCCD methodology students are expected to become able to work in a structured way toward the development of a business model and produce a business plan.

The process is guided by five organized working sessions (figure 3), where students are meeting in a virtual conference room to discuss progress of their work. The aim is to speed up the development process by having students acting as subject area experts (based on their previous knowledge and experience) and working in parallel and consulting each other's work when there is a need for, clarifications or decisions. The five working sessions are:

- Session-1: What is the situation with regard to the suggested business idea?
- Session-2: What possibilities exist?
- Session-3: Selection of solutions
- Session-4: How the solutions should be designed and modeled?
- Final Session: Completion of the business model/writing of the business plan.



**Figure 3:** Suggested working sessions for the Entrepreneurship dCCD process

In between sessions students are working either self-directed or collaborating with members of the group studying relevant course material, seeking tutoring help or addressing issues

regarding the progress of their business planning. Having as a milestone the next working session they have to prepare themselves accordingly for their participation, in order to present assigned work by the group, be able to express their opinions for all relevant issues and take decisions. For better coordination and collaboration it is important that students of the group preserve and update in a cloud-based document repository a decision list and an activity list as well as any other document they consider pertinent.

## 4. Pilot Course Delivery

After its development the course was delivered in a small number of students. The purpose of the small pilot was to test the course on a scale small enough to allow for in-depth evaluation of the processes at work. Eleven students were selected by the partners of the FLITE project having the characteristics of the target group (cross-sectoral and cross-cultural). They were final year ICT students, ICT fresh graduates, self-employed in their new personal start-up business and unemployed. Their origin was from Greece, Norway, Portugal, Sweden and UK.

The course was intensive, offered over a period of 8 study weeks, and its workload corresponded to a minimum of 50 hours of study. These hours are not meant to be equally distributed and how much work students actually have to invest, depends in part on their previous knowledge on the subject.

In our case the pearsonopenclass Learning Management System (LMS) played the role of the backbone platform for all course activities including the support of the dCCD process (see figure 4).

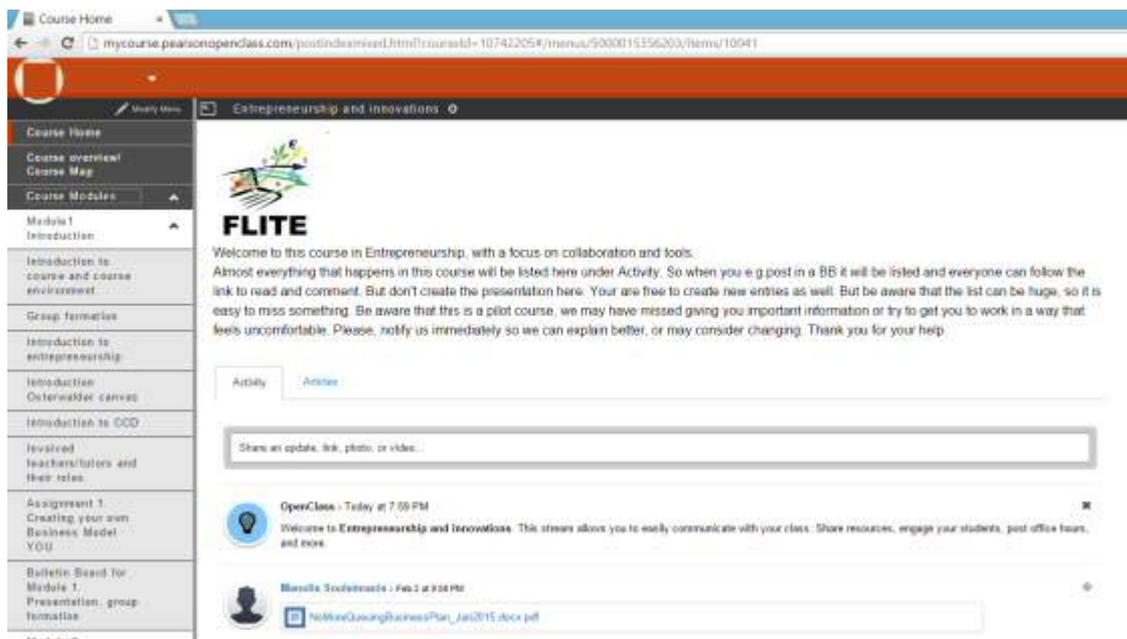
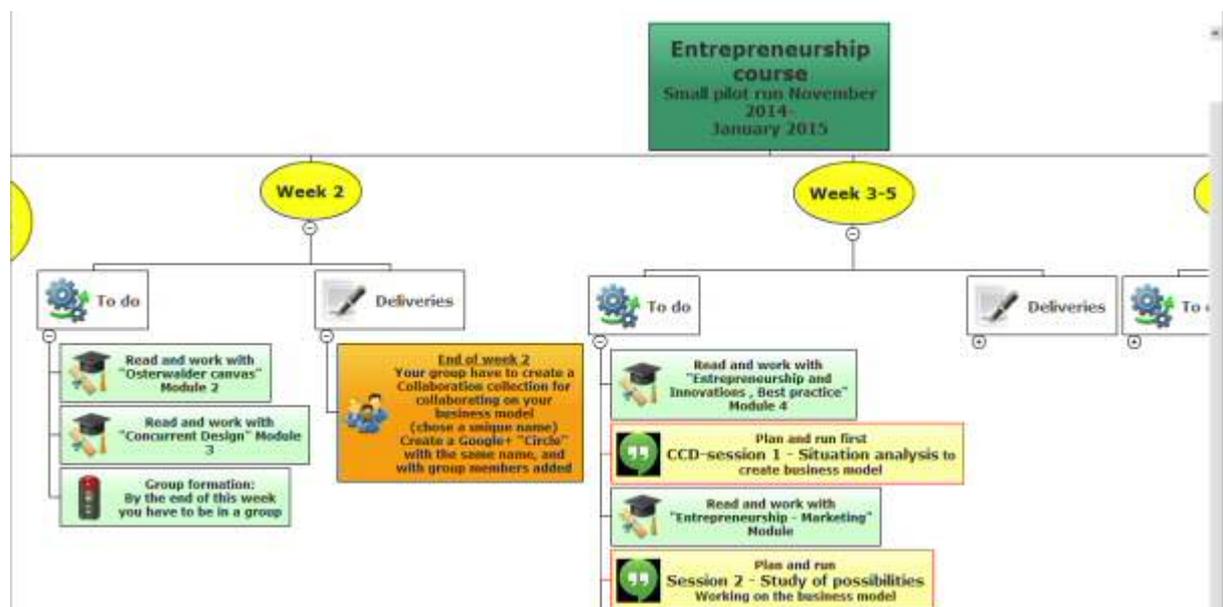


Figure 4 Extract from the FLITE welcome page of pearsonopenclass LMS

Before the start of the course students received an extensive document with course aims and objectives and with all necessary guidelines regarding their LMS account, how to use the LMS, as well as the additional tools needed during course delivery. They also received information on the cloud-based document repository to be used for collaborative writing. During the start of the course a videoconference meeting was organized for all students and tutors explained to them the structure and content of the course as well as the importance of selecting an innovative business idea to base their group formation and their process for

entrepreneurial learning. Adobe Connect was used as a virtual videoconference room and google drive for documents repository. Additionally a timeline scenario was presented to the students as a possible way for following course activities. This timeline is provided through the LMS under the entry “Course Map” (upper left corner in figure 4) in the form of a “zoom in – zoom out ” Mind Map which describes things to do and deliverables as the course progresses. A snapshot representing a partial view of the Mind Map is given in figure 5. It was noted that the week based timeline is just a suggested scenario and students are able to adapt it according to their needs, based on their knowledge and responsibilities assigned to them in the context of the group they will be working.

During week one students had to present themselves together with their thoughts on their possible future entrepreneurial intentions. They were also asked to suggest possible innovative business ideas. By the end of week one an additional videoconference meeting was organized for all students as an introductory training session on the dCCD methodology and the Osterwalder Business Canvas framework.



**Figure 5** A snapshot of the Mind Map process used in the FLITE course

During week two students followed a voting procedure to choose between business ideas (there were four suggestions) and based on their decisions they formed two groups in order to start their collaboration towards business modelling. During a third videoconference meeting students were advised in the context of their group to:

- Discuss the «business idea» the group will be working on
- Create a new directory in google drive for their group named with their business idea to act as a working space for asynchronous collaboration and collaborative editing of documents
- Discuss every member’s competence in the group
- Go thru the theory modules: CCD, Osterwalder, Entrepreneurship, possibly splitting the work between them for the entrepreneurship subtopics
- Decide who will be the main responsible to act as a group facilitator for the working sessions (Google Hangout was suggested as an example tool to support real time synchronous session meetings.)
- Set dates and times in their group for the dCCD working sessions
- Divide the main responsibility on the 9 Osterwalder topics in the group if they find it appropriate

- Preserve an activity list and a decision list in their working space in coordinate their activities
- Make sure to hold focus on the overall session activity in each session (situation analysis, study of possibilities et.c.)
- Plan and agree on «homework activities» after each working session

In the following weeks students had to go thru the steps suggested by the dCCD process. There were no more synchronous meetings with tutor participation. Tutoring was accomplish only asynchronously with tutors playing the role of observer of the process, giving advice and answering questions when needed. A weekly based message was sent to the students to remind them thinks to do and including remarks and suggestions regarding their activities.

At the end of the course one of the groups presented their business model and the business plan document. Members of the other group dropped out of the course after week three.

Upon the completion of the course a summative evaluation procedure was followed through the use of questionnaires, one for the students and one for the tutors/partners of the project. The students' questionnaire examined the following issues:

- User Motivation and Previous Knowledge
- User Experience regarding course delivery
- Course Content
- Working in Groups/ dCCD process
- Tutor Support
- Entrepreneurial Awareness

The tutors/partners questionnaire concentrated on the following:

- Course aims and objectives
- Course Content
- Course Platform
- Course Pedagogy and Timeline

Based on a preliminary processing of the questionnaires the following conclusions are in order:

- In general students, having completed the course, feel that they have gained a very good knowledge on the topic and the process they followed during the course raised their entrepreneurial awareness. All but one would recommend the course to others.
- Regarding student motivation and previous knowledge it became obvious that those having stared their own company or aiming to develop one in the near future are the ones to complete the course and develop a business plan. Students who actually joined the course with the aim of gaining general knowledge on entrepreneurship have found the course either tedious or somehow confusing and this was the main reason for dropping out of the course before its completion.
- Regarding the 5 suggested working sessions of the dCCD process students found difficulties in completing all of them, so they have rearranged them to three. They also mentioned that they would feel more comfortable if the facilitator of the group was a course tutor and not one of them.
- Regarding aims and objectives of the course both students and project partners responded that although clear at the general level they need to be specialized and be present to each separate module of the course.
- Regarding contents/topics of course modules they are coherent with aims and objectives of the course, but a more clear distinction is needed between domain content (entrepreneurship and innovation) and suggested processes (dCCD and Osterwalder Canvas).
- The LMS online course platform is easy and intuitive to use and easy to navigate but the indirect connection to Google Drive was somehow confusing. It was more

straightforward to use google drive separately.

- The Mind Map concept used as a timeline for course process and procedures received very positive comments.

## 5. Conclusions and future work

In this paper we presented an entrepreneurship course addressed in a non-business and professional discipline, such as Information and Communication Technology. The course is intended to fill the knowledge gap and raise entrepreneurial awareness to ICT people coming both from Higher Education (HE) and from the ICT industry sector. An important issue of the course, which was delivered at a small pilot phase, was that students were considered self-motivated and they were asked to base their learning process on an innovative business idea that they had to choose and suggest a business plan for transforming this idea to a start-up business. During the course they were trained to apply a *distributed ConCurrent Design (dCCD)* methodology together with tools for personal and business development. This methodology gives special emphasis on an effective combination of self-directed learning based on courseware material and networked learning collaborative work in small groups. Evaluation results of the small pilot showed that the course methodology applied is considered successful and in line with course aims and objectives, but revealed issues that need to be improved and some problems to be solved. Among these problems was that half of the students dropped out of the course before its completion. Although the students for the small pilot were recruited carefully by the project partners it proved that our e-learning course suffers from the same problem regarding drop-out rates reported in the relevant literature [19], [20].

The results of the small pilot course evaluation will be used for amendments and transformations in order to improve the course which will be tested in a second large-scale pilot. The purpose of the large-scale pilot will be to test the updated version of the course on a scale large enough to evaluate its practical implementation in the future. It was decided that the course will be offered through the Canvas Network ([www.canvas.net](http://www.canvas.net)) as a MOOC type of course. The second pilot will recruit on an open basis and should result in larger more viable learner groups. Groups will be self-organised as much as possible based on their business ideas and following a set of criteria e.g. there must be at least one HE and one industry learner and learners in each team should come from different countries. It is not possible to follow the course without being a group member, since the whole idea of the course is strongly based on group collaboration. Learning goals and objectives, methodology and tools to be used, duration and workload of the course will remain be the same as in the small pilot.

## Acknowledgements

The course presented in this paper was developed in the context of the project “*dCCDFLITE (distributed Concurrent Design Framework for eLearning in IT Entrepreneurship)*”, *FLITE* for short. The *FLITE* project received financial support from the European Union Lifelong Learning Programme (Centralized ERASMUS Multilateral Projects). The authors of the paper would like to thank all project members for their contribution.

More information about the *FLITE* project is available on the project official web-site [21].

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# **Creativity and Entrepreneurial Intentions of Students: Moderating role of Perceived Self-Efficacy and Entrepreneurial Education**

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Importance of entrepreneurship in today's business environment cannot be overlooked. Entrepreneurs play a significant role in an economy and development of the life style as a whole. Students, while studying are inclined to adopt their professions based on their individual interests. Many students are inspired by the entrepreneurial stories narrated by their textbooks and teachers. Sometimes they consider themselves as future entrepreneurs and develop intentions to become entrepreneurs. Being fascinated by this surfacing of entrepreneurial intentions of students, this study is carried out. It explores rapport between creativity and entrepreneurial intentions of students. While perceived behavioral control to perform certain behavior is essential to translate intentions to actions. Thus, this study also examines moderating role of entrepreneurial self-efficacy as perceived behavioral control. Education and knowledge about how to start a new venture and overall about entrepreneurship can also serve as a potential moderator. This study contend that entrepreneurial self-efficacy and entrepreneurial education serve as moderators in the creativity and entrepreneurial intentions' relationship. Results revealed that entrepreneurial intentions are closely related with one's creativity. Individual's own creativity, family supported creativity and university support for creativity is positively associated with entrepreneurial intentions. Entrepreneurial self efficacy (ESE) and entrepreneurial education (EE) found to be moderators of creativity and entrepreneurial intentions relationship. This is like the above relationship is stronger when ESE is high and weaker when EE is high. Research limitations and future directions are also suggested in this study.

## **Keywords**

Creativity, Entrepreneurial education, Entrepreneurial intentions, Self-Efficacy

## **1. Introduction**

The present dynamic business environment, rapid changes in technology and fewer employment opportunities raised a situation of growing demand for entrepreneurs [1]. Entrepreneurship is widely considered as one of the major contributors to today's economies. It leads to innovation, competition, new businesses, employment opportunities and bring economic prosperity [2]. Business Schools teach entrepreneurship as a part of curriculum all over the world, even in Pakistan. Thus, it is interesting to identify the potential entrepreneurs by assess their likeliness to become entrepreneurs. Entrepreneurial behavior of students can be predicted by measuring their intentions to start their own business [3]. Human behaviors are complex in nature and involve various psychological and social processes. Theory of planned behavior, an extension of theory of reasoned action, advocates that intentions are the main underlying psychological processes of actual behavior. Intentions, together with perceived control over the behavior, best predicts the behavior [4]. The traditional approaches of entrepreneurial intentions are psychological and behavioral. Researchers inclined to psychological approach identifies internal locus of control of individuals, their risk taking ability, high need for achievement, high tolerance for ambiguous situations and innovativeness in one's personality as main predictors of entrepreneurial intentions. On the other hand, Personal attitudes, normative beliefs and perception of behavioral controls are the main drivers for entrepreneurial intentions in behavioral perspective [5]. Literature identifies individual's own attributes as one of the major influencers of entrepreneurial intentions [2]. Among these is perceived behavioral control or self-efficacy, which powerfully develops intentions [4]. Not only entrepreneurship but creativity has been considered has important for growth of economies and initial process of venturing and in organizational innovation process [6]. One's own creativity is very important to help in inclination of someone towards starting own venture. Both creativity and entrepreneurship research is originated from fields of psychology and economics [7], [8] but the association of creativity and entrepreneurship has not much clearly been observed by researches. It is of worth importance to recognize the input of creativity in entrepreneurship. Two diverse literatures of creativity and entrepreneurship prevail. Yet there are similarities in both constructs, as well as differences. Creativity is associated with bringing novelty, newness and creates value, while entrepreneurship is about novelty in business entities [9] the process of creating new venture starts with entrepreneurial intentions which predict entrepreneurial behaviour [9]. [3] Integrated creativity with entrepreneurial intentions of students. In their preliminary study, they identified that student's self perceived creativity and family support for creativity better explain entrepreneurial intentions of students than creativity in university. Besides personal attributes, education is also identified as an important factor that affects one's cultural values and propensity to act as entrepreneurship [2]. A number of entrepreneurship courses are being offered all over the world to instill entrepreneurial abilities in youth [5]. Entrepreneurial education supply students with essential motivation, knowledge about entrepreneurship and skills required for initiating new enterprise Education of entrepreneurship differs on the basis of cultures in order to develop an entrepreneurial culture in a society, it is important to change the orientation of educational structure towards entrepreneurship. So individuals consider entrepreneurship as their future step of occupation [10].

An important aspect of venture creation is knowledge about launching new business. Scholars argued knowledge about entrepreneurship as entrepreneurial education. [11] have cited the definition of entrepreneurial education given by The European Commission of Communication as; "the individual's capability to convert ideas into actions" Literature provides evidence regarding positive impact of educational programs on entrepreneurial abilities [5]. Previous studies suggest mixed affects of education on one's entrepreneurial intentions. Some authors argue entrepreneurial education enhance students' intentions for entrepreneurship while others argued that entrepreneurial intentions decrease when individuals get knowledge about entrepreneurship [2]. Similarly, more clarification of the creativity-entrepreneurship model, presented by [3], is also entailed. So, this study is designed to explore entrepreneurial intention level of students in Pakistan by considering potential role of creativity [3] and education [2]. In addition, perceived self-efficacy (perceived

behavioral control of [4] ) and entrepreneurial education are proposed as moderators of the relationship between creativity and intentions to become entrepreneur.

## **2. Literature Review**

### **2.1 Entrepreneurial Education**

Entrepreneurial education instills in the individuals, the guidelines of the concept, passion, motivation and various skills associated with entrepreneurship. The education of entrepreneurship is an effort to highlight multiple aspects of this concept by which competencies, the proactive approach to opportunities can be used to start a new business venture. This education can help the enterprising individuals who can contribute to the economic betterment and be of social benefit to be productive members of the society. Entrepreneurial education includes one's creativity, novelty and risk sensitivity as well as the capability to map and manage tasks to facilitate outcomes. In early researches such as [12] advocates the development of skills set and specific abilities through the attainment of entrepreneurial education with other researchers emphasizing on the elements of effective entrepreneurial education.

Studies also focused on the leadership, creativity, technological awareness and exposure and innovation [13]. The education about entrepreneurial activity bring in its students the aptitude to seek new opportunities in the ever changing environment, accumulation of finances for a venture also known as the venture capital, generation and implementation of a unique idea. Along with this it develops the interpersonal, social and business skills to deal with all kinds of seen and unforeseen circumstances. All these concepts have been advocated for by many theorists through the years of history. Entrepreneurship education can also be categorized as education that aims to provide an outlook about the situations and conditions that favor the new venture startup. It is a theoretical view of the important traits and characteristics required for sustenance and success of the venture. Secondly the training and education for small business owners are deemed important and have been classified as; education for entrepreneurial awareness that starts at secondary schooling level, practical training in field environment for small venture ownership and lastly the specific education that helps an individual improve his skills and abilities to be more productive [14] . Researches [11], have attempted to make a clear line between the enterprise education and the small business education and the trainings required. The main goals of the enterprise education are to develop among the individuals the sense of autonomy, and to create an encouraging aptitude towards the entrepreneurial activity though appropriate learning aids. Equally important to the development of the business orientation and the abilities is the upheaval of the entrepreneurial attributes, characteristics and behavior. This involves the specifically designed courses in creating awareness and features. [15] have proposed that the entrepreneurial directed approach essential for student centered learning approach helps an individual build a positive entrepreneurial mindset Creative approaches to practical development of plans and brain storming sessions were critical. These teaching methods gave students a better perspective on entrepreneurship and its real life implications and challenges.

### **2.2 Entrepreneurial Intentions**

Entrepreneurship is considered to be a purely intentional process. Intentions are a part of an individual's psychological cognitive process and are known to be the best predictors of planned behavior. Entrepreneurs with the mandate to initiate a venture, seek for and capitalize on specific favorable opportunities present in the market, it is to consider that they contemplate about starting a business rather than working towards this opportunity as a

reflex action. A strong intention is assumed to result in desired behavior that is starting a new business in an entrepreneur's perspective. Significant consideration is given to identify the underlying factors that play a pivotal role for an individual's inclination towards entrepreneurial activity. Entrepreneurial intent is a state prior to behavior execution [16] and determinant of the behaviour, as identified by [17]. However social scientists do not agree on a certain set of determinants that govern the decision of taking up entrepreneurship yet the entrepreneurial intention has been regarded as a successful determinant of the actual behavior with wide differentiation in the methodologies and instruments used [18].

Significant amount of researches have been illuminated by the theory of Planned behavior in which [19] describe the behavioral intention as an immediate determinant of planned behavior. In former researches personality variables have been considered substantial in entrepreneurial process [20]. While other researches state the understanding of the personality traits as well as the entrepreneurial process being crucial for assessing whether an individual will carry out the business plan successfully or not. National culture, perceived feasibility, desirability and experience have also been considered to have an impact on the entrepreneur's venture intent [21]. Along with the considerable elements of the personality the role Entrepreneurial education on the other hand according to [22], aims to reduce the risks associated with entrepreneurship. Much before the emergence of the intention models and theories, two major approaches were considered: The psychological properties as broad outlook and personality traits which were allocated to winning and unproductive entrepreneurs. The other is focused on demographic factors, such as gender, age or ethnic groups. Demographic factors such as family background, Gender and other attitudinal factors attempt to influence the entrepreneurial process [23] along with regional origin, age and educational status that describe entrepreneurs [24].

### ***2.3 Entrepreneurial Education and Entrepreneurial Intentions***

Many researchers and theorists believe that the entrepreneurship education is necessary at the secondary and higher levels of university education to make a marked difference between the attitudes of ordinary and enterprising individuals. While others such as [25], consider the importance of entrepreneurship at elementary level of an individual and advocate that this education must start with the birth of the individual. It is to note that entrepreneurial education at the early stages in one's routine does not only attempt to invoke only concerns related to venture startups, but is important to develop the ability of foreseeing the situations and acting accordingly to convert ideas into tangible outcomes. This on the whole would boost the economic up gradation and provide benefit to the society. It is to consider that the entrepreneurship knowledge would build a firm base of the individuals and help them apply their skills whenever and wherever required.

The relation between the education and the intent to make a business operation is also talked about by many researches, stating that the attainment of education regarding entrepreneurship plays a key role in creating intentions among the students and creates an urge of self-owned businesses [26][11]. [27] States that the formal entrepreneurship education is essential to build three main elements in an individual for his intent for new enterprise creation. These include progress in the ability to generate novel and creative ideas for a different and unique competency of business. Secondly the increase in social desirability and the perceived feasibility creates positive entrepreneurial career intentions and increases its value in the individual's mind over other alternative career options. Lastly, the increase in the level of knowledge and skills helps in better positioning of the business as well as targeting customers and tapping into the unsaturated market.

### ***2.4 Self-efficacy***

In the theory of Planned Behavior originated by [4] is based on the prior research by [19]. In the theory, perceived behavioral control (PBC) reflects the individual's need of self-efficacy

and the aptitude to generate competence in several situations. Also may be defined as the perception of the ease or hardship in the fulfillment of the behavior of interest; that is to become an entrepreneur. It is, therefore, analogous to perceived self-efficacy. This is supported by [28] in their study about details of perceived feasibility. All three figures depict that the vital thing is the logic of capacity concerning the execution of venture formation behaviors. The Theory of Reasoned Action (TRA) could sufficiently forecast behaviors that were relatively straight such as under volitional control. Under situations where there were restraints on action, the simple construction of an intention was insufficient to predict behavior. The addition of PBC offers information about the prospective restraints on action as perceived by the individual who takes up the act, and is held to clarify why intentions do not always predict behavior. Perceived self-efficacy (SE) is about one's understanding of own abilities to carry out something, task or either performance level. It's all about one's expectations that how well s/he in attaining some particular goals. This ability is developed in an individual due to prior experiences regarding their cognition, physical and by dealing with social issues. So the previous attainment of certain goal, successful task completion and performance helps in reinforcement of beliefs like "I can do", thus self-efficacy expands [29]. It is also argued, people having higher self-efficacy set higher goals for themselves, become self motivated with these goals and perform better. In other words these individuals show persistence their attempts unless they achieve their desired outcomes [30]. SE when considered in venture creation process, its significance becomes more evident. This is because creating own business requires more abilities than working as a manager in a firm. Here the main success determining factor of an entrepreneur is high energy with motivation to excel and thus having high levels of self-efficacy [31].

Literature of self-efficacy advocates its flourishing impact on one's performance that is attained by his/her high motivation levels. A meta-analysis on self-efficacy and performance found prominent relationship between the two [32]. Due to this significant association, self-efficacy concept is also emerged in entrepreneurship literature as entrepreneurial self-efficacy (ESE). Studies realized ESE's effects on innovativeness, risk taking ability of the person and different management skills [31]. Chen and fellows [31] also found and argued that individuals with high levels of self-efficacy have more propensities to act as entrepreneurs. In a similar way studies were conducted to highlight the effects of ESE on venture outcomes. Certain scholars have also differentiated role of ESE for entrepreneur than for managers. They argued that managers and entrepreneurs are motivated differently for their goals. Entrepreneurs by their devotion to the task and managers are driven by the chain of command motivation [33].

## **2.5 Creativity and Entrepreneurship**

Human behaviors are complex in nature and involve various psychological and social processes. According to theory of reasoned action and theory of planned behavior, intentions are the main underlying psychological processes of actual behavior. Intentions, together with perceived control over the behavior, best predicts the behavior [4]. The traditional approaches of entrepreneurial intentions are psychological and behavioral. Researchers inclined to psychological approach identifies internal locus of control of individuals, their risk taking ability, high need for achievement, high tolerance for ambiguous situations and innovativeness in one's personality as main predictors of entrepreneurial intentions. On the other hand, Personal attitudes, normative beliefs and perception of behavioral controls are the main drivers for entrepreneurial intentions in behavioral perspective [5]. Literature identifies individual's own attributes as one of the major influencers of entrepreneurial intentions [2], among these is perceived behavioral control or self-efficacy, which powerfully develops intentions [4]. Not only entrepreneurship but creativity has been considered has important for growth of economies. Thus comes into play in initial process of venturing and in organizational innovation process [6]. One's own creativity is very important to help in inclination of someone towards starting own venture.

Both creativity and entrepreneurship research is originated from fields of psychology and economics [34][8] but the association of creativity and entrepreneurship has not much clearly been observed by researches. It is worth to recognize the input of creativity in entrepreneurship. Two diverse literatures of creativity and entrepreneurship prevail. Yet there are similarities in both constructs, as well as differences. Creativity is associated with bringing novelty, newness and creates value, while entrepreneurship is about novelty in business entities [9]. The process of creating new venture starts with entrepreneurial intentions which predict entrepreneurial behavior [4], [3], integrated creativity with entrepreneurial intentions of students. In their preliminary study, they identified that student's self perceived creativity and family support for creativity better explain entrepreneurial intentions of students than creativity in university.

## 2.6 Hypotheses

H1: Self-Perceived Creativity will have positive impact on entrepreneurial intentions of students

H2: Creativity Supported in Family will have positive impact on entrepreneurial intentions of students

H3: Creativity Supported in University will have positive impact on entrepreneurial intentions of students

H4: Perceived Self-efficacy will moderates the relationship of self-perceived creativity and entrepreneurial intentions

H5: Perceived Self-efficacy will moderates the relationship of Creativity supported in Family and entrepreneurial intentions

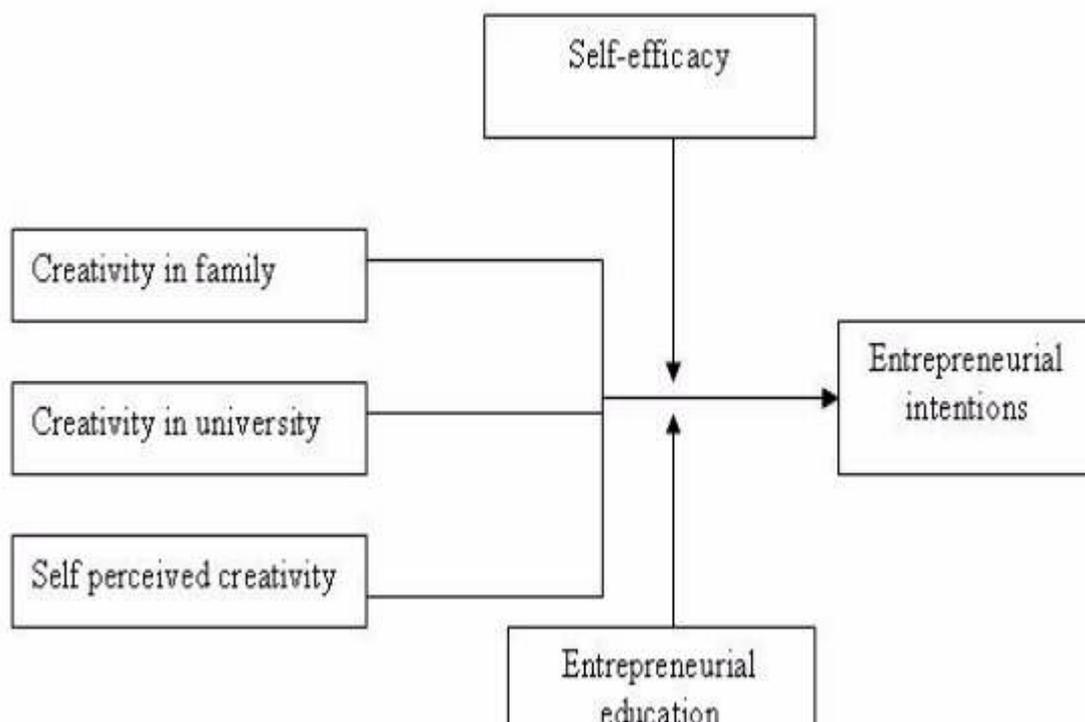
H6: Perceived Self-efficacy will moderates the relationship of Creativity Supported in University and entrepreneurial intentions

H7: Entrepreneurial education will moderates the relationship of Self-perceived Creativity and entrepreneurial intentions

H8: Entrepreneurial education will moderates the relationship of Creativity supported in Family and entrepreneurial intentions

H9: Entrepreneurial education will moderates the relationship of Creativity Supported in University and entrepreneurial intentions

## 2.7 Conceptual Framework



**Figure 1** Conceptual Framework

### **3. Methodology**

The purpose of this study was to examine the moderating role of perceived self-efficacy and entrepreneurial education between creativity and entrepreneurial intentions of Students. This study is conducted on a sample of 212 students from Rawalpindi and Islamabad region. Using regression analysis done by using SPSS 18 software.

#### **3.1 Study Design**

This research is a hypothesis testing study in nature. These hypotheses are drawn on the basis of literature. The type of the study is co relational in nature where entrepreneurial intentions are dependent variables, creativity as predictor and self-efficacy and entrepreneurship education serve as moderator between the above two. The environment of the study was not contrived; least researcher interference and cross sectional. The unit of analysis is individual that is student.

#### **3.2 Instruments**

##### **3.2.1 Self-Perceived Creativity, Creativity in University and Creativity in Family**

Self-perceived creativity, Creativity in University and Creativity in Family scales was adopted from [3]. There were 3 items for each variable in the scale, making total nine items. A five-point likert-type scale was used, ranging from strongly disagree as 1 to strongly agree as 5.

##### **3.2.2 Entrepreneurial Intentions**

Entrepreneurial intentions were measured with two items developed by [34]. This was also measured on five-point likert-type scale ranging from strongly disagree as 1 to strongly agree as 5.

##### **3.2.3 Entrepreneurial Self-Efficacy**

Entrepreneurial self-efficacy was measured by a 6-item self-assessment Scale [35]). Responding individuals were asked to contrast themselves in these abilities to relate others. A 5-point Likert-type scale (1 = a lot worse; 5 = much better) was also used for this measurement.

##### **3.2.4 Entrepreneurial Education**

Entrepreneurial education items were adopted from [36] items for knowledge about entrepreneurship. Total 17 statements were there, measured on likert scale ranges from “to no extent as 1” to “to a greater extent as 7”.

#### 4. Data Analysis

Correlations are used for this study, to assess the relationships among variables. Moderation regression analysis is used to study the moderating impact of entrepreneurial self-efficacy and entrepreneurial education in the relationship between creativity and entrepreneurial intentions. Descriptive statistics along with means of the variables and standard deviations of the variables are listed in the following table. The given Table 1 shows descriptive statistics, means and standard deviations of the variables, correlations and alpha reliability coefficients of all the measures involved. Correlations were of zero order, bivariate and were in the same direction as expected. All measures show alpha reliability in acceptable range.

Table 2 explains moderated regression of the variables, to test hypotheses 4 through 9. First step involved entrance of control variables. Next in the second step, I entered independent variables self-perceived creativity, creativity in family and creativity in university with moderating variables entrepreneurial self-efficacy and entrepreneurial education. Last in the third step I entered the interaction terms of independent and moderators. ESE positively moderates the relationship of SPC and EI (2.5, P=0.05), while EE negatively moderates (-2.03) this relationship. Next relationship of CSF and EI is positively moderated by ESE (2.02) but negatively moderated by EE (-3.09). Similarly, CSU and EI are found to be affected by ESE and EE. So ESE positively moderates (4.9) and EE also positively moderates (0.63).

**Table 1** Means, Standard Deviations, Correlations, and Reliabilities

	<b>M</b>	<b>SD</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>
<b>1</b>	1.66	.478	1								
<b>G</b>											
<b>2</b>	2.25	.751	0.093	1							
<b>A</b>											
<b>3</b>	1.45	.755	.568	.035	1						
<b>E</b>											
<b>4</b>	3.61	.605	.227	.103	.284	<b>(0.71)</b>					
<b>SPC</b>											
<b>5</b>	3.63	.481	.021	.022	.221	.256*	<b>(0.59)</b>				
<b>CSF</b>											
<b>6</b>	3.79	.616	.256	.200	.363	.098	.163	<b>(0.64)</b>			
<b>CSU</b>											
<b>7</b>	3.52	.974	.100	.002	.187	.040	.073	.196	<b>(0.78)</b>		
<b>EI</b>											
<b>8</b>	3.83	.417	.145	.021	.346	.073	.196	.133	.186	<b>(0.74)</b>	
<b>ESE</b>											
<b>9</b>	4.80	.736	.231	.104	.188	.112	.155	.111	.475**	.228*	<b>(0.91)</b>
<b>EE</b>											

M=Mean, SD= Standard deviation, Gender (G), Age (A), Education (E), Self-Perceived Creativity (SPC), Creativity Supported in Family (CF), Creativity supported in University (CU), Entrepreneurial Intentions (EI), Entrepreneurial Self Efficacy(ESE), Entrepreneurial Education (EE). Parentheses values show Alpha Reliabilities, \*p < .05. \*\* p < .01.

Moderation of entrepreneurial self-efficacy and entrepreneurial education is shown in the graphs. Figure 3 through 7 contain graphs of moderated regression for all the variables in this study. Figure 2 shows moderation graph for self-perceived creativity and entrepreneurial intentions relationship with high and low levels of entrepreneurial self efficacy. Values are plotted from means and standard deviations of the moderator for high and low values of the variables. The graph shows that relationship between self-perceived creativity and entrepreneurial intentions is little stronger when a moderator is there like entrepreneurial self-efficacy. Means whenever one has entrepreneurial self-efficacy, s/he would be more inclined to entrepreneurial intentions when they are high on self-perceived creativity.

**Table 2.** Results for Main Effects and Moderated Regression Analyses

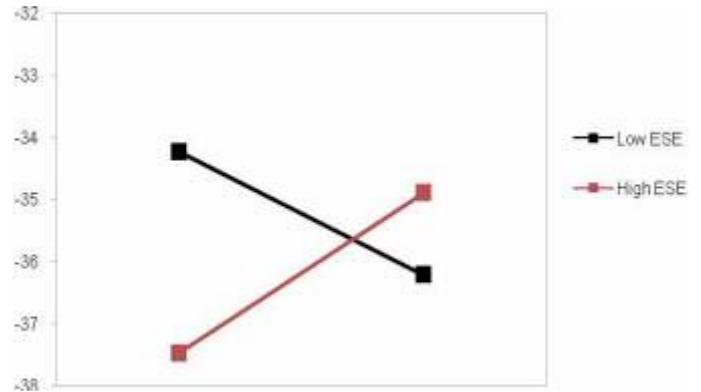
	<b>Entrepreneurial Intentions</b>	
	<b>Constant</b>	<b><math>R^2</math></b>
<b>Step 1</b>		
Control variables		
Age, Gender, Education		
<b>Step 2</b>		
Self-perceived Creativity(SPC)	16.65	-2.006
Entrepreneurial self efficacy(ESE)		-1.534
Self-perceived Creativity	-7.774	1.401
Entrepreneurial Education(EE)		1.732
Creativity supported in family(CSF)	19.601	-1.916
Entrepreneurial self efficacy		-1.796
Creativity supported in family	-17.827	2.459
Entrepreneurial Education		3.255
Creativity supported in University(CSU)	27.018	-3.446
Entrepreneurial self efficacy		-2.979
Creativity supported in University	1.914	-.199
Entrepreneurial Education		.039
<b>Step 3</b>		
SPC*ESE		2.5
SPC*EE		-2.003
CSF*ESE		2.286
CSF*EE		-3.996
CSU*ESE		4.966
CSU*EE		.639

Figure 3 explains the moderation graph for CSF-EI relationship with ESE as a moderator. Plotting

shows that the positive relationship between creativity supported in family and entrepreneurial intention is stronger when entrepreneurial self efficacy as moderator is at high level. With low levels of ESE the said relationship weakens.

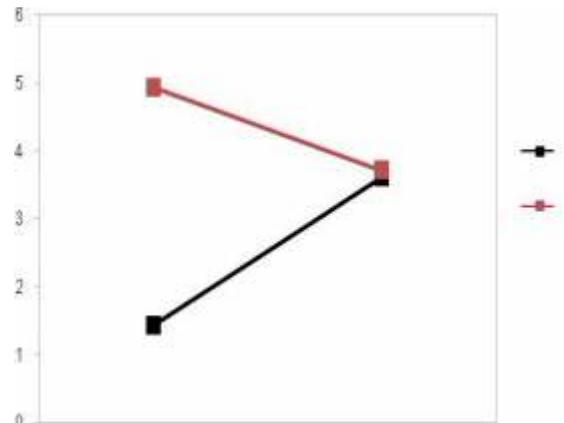
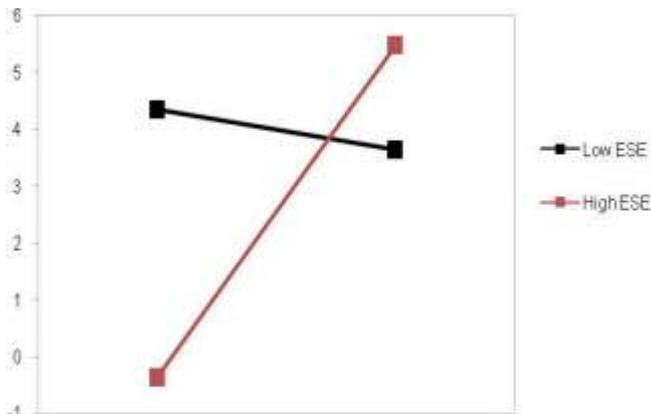
Figure 4 depict moderation graph for CSU-EI relationship such that when moderator ESE is higher the given relationship is stronger. With a very little increase in CSU, a greater increase is there in EI. Therefore one can say that ESE positively moderates between CSU and EI.

Moderating effect of EE on the relationship between SPC-EI relationships is shown by figure 5. It shows the negative moderation effects of ESE, such that when ESE is at higher level, the SPC-EI relationship weakens negatively. So when ESE is lower then SPC have more effect on EI



**Figure 2** when ESE Is Moderator between SPC-EI relationships (on x axis is SPC and on Y-axis is EI)

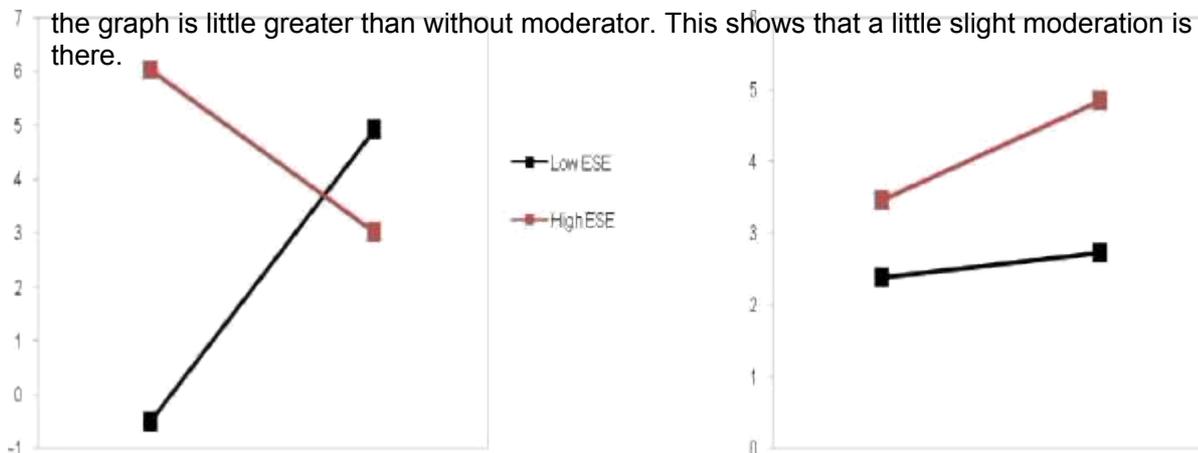
**Figure 3** When ESE moderate with CSF-EI relationship CSF on X-axis and EI on y-axis



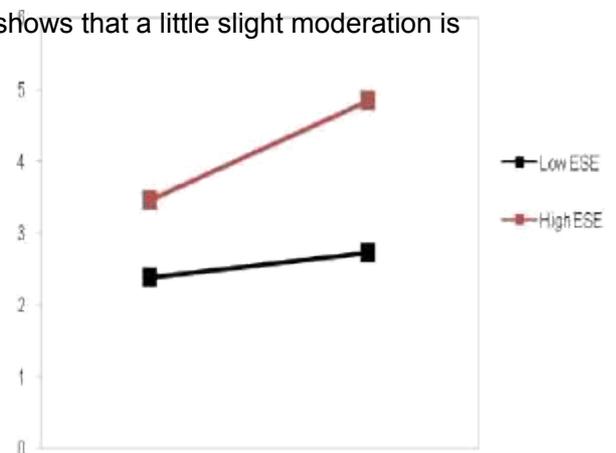
**Figure 4** When ESE moderate with CSU-EI relationship CSU on x-axis and EI on y-axis

**Figure 5** When EE moderates with SPC-EI relationship SPC on x-axis and EI on y-axis

6 shows the moderating affects of EE in the relation between CSF-EI relationships such that when EE is high then relation between CSF and EI is stronger and vice versa. Figure 7 shows relationship between CSU and EI gets stronger when a moderator like EE is applied. The slope of



**Figure 6** When EE moderates with CSF-EI relationship CSF on x-axis and EI on y-axis



**Figure 7** When EE moderates with CSU-EI Relationship CSU on x-axis and EI on y-axis

## 5. Discussion

The study is unique in its results. I not only tested model developed by [3] of creativity and entrepreneurial intentions but also introduced moderators like entrepreneurial self-efficacy and entrepreneurial education. These variables have long been considered as important determinants of entrepreneurial intentions [27][14][25]. Besides testing these variables as mere determinants I have incorporated their moderated effect when creativity leads to entrepreneurial intentions. It is now justified that individuals having exposure to creativity have entrepreneurial intentions. If these individuals have perceived behavioral control and are exposed to entrepreneurship education then their intention levels for becoming entrepreneurs become greater.

Oppositely to hypothesis, data suggested negative moderation of entrepreneurship education in developing intentions when one perceives creativity around him/her. This may be because of cultural context of Pakistan, which has its own cultural impacts on individuals' propensities, their attitudes and behaviors [37]. Secondly, the sample was limited and convenience which may have posed variations in the non consistent results with the literature. Another effect may be of cross sectional data gathering that may have proposed negative impacts of entrepreneurship education on relationship of creativity and entrepreneurial intentions. These negative effects may be caused by other variables which are somewhat ignored in this study.

## 6. Conclusion

The increasing need of entrepreneurship in today's business and economic circumstances, in a developing country like Pakistan, cannot be overlooked. Organizations and individuals are considering the means to initiate new efforts and means to innovate in their respective areas. Thus entrepreneurship ignition is important to develop in youth of the countries which are

now developing like Pakistan. As creativity is foremost important aspect of all entrepreneurship so determining entrepreneurial intentions on the basis of creativity level of students, their perception of creativity in family and university may become essential determinants of students' intentions to become future entrepreneurs. This study provided the concept of need to develop future entrepreneurs through creativity and entrepreneurial education. When these individuals perceive themselves able to perform entrepreneurial activity then the intention level is high. The study particularly conducted in Pakistan has significance for those elements of the Pakistani society which are concerned with entrepreneurship. Especially teachers and business schools are more interested to teach that entrepreneurship course that actually develops their skills for starting their own venture. Despite sincere efforts, this study has limitations. Future studies must determine other factors effecting entrepreneurial intentions of students, in different cultures, with different sampling techniques.

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# Entrepreneurial Education in 21<sup>st</sup> Century: A Case of United Kingdom

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**The purpose of this study is to assess the entrepreneurship educational trends at higher education sector in the United Kingdom in particular in the 21st century by novel methodology, i.e., *2PA – Two Path analysis*. Current approaches are entirely based on traditional slants and these methods neglect the assessment of educational trends impact on national and local economics, though entrepreneurship has long been recognised as a dynamic element in financial prosperity. Hence, there is a real need for the development of a new method to evaluate entrepreneurial educational trends within fiscal perspectives, especially at a regional level. In order to address the current research gap, this study develops a new method, i.e., Two Path Analysis. This research also scrutinises whether these educational trends significantly impact on the national economy as well as local economies. This strategy differs from previous theoretical and empirical frameworks by focusing on different grades of course structure and quality of education in various universities across the country for the period of 2000 -2014. Accordingly, the first part of this study provides a critical review of entrepreneurship education and its excellence and essence. The second part evaluates the fiscal representation of entrepreneurial education to the national and local economies. Preliminary results suggest that entrepreneurship educational trends in both students and the number of diverse modes of study, show an upsurge in English universities and a downturn in Welsh universities especially in 2010, 2013 and 2014. These trends show an inconsequential impact on both national and local economies under all fiscal environments.**

## **Keywords**

Entrepreneurial Education, 21<sup>st</sup> Century, United Kingdom and Economy

## **1. Introduction**

Entrepreneurship education has grown a progressively popular subject in the 21<sup>st</sup> century, particularly in the Higher Education sector [1-2]. Recent studies have shown that

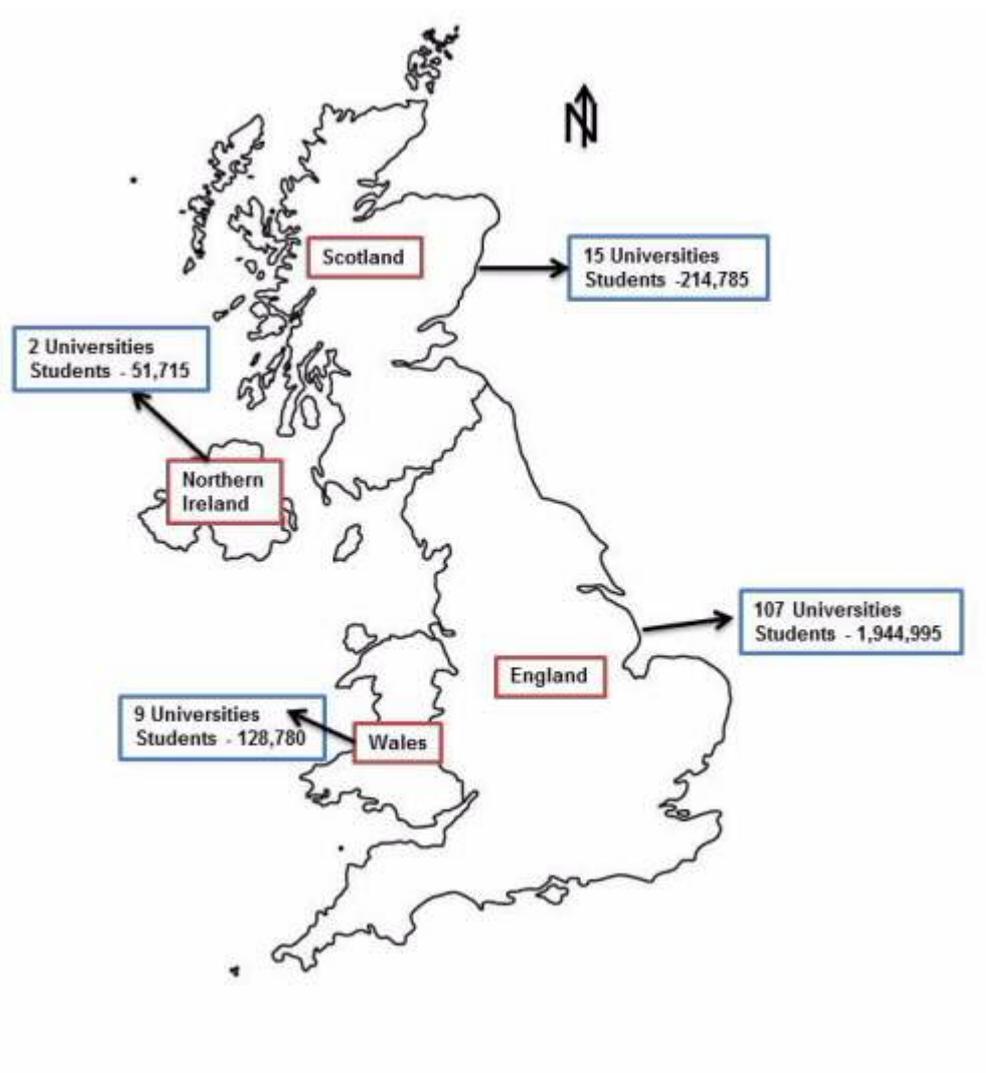
entrepreneurship education programs contribute to the establishment of entrepreneurial objectives [2-6]. However, entrepreneurship education programs in different institutions in higher educational sector across the world are diverse with no consensus as to what and how the topic should be taught [7]. Some studies find optimistic results [8-10] and others revealed that entrepreneurship may not generate progress in developed countries [11-12]. Many scholars concede that particular forms of entrepreneurship are associated with sizable positive effects [13-14]. Nevertheless, the effects of entrepreneurship education in higher education sector are still poorly comprehended.

One factor contributing to this current situation is the difficulty in understanding what constitutes entrepreneurship education. The general literature related to this topic is increasingly split between entrepreneurship education and enterprise education viewpoints. In reality, both forms of education are often used to describe entrepreneurship education. We are mindful of the recent use QAA (2012, p. 2) [15] definitions, viewing enterprise education “as the process of equipping students (or graduates) with an enhanced capacity to generate ideas and the skills to make them happen.” In addition, we also see entrepreneurship education as equipping “students with the additional knowledge, attributes and capabilities required to apply such enterprising abilities in the context of setting up a new venture or business.” In this regard, the UK is quite unique and tends to lead the world in explicitly developing separate focuses upon personal development and business startup processes.

In addition to this, UK entrepreneurial education trends follow the global trends and transforming their conventional methods. Educating entrepreneurship is an important economic and societal confront to which universities have much to contribute. Several researchers, consultants and policy makers acknowledge that, entrepreneurship education will offer fruitful results [16-17], moreover, these trends are measured by various techniques such as: Praksh [18], Askun & Y ƒdƒƒƒ [19], Donnellon [20], Elert [21], Harms [22], Huber [23], Oosterbeek [10]. However, none of the researchers focused on both fiscal and structural analysis of entrepreneurship education. Current approaches are based on traditional slants and these methods neglect the assessment of educational trends impact on national and local economics though entrepreneurship has long been recognised as a dynamic element in financial prosperity. Hence, there is a real need for the development of a new method to evaluate entrepreneurial educational trends within fiscal perspectives, especially at a regional level. In order to address the current research gap, this study attempts to develop a new method, i.e., 2 PA – 2 Path Analysis to apply to the United Kingdom.

## 2. Study Area

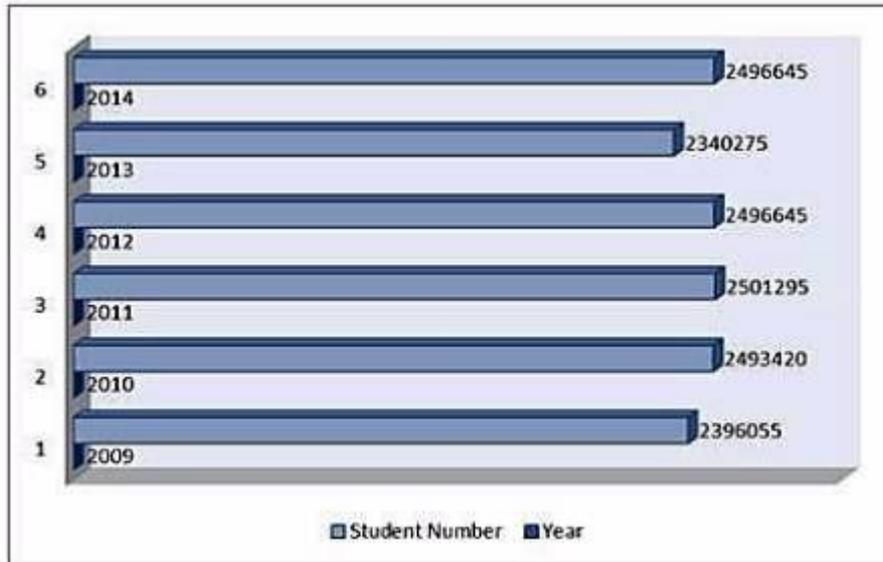
The United Kingdom (UK) is an island nation located in Western Europe, between latitudes 49°N and 59°N and longitudes 8°W to 2°E. It consists of four governed regions: England, Wales, Scotland and Northern Ireland (Figure 1 ) [24]. The population is 63.3 million and consists of 133 universities (Figure 1).



**Figure 1** United Kingdom with Universities and Student Number at Current Scenarios [25]

## 2.1 Theory

Most of the universities throughout the UK, have faced fluctuations in student numbers since 2000 [26] (Figure 2). The worth of entrepreneurship education at HE is driving national, local, and, sub-local fiscal growth: during the 1980s universities were fortified to participate in programmes that would increase enterprise students and support them to start their ventures [15], however throughout the 1990s numbers dropped. By 2000, business and entrepreneurial growth had been enumerated by Universities within Britain as one of the four strategic goals for UK universities [15]. While, UK Government introduced a substantial third funding stream to HE with the goal of motivating universities to reach out to business and the community, entitled the HEIF (Higher Education Innovation Fund), within England. In 2008, the Department of Business, Enterprise, and Regulatory Reform stated that: the UK was the most resourceful economy in the globe and the finest zone to start and grow a business.



**Figure 2** Student Trends at Higher Educational Institutions [25]

### 3. Data

Statistics regarding higher educational institutions were obtained from UK- Universities database, higher education statistics agency (HESA), UK University Guide and 133 university websites. However, this study did not take into consideration further educational colleges and other independent organisations student figures. Moreover, fiscal data of national and local GDP as well as regional economic trends obtained from World Bank, ONS (Office of National Statistics) and IMF. While, >100 articles (journal, conference papers and government reports) were revised for literature review. Then, collected data subsequently transformed to SPSS software for rigorous analysis.

### 4. Methodology

There are several methodologies for the evaluation of entrepreneurial education at higher educational sector, with the success predominantly being measured in terms of the number of businesses started by students and graduates. The academic literature is thus constructed on such traditional approaches. Subsequently, the research context and assessment criteria are different for this study, and none of the aforementioned methodologies are suitable for an evaluation. Accordingly, a coherent and concise framework has been developed, i.e., *2 PA – 2 Path Analysis* (Figure 3). This new methodology contains two vital paths.

#### **Path One (P1):**

Evaluation of recent trends in entrepreneurial education at higher educational institutions in 21<sup>st</sup> century in the United Kingdom

#### **Path Two (P2):**

Appraisal of entrepreneurial education representation on national and local economies in recent periods

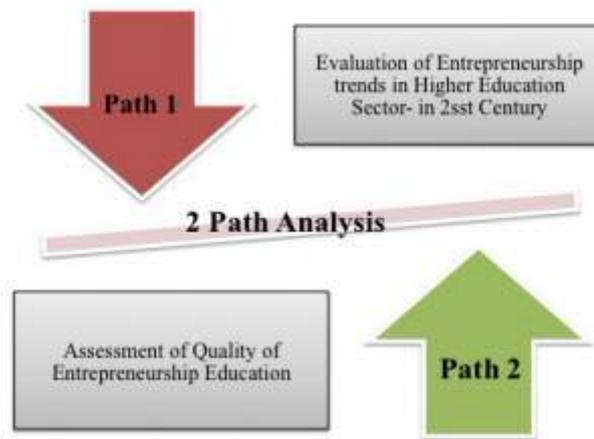


Figure 3 - 2 Path Analysis

## 5. Results and Discussion

### 5.1 Path One (P1)

#### 5.1.1 Entrepreneurial Educational Trends in the UK

Primary results revealed that, in 133 universities across the United Kingdom, approximately 60% of the universities are offering an entrepreneurship course in both Bachelors and Masters Level. In addition, 20% of universities are also offering the topic at HND level.

#### 5.1.2 Entrepreneurial Educational Trends in Welsh Universities

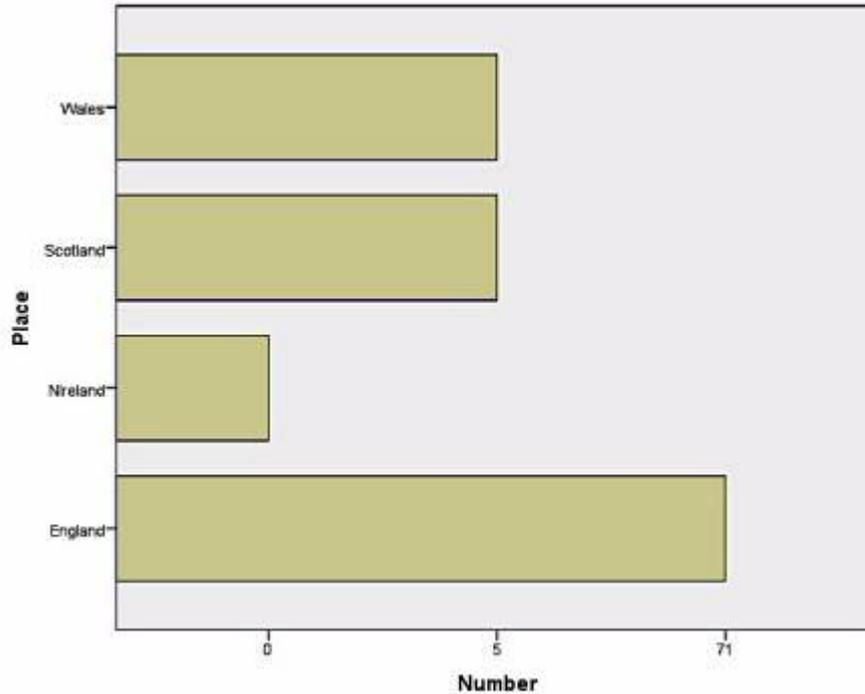
Five of the nine Welsh universities offer entrepreneurial education (Figure 4) as a course at Bachelors and Masters levels. The remaining universities do not offer any major entrepreneurial course but offers modules within their Business Studies programs. Glyndwr University offers a two-year fast track course, and the University of South Wales offers a part time course. It is therefore observed that there is no significant demand for Welsh universities to provide courses named 'entrepreneurship' education even in 21<sup>st</sup> century.

#### 5.1.3 Entrepreneurial Educational Trends in Scottish and Northern Ireland Universities

Five of the fifteen Scottish universities (Figure 4) offer an entrepreneurship course at Bachelors and, Masters level, while; none of the universities offer an entrepreneurship course in Northern Ireland.

#### 5.1.4 Entrepreneurial Educational Trends in English Universities

Within the total 107 English universities, 71 universities (Figure 4) are offering entrepreneurship education as a major degree at Bachelors and Masters levels both in PT and FT modes in England. The remaining universities are offering entrepreneurship modules in Business Management studies with significant credits. Evidently, English universities are in upwards trends in entrepreneurial education as well gaining more students than Wales, Scotland and Northern Ireland.



**Figure 4** Number of Universities across the UK, Offering Entrepreneurship Education

However, the number of universities are less in Wales, Scotland and Northern Ireland when compare with English universities number. While, English universities are more famous by its name than any other regional universities on the international academic arena. These things impact the entrepreneurial educational trends across the UK.

## 5.2 Path Two (P2)

### 5.2.1 UK GDP

The UK'S economy is a paradox: while being the sixth largest economy in the world, with £1.6 trillion current (2014) GDP since 2008 (Table 1), its economic vigour has declined with a double credit crisis. Consequently, for the last six to seven years, the economy has exhibited sluggish growth rate and other European alignment exacerbated the situation. Given the significance of these impacts, it is important to analyse entrepreneurship education at universities and its impact scenarios on national and local economies and, accordingly this current study analysed these impacts.

**Table 1** UK GDP For the Period of 2000- 2014

Year	UK GDP In (£)
2000	972.1 B
2001	971.1B
2002	1
2003	1.2 T
2004	1.1 T
2005	1.4 T
2006	1.5 T
2007	1.7 T

2008	1.6 T
2009	1.3 T
2010	1.4 T
2011	1.5 T
2012	1.6 T
2013	1.6 T
2014	1.6 T

Note: B Means – Billions; T Means: Trillion

### 5.2.2 GDP In Various Countries

GDP trends are not even in all parts of the United Kingdom (Figure 5). Currently, England contributes nearly 75% of income to the national economy, i.e., £1.3 Trillion, while, Scotland contributes £248.5 Billion, Wales, >£48 Billion and, Northern Ireland represents a small fraction of amount i.e., >£30 Billion (Figure 5).

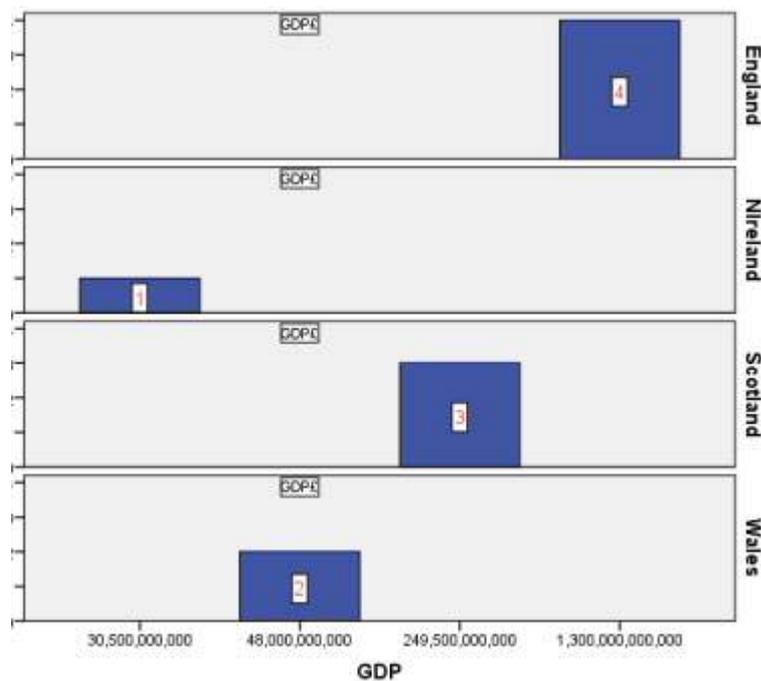


Figure 5 GDP of England, Wales, Scotland and, Northern Ireland

### 5.2.3 Impact of Entrepreneurship educational trends on National GDP

The total income of UK university education in 2014 is £29,000,00, which is insignificant amount on the national economy by representing only 0.008%. Whilst, Wales, and Scottish incomes are >£1.2 Million and >£3.1 Million and represents 0.00007%, and 0.00008%. Moreover, Northern Ireland income £500,000 and it denotes only 0.00003%. It is quite evident that, income, which gained from university education, did not show the potential impact on the countries economy under any circumstances.

### 5.2.4 Impact of Entrepreneurship educational trends on Local GDP

Only > £6 Million in England, >£1 Million in Scotland >£150,000 in Wales and £100,00 in Northern Ireland generated the income through the entrepreneurship education for the year of 2014<sup>102</sup>. These are insignificant amounts on the national economy. However, it represents

0.0004% (England), 0.0002% (Wales), 0.00006% (Scotland) and, 0.000007% (Northern Ireland) on local economy. Nonetheless, generated income from entrepreneurship education, at higher educational institutions play insignificant role on both national and local economies.

### **5.2.5. Entrepreneurship Educational Trends at British HE sector**

Due to the high campaign and encouragement from Government, UK universities expanded their course structures for entrepreneurship education at HE and it continues up to 2008. While, owing to double fiscal crunch- numbers of students are unexpectedly dropped. On the other hand, many graduate jobs available to the recent graduates, in particular to who have entrepreneurship background. However, in 2010 and 2011 this worsen situation intensity decreased, but trends did not reach the expectations. More recently, since 2012 entrepreneurial education is achieving its previous glory and students number increases rapidly with 0.002% yearly growth rate in particular in English universities. While, approximately >50 universities across the UK increased the subject credits at both Bachelors and Masters level and also added some extra modules in the course structure. Throughout the UK nearly 60 universities offer one-year placement after graduation as well as 2 to 6 month salaried internships. These trends showed the upsurge trends in the entrepreneurship education trends especially in English universities and downturn in Welsh universities and moderated trends in Scottish universities.

## **6. Recommendations**

- I. Universities and the government should conduct the knowledge workshops on entrepreneurial education and its ultimate benefits (only for a short period). These workshops will enlighten the technical knowledge of entrepreneurial students on how to launch an innovative and successful venture, as well as risk analysis.
- II. The government should encourage the entrepreneurial students by offering fee reduction in fees and other fiscal benefits (conference grants) to both national and international students.

These things attract the students and help to increase the number of students in the universities of the United Kingdom. Eventually significant amount (£) will be added to the national and local economies

## **7. Conclusion**

This study analysed the entrepreneurship educational trends for the period of 2000-2014 through the novel methodology, i.e., 2 Path Analysis. This research demonstrated that the entrepreneurship educational trends at Higher Education sector are optimistic especially in English universities and negative trends in Welsh universities in between 2010 to 2014. However, upsurge in modules and subject credits in universities across the UK. This may be indicative of the broader uptake of entrepreneurship in all university disciplines, thus, a fragmenting of offerings as more students are reached in more diverse ways. Further, the double credit crunch in 2008 decreased the student numbers in all universities particularly in entrepreneurship education. Recent GDP growth rate enhances the student's numbers and it indicates the greater growth in near future. Furthermore, fiscal impacts of entrepreneurship education on national and local economies are insignificant and do not impact the national and local economy growth either positively or negatively at current scenarios. Viewed from this perspective, the impact of entrepreneurship education remains adrift from the anecdotal evidence that is regularly offered in support of its development and delivery. Nevertheless, the increasing preference for forms of enterprise education in the UK may lower any such

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<sup>102</sup> There will be slight changes in the countries income.

expectations as the time horizons for graduate action become pushed out further.

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## **Increasing Innovation Potential of SMEs through Coworking and Crowdsourcing with Students**

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**The paper will present the idea, structure and the first results in the application of the innovation platform specially oriented towards co-working between small and medium enterprises (SME-s) and students. There is a significant number of professional platforms available on the web offering different kinds of tasks and creative challenges for task solvers offering monetary rewards for the best proposals. On the other side, there is a need for student integration in many engineering areas that are of importance to SME-s. For students, that is the best way for learning how to solve real industrial problems. For SME-s, that is the simplest way to obtain a creative contribution in solving the required tasks. The paper will present the preliminary results of platform testing for two innovative tasks in the area of product development for a specific SME.**

## **Keywords**

Idea platform, Student-SME co-working, Open innovation, Crowd sourcing

## **1. Introduction**

Open innovation in the university-industry co-working is considered as one of the most important elements in fostering innovation performance of one region. Therefore there are many initiatives that support these activities in different ways. The Tempus project “Fostering students’ entrepreneurship and open innovation in university-industry collaboration - iDEA lab” (Ref. No. 544373-2013) aims to develop a physical and virtual environment for generating, developing and commercializing innovative students’ ideas through relevant trainings, mentoring and technology put at their disposal. Following the entrepreneurial or open innovation route, it will foster the co-working possibilities between universities and enterprises, especially between students and SEM-s, advance employment potential of graduates and enhance the companies’ innovativeness.

This paper focuses on the virtual segment of the platform. It presents the idea, structure and the first results in the application of this innovation platform specially oriented towards co-working of students in solving a specific problem defined by one SME. Section 2 describes the iDEA lab platform concept, relating its elements to the existing literature and practice on open innovation and innovation contests. The structure of the iDEA lab platform is represented in Section 3, followed by Section 4, focusing on the case study of the co-working course of study on the iDEA lab platform. Section 5 offers conclusions and opens some questions for the future research and improvement of this platform.

## 2. Idea lab platform concept

The core idea behind iDEA lab project is to motivate students and young researchers to actively use their intellectual potential to generate innovative ideas. The iDEA lab platform will be a knowledge repository and open innovation platform that will integrate all physical iDEA labs established through the project and will provide live events, lessons on specific subjects, online workshops, seminars, different multimedia contents, alumni and mentors sections. It will be the corner stone of the regional marketplace for ideas, as one of the iDEA lab project's results [1].

Considering that companies, especially SME-s, have limited resources to support their product development processes, their management has started to look for fresh ideas and competent individuals outside their borders. It is claimed that it is more effective to encourage a diverse group of people outside the company, or even the discipline, to seek innovative solutions [2]. Companies have started to distribute problem solving tasks to larger groups of people, in order to mine the collective intelligence, assess quality and process work in parallel [3]. These strong tendencies towards crowdsourcing follow the view that large groups of people are smarter and wiser than an elite few, no matter how brilliant they are. They are better at solving problems, fostering innovation, coming up with wise decisions, even predicting the future [4]. This open approach to product development offers a great opportunity for companies to access valuable knowledge from multiple sources (including small companies, universities and consumers) for the creation of innovations. This is the outside-in process whereby new ideas and technologies are acquired from partners and brought into the innovation pipeline [3].

As the world is getting more and more networked, companies are recognizing the power of the Internet as a powerful platform for collaborative innovation [5]. The Internet helps companies gain more ideas for innovation, opening their innovation funnel through crowdsourcing and widening the scope for screening ideas [6]. Through the creation of virtual communities, it allows companies to tap into the social dimension of knowledge shared among groups of people with shared interests [5]. These communities consist of people, who interact socially, a shared purpose, such as an interest, need, information exchange or service that provides, policies that guide social interactions, and computer systems, to support and mediate social interaction and facilitate a sense of togetherness. [7]

In the search for knowledge within these communities that can deliver innovative products and services, innovation contests are being used for the acquisition of ideas, as a mechanism chosen by companies to perform open innovation [3]. They are a way to engage with external sources of knowledge (third parties, the "crowd"), such as individual entrepreneurs, students, experts and small firms, who are asked to submit interesting solutions for a particular contest challenge, that satisfy certain criteria within a defined timeframe [3]. Members of the crowd do not see, nor have rights to use the proposed solutions: the outputs are closed and owned by the sponsor [8], who offers the prize to contributors of the best solutions in return for the right to use and exploit them.

An innovation contest is defined as a/an (IT-based) competition of innovators who use their skills, experience, and creativity to provide a solution for a particular contest challenge defined by an organizer [9]. It is the invitation of a private or public organizer to a general public or a targeted group to submit contributions to a certain topic within a timeline, which are reviewed, selected and rewarded by established committees [10]. According to Boudreau and Lakhani (2013), innovation contests are the right choice when it is not obvious what combination of skills or even which technical approach will lead to the best solution for a problem. They are most effective when the problem is complex or novel and when it comes

to design problems, where creativity is crucial [11].

### 3. Structure of the idea lab platform

Existing open innovation platforms comprise crowdsourcing contests on corporate websites, initiated by companies themselves, platforms intermediaries, run by organizations that connect companies and solvers through innovation contests, as well as companies' (open) innovation management softwares. The iDEA lab platform represents an intermediary platform, in the form of the third party web-based innovation marketplace, which acts as a knowledge broker [ 12], allowing companies to access unbiased knowledge, and to gain insights into opportunities that lie beyond the companies' immediate field of view [13].

Following the analyses of twelve intermediary platforms (Innocentive, Idea Connection, Jovoto, Hypios, Ideaken, Innovation Exchange, Idea Bounty, Eyeka, Top Coder, Edison Nation, Atizo, Kaggle) and their basic aspects (type, interface, challenges, disciplines, sectors, research library, community and news), as well as the literature review on this topic, the structure of the iDEA lab platform has been developed (Table 1). The contest organizers on this platform are made up by an industry partner and an academic institution, targeting students as primary contributors.

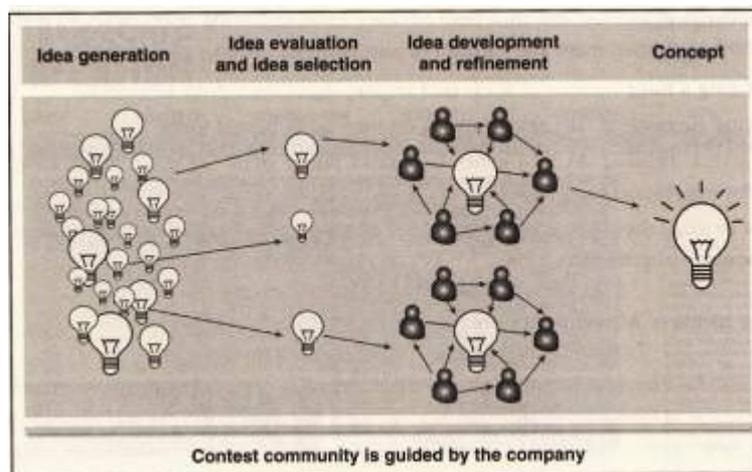
**Table 1** Basic aspects of the intermediary platforms

Innovation contest platforms	Type		Inter-faces		Challenges			Disciplines			Sector s		Research library			Communit y		News					
	Contest organizers	Contest agents	Companies	Solvers	Idea / theoretical proposal	Concept solutions	Sourcing technologies	Research	Any	Data science	Digital products & services	Design	Corporations	Government & Non-profit	Articles & White-papers	Case studies & Best practices	Webinars	Open access solutions	Open access solutions	Forum	Blog	Newsletter	
Innocentive	x		x	x	x	x			x			x	x	x	x	x	x		x	x	x		
Idea Connection		x	x	x	x	x	x	x				x	x	x	x			x		x	x	x	
Jovoto	x		x	x		x					x	x	x					x	x	x	x	x	
Hypios	x		x	x	x	x		x	x			x		x								x	
Ideaken	x		x	x	x	x			x			x						x		x	x		
Innovation Exchange	x		x	x	x				x			x	x					x		x			

Idea Bounty	x		x	x	x					x										x	x		
EyeKa	x		x	x	x	x				x			x	x	x	x	x	x	x	x	x	x	
Top Coder	x		x	x		x							x	x	x	x	x	x		x	x	x	
Edison Nation	x		x	x	x	x							x	x	x	x			x	x	x	x	
Atizo	x		x	x	x								x	x					x	x	x	x	x
Kaggle	x		x	x		x							x	x	x				x		x	x	x

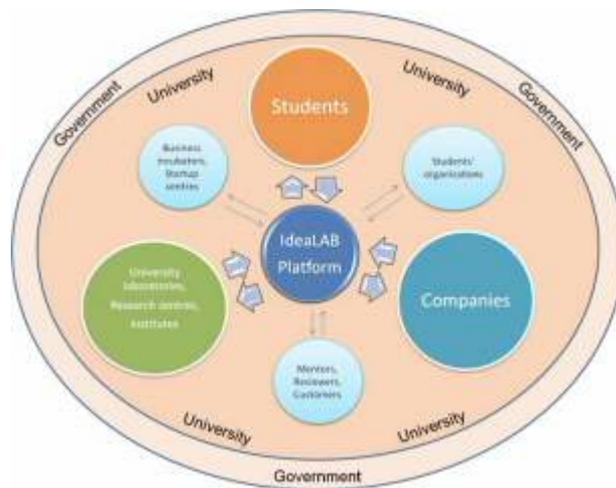
Having in mind the classification for innovation platforms according to two key attributes – platform operator and platform purpose, iDEA lab platform can be described as a problem-oriented third party operator, which is focused on finding solutions for specific challenges and awarding the best proposal [14]. Additionally, contests that take place on this platform can be described according to the list of ten key design elements for innovation contests [9]. Concerning the media choice, these innovation contests are run online, with the possibility to become mixed in later stages when the valuable solutions are being improved through personal contacts among participants (students) and organizers (university professors and teaching assistants, with the support of partner company’s representatives). The tasks are highly specific and call for elaborated concept solutions, within the time frame of six months (during summer or winter semesters). Motivation to contribute one’s competences to an innovation contest is fostered by a reward system that is adapted, as much as possible, to the needs of the target group. The rewards are realized by monetary prize and social motivation, like positive feedback, reputation among relevant peers and self-realization. Community functionality is provided through the elements which foster interaction, like information exchange and topic related discussion on the platform or face-to-face during lessons or consultations. Evaluation of the submitted solutions is realized by the jury, consisted of the companies’ representatives, as well as university professors, teaching assistants and researchers in the field.

In order to increase the efficiency of innovation contests, iDEA lab platform supports multiround contests, in which the first round is played with a large pool of contestants who make relatively little investment in the idea generation phase [15]. In the second round, after the submitted ideas are evaluated and the promising ones are selected, the limited pool of solvers work on the idea development and refinement in closer contacts with the contest organizers, focusing on the concept development. The following figure describes the process that is planned to be developed and established on the iDEA lab platform (Figure 1).



**Figure 1** Innovation contest process on the iDEA lab platform (adapted from [16])

In each innovation contest the participants, i.e. companies or university laboratories, research centers, institutes as solution seekers, university as an intermediary, and students as problem solvers, all have their defined roles. Therefore, the iDEA lab platform comprises these three crucial segments (Figure 2) within the university environment that allow solution seekers and problem solvers to fulfil their own assignments. As solution seekers, companies should propose a specific task to be solved and lend their support to an interesting idea/product/project, and university laboratories, research centers, institutes, are supposed to invite students to join for a specific research project and to give an infrastructural & expert support for an interesting idea/product/project. Solution seekers should also provide a financial compensation for solvers in return for solutions in order to retain the IP rights to them [2]. The role of students is to solve tasks in a specific challenge/contest, to give their opinion/vote on a specific challenge, to propose a product/service idea, to propose a business model or some activity/idea.



**Figure 2** iDEA lab platform structure

The incentive structure for participants needs to be simultaneously attractive for the participants and appropriate for the company [ 6]. Since students invest considerable time and effort, a mixture of monetary (cash, scholarship, etc.) and non-monetary prizes (student job, internship, professional certificates, etc.) should be a successful stimulation for both intrinsically and extrinsically motivated students. Concerning the scope of innovation contests, there are two major strategic areas of application - greater good and solutions for corporate challenges [17]. Apart from finding the solutions for a company's problems, the development of students' skills and competences is another main objective of these contests in student innovation contests and also represents a strong incentive for students. On the other hand, HEIs are also stimulated to tap into a talent pool of their student groups, and offer them research internships to foster ongoing research on these institutions.

#### **4. Students innovative solutions in coworking with SMEs**

The proposed platform structure is tested in real environment to gain necessary insight into functionalities, usability, etc. Several projects were launched simultaneously.

All projects had a defined task with supporting documentation. The desired outcome for the projects was a functional prototype of a given subassembly on an existing product.

The existing product was a “Croozer Kid for 1 Bicycle Trailer”, which is a product of the Zwei Plus Zwei GmbH (Figure 3).

The first defined project dealt with modifications on the »Baggy wheel« connection to the

trailer (Figure 3-1), while the second project dealt with modifications on the »Handle bar« connection to the trailer (Figure 3-2). The third defined project dealt with modifications on the »Wheel hub« (Figure 3-3), while the fourth project dealt with modifications on the »Hitch arm« design (Figure 3-4).



**Figure 3** Croozr Kid for 1 Bicycle Trailer

The functional requirements were defined in detail for all of the projects by the manufacturer. The projects were accessible for third-year students of mechanical engineering at Subotica Tech – College of Applied Sciences in Subotica, Serbia and at Faculty of Technical Sciences in Novi Sad, Serbia.

The remainder of this chapter gives a more detailed insight to the »Baggy wheel« connection project. Some of the most important requirements were as follows:

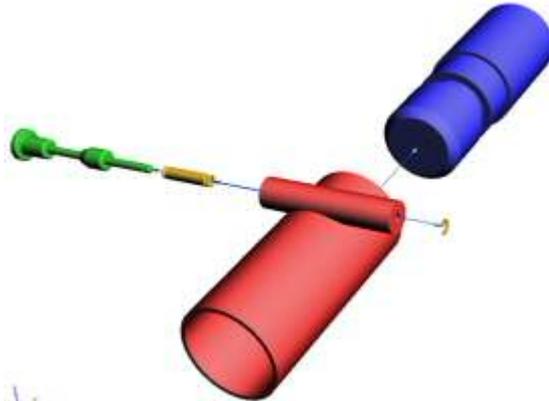
- Provide mounting on the trailer in a single move,
- Realize automatic locking,
- Realize removing in at least two steps,
- Provide access with average hand,
- Disable all required degrees of freedom,
- Enable all required movements.

During the testing, students were able to choose the task they were interested in solving and had access to all information needed, such as (functional requirements, CAD drawings, other available analyses and calculations). Of course, they were able to communicate via the system messenger with the task administrator if they had any additional questions.

The projects were set to be performed in three independent phases. In the first phase all registered students who wanted to participate in the project uploaded their ideas as 3D PDF models with comments. These were initial ideas that have not been designed in detail.

All uploads were analyzed and graded independently by a group of reviewers and the representative of the manufacturer. The analysis was performed based on the agreed criteria between the reviewers and the representatives of the manufacturer. It was important to meet the main requirement /function of the task in the students' proposals. So, reviewers had to check whether the "basic criteria" were met and provide comment if there was some possible problem or whether the basic criteria were not provided.

Two examples of a students' ideas uploaded in Phase One are presented in Figure 4 and Figure 5.



**Figure 4** Example of an idea uploaded in Phase One



**Figure 5** Example of an idea uploaded in Phase One

The first phase was not eliminatory and all students had a chance to upload the improved solutions for the second phase, according to the received suggestions.

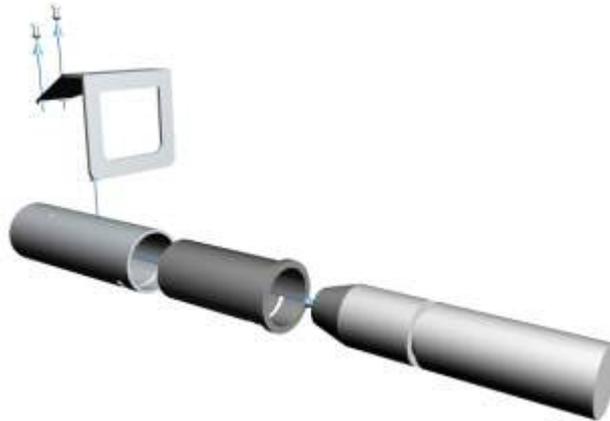
The second-phase uploads were made also as 3D PDF models in the assembled and/or disassembled structure with comments. These improved uploads were made in more detail and with more specific suggestions regarding the functionality.

An example of how the same idea from Phase One (Figure 4) was improved and uploaded in Phase Two is presented in (Figure 6), while an example of how the same idea from Phase One (Figure 5) was improved and uploaded in Phase Two is presented in (Figure 7).



**Figure 6** Example of an idea uploaded in Phase Two

All uploads in Phase Two were also analyzed and graded independently by a group of reviewers and the representative of the manufacturer. The analysis started with checking for the fulfillment of all basic criteria from the first phase. They all had to be met, otherwise the proposal was eliminated. The criteria for the second phase were the so-called “quality criteria” for different functional requirements and the uploaded solutions could be graded on a scale from 1 to 5 (5 being the highest number of points).



**Figure 7** Example of an idea uploaded in Phase Two (exploded view)

Figure 8 is an explanatory presentation of the parameters and the user interface for the “Reviewer” for the analysis procedure in Phase Two for the project “Baggy wheel” connection to the trailer.



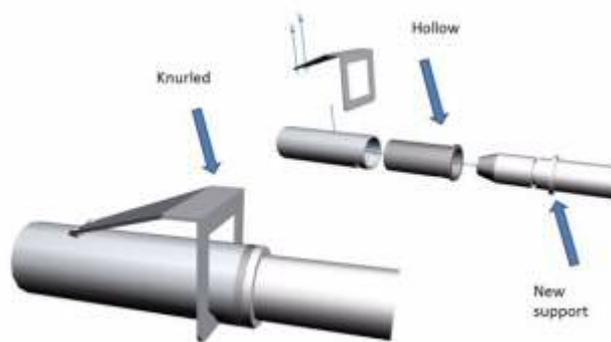
**Figure 8** Part of the user interface for the “Reviewer” for Phase Two

After Phase Two, all participants were invited to improve the best ideas from the Phase Two. The best ideas were opened up and made accessible to the whole group of participants, so that everybody could contribute to the best chosen solutions. The third phase of the project included further improvements of ideas, with 3D sketches in greater detail, taking into account the real measurements of the product and possibly, the used materials and technologies. Moreover, all functional requirements had to be taken into consideration. Figure 9 shows the idea presented in Figure 4 and Figure 6, now further developed, while Figure 10 shows the improved idea presented in Figure 5 and Figure 7.

The idea was to provide refinement of the solutions by all community members. It meant that somebody could upload a solution with a much better design and more optimized than the initial proposal that was selected in the second phase.



**Figure 9** Example of an idea uploaded in Phase Three (assembled view)



**Figure 10** Example of an idea uploaded in Phase Three (assembled and exploded view with comments regarding the improvements)

According to the structure of the contest, a specific reward system was also developed:

- 40 % of the prize fund, for all solutions that completely fulfilled functional requirements. The idea was to respect all engineering solutions that fulfilled the given task.
- 40 % of the prize fund, for the best three solutions after the Phase Two (DOSAD SI UVEK PISAO RECIMA, A NE RIMSKIM BROJEVIMA), which had a potential to be developed further. This part of the reward was committed to the most inventive solutions.
- 20 % of the prize fund for the best solution after the Phase Three. The last part of the reward was committed to the best solution, after improvement by the community members.

The experience resulting after the first application of the proposed reward system provided positive feedback.

## 5. Conclusions

In comparison with internal product development, co-working provides companies with the opportunity to increase the number of sources of new solutions, by embracing the competences and intelligence that are not present inside their borders. Companies should not necessarily engage their own resources to find the right employees, to motivate and monitor their effort. They can benefit from involving a large number of innovators in their product development processes. Through a student innovation co-working activity, the company Zwei plus Zwei GmbH created a pool of potential solutions.

Since students are identified as a powerful source of innovative solutions and it is shown that there is a great potential for the cooperation between universities and industry in this sector, there should be a specialized platform to support this kind of collaboration, such as the iDEA lab platform. There are some crucial issues that have to be taken into account for the further development of this platform. This platform has to be simple and intuitive for all parties involved

in innovation contests. The motivation mechanisms (incentives) have to be well-developed for each challenge to attract students, who should be educated to become open innovation ambassadors through their experience gained in these innovation contests. There already are group problem solving and entrepreneurial idea development tasks that are included in existing courses at universities, as well as different contests organized for student population. In order to develop the iDEA lab further, these contests should be connected to this platform. However, there is lack of the experience for a specific challenge deadlines, reviewing criteria and respond/reaction of the “crowd” (students). These are some open questions that still need answering, in addition to the issue of intellectual property, concerning the rights among different partners, as well as the sustainability issue of the iDEA lab platform.

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# Introducing Entrepreneurship in a School Setting – Entrepreneurial Learning as the Entrance Ticket

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The prevailing economic world order relies on financial progress and business development, and entrepreneurship is seen as an important means to achieve this. To inspire the development of an entrepreneurial mind-set among citizens, public initiatives through education has improved and consequently entrepreneurship education is booming. Positioning our research within the discussion regarding entrepreneurship as a broader societal phenomenon, our contribution lies within a much less researched context – entrepreneurship in the lower secondary school. In this context we focus on the teachers' perspective to investigate how they approach entrepreneurship and what they actually do when teaching it. Our results indicate that there has been *a change in terminology* from entrepreneurship to entrepreneurial learning. Furthermore, there has been *a change in practice*. The empirics show that an entrepreneurial learning approach includes real-life connected projects, collaboration with the surrounding community and practising entrepreneurial skills. Adding to this, working with entrepreneurial learning has in this context *resulted in enhancing the motivation of pupils* as well as *a changed perspective on teaching and learning*. Our theoretical contribution lies within the literature on societal entrepreneurship, providing a conceptual model of entrepreneurship education in lower secondary education which is an attempt to clarify and enrich the discussion on a definition of entrepreneurship in a school setting.

## Keywords

entrepreneurial learning, entrepreneurship, entrepreneurship education, enterprise education, learning

## 1. Introduction

The interest in entrepreneurship within society has increased during the last decades and has become a recurrent topic for discussions amongst politicians, practitioners and researchers worldwide. In order to climb the growth ladder and win the competitive battle between countries for employment and shares on the world market, entrepreneurship is accentuated as an important means for reaching these goals (1,2). Simultaneously, entrepreneurship is no longer limited to the private business sector (3). Even if entrepreneurship has an origin in economics (4) and the concept has inherited economic connotations such as growth, business and start-up activities (5,6) there is an ongoing tendency to broaden its use. When placing entrepreneurship in new social contexts, new questions arise and the complexity intensifies. Concurrent researchers adding to this societal view of entrepreneurship describe it as a multi-dimensional concept (7), contextually dependent (8) and emphasise the need for enterprising people in every part and aspect of society. One research challenge is the already existing knot with the lack of a common understanding of this complex (9) and dynamic (10) phenomenon. This development will

make the concept face further testing and it drives a need for entrepreneurship to be understood beyond the economic and 'businesslike' (11,p46) interpretations. Steyaert and Katz (12), as well as Leffler (13) and Mühlenbock (14), argue that when entrepreneurship is placed in other societal surroundings there are potential risks with using economic rhetoric and views since this can undermine its possibilities, implementations and legitimacy. Therefore there is, they argue, a need for developing a more varied entrepreneurship repertoire (12-13). This view is strengthened by Hjorth (15) arguing that since entrepreneurship no longer exclusively belongs to economics, rather to society, this incremental movement drives a need for making changes in how we think and talk about it. Therefore there is a need for a new terminology and language.

The increasing interest in entrepreneurship in combination with the establishment of a knowledge society where the currency is learning (16) has inforced entrepreneurship as a matter of great importance. As a consequence a number of European initiatives to 'fuelling the entrepreneurial mindset' (17,p23) could be identified. Governments all over the world seek to stimulate entrepreneurship with a growing number of educational initiatives (18-21) and accordingly entrepreneurship education is exploding (2,22-23). So, by loading entrepreneurship with an increasing number of political ambitions by for instance introducing it in the school setting through educational policy documents, national curriculums and specific government projects, it has entered society on a much wider front (8,19). Entrepreneurship thereby encompasses the whole of society and entrepreneurship is no longer something that is limited to specific (private enterprises) areas, rather it is something that is present everywhere.

Existing studies of entrepreneurship education have predominately been directed towards the post-secondary level (24-25) with some contributions from the upper secondary level (26-28). There have, however, been far fewer scholars focusing on entrepreneurship in a lower secondary school context (22,24), which is unexpected since the ideal phase to obtain positive attitudes to and knowledge about entrepreneurship is considered to be during childhood or adolescence (29), and following Johannisson (30) schools are said to be the most appropriate setting to start building the entrepreneurial society. Fayolle (23) highlights a number of areas where additional research on entrepreneurship education is called upon. One such area is that research should reflect on practice and investigate what we are talking about, and actually do, when we it comes to entrepreneurship education. Another area is the need to focus on educational or pedagogical issues within the field of entrepreneurship. And a third one is to study the many didactical questions which still remain unresearched. Moreover, the field has until now had a tendency to 'rely more on craft and intuition than science' (31,p585). This, we claim, leads to a necessity to pay more attention to what happens in an educational setting when entrepreneurship is introduced.

This article positions itself within the ongoing discussion where entrepreneurship is affecting our everyday life (12, 15, 32-33). In this context a highly relevant area to study seems to be the school setting, and more specifically the lower secondary school. Our overall research question is how entrepreneurship is introduced into a school setting? In doing this we will try to contribute to the request for further research on entrepreneurship as a societal phenomenon and more specifically to the literature on entrepreneurship education as expressed by e.g. Gorman, Hanlon, and King (24), Leffler (13), Komulainen et al (19), Mueller (34) and Fayolle (23).

The remaining part of the paper is structured as follows: after the theoretical framework consisting of a comprehensive literature study of entrepreneurship in the school setting and considerations of entrepreneurship in education, we present our empiric case and the methodology used to collect relevant information. Thereafter we present and discuss the results from our empirical case study before we finally conclude the paper.

## **2. A literature study of entrepreneurship in the school setting**

The following chapter is structured on the basis of the three aspects identified in our process of conducting the comprehensive literature review. These are: (1) the concept of entrepreneurship is changing and widening, (2) increased collaboration with the surrounding community and the need of finding new ways to create an entrepreneurial practice and finally (3) entrepreneurship in education seems to be related to the development of entrepreneurial skills.

If acknowledging entrepreneurship as a societal everyday phenomenon (12,15,32), and recognising the fact that by political ambitions it has entered the school setting on a broader scale, this will enhance the need for a discussion on terminology, content and characteristics of entrepreneurship in the school environment. Even if there has been an extensive debate (35), *if* we can teach students to become entrepreneurs at all, Carrier (36) for one thinks this question is obsolete and that the question nowadays is *what* and *how* it shall be taught. Engaging in this and focusing on what teachers do when educating entrepreneurship is brought up by Fayolle (23) as an important area of research.

Research on teaching entrepreneurship has been a topic at least since the 1970s (37) and was first conducted at university level. Within this field there is a critical mass of scholars (38) however the focus of the research is rather fragmented. There are studies on e.g. technology transfer (39), university spin-offs (40-41) as well as on the university as an entrepreneurial entity itself (42-43). There is also, but only to some extent, research focusing on the upper secondary level (26-28). Within this context enterprise education programmes are often studied where students for instance learn to start up a business (29). According to e.g. Gorman, Hanlon, and King (24) and Johansen and Schanke (22) there have been far fewer scholars focusing on entrepreneurship in a lower secondary school context, and hence a gap in research could be identified here.

## **2.1 Towards a broader definition and different labelling**

Scholars have launched and contrasted various definitions, labels and classifications of entrepreneurship. Traditionally, probably due to its origin in economics, this is where entrepreneurship predominantly has been discussed. Within this context the focus is more on narrow business definitions of entrepreneurship, connected to growth and value creation (5-6). However, when transferred to a school setting another line of research prevails based on a broader definition of entrepreneurship. Leffler (44) for one expresses a difficulty with these two competing discourses.

It is argued that it is through learning that entrepreneurs develop (10,45). Within this area prior research has focused on e.g. the understanding of how entrepreneurs learn in small or medium-sized (SME) firms and newly-started companies as well as on entrepreneurial processes in this context (10,46-48). Research on entrepreneurship in combination with learning within the school setting in particular, however, seems more limited (13,19,24,34).

As Pittaway and Cope (49) point out, definitions of entrepreneurship in entrepreneurship education vary within different settings. There is a lack of a uniform definition (9) and different concepts has, as previously mentioned, created challenges to the research of entrepreneurship in schools (13). Since the meaning of entrepreneurship lacks consensus among scholars, the content of entrepreneurship education becomes fuzzy (50). In addition, different ideas of why entrepreneurship is important lead to different expectations of the outcome (51). At present a number of different classifications and categorisations flourish amongst scholars. Garavan and O’Cinnéide (52) categorise it by differentiating *entrepreneurship education* from *education and training for small business owners*. Gibb (5) instead introduces a discussion of enterprising vis-à-vis entrepreneurship as a means to move away from the narrow definition of entrepreneurship and the entrepreneur, thereby distinguishing between *enterprising* and *entrepreneurship education*. Entrepreneurship education has so far mainly had a focus on SME’s: how to start, plan and launch a business, matters of expansion and enhancing the essential skills to run a business (53-54). Enterprising is instead seen as active learning enterprise education pedagogy and focuses

on attaining and developing skills and abilities to be used in different contexts through life (54). Johannisson, Madsén, and Hjorth (55) argue that enterprising is more important than entrepreneurship. The terms entrepreneurship and enterprising are sometimes used simultaneously which gives cause for confusion (18).

According to Jamieson (56) as well as Henry, Hill and Leitch (57), another division of enterprise education is education *about, for* and *in* enterprise. Education about enterprise has a more theoretical weight whereas education for enterprise involves activities encouraging and preparing individuals for a career as a self-employed entrepreneur. Education in enterprise is mainly for already established entrepreneurs. Where Henry, Hill and Leitch (57) recommend this classification Lackéus (6) and O'Connor (58) suggest another. They include *about* and *for* entrepreneurship, but add education *through* entrepreneurship as their third classification. Through is a process- and experienced-based learning where participants start up a company or an entrepreneurial project.

Yet another distinction of the concept is *internal* and *external entrepreneurship education* (19) where external entrepreneurship is about enhancing the skills of the people who want to set up their own businesses, and internal entrepreneurship is a combination of flexibility, initiative, creativity and independent action with cooperation skills and strong motivation.

Furthermore there is the concept cousin *entrepreneurial learning (EL)*. There is research contributing to the understanding of EL within SMEs and the learning that takes place when an entrepreneur creates, develops, manages and makes the business grow (10,46,47,59-61). This implies that studies in an SME context has been the main focus for studies on EL learning until recently. Accordingly there are fewer contributions discussing EL in relation to education such as done by Otterborg (62) and Falk Lundqvist et al (63). Among these education scholars a common view of EL seems to recognise it as a learning and teaching approach.

EL should, however, not be seen as a fixed education concept; instead its essence could be traced to different theoretical conceptions. Apart from a focus on individual knowledge, EL aims at creating a holistic approach and coherence (63). Some theoretical relations can be traced to social constructivism (21) as well as learning by social interaction (64), experiential learning (65), experience being experienced (66) and finally visible learning and connecting the education to the pupils' real world (67).

To sum up, it has been revealed that there are different concepts and terms prevailing. Sometimes they are somewhat neglectfully used simultaneously and hence cause confusion. When entering the school setting they are competing for space (e.g.19). On the one hand this might be a problem with the lack of a common term and definition. On the other hand this might be a necessary development for entrepreneurship to pave its way into school on a broader scale (15).

## **2.2 Increased collaboration and the creation of an entrepreneurial practice**

Schools used to be perceived as more or less closed institutions, but interaction between education and other parts of community have expanded. Johannisson, Madsén and Hjorth (55) stress the significance of this interaction. Johannisson (30,p101) argues that '*[s]chools' inner world must develop through interaction with their outer world*' and with a change within teacher education programmes at the universities. This interaction creates a platform for coherence (50) providing a comprehensive perspective for teachers and pupils to connect their experiences, knowledge, ideas and contacts.

There exists research about the design, processes and effectiveness of teaching entrepreneurship in the school setting (18,24) and it is not daring to say that the common view in this research is that entrepreneurship is to be best taught by a mix of experience and theory (9,46,57,66,68). According to Kuratko (2) teachers should aim for a broad exposure to entrepreneurial practice, because this helps lessen the gap and the incongruence between academia and business. There are, however, some challenges with how schools can create

the necessary practice in which pupils can experience and undertake entrepreneurship which is dealt with below.

There are different pedagogical models and methods offered within entrepreneurship education to achieve collaborations with the surrounding community. Some use ideas and examples from e.g. Dewey's (66) concept of learning by doing, action learning (69) and problem-based learning (70). According to Surlemont (71), the most common and most successful entrepreneurial pedagogical method is working in projects with partners outside school, providing real issues to the pupils, thereby creating value and meaningfulness. Lackéus (72) agrees with Surlemont's ideas with projects connected to outside the school environment, showing his own results that this way of working enhances students' entrepreneurial self-efficacy. On the other hand, the picture is not homogeneous. There are also difficulties in working with this in practice. Svedberg (27) for example shows that some pupils have difficulties in keeping motivated and engaged when facing problems. Moreover many teachers and students lack education in and experience of entrepreneurship (51). Some answers to how to fill the gap between education and entrepreneurial practices are provided by Mueller (34), who studied EL processes at university level and found that students could learn entrepreneurship without previous experience. The students learnt through what she calls *experience knowledge*, an iterative learning process where knowledge is experienced through social exchange with peers and teachers as well as with the world outside the classroom, and by having discussions and critical reflection on their learning.

Neck and Greene (9) also consider reflective practice useful and suggest that students should engage in serious games and simulations. Further insights are offered by Bill and Johannisson (7,p13) who discuss entrepreneurship in terms of *'creative organising'* and claim that entrepreneurship is to create new operations (activities) by concrete actions and through a creative organisation of people and resources attained by developing trust-based relationships with e.g. actors in society. They state that entrepreneurial activities take place in people's interplay in *'the staged business environment'* (7,p22).

### **2.3 A focus on entrepreneurial skills**

Related to the theoretical discussion on entrepreneurship education is the discussion on the skills necessary for becoming an entrepreneur. The role of entrepreneurship education is to encourage young people to become entrepreneurial (28). People involved in entrepreneurship and entrepreneurial activities are generally expected to grow as people, gain certain competencies and become entrepreneurial themselves (5,57). However, there is no consensus about which specific enterprise skills to focus on (73) and also little evidence that schools focus on the most relevant skills (74). According to Man, Lau and Chan (75), these skills can be traced to both personal inborn traits, attitudes and self-images as well as be obtained through work or education.

Hence, various authors propose different skills. There are researchers dividing the entrepreneurship skills necessary for an entrepreneur into different subgroups. Chandler and Jansen (76) claim that a business owner must perform three roles: the managerial, technical and entrepreneurial role. Lerner and Almor (77) offer a twofold division, separating managerial skills from entrepreneurial skills, which they then further describe as innovation and marketing skills. Surlemont (71) on the other hand distinguishes between technical competencies associated with entrepreneurship (business plan, opportunity recognition, financial matters etc.) and strategic competencies associated with enterprising (teamwork, creativity etc.). Martin and Staines (78) argue that it is about personal qualities such as leadership, self-confidence, risk-taking and outgoing that makes entrepreneurship flourish. Turning to the traditional entrepreneurship literature, the Schumpeterian (79) entrepreneur needs skills that could make her the bearer of mechanisms of change, but no risk-taker. Knight (80) on the contrary sees the entrepreneur as a risk-taker who must be able to handle uncertainty. Kirzner's (81) view on the market process demands entrepreneurs that can find

and act on new possibilities and therefore need to practise their alertness. There are researchers claiming that the necessary skill is to discover and make use of opportunities (9,82-83). Others place significance on creativity and innovation (84) as well as learning from failure (59). Karataş-Özkan (85) raises the relational aspect, in that entrepreneurs can learn from teams and networks, thereby paving the way for a need of team- and social skills. Gibb (5,p15) instead discusses and summarises what he terms *'entrepreneurial capabilities'* necessary *'for the pursuit of effective entrepreneurial behaviour individually, organisationally and societally in an increasingly turbulent and global environment'*. Regarding the school setting there are less researchers discussing entrepreneurial skills. One of them, Otterborg (62), in her study of upper-secondary school pupils suggests that the skills students shall practise are e.g. being initiative, creativity, daring, becoming confident, seeing possibilities, facing challenges and being self-directed.

To summarise our literature study three important aspects emerge. Firstly there is the question of the terminology regarding entrepreneurship in schools, which has both changed and widened from its originally business focus. The second aspect is that entrepreneurship enhances collaboration with the surrounding community, possibly owing to the aim of creating a mix of theory and practice, which leads to a discussion of how schools can create an entrepreneurial practice. Creating a platform is, however, not enough; pupils need to develop useful entrepreneurial skills in order to nurture the entrepreneurial vein.

### 3. Method

The study's objective is to develop knowledge about what happens when entrepreneurship is put into practice in a school setting. By building on previous research and collected empirical material we will attempt to contribute to an increased understanding of entrepreneurship in an educational context, from a teacher's point of view. Based on an iterative process between studying and analysing theory and practice, an interest and focus on the teachers evolved – what they do when teaching entrepreneurship.

The school studied is a Swedish lower secondary school, ages 12-15, with approximately 350 pupils. When the empirical study was conducted the school had 35 employees of which 28 were teachers. At the time the school was facing some challenges and had received negative criticism in a school inspection. As an attempt to overcome the challenges and bring about a change, the school introduced entrepreneurship as an inspiration and working method to strive for a better unity, a more positive school *'culture'*, develop the learning objectives and enhance the pupils' motivation and thereby to a larger extent attain the goals. The school applied and received an externally funded project (from 2010-2012) by the Swedish National Agency for Education with the aim of implementing entrepreneurship in the school.

This qualitative research study was conducted by a literature study of related research and by collecting and analysing policy documents from a European and Swedish level, e.g. policy documents and the national curricula from the Swedish National Agency for Education (86-88) and the strategy for entrepreneurship in the field of education (89), a European reference framework from the European Community (90) and an OECD report (91). In addition an empirical study was conducted which consisted of separate participative meetings with management, including meetings on project planning sessions, a document study and nine semi-structured interviews. All of the meetings were with the management, four of them with the school principal and the project manager of the project; two of them also included the team leaders.

The nine semi-structured interviews were conducted with teachers. These teachers were selected based on their involvement in the project. The qualitative approach in this study focuses both in depth and on a small sample. The study is underpinned by the search for developing an understanding of entrepreneurship in a school setting, and for the search for the character and meaning of entrepreneurship in school. Hereby, interviews create a more in-depth possibility for understanding and provide closeness to real-life situations and context-

dependent knowledge (92). The interviews followed an interview guide which consisted of three overriding themes, each with open-ended questions connected to it. The topics dealt with the project and its process, results and effects as well as the concept of EL. The interviews took approximately 50 to 90 minutes, and were audiotaped and fully transcribed before analysed.

Interviews and documents were analysed qualitatively in an attempt to explore descriptions of and approaches to entrepreneurship in the school setting. Transcribed interviews and notes from the meetings were also analysed in an attempt to obtain a deeper understanding of the teachers' view of their understanding of and practical approaches to entrepreneurship and entrepreneurial education. First a general analysis began with a read-through of the collected material. Thereafter the empirical material was analysed for each interview and each answer itself and for each document. Then a comparison was made between them, searching for both similarities as well as variations.

When using quotations the material has been gently edited, but carefully rendered to enhance the readability but without losing the essence in the respondents' answers.

Through an iterative process alternating between these sources, a number of themes became visible indicating their importance, forming a content of entrepreneurship in school. These themes were a new terminology, an approach of entrepreneurship at school and the effects of working with EL.

## **4. Findings**

Findings are presented in three sections within which the empirical findings are discussed, contrasted and intertwined with the theoretical insights from our literature study. First we will comment on the development of a new terminology when introducing entrepreneurship in the school setting. Then we will present an approach to working with entrepreneurship in lower secondary school. The last section shows the teachers' experienced effects of working with EL. Finally we will summarise our findings by suggesting a conceptual model of entrepreneurship in a school setting.

### **4.1 A new terminology**

Teachers according to Korhonen, Komulainen and Rätty (93) and Sagar (94) play the most important role in the process of transforming entrepreneurship education in teaching practice and learning outcomes. They have the most important influence on students' interests at school (67) and they strongly affect how and to what extent the curriculum is implemented (95). Therefore teachers' views on and attitude towards entrepreneurship affect implementation and legitimacy, and this will be exemplified below.

At our investigated school entrepreneurship had at first an unclear role to play and most teachers resented the connection and connotations to business. Discussions on what purpose entrepreneurship served at the school led to a division between teaching entrepreneurship, i.e. helping pupils to become entrepreneurs and business owners, and educating enterprising pupils with abilities to act entrepreneurially in many different situations. The last interpretation was unanimously agreed upon. In addition entrepreneurship in this school setting also changed its name. The terminology quickly changed from entrepreneurship to *EL*. These results support previous research suggesting that teachers are ambiguous and even reluctant to acknowledge the business-like links to entrepreneurship instead preferring enterprising/internal entrepreneurship (44,93,96). For instance, Backström-Widjeskog's (96) study shows that the majority of teachers choose to emphasise that the purpose of entrepreneurship activity is comprised of individual and social activities that are directed towards personal development over a business focus. The changed terminology also aligns with the need for a more varied discursive repertoire when entrepreneurship enters other societal sectors expressed by e.g. Steyaert and Katz (12) and

Leffler (13).

From our empirical study we saw that there among the teachers were a certainty of the importance of EL, but yet uncertainty of its meaning and assignment. In the empirical material the teachers were convinced of the great relevance and importance of EL and there was a strong belief that it would bring many positive effects. Even so, neither of the respondents could present an explicit definition instead most of them referred to the formal status of EL as stated in the national curriculum, an assignment thereby appointed by the Government. However, the usage of EL is not obvious according to formal documents (86-88). Neither the strategy for entrepreneurship in education (89) nor the curriculum (88) mentions EL. Instead it is *entrepreneurship* that is supposed to permeate the school system. Entrepreneurial *skills* are also referred to. What could we make of this discrepancy? It seems as though entrepreneurship was the actual task given by politicians via the strategy and curriculum, but when introduced in practice the result was that it changed and developed into EL. One interpretation is that practice plainly obstructs the work with entrepreneurship since they do not see it as their task. A more positive interpretation could be that practice is ahead of politics, driving a change in terminology. There are signs of this to be found in documents from the Swedish National Agency for Education (86-87) since over time the term EL turns up in other policy documents. This development could be considered as a way of getting out of the deadlock regarding teachers' resistance to entrepreneurship (in the more narrow sense) in schools (19,93) but also a need to transform the inherited economic term into a more suitable label and content.

#### **4.2 An approach to entrepreneurship in schools**

When discussing entrepreneurship education we tend to talk about disparate things (25). As Fayolle and Gailly (31) point out the assumption of what entrepreneurship is affects the quest on an educational level for the answer on what, why and how to teach. In this section we will present what teachers state they do, and focus on, when dealing with entrepreneurship, or rather EL. By building on these empirical findings as well as our literature study we will present an approach to EL, which is to be regarded as consisting of three main and interrelated parts. Thereby we will make an attempt to provide a more distinct definition of entrepreneurship in this setting.

The three interrelated parts which contribute to entrepreneurial development are as follows: firstly, the school's pupils carry out *real-life projects*. Additionally, to make this happen the work was connected to and done in *collaboration with the surrounding community* which help to create meaningfulness and a sense of value-adding in the work. Lastly, when working this way, pupils are both challenged and given an opportunity to practise *entrepreneurial skills*.

Firstly, *real-life projects*, as in experiences influencing schools from the outside, were presented as an important method when working with EL. The school had been doing projects earlier on, but until now these had only been based on fictitious cases. These were now replaced by real-life projects and the pupils were facing real problems and challenges. As one teacher puts it, it was the way they '*adapted their teaching to reality*'. The teachers developed their own process model which was described by the respondents as follows: the students practised entrepreneurial skills by working with real-life challenges in projects, preferably connected to an external party. They formed visions and goals for the project, generated ideas for a solution, made an environmental scanning, found out and used their strengths and weaknesses and took responsibility for reaching the goal. The end result, often a new prototype or a product development, was finally presented. Only one teacher explicitly mentioned entrepreneurship in relation to the process and added that the pupils also '*learned to take it to the market*'.

From our literature study we found that entrepreneurship is considered to be taught best through a mix of formal education and experience (46,57,66,68). Neck and Greene (9) further suggest that both experimentation and practice are necessary ingredients in their approach to entrepreneurship as a method. There is, however, a risk that only a very few

teachers have prior education in entrepreneurship or have any practical experience from working with entrepreneurship (23). The interviewees themselves experienced a knowledge gap. So there seems to be a challenge to bridge here. Therefore teachers need to take action and find ways to establish the necessary practice.

In that sense we see that engaging in the real-life projects was a way of creating an *entrepreneurial practice*. With Bill and Johannisson's (7) research in mind we could say that the projects helped to create a *staged business environment*, which means using the projects to stage an arena for co-creation where entrepreneurial activity is shaped by people's interplay. Mueller's (34) research also shows that in EL experience practice might not be necessary; one can learn entrepreneurship through *experiencing knowledge*, which in her thinking involves a social exchange with peers, teachers as well as the world outside.

Among the interviewees consensus was found that real-life projects were a successful method, although one teacher voiced a need for caution. Sometimes the new projects tended to return into the old group projects and there is still work to be done regarding how all subjects can fit into this new way of working and also to make sure there is an understanding of how everything is connected to EL as a whole. The projects were first created together across subjects, school classes and ages of the children which was good for building relationships among pupils. This, however, became too time-consuming and complex so the school changed strategies, allowing projects to be disparate both regarding length and demands on multidisciplinary.

*Collaboration with the surrounding community* was pointed out as a second important part of EL. Even if teachers are reluctant to entrepreneurship, there is symbiosis in this thinking regarding relations and collaboration provided by Hansemark (1), claiming that entrepreneurship cannot occur in a vacuum, but rather in a cultural and social context. The teachers' idea was to connect the school environment to the *'world outside'*. Using this rhetoric reveals a perceived gap by the teachers; the school had not be regarded as naturally linked to society. Researchers welcome this opening development since it creates a platform for interaction and new places to learn from and in, as well as a basis for creating coherence (30,50,55).

Collaboration was, according to the teachers, not excluded to the business sector which one might be led to believe when discussing matters of entrepreneurship, but instead this was considered as a general openness to collaboration with society in a broad sense. The teachers emphasised that becoming business owners was not the goal with EL. The focus was more on intrapreneurship (as an act of behaving like an entrepreneur while working within a large organisation) and on learning what is expected in a future working life. It was considered a way of preparing the pupils for life after school. The idea was also to help them become responsible creators of their own lives. To achieve this the pupils needed to know what was going on in society and strengthening collaboration through networking and practising social skills became a method.

One important way to implement external collaborations was through the already mentioned real-life-connected projects. This is supported by Lackeus (6) and Surlemont (71) who see projects as the most successful entrepreneurial method in schools for co-operating with their surrounding community, and by Otterberg (62) who says that EL implies experienced-based learning tasks through interaction between schools and businesses. However, there are also voices (27) expressing difficulties in using co-operation between schools and enterprising environments.

Thirdly, the third interrelated part of EL is working with *entrepreneurial skills*. Hansemark (1) states that entrepreneurship education is displayed as a model for changing attitudes and motives, which is supposed to affect students' entrepreneurial drive positively. Yet there are results from a study at college level (97) showing the opposite: taking part of an entrepreneurship education programme leads to an insignificant or even negative impact on the students' entrepreneurial intentions. There is also little evidence that schools know that they are targeting the crucial skills (74). However, according to the empirical material, entrepreneurial skills are important as a means of changing attitudes and behaviours and

Man, Lau and Chan (75) support the idea that these skills can be obtained through hard work or education, even if they can also be traced to inborn traits.

Having said this, the teachers in our study claim that there are necessary skills that can be learned and the ones that are important are responsibility, enterprising, participation, activity, creativity, innovativeness, problem-solving, drive, opportunity-seeking/thinking, reflection, communicativeness (e.g. daring to speak in front of a group and making external contacts) self-esteem and self-reliance skills. Interestingly, only one of the teachers mentioned entrepreneurship and becoming entrepreneurial in a business. The skills are therefore not to be understood only in the narrow economic sense as when and how managers in companies learn, as in the research by e.g. Priyanto and Sandjojo (98). Even if there are some skills connected to an entrepreneur in a business context such as being driving, opportunity seeking and problem-solving, when transferred to a school setting they also include softer and more personal connotations. Again, the economic and pedagogical discourses are overlapping, making ground for confusion since the skills characterising an entrepreneurial approach in a school setting are similar to the ones connected to business.

EL is supposed to help to develop learning strategies for the pupils' school development as well as for the future. Working with entrepreneurial skills helped the children to get to know themselves, their dreams, goals and what they are good and bad at, and how they could develop and handle this. *'We want to raise children who can manage in life'* was a statement brought up as a contrast to the earlier focus within education on knowledge production. The emphasis on entrepreneurial skills was experienced as a shift in focus from in-depth knowledge and learning facts, which therefore changed the teaching/learning situation. Another teacher added *'It might be provocative to say this, but I almost think they [entrepreneurial learning and skills] are more important than factual knowledge'*. Just as Kirby and Mullen (73) say there is no consensus on what enterprise skills to focus on, the same situation prevailed in this school setting. At first the teachers were working with 22 suggested skills. This system was too difficult and as one teacher expressed how he experienced the situation *'[o]ne would need a specific university exam just to figure them out'*. Since these skills were considered too many they eventually decided to focus on a lot fewer. Working with the entrepreneurial skills affected the teachers too; they realised and expressed a need to work more with their own skills as well since they are role models for the children.

### **4.3 Effects of working with entrepreneurial learning**

This aim of this study has not been to investigate the effects or measure the outcomes in relation to EL. Nevertheless, strongly emphasised by the teachers, working with EL in line with the approach above led to two main effects: an increase in the pupil's motivation and a changed perspective on teaching for the teachers.

Notably, our empirical material revealed a common belief among the teachers that working with EL *increased the pupil's motivation*. This was also unanimously regarded by the respondents as the overall aim of EL. Discussing motivation in relation to entrepreneurship traditionally leads us first to the long-lasting perception since Schumpeter (79) that entrepreneurs are driven by economic motives. This however has changed and according to Carsrud and Brännback (99) there are now divergent reasons for engaging in entrepreneurship and starting up a business, such as social gains or merely living on one's making, for example handicraft or art in a livelihood business. Placing this discussion within schools somewhat alters the focus. The idea was that when the pupils increased their motivation it would in the end affect their learning and therefore school results in a positive way. Gärdenfors (100) underpins this notion, stating that motivation and understanding are central to effective learning. Also a report from the OECD (101) supports this claim that learning fails owing to lack of motivation, self-confidence and a real or perceived sense of insufficiency. Motivation in our empirical material was described as being connected to pupils' interest as well as to meaningful, reflective, participative and democratic learning

situations.

Motivation thrives with interest. The teachers described that EL was considered fun and inspirational for both pupils and teachers. This enhanced the children's interest in school, making them more active, responsible for their own learning and even preventing them from playing truant. In relation to this Marton and Säljö's (102) research on deep- and surface learning has shown that the individual pupil's interest and will to know more has significance for important in-depth learning which is an active approach characterised by a will to create coherence, to grasp what is being taught and to understand in the long term. Deep learning also progresses by reflection (9). Another division in how students learn is the constructive and reproductive learning conception. A constructive learning conception means, as in deep learning, a quest for understanding but also pupils who take responsibility for outcomes. The reproductive learning conception instead focuses on memorising facts and laying the responsibility on the teacher (103) Entwistle and McCune (104) argue that the constructive learning conception is connected to the deep-oriented study approach. Therefore we argue that interest and motivation can be acknowledged as essential for both active, responsible and important in-depth learning. This research seems to support the teachers' perceived positive effects of EL.

Additionally EL was said to lead to a meaningful learning situation. This is because it starts off from the pupils' interests, their own lifeworld and sense-making, which is in line with Hattie's (67) thoughts. Moreover the children can influence their own school situation and education. Teachers and pupils carried out the projects together, co-created knowledge by listening in and built on one another's knowledge. This constituted a democratic platform, not being the *'pretend-democracy'* (sham democracy) it used to be. This view is supported by Surlemont (71) who states that projects that create value outside school, and not only for the pupils, will increase a sense of meaning and pride for students, thereby enhancing their motivation. One teacher was a bit critical though and argued that they had not reached every child yet, and expressed doubts as to whether that would ever be possible.

The other expressed effect was that EL *changed the teachers' perspective on teaching and learning*. Here they referred to their own development as teachers. The teachers expressed that they were redefining their role; it changed from being a desk lecturer to *'a coach'* or a *'project leader'* and teachers and pupils were together co-creators of knowledge. Many described that this meant that they had to decontrol and loosen up. *'It has changed my view of myself... being a bit dominant... I've tried to take a step back'*, says one teacher.

The development towards a new perspective on teaching and learning nurture a change in practice because teachers heavily influence many matters in school both regarding content, how entrepreneurship education is introduced into everyday work and its learning outcomes (93-94) as well as how and to what extent the curriculum is executed (95). The teachers further describe that they *'work differently'*, using new working methods and adding more creative elements in their teaching, which were influenced by the new method of real-life projects as well as the changed view of their own and their students' roles and cooperation. Also since inspired by working in interaction with society not all classes took place in the school. Instead it could be at the city library, a public place or in a café.

Furthermore, EL became a platform for discussions about pedagogy and didactics. Working with EL *'finally made us [the teachers] have pedagogical discussions'*, comparing with before where discussions on administrative matters and individual pupils' troubles took all the time at their joint meetings. Another teacher said *'I [now, since the start of the project] reflect over entrepreneurial skills and the teaching'*. This equals the classic work of Schön (105) on the reflective practitioner who has raised consciousness about the importance of actively thinking and evaluating one's actions in a professional setting.

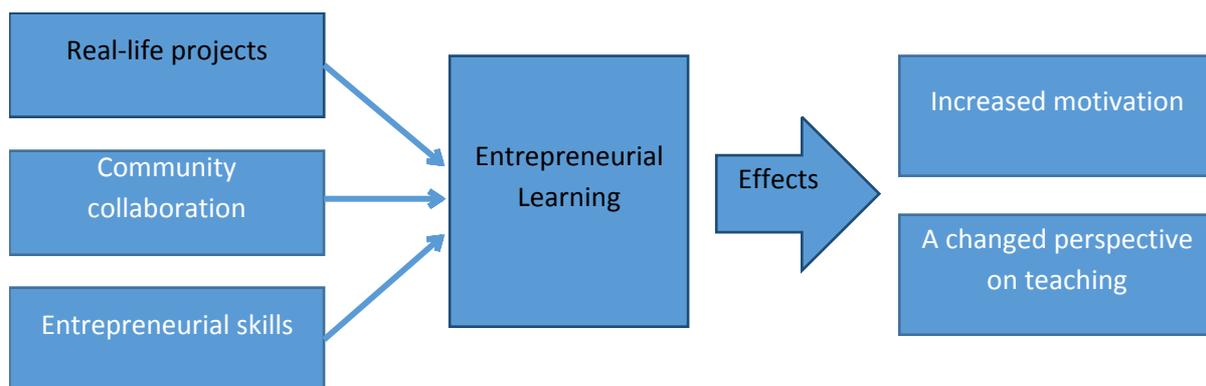
According to the interviews, working like this was considered fun, more challenging and led to a better understanding of their own and their colleagues' work regarding both methods and subjects since the working method demanded more communication, co-operation and peer learning. Some of the respondents related to that they developed increased self-esteem and strengthened the will to work more with development themselves. However, EL also

constituted a breeding ground for more conflicts. The working method made the teachers work in new formations with colleagues they might not have chosen in the first place. Also it was more time-consuming to plan together and to maintain a network outside the school. However, even if criticising some negative effects of the work, the respondents were generally positive and seemed willing to make a long term commitment. As one teacher said *'I won't be able to go back and teach as I did four or five years ago, it will never happen ... it does not matter what they [the Government] decide, because in my classroom I will still continue working in this way'*.

#### 4.4 Summary of the findings

Before we turn to the conclusions of the paper we will summarise our findings in a conceptual model (see Figure 1) of entrepreneurship in a school setting. In doing this we will attempt to provide a more distinct definition of entrepreneurship in this context and thereby reduce the risk of confusion, a confusion which we partially have discovered in our findings and in previous research hitherto. This situation can occur when a phenomenon, in our case entrepreneurship, is put in a new context and there is uncertainty both regarding content (what it is) and what it is supposed to be. It is during this period important to follow and identify how the new practices and concepts connected to it evolve. In this case with entrepreneurship, there still seems to be a strong belief in politics and society that entrepreneurship in a school setting is mainly related to company creation and the creation of value in an economic sense. However as presented in our findings section there is an ongoing development and transformation within school and education.

The presented conceptual model is by no means supposed to be interpreted in a strict way, yet can help clarify the current terminology and practice, which has to be further discussed and challenged. Bearing this in mind, this conceptual model has its limitations. It is a first proposal based on new explorative empirical research which needs to be elaborated and refined in the future, and therefore we make no claim on generalisation.



**Figure 1** A conceptual model of entrepreneurship in lower secondary school

This conceptual model offers a definition of entrepreneurship in the school setting which consists of three interrelated parts: real-life projects, collaboration with the surrounding community, including both private enterprises and public organisations, and practising entrepreneurial skills. In this setting the prevailing language, or narrative, is not entrepreneurship. Instead these above mentioned three intertwined parts together characterise EL in lower secondary school. According to the teachers effects of working with entrepreneurship have resulted in an increase of pupils' motivation and moreover the teachers have changed their perspective on teaching and learning.

## 5. Conclusion

The study's objective was to develop knowledge about what happens when entrepreneurship is introduced into a school setting. We thereby aim to contribute to the ongoing research discussion regarding entrepreneurship as a societal phenomenon and its forms of expression in a school context as well as adding knowledge to the related field of entrepreneurship education.

We have studied what teachers actually do and talk about when it comes to entrepreneurship in a school setting. Our results are summed up in a conceptual model of entrepreneurship. The results indicate that there has been *a change in terminology* from entrepreneurship to EL but also a *change in practice*. When teaching EL the approach includes *real-world connected projects, collaboration with the surrounding community* and *practising entrepreneurial skills*. Teachers experience that working with EL in this way has resulted in *enhancing the motivation of pupils* as well as a *changed perspective on teaching and learning*.

Reasons for this development could be found in previous research. Referring to Hjorth (106, p206) he claims that language has importance when entrepreneurship enters society on a broader scale since it functions *'as a "programme" for actualising the new'*. Also, our literature study show a movement towards a differentiated and widened entrepreneurship concept in a school setting. Further, this change in terminology seems to be required to gain access to schools, owing to the reluctance of teachers in acknowledging entrepreneurship which affects acceptance, implementation and legitimacy as expressed by e.g. Steyaert and Katz (12), Leffler (13) and Mühlenbock (14). Also, as previously argued, entrepreneurship is considered multidimensional (7) and contextually dependant (8). This perhaps make ground for discussing a conceptual model and definition of entrepreneurship in a lower secondary school context.

However, even if the need for a more varied repertoire is acknowledged we wish to express caution. EL is seen as an answer to a wide range of challenges e.g. increased economic growth, the creation of new businesses, national and international competitiveness, a pedagogical instrument, the profiling of schools to attract students, achieving higher grades, increasing motivation, greater democracy, developing lifelong skills etc. Therefore it seems as though EL is considered a dream solution to all these challenges and even a kind of 'magic concept' (107). If EL is located and used within all these contexts it could run the risk of becoming a Jack of all trades yet a master of none.

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## Perceived learning outcomes of experiential

# entrepreneurial education: the case of Latvian business schools

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**An empirical study presented in this paper addresses a major gap in the entrepreneurial education research – the lack of empirical evidence that experiential approach to teaching entrepreneurship is associated with better outcomes in comparison to traditional approach. It focuses on perceived learning outcomes specifically and applies the tripartite competence framework to assess them. The analysis is based on a survey of 306 last year Bachelor students and recent graduates from four Latvian business schools. The study brings about somewhat unexpected results revealing that more experiential EE does not necessarily lead to better outcomes in some cases even being associated with an adverse effect, and that other factors unrelated to the interventions-in-question directly exhibit significant influence on these outcomes.**

## **Keywords**

Business schools, experiential entrepreneurial education, learning outcomes, post-transition economy

## **1. Introduction**

Along with a shift of the dominant learning paradigm towards constructivism and social constructivism [1] renowned entrepreneurial education (EE) scholars advocated that experiential approach to teaching the discipline is the most appropriate, especially in light of uncertainty and ambiguity, action and dynamism inherent in the essence of entrepreneurship (e.g. [2], [3], [4]). Traditional approach to teaching entrepreneurship supported by principles of behaviourism and cognitivism, on the contrary, is considered less suitable for developing the discipline-specific competences. An implicit standpoint behind the growing popularity of experiential EE is its perceived potential to generate better outcomes as compared to traditional. Surprisingly enough, but quantitative evidence supporting this standpoint often taken for granted by researchers, educators, and policy makers is still lacking in the European context. The existing studies devoted to the EE influence tend to focus on the outcomes of entrepreneurship and non-entrepreneurship students and/or before and after an EE intervention irrespective of its form, e.g. [5], [6], [7]. In order to reveal, whether significant differences between the outcomes associated with traditional and experiential approaches to teaching entrepreneurship exist, it is necessary to compare two relatively homogeneous groups of students, whereas one was taught the discipline in a traditional and another in an experiential way. The study presented in this paper is one of the few attempts to contribute into bridging the identified gap.

Most commonly, teaching methods that educators employ in entrepreneurship programmes

and courses to achieve objectives set is the primary operational dimension to characterise the approach employed [8], [9] – either predominantly traditional or predominantly experiential, since clear dichotomy can hardly be encountered in practice, particularly in 2000s [1]. Therefore, comparing outcomes of the two approaches is becoming more challenging over time, not only due to the fact that a classical experiment with random assignment is hard to implement, but also because of the ongoing shift towards experiential EE in Europe supported at the policy level [10]. Although changes do not happen immediately, especially in research-dominated European universities, an efficiency-driven Eastern European country, like Latvia, which relatively recently completed the transition process to a market economy, can serve as a reliable (even though contextual) source of data with more distinct variation between traditional and experiential EE. This country is not likely to have a ready infrastructure for EE, including equipped incubators, prototyping factories, access to start-up funding, etc., as it is the case in Finland, Sweden or Netherlands, for instance. Thus, the post-transition economy conditions still allow assessing influence of experiential learning per se, with no support of a specialised institutional framework for entrepreneurship.

Approaches to assessing the influence of EE vary, but most of studies rely on the cognitive psychology theories (mainly, the Theory of Planned Behaviour and Social Cognitive Theory) and related subjective measures widely applied in previous research, such as entrepreneurial attitudes, self-efficacy, intentions, e.g. [11], [12], [13]. Assessment of perceived outcomes, e.g. individuals' perceptions of own competences, has become common in EE research, because, as far as starting-up a new venture is concerned, judgements of own ability to perform and to succeed appear to bring a greater effect than having this ability de facto or in contrast to measuring this ability using external indicators such as grades [14], [15]. We follow a similar path by assessing perceived influence of EE, using subjective measures. However, rather than fully relying on the measures that overfill the EE impact studies already, we employ the tripartite competence framework of learning outcomes, which originates in the science of education [16] and was brought into the EE context by Fisher et al. [17]. The key advantage of this framework is a holistic consideration of the principal learning domains, namely, cognitive, skill-based, and affective, whereas the latter simultaneously accounts for developing entrepreneurial attitudes, desirability, self-efficacy.

The study seeks to find out how perceived learning outcomes of EE associated with the traditional and experiential teaching approaches employed differ at local business schools, where EE is more pronounced and vary in terms of delivery methods. The analysis is based on a survey of 306 last year Bachelor students and recent graduates, who studied entrepreneurship at four Latvian business schools. The local EE does not receive special financial support from the government at the moment, thus, being an initiative developed solely at the level of business schools and educators. Confirmatory factor analysis and mixed analysis of variance were employed to process the data.

The paper starts with a theoretical background section, where experiential EE is defined for the scope of this study, some earlier research works related to measuring impact of experiential EE are overviewed, the tripartite competence framework employed to assess the perceived influence of EE is presented and the study hypotheses are set. This is followed by a description and justification of the study methodology, including sampling, measures, and methods used. The third section presents results of the analysis. The paper ends with a conclusion and discussion of the obtained results and limitations of the study.

## 2. Theoretical background

To date, a multitude of study programmes and courses in entrepreneurship operate on both sides of the Atlantic [18], [19], [20]. Some of them intend to increase general awareness about entrepreneurship as a career option, others educate individuals, who are supposed to start new ventures at some point of their lives in future, and the remaining ones (which are few) intend to prepare “ready” entrepreneurs [21], [8]. Clearly, “learning to become entrepreneurial” and “learning to become an entrepreneur” call for different teaching methods than “learning about entrepreneurship” [22], [23], [24]. If knowledge transmission, reproduction, and analysis through standard lectures, discussion seminars, case studies, and bulky homework fit the latter to develop general knowledge about entrepreneurship, then exploration, experimentation, creation and action by the means of methods modelling entrepreneurship and working life, demanding active involvement of students, are considered more appropriate for the former two to develop entrepreneurial skills and attitudes [25], [8], [26], [2], [3], [27], [4]. Although there are a number of other inter-connected dimensions involved into delivery of EE apart from the teaching methods used and objectives set, e.g. content selected, groups of students targeted, infrastructure and resources available ([8], [9]), the teaching methods are arguably the most indicative practical dimension of the dominant approach employed. Therefore, *experiential EE can be defined as a process of equipping students with entrepreneurial competences (i.e. knowledge, skills, and attitudes) by the means of teaching methods modelling entrepreneurship and methods based on working life* (adapted from [28], [25]). The notion of entrepreneurial education in this paper encompasses both enterprise education and entrepreneurship education [28], [29].

What do the EE researchers know about the influence of experiential EE already? The group of quantitative studies devoted to measuring the extent and effect of EE courses and programmes is by far the largest in the EE research [30]. A number of studies demonstrated earlier that students with entrepreneurship-related background (e.g. business, management, logistics), who study entrepreneurship, tend to be better off in terms of subjective outcomes, such as entrepreneurial attitude, self-efficacy, and intentions [31], [32], [33], [34], [35], or even objective outcomes, such as engagement into start-up behaviour, owning a company, and average income [7], than those, who do not study entrepreneurship. The same finding applies to non-business students as well as business students majoring in entrepreneurship (in comparison to other majors) [36], [37]. However, akin to the studies with longitudinal design, e.g. [5], [38], [6], [39], often aimed at gauging short-term impact (measurement before and after a course with possible follow up), these studies do not take into special consideration the type of EE intervention, at the same time being unintentionally biased towards experiential learning.

Despite a widespread recognition of experiential approach to teaching entrepreneurship as the most appropriate and fertile, the EE researchers know little about the quantifiable influence of experiential learning in EE as compared to traditional. The study of Oosterbeek et al. [40], for instance, suggests that this influence might go in an unexpected direction.

## **2.1 Tripartite competence framework and hypotheses**

Theory of Planned Behaviour ([41], [42]), Shapero's Model of Entrepreneurial Event [43], and Social Learning Theory of Self-Regulation [44] imported from psychology have been enthusing entrepreneurship research for over two decades already. While the models were originally adapted to predict entrepreneurial behaviour in the first place, not to measure the EE outcomes, perceived desirability, propensity to act, perceived self-efficacy amongst other antecedents of entrepreneurial intentions, in turn, leading to the target behaviour, became recognised measures of the EE outcomes, e.g. [31], [45], [36], [46], [35], [47]. Despite being well-justified both theoretically and empirically, the measures adapted from psychology for assessing the EE outcomes reflect, for the most part, affective and conative processes of human mind [26],[48], whilst cognitive processes regulating knowledge and, to an extent, skills remain underexplored. This is surprising insofar as various types of competences that can be developed throughout the educational process jointly enable entrepreneurial

behaviour [49].

An alternative approach to assessing influence of EE that balances recognition of cognitive, affective, and skill-based learning is known as the tripartite learning outcomes framework. Originating from Bloom's taxonomy of educational objectives (1956), the framework was conceptualised for measuring results of general education and training by Kraiger et al. [16]. To the large group of EE impact studies it can be considered relatively novel with the closest and most known parallel being the European Competence Framework [50], where cognitive outcomes stand for knowledge about entrepreneurship, skill-based and affective outcomes – for entrepreneurial skills and attitude [51], [17], [34]. Fisher et al. [27] adapted this approach further by categorising the learning outcomes' constituents specific to EE. Taking into consideration cognitive and skill-based learning outcomes, the framework simultaneously allows for inclusion of an array of attitudinal measures, such as propensity to act, desirability, perceived self-efficacy into the affective learning outcomes, capturing a wider scope of outcomes than the entrepreneurial intentionality models alone.

In this study, we rely on the tripartite competence framework by replicating and complementing the measures categorised by Fisher et al. [17] to apply the improved measures for assessment of perceived influence of traditional and experiential EE. In compliance with the main aim of the study, we hypothesise that experiential EE is associated with a significantly higher level of learning outcomes than traditional EE:

*H1: experiential EE is associated with significantly higher cognitive outcomes of learners than traditional EE;*

*H2: experiential EE is associated with significantly higher skill-based outcomes of learners than traditional EE;*

*H3: experiential EE is associated with significantly higher affective outcomes of learners than traditional EE.*

The next section sheds light on methodological details of the study, including sampling, measures employed and methods of analysis used.

### **3. Methodology**

#### **3.1 Sample and context**

The data were collected from an online questionnaire-based survey conducted in March-May 2013 at 5 Latvian business schools. The survey targeted last year Bachelor students and recent graduates within 2 years after receiving Bachelor diplomas (classes of 2012 and 2011), who studied entrepreneurship. This particular time frame was chosen in order to gauge the learning outcomes formed relatively recently, i.e. to register short- and mid-term perceived influence of EE as well as to enlarge the sampling frame. Contacts established in the selected schools helped distribute around 2300 e-mail invitations that resulted in 362 complete responses, while 306 responses from 4 schools were used to test the hypotheses (due to a comparatively small sample size in the 5<sup>th</sup> school, N=20, and exclusion of those respondents, who did not study entrepreneurship). Over 100 surveys were started, but unfinished. All the potential survey participants were incentivised with a lottery of electronic gadgets, which was hosted in June 2013. Prizes varied from mini-tablets to MP3 players. The online survey was chosen as the optimal approach to the quantitative data collection, because it was by far the only viable method to target and reach the students, who were about to graduate very soon, and those, who had graduated one-two years ago, quickly and affordably. Moreover, it was more convenient for the respondents, providing smoother progress through the questionnaire in the user-friendly Qualtrics platform. Anonymity was ensured to the contributors on both stages of the research process. To compensate for the post-intervention measurement, we included a variety of control variables into the administered survey.

EE is more pronounced and vary in terms of delivery methods at the Latvian business schools than at technical universities or colleges, thus, making them a suitable unit of analysis. As far as the capital is concerned, it attracts not only applicants living in the Riga region, where over one third of the country's population is concentrated, but also applicants from other regions, thus ensuring access to wider audience. Unlike it is the case in the neighbouring Estonia, for instance, where EE has gained major support at the policy level and resources are being channelled towards the entrepreneurship ecosystem development, tertiary EE in Latvia does not currently receive special financial support from the government, thus, being an initiative developed solely at the level of business schools and educators. Table 1 provides descriptive information about the sample of students and graduates (N=306). The number of the recent graduates prevails (63% versus 37%). Out of 194 graduates, 4% graduated in 2013, 56% in 2012, 35% in 2011, and the remaining 5% graduated in 2010. Out of 112 undergraduates, 56% expected to graduate in 2013 (i.e., shortly after the survey was conducted), 40% in 2012, and the remaining 4% in 2015.

Table 1 Descriptive information about the sample of students and graduates

Business school and Bachelor completion, HEI share crosstab	Did you complete your Bachelor degree?		Total	HEI share in the sample
	Yes	No		
Where did you complete/do you expect to complete your Bachelor degree?	A	N		
		%	46 76.7%	14 23.3%
			60 100.0%	19.6%
B	N		70	53
		%	56.9%	43.1%
			123 100.0%	40.2%
C	N		72	15
		%	82.8%	17.2%
			87 100.0%	28.4%
D	N		6	30
		%	16.7%	83.3%
			36 100.0%	11.8%
Total	N		194	112
		%	63.4%	36.6%
			306 100.0%	

Out of 306 respondents, 80% were aged from 20 to 25, 12% – from 26 to 28, 8% – 29 and over. More responses were received from females than males – 58% over 42% of the total. School C, however, featured the reverse tendency in terms of the gender distribution. 93% of the respondents studied entrepreneurship compulsorily, 7% marked they studied it as an elective. Due to the fact that study programmes focused on “pure” entrepreneurship were still not so common in Latvia at the time of the survey, most of the respondents in our sample are associated with “Enterprise Management”/“Business Management” programmes; others are representatives of “Finance”, “Public Relations” programmes or “Economics”, “Finance” specialisations.

Since we employed homogeneous (non-probability) sampling and the number of distributed invitations was very close to the maximum number of potential respondents in our research setting, a relatively low average response rate, which is quite common for online surveys in general [52], does not necessarily signal about a non-response bias [53]. The type of purposive sampling chosen is exactly suitable for achieving a sample that features homogeneous characteristics targeted by a researcher in line with the research question – our survey sought for respondents with business education background, who studied entrepreneurship, were aged from around 21 to 25, and, as part of a larger study, taught by certain educators. However, similar to other studies of this kind, e.g. [54], [17], our sample

faces a potential self-selection bias, which might have “implications for the generalisability of the findings, but not necessarily for the internal validity” [54, p.7]. The source of this bias concerns enrolment of the respondents into particular business schools. However, their admittance to a certain business school was not directly linked to purposefully selecting either traditional or experiential EE, which was a compulsory part of the Bachelor programmes to the vast majority of the respondents. Plus those, who were more experienced and disposed towards entrepreneurship initially, were not more likely to enrol into the most experiential EE in our sample.

### 3.2 Survey instrument

The survey instrument comprises three blocks of questions. At first, the survey participants answered questions about their cognitive, skill-based and affective outcomes, using a 5-point Likert scale. The underlying items of the tripartite framework were borrowed from Fisher et al. [17], Gibb [23], Lorz [32], and Izquierdo [34]. Questions of the first block were formulated as follows (replicating the wording from Fisher et al.):

- *“During your entrepreneurship course(s), have you learnt new information that you did not know at the beginning of the course about the following topics...”* (a list of topics comprising Cognitive Outcomes with the scaled responses ranging from “learned nothing” coded as 0 to “gained extensive knowledge” coded as 4)
- *“Can you do things now that you could not do at the beginning of the course(s)? Please select the response that best describes your level of improvement in each of the skills listed below, if 0-no improvement, 1-made one or two minor improvements, 2-made some improvements, 3-made substantial improvements, 4-can now perform very well.*
- *“Please indicate the extent to which you agree with the following affirmations, using the 5-point Likert scale, from 0-strongly disagree to 4-strongly agree...”*

Thus, the first two questions implied that students should evaluate perceived changes in the outcomes levels that occurred as a result of EE. The third question registered the level of affective measures post-hoc.

Assessing perceived outcomes of educational interventions is a well-accepted practice in education research supported by several reviews documenting the validity of self-assessments [16]. More studies attempt to measure participants’ perceptions of change in knowledge, attitudes, beliefs about teaching and learning [55] than to apply objective measurement approaches (often already built into the standard course assessments). It is accepted that “learners can provide accurate portrayals of current knowledge states” [16], while with the attitudinal measures and task-based self-efficacy viability of this approach has been proved multiple times in the EE research (as discussed in the theoretical background section). Although it can be argued whether perceived learning outcomes are a suitable proxy for entrepreneurial competences, as far as entrepreneurial activity is concerned, judgements of own ability to perform and to succeed appear to bring a greater effect than having this ability de facto or in contrast to measuring this ability using external indicators such as grades [56], [14], [15].

The second block of questions dealt with prior competences of the entrepreneurship course participants, since a number of studies pointed out the significance of prior knowledge [57], [58], [59] and career aspirations [60], [47], prior work and entrepreneurship experience [61], which students possessed before being enrolled to the schools. The survey respondents answered four questions – the first three using a 4-point scale: “I knew nothing”, “I knew a little”, “I knew something”, “I knew a lot”; “I had no experience”, “I had small experience”, “I had some experience”, “I had vast experience” coded from 0 to 3 (“Hard to say” option was available, but re-coded into “0”); answers to the fourth question ranged from “Definitely no” to “Definitely yes” on a 5-point Likert scale. These questions allowed comparing the initial and resulting level of the respondents’ competences, and also served as control variables in further analysis:

- “Did you know about entrepreneurship before attending the educational course or programme?”
- “Did you have experience in entrepreneurship before attending the educational course or programme?”
- “Did you have work experience before attending the educational course or programme?”
- “Did you want to become an entrepreneur before attending the educational course or programme?”

The third block contained another group of control variables, such as gender, extensively researched for many years [62], [63], [64]; parents-entrepreneurs, whose influence was previously discovered to be ambivalent [60], [65]; and personal networks, which were suggested to be crucial for the entrepreneurial success [66]:

- “Is (Has) any of your parents (been) an entrepreneur?”

The respondents were provided with the “Yes, father”, “Yes, mother” and “No” options. All cases, when the answer to this question was positive, were coded as “1”, the rest – as “0”.

- “How many entrepreneurs are in your personal network?”

The respondents had to mark the number of entrepreneurs ranging from “0” to “10 and more”, further recoded into a 5-point scale for analysis.

The survey included an extra question that aimed to cross-check conclusions drawn from the interviews on the prevailing type of EE in each school:

- “Please select and/or specify activities you took part during your entrepreneurship course or programme...”

Since our sample comprised both graduates and undergraduates, it was reasonable to control for the status of respondents based on the question:

- Did you complete your Bachelor degree? (Answer “Yes” coded as 1, “No” as 0).

Finally, the respondents were offered a list of 25 learning activities they took part in during their studies to select from. Multiple answers were possible. The activities denoting teaching methods employed by educators were divided into four broader groups: traditional methods, methods based on working life, methods modelling entrepreneurship, and participative methods [25]. Afterwards frequencies of the respondents’ exposure to concrete teaching methods in each school were calculated.

### **3.3 Methods of analysis**

To analyse the survey data collected at the second stage of the research process, statistical methods were employed:

- confirmatory factor analysis (CFA) using SPSS AMOS to identify items with the highest loadings that make up the learning outcomes constructs (Maximum Likelihood estimation procedure) and to establish whether the collected data fits the conceptual framework;
- mixed analysis of variance (ANOVA) and analysis of covariance (ANCOVA) to compare the initial self-reported levels of competences and resulting levels of the perceived learning outcomes between and within the business schools.

As a technical step preceding the comparison of means and regression analysis in SPSS, principal component analysis (PCA) was used to elaborate aggregated indicators (factor scores) of the learning outcomes [67].

## **4. Findings**

### **4.1 How was entrepreneurship taught to the respondents?**

In every school, respondents received a relatively equal amount of the EE intervention volume: 6 ECTS of a basic entrepreneurship course plus extra 6 ECTS of enterprise management course in Schools A, B, D and 7.5 ECTS of specialisation in entrepreneurship in School C. The teaching approach differed, as expected. The assessment of frequencies of the EE methods used in the surveyed business schools as informed by the respondents showed that the EE interventions were clearly more experiential in School C and School B as compared to School A and School D, while School A, in turn, employs more of the experiential teaching methods than School D. At the same time, EE in School C appears to be the most experiential. See Annex II for details (the highest frequencies shown in bold). Teaching methods based on working life, e.g. real-life problem-solving, pitching business ideas to investors, real-life projects with companies, amongst others, evidently occurred more often in School C. Such methods modelling entrepreneurship as creation of mini-companies, incubation, business modelling, business competitions, and entrepreneurship labs were the most frequent in School C either. In this group, School B leads with virtual mini-companies, simulations, business games, as well as 24-h camps (the latter is apparently rare as a curricular activity in general). Internships are the most frequent in School A due to the fact that the school is focused on professional education, and practice at work is a compulsory though very formal part of a Bachelor degree. Overall, there are elements of both traditional and experiential EE in each school, while the frequencies vary across the schools.

#### 4.2 Perceived learning outcomes of EE

Table 2 shows results of the confirmatory factor analysis (CFA) and estimation of the learning outcomes constructs. Following purification of the items with low standardised regression weights (under 0.65), the resulting cognitive, skill-based, and affective outcomes constructs consisted of 7, 11, and 6 items. The constructs exhibited very good model fit indices, e.g. [68], [69], including:

- Chi-square/degrees of freedom ( $\chi^2/d.f.$ ), from 2.0 to 2.6
- Goodness-of-fit index (GFI), >0.9
- Normed fit index (NFI), >0.9
- Comparative fit index (CFI), >0.95
- Root-mean-square error of approximation (RMSEA), <0.07

**Table 2** Results of the CFA for the learning outcomes constructs

Scales properties and items (All items measured with five-point Likert scales)	Indicators standardised loadings	Squared loadings (R <sup>2</sup> )
Cognitive outcomes (F1), 7 items AVE=0.509, $\bar{r}$ =0.878 Fit indexes: $\chi^2=24.173$ , d.f.=12, p<0.019, $\chi^2/d.f.=2.014$ , GFI=0.979, NFI=0.976, CFI=0.987, RMSEA=0.056		
development of new products and services	0.797	0.635
opportunity recognition	0.744	0.554
business modelling	0.716	0.513
evaluation of business opportunities	0.696	0.484
team management	0.690	0.476
positioning and branding of products and services	0.690	0.476
project management	0.651	0.424
Skill-based outcomes (F2), 11 items AVE=0.579, $\bar{r}$ =0.938 Fit indexes: $\chi^2=107.54$ , d.f.=41, p<0.001, $\chi^2/d.f.=2.623$ , GFI=0.943, NFI=0.955, CFI=0.971, RMSEA=0.071		
organise and control on-going projects	0.818	0.669
solve creative business problems	0.780	0.608

be a valuable team-member	0.777	0.604
lead a team	0.776	0.602
set priorities and focus on realistic goals	0.770	0.593
keep good interpersonal relations	0.769	0.591
resolve conflicts	0.749	0.561
develop innovative working environment	0.742	0.551
negotiate deals with other businesses	0.737	0.543
deal with uncertainty, adapt to new and uncertain situations	0.731	0.534
identify unmet needs of people	0.713	0.508
Affective outcomes (F3), 6 items AVE=0.650, $\bar{\rho}$ =0.917		
Fit indexes: $\chi^2=19.993$ , d.f.=8, $p<0.010$ , $\chi^2/d.f.=2.499$ , GFI=0.979, NFI=0.985, CFI=0.991, RMSEA=0.068		
To be an entrepreneur and have own company is my true passion	0.925	0.856
A career as an entrepreneur suits me well – it gives me freedom and autonomy	0.856	0.733
My professional goal is to be an entrepreneur	0.836	0.699
Among various options, I would rather be an entrepreneur	0.802	0.643
I want to start a new enterprise	0.716	0.513
I am confident in my ability to start an enterprise.	0.675	0.456

The high enough validity indicators (AVE) confirmed that the observed variables resulting from the purification process are measuring the respective latent constructs, while the latter are able to explain over 50% of variance in the observed variables [70]. The composite reliability indicator ( $\bar{\rho}$ ) showed that the observed items belonging to one construct are highly interrelated with each other. This indicator analogous to Chronbach's alpha is a preferred alternative as a more stringent measure of reliability [71].

As a result of the performed estimation, all the cognitive learning items, except for "Project management" and a marketing-related item "Positioning and branding of products and services" borrowed from the original study by Fisher et al. [17] were eliminated. The resulting construct comprised a mixture of topics supported by both entrepreneurship and management theories (e.g. business modelling, opportunity recognition and project management, team management), on the one hand, reflecting the teaching content, and inter-connectedness of the two disciplines, on the other hand. The second construct largely entailed more interpersonal than business-specific skills, e.g. "lead a team", "resolve conflicts", "identify unmet needs of people", yet, "organisation and control of ongoing projects" had the highest standardized loading. Such items as "attracting investors to entrepreneurial endeavours", "devising business models" and "developing new products and services" directly related to the entrepreneurship process appeared to have low loadings, i.e. did not represent the latent skill-based outcomes construct well enough in this particular sample of respondents, thus, were eliminated. The resulting affective outcomes construct consisted of the items representing entrepreneurial self-efficacy, attitude, desirability, or career aims and preferences related to entrepreneurship. Other attitudinal measures, such as attitude to failure, new learning, need for achievement and ambitions featured low loadings and were purified.

Once the analysis proved the validity of the tripartite competence framework, this enabled us to rely on the cognitive, skill-based, and affective learning outcomes constructs in further tests. For that, we elaborated aggregated indicators (factor scores) of the learning outcomes using the principal component analysis (PCA) procedure in SPSS.

### **4.3 Traditional versus experiential EE**

Since School C was diagnosed as the most experiential followed by School B, according to our main assertion, learning outcomes are supposed to be higher at these two schools as compared to School A and School D. However, already in descriptive terms, School A leads

in the resulting cognitive outcomes, School B is the leader in both skill-based and affective outcomes, where School C is unexpectedly lagging behind (see Annex II for an overview of the learning outcomes means standardised for further tests). At the same time, in this kind of research, it is crucial to take into account “psychosocial backpacks”, or prior competences, applicants joined the schools with before they experienced EE, what enables both capturing an approximate effect that occurs in the learning domains after an intervention within schools and comparing resulting levels of learning outcomes adjusted for prior competences (as well as other control variables) between the schools.

Table 3 below outlines results of the within-subjects analysis of variance performed to track differences that occurred in the cognitive, skill-based, and affective domains over time within the schools, and to establish whether an interaction between the occurred changes and the schools is significant for each learning domain. The baseline, pre-intervention, levels of competences were set to prior knowledge about entrepreneurship, prior entrepreneurship experience (adjusted for prior work experience, since the resulting skill-based outcomes construct comprised the items that could be developed in corporate environment), and prior entrepreneurship career aspirations. Along with the post-intervention learning outcomes levels self-assessed by the respondents, these variables were controlled for having a parent-entrepreneur and a factor of gender (being a female). The only significant interaction was detected in the cognitive domain { $F(3,297)=2.704$ ,  $p<0.046$ , partial  $\eta^2=0.027$ } coming from a simple main effect of intervention in School D, { $F(1,33)=3.201$ ,  $p<0.083$ , partial  $\eta^2=0.088$ } (given that no significant differences in prior knowledge and cognitive outcomes between the schools held). Notably, School D had a negative differential effect on the cognitive learning domain over time: mean difference (2-1)= -0.476,  $SE=0.268$ ,  $p<0.085$ ,  $CI=[-1.020, 0.068]$ . Furthermore, two patterns are evident, regardless of the statistical significance: a) changes in the schools with experiential EE interventions (C and B) were reverse in all cases, whereas the level of skills relative to prior experience fell down at School C; b) irrespective of the intervention type, schools leading in prior competences (School D in prior knowledge, School C in prior experience, School B in prior aspirations) tended to demonstrate a decrease in the resulting learning outcomes, while the reverse was true for the schools with the lowest levels of prior competences (School C in the cognitive and affective domains, School D in the skill-based domain). Both patterns are traceable either in Table 3 or in Figures 1, 2, and 3 (final levels of the learning outcomes referred to in the figures are discussed further).

**Table 3** Within-subjects analysis

Domain/ School & mean	A <sup>a</sup>		B <sup>b</sup>		C <sup>c</sup>		D <sup>d</sup>		School* domain change
	1	2	1	2	1	2	1	2	
Cognitive domain	-0.008	0.156	0.010	-0.051	-0.116	0.082	0.254 <sup>+</sup>	-0.266 <sup>+</sup>	F(3,297)=2.704 p<0.046, $\eta^2=0.027$
	(0.130)	(0.131)	(0.090)	(0.090)	(0.109)	(0.110)	(0.166)	(0.167)	
	[- 0.264,0.24 8]	[- 0.102,0.41 3]	[- 0.167,0.18 6]	[- 0.229,0.12 6]	[- 0.331,0.099]	[- 0.134,0.298]	[- 0.073,0.58 1]	[- 0.595,0.063]	
Skill- based domain	-0.143	-0.068	0.034	0.147	0.136	-0.104	-0.200	-0.032	F(3,294)=1.322 p<0.267, $\eta^2=0.013$
	(0.118)	(0.130)	(0.083)	(0.091)	(0.099)	(0.109)	(0.151)	(0.166)	
	[- 0.376,0.09 0]	[- 0.323,0.18 8]	[- 0.129,0.19 7]	[- 0.032,0.32 5]	[- 0.060,0.331]	[- 0.318,0.111]	[- 0.497,0.09 7]	[- 0.358,0.294]	
Affective domain	0.024	-0.050	0.289	0.223	-0.449	-0.285	0.056	0.011	F(3,300)=1.282 p<0.281, $\eta^2=0.013$
	(0.123)	(0.125)	(0.086)	(0.087)	(0.103)	(0.105)	(0.159)	(0.162)	
	[- 0.218,0.26 6]	[- 0.297,0.19 6]	[0.121,0.4 58]	[0.051,0.3 94]	[-0.651,- 0.246]	[-0.492,- 0.079]	[- 0.257,0.36 8]	[- 0.307,0.330]	

Notes: 1 –standardised means before EE interventions (prior knowledge, experience in entrepreneurship, and aspirations), 2–standardised means after EE interventions (learning outcomes); standard errors are indicated in circle brackets; 95% confidence intervals are indicated in square brackets; partial  $\eta^2$  – measure of effect size.

Covariates appearing in the models: having a parent-entrepreneur, being a female (for the skill-based

domain – also prior work experience).

a Indicators of statistically significant differences in the learning domains at School A

b Indicators of statistically significant differences in the learning domains at School B

c Indicators of statistically significant differences in the learning domains at School C

d Indicators of statistically significant differences in the learning domains at School D

\* $p < 0.1$

Table 4 displays results of the one-way between-subjects analysis of variance in three parts. The first part presents unadjusted mean values of the perceived learning outcomes with one significant difference in affective outcomes between School B and School C (though it is not particularly informative given that the same difference took place before the EE intervention). The second part shows the mean values adjusted for prior competences serving as covariates in the models. Already at this stage no statistically significant differences between the schools appear: cognitive outcomes { $F(3,295)=1.354$ ,  $p < 0.257$ }, skill-based outcomes { $F(3,289)=1.653$ ,  $p < 0.177$ }, affective outcomes { $F(3,298)=0.673$ ,  $p < 0.569$ }. Finally, other control variables, including having a parent-entrepreneur, being a female, number of entrepreneurs in personal network, and graduate status, were added into the models, which increased the amount of variance explained by 1.6-6.2%. Again, no significant differences between the schools were registered: cognitive outcomes { $F(3,295)=0.401$ ,  $p < 0.753$ }, skill-based outcomes { $F(3,295)=1.252$ ,  $p < 0.291$ }, affective outcomes { $F(3,295)=0.593$ ,  $p < 0.620$ }. The final adjusted learning outcomes means can be seen in Figures 1, 2, and 3. This unexpected finding also suggests that, as far as the learning outcomes are concerned (and in terms of the null hypothesis testing procedure), it does not matter significantly, which school to attend to experience EE.

**Table 4** Between-subjects analysis

Dependent variable (Z-stand.)	School	N	Unadjusted		Adjusted I		Adjusted II		
			M	SD	M	SE	M	SE	CI
Cognitive outcomes I. $R^2=0.026$ II. $R^2=0.078$	A <sup>a</sup>	60	0.161	0.981	0.164	0.130	0.111	0.129	[-0.143, 0.365]
	B <sup>b</sup>	123	-0.050	1.052	-0.051	0.090	-0.048	0.089	[-0.223, 0.127]
	C <sup>c</sup>	87	0.071	0.868	0.080	0.109	0.046	0.111	[-0.173, 0.265]
	D <sup>d</sup>	36	-0.254	1.112	-0.219	0.171	-0.057	0.179	[-0.409, 0.295]
Skill-based outcomes I. $R^2=0.060$ II. $R^2=0.081$	A <sup>a</sup>	59	-0.038	0.965	-0.023	0.134	-0.049	0.135	[-0.314, 0.217]
	B <sup>b</sup>	121	0.144	1.026	0.192	0.091	0.178	0.091	[-0.001, 0.357]
	C <sup>c</sup>	85	-0.131	0.966	-0.108	0.109	-0.069	0.113	[-0.292, 0.154]
	D <sup>d</sup>	36	-0.009	0.993	0.002	0.170	-0.006	0.179	[-0.359, 0.347]
Affective outcomes I. $R^2=0.361$ II. $R^2=0.377$	A <sup>a</sup>	60	-0.083	1.073	-0.074	0.104	-0.063	0.105	[-0.270, 0.144]
	B <sup>b</sup>	123	0.215*	0.924	0.095	0.077	0.098	0.077	[-0.053, 0.249]
	C <sup>c</sup>	87	-0.229	1.069	0.030	0.092	-0.009	0.096	[-0.198, 0.181]
	D <sup>d</sup>	36	-0.042	0.827	-0.047	0.135	-0.008	0.143	[-0.290, 0.275]

Notes: Adjusted I - Covariate of cognitive outcomes is prior knowledge about entrepreneurship, covariates of skill-based outcomes are prior experience in entrepreneurship and prior work experience, covariate of affective outcomes is prior entrepreneurship career aspirations; Adjusted II – covariates are prior competences, controls are: having a parent-entrepreneur, being a female, number of entrepreneurs in personal network, graduate or undergraduate status

N – number of respondents, M – mean, SD – standard deviation, SE – standard error, CI – confidence interval

a Indicators of statistically significant differences between School A and School B

b Indicators of statistically significant differences between School B and School C

c Indicators of statistically significant differences between School C and School D

d Indicators of statistically significant differences between School A and School D

\* $p < 0.01$  (Bonferroni post-hoc test)

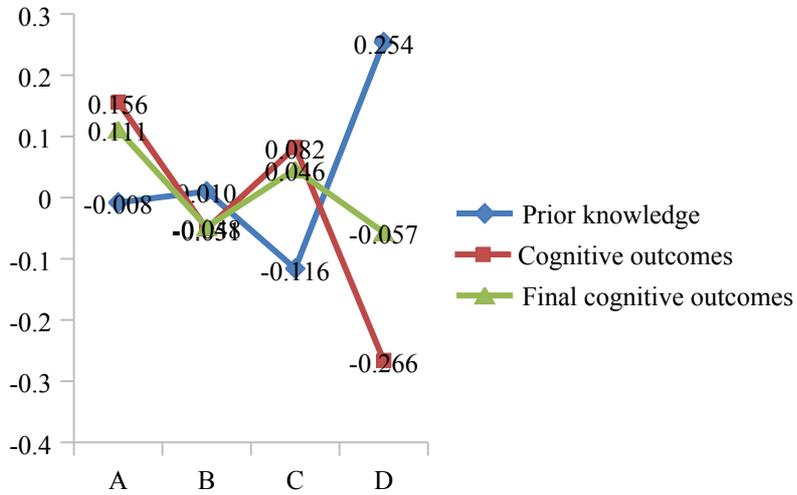


Figure 1 Cognitive domain before and after the EE interventions

Notes: Based on standardised and adjusted mean values. Covariates of prior knowledge and cognitive outcomes: gender, parent-entrepreneur. "Final cognitive outcomes" are adjusted for mean values of gender, parent-entrepreneur, graduate status, network, and prior knowledge about entrepreneurship.

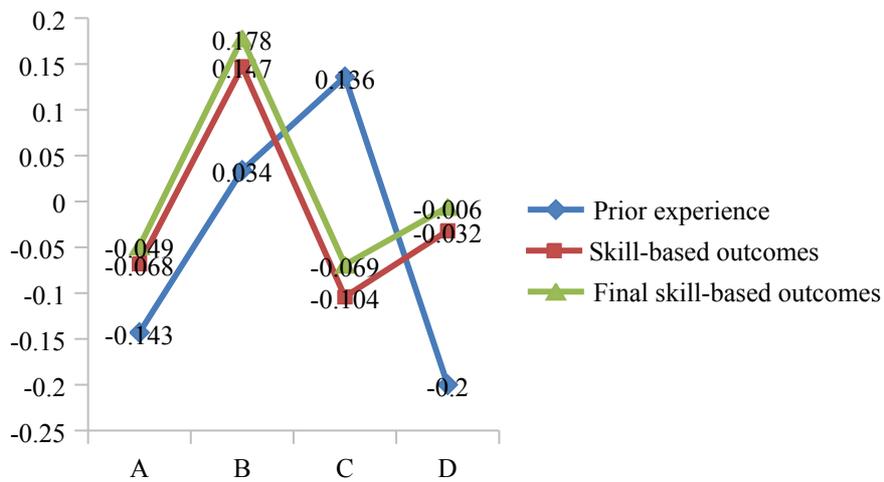


Figure 2 Skill-based domain before and after the EE interventions

Notes: Based on standardised and adjusted mean values. Covariates of prior experience in entrepreneurship and skill-based outcomes: gender, parent-entrepreneur, work experience. "Final skill-based outcomes" are adjusted for mean values of gender, parent-entrepreneur, network, graduate status, and prior experience.

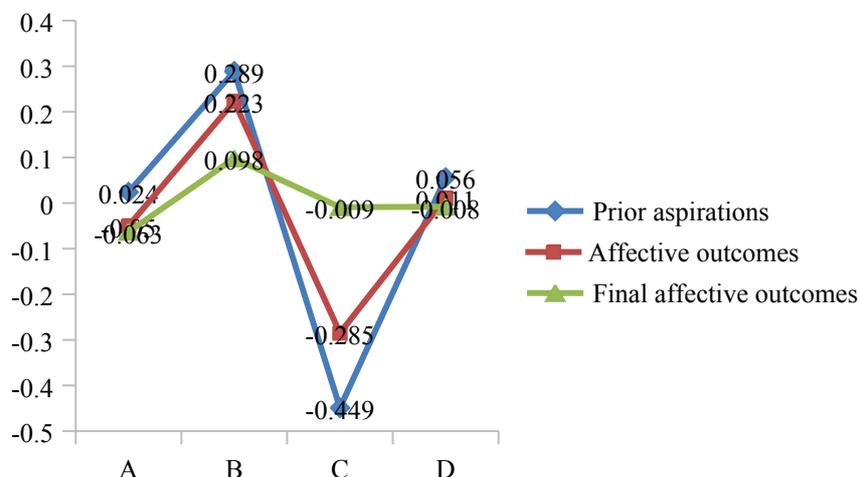


Figure 3 Affective domain before and after the EE interventions

Notes: Based on standardised and adjusted mean values.

Covariates of prior entrepreneurship career aspirations and affective outcomes: gender, parent-entrepreneur. "Final affective outcomes" are adjusted for mean values of network, gender, parent-entrepreneur, graduate status, and prior aspirations.

Yet, the analysis also signposted that other factors positively influenced the dependent variables: network { $F(1,291)=7.292$ ,  $p<0.007$ , partial  $\eta^2=0.024$ } and graduate status { $F(1,291)=7.335$ ,  $p<0.007$ , partial  $\eta^2=0.025$ } in case of the cognitive outcomes; gender { $F(1,285)=3.578$ ,  $p<0.060$ , partial  $\eta^2=0.012$ } and an interaction term of school with prior work experience { $F(3,285)=2.226$ ,  $p<0.085$ , partial  $\eta^2=0.023$ } in case of the skill-based outcomes; parent-entrepreneur { $F(1,294)=2.836$ ,  $p<0.093$ , partial  $\eta^2=0.010$ } and prior career aspirations alone { $F(1,294)=105.945$ ,  $p<0.000$ , partial  $\eta^2=0.265$ } in case of the affective outcomes. The number of entrepreneurs in a personal network may, however, be endogenous, or caused by the cognitive outcomes formed during the EE process. The positive difference that being a graduate makes for the cognitive outcomes, despite the possibility of "forgetting" the course impact by the respondents, might have taken place, because they had more time to reflect upon the course and their subjective gain from it [72]. Nonetheless, significant differences were not detected in relation to the skill-based and affective outcomes of graduates and undergraduates<sup>103</sup> (which also supports the adequacy of the sampling frame).

On the whole, the obtained results do not bring support for H1, H2, and H3, because after adjustments for covariates perceived learning outcomes associated with the EE interventions diagnosed as experiential (at School C) and relatively experiential (at School B) are not significantly higher than the outcomes associated with the predominantly traditional interventions (at Schools A and D).

## 5. Conclusion and discussion

The study presented in this paper delved into yet empirically under-researched assumption that experiential EE is associated with significantly higher learning outcomes than traditional EE. The analysis brought about somewhat paradoxical results, revealing that more experiential EE does not necessarily lead to higher perceived learning outcomes, in some cases even being associated with adverse effects, and that other factors not directly related to EE exhibit significant influence on these outcomes. Forestalling an argument that the study is context-dependent, we attempt to find possible explanations to the unexpected results obtained.

<sup>103</sup> There were no differences in the learning outcomes between the groups of respondents graduated in 2011 and 2012-2013 either.

By far, most of experiential EE courses and programmes do usually aim to develop the whole triad of competences enabling entrepreneurial behaviour, but can the balance be achieved in the context with no infrastructure and institutional support for that? Teaching aims pursued and experiential methods employed by the educators are quite similar at the European universities, but the environment expressed through the educational infrastructure usually demanding considerable investments differs a lot in countries with developed economies, such as UK, Netherlands, and Finland, for instance. Accordingly, educators in countries with post-transition economies, like Latvia, are limited with a number of options with which they can leverage existing teaching methods. Our results suggest that even if diverse experiential methods are applied, in the absence of the EE infrastructure, this may not lead to desired outcomes. Hence, the question rises, whether it is reasonable to invest into more experiential EE at the level of a particular business school (e.g. hiring experienced entrepreneurs as educators or training acting educators) or rather lobby development of an entrepreneurial ecosystem at the country policy level from the onset.

Education theory offers an alternative angle for explaining the faced phenomenon. Action-based learning per se governed by the social constructivist paradigm is originally known to be more suitable for individuals, who really have enough of prior experience to capitalise upon, who are experienced and motivated enough to take responsibility for own learning and to construct own reality (e.g. Humanistic Theory of Learning, Andragogy). Our research subjects were Bachelor students, who either graduated recently or were about to graduate soon. Although they were not complete novices having some prior entrepreneurial competences, should educators and researchers expect much from 20-25 years old people in terms of making senses from experiential learning not long time after the course? To be more straightforward, does highly experiential EE suit people of this age group at all? While students are more prone towards action-based learning in general, we suppose that this type of learning is relevant not as a complete alternative to traditional learning, which develops memory, attention, analytical and critical thinking, builds up the knowledge base, etc., but as an add-on to traditional learning at the Bachelor level.

Moreover, balanced development of the entrepreneurial competences is hardly possible within the limits of one module worth 6 ECTS (which was the baseline EE intervention in our sample). It might be not that surprising that the affective outcomes in case of the most experiential EE developed significantly at the expense of skill-based outcomes given the intervention volume limitation. However, this means that either researchers and educators should lower their expectations from relatively short experiential EE interventions or these interventions should be augmented to consistently develop all the learning domains. Even then, there is no guarantee that larger volume will boost the learning outcomes. What might be more important in the context of business schools, where entrepreneurship is compulsory for undergraduates, is an equally balanced combination of traditional and experiential approaches, two-three years long intervention, favourable EE infrastructure, and formation of student groups based on their prior motivation and competences to ensure experience exchange and peer-supported learning. In the best case scenario, to distribute resources more rationally, applicants with "heavier psychosocial backpacks" and pre-disposed towards entrepreneurship should be taught separately and more experientially.

Finally, although it is well-known that the affective factors, i.e. entrepreneurial self-efficacy and intentions, act as consistent predictors of subsequent behaviour, insufficient empirical attention has been devoted to examining, what is the role of cognitive and skill-based domains in the EE process. Our study showed that changes in the learning outcomes may not be unidirectional, hence, it is important to assess them separately. Leaving out the knowledge domain or combining knowledge, skills, and attitudes under task-based self-efficacy may lead to misinterpretations of the outcomes evaluation.

## **5.1 Limitations of the study**

Naturally, there are several limitations in the presented study. It should be first of all recognised that, although assessment of self-reported outcomes is a common practice both in education and EE research, it would be also preferable to have objective information on the learning outcomes.

Secondly, in this type of study, quasi-experimental design would be more suitable than cross-sectional. Since the data were collected post-hoc, key questions in the administered survey were of a retrospective nature.

Thirdly, expanding on the issue of timing, one of the possible concerns is whether respondents can recollect how EE affected their knowledge and skills at the time, 2-3 years after the intervention. To address this, we checked whether there were significant differences between graduates, who represented 60% of the total sample, and students. The difference was detected only in relation to cognitive outcomes, while the reported level was higher among graduates than among students. Hence, we suppose that, contrary to forgetting the change, the respondents had more time to reflect upon the course and their subjective gain from it [72]. In addition, since the influence of experiential EE was the focus of our research interest, one more reason to rely on the respondents' judgments was that people tend to remember better those learning experiences that took place through action [73]. In the worst case scenario, we allow that the respondents were marking how well they know the topics or can perform tasks listed in the questionnaire. While there is no unifying conclusion in the literature with respect to the relation of short-term subjective measures with its persistence in future [39], [74], for this particular study it was important to gauge short- and mid-term influence of EE.

Fourthly, there are several other limitations related to sampling. The most evident source of non-response bias is tied to the quantitative data collection method (online survey), whereas those, who completed the survey, were somehow different from those, who decided not to participate or did not have time to contribute. One of the options to check whether this bias interferes is to use some kind of objective variable, like grades, which should provide enough variance demonstrating, for instance, that not only respondents with low grades contributed to the research [53]. However, we did not have access to information about the respondents' grades.

Fifthly, tracking of changes within the learning domains by school and within-subjects analysis of variance is based on the logics of relating standardised mean scores of the 6-, 7-, and -11 item constructs expressing the level of competences after the EE interventions to the one-item variables expressing prior level of competences. It is recognised that there might be some measurement errors involved in this respect.

Lastly, this study is contextual, which serves both as a limitation and advantage for the reasons discussed earlier. Although the paradox of the perceived learning outcomes of EE is positioned as a local phenomenon, it may well come out that similar situation takes place in other European universities and business schools. Further research in developed countries and cross-country comparisons are viable to conduct.

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## Annexes

Annex I Teaching methods/educational activities specified by respondents

Methods/HEI	A (N=60)	B (N=123)	C (N=87)	D (N=36)
<i>I. Traditional methods</i>				

<i>lectures</i>	85.7%	86.1%	96.6%	90.0%
<i>discussions</i>	71.4%	62.0%	70.8%	60.0%
<i>case studies</i>	40.0%	51.8%	73.0%	27.5%
<i>business planning</i>	54.3%	41.6%	61.8%	20.0%
<i>II. Methods based on working life</i>				
<i>real-life problem solving</i>	22.9%	42.3%	64.0%	22.5%
<i>pitching business ideas</i>	22.9%	26.3%	38.2%	17.5%
<i>internships (practice at work)</i>	57.1%	47.4%	34.8%	12.5%
<i>real-life projects with companies</i>	5.7%	22.6%	55.1%	5.0%
<i>working with mentors</i>	2.9%	5.8%	18.0%	5.0%
<i>guest lectures by practitioners</i>	38.6%	34.3%	75.3%	25.0%
<i>job shadowing</i>	11.4%	5.1%	25.8%	2.5%
<i>III. Methods modelling entrepreneurship</i>				
<i>24-h camps (e.g. Garage 48)</i>	1.4%	3.6%	1.1%	0.0%
<i>mini-companies</i>	7.1%	4.4%	50.6%	7.5%
<i>virtual mini-companies</i>	10.0%	19.7%	3.4%	15.0%
<i>pre-incubation &amp; incubation</i>	5.7%	7.3%	10.1%	0.0%
<i>simulations</i>	20.0%	34.3%	29.2%	20.0%
<i>business games</i>	35.7%	53.3%	23.6%	45.0%
<i>business modelling</i>	31.4%	22.6%	37.1%	10.0%
<i>business competitions</i>	8.6%	14.6%	34.8%	0.0%
<i>entrepreneurship labs</i>	2.9%	2.2%	18.0%	2.5%
<i>inter-disciplinary teamwork</i>	14.3%	11.7%	21.3%	10.0%
<i>IV. Participative methods</i>				
<i>international exchange programmes</i>	15.7%	10.2%	11.2%	10.0%
<i>creativity exercises</i>	30.0%	40.1%	36.0%	37.5%
<i>fishbowls</i>	7.1%	8.8%	1.1%	7.5%
<i>scientific discussions</i>	14.3%	10.9%	5.6%	7.5%

Annex II Standardized values (Z-score) of prior competences and learning outcomes by school

Schools		Zs: Prior knowledge	Zs: Cognitive outcomes	Zs: Prior experience in e-ship	Zs: Prior work experience	Zs: Skill-based outcomes	Zs: Prior e-spirati
A	N	59	60	59	59	60	
	Min	-2.24047	-1.66612	-.68884	-1.14701	-2.39682	
	Max				2.04225		
		1.72949	2.63106	1.88683		1.81626	
	Mean	-0.0199864	0.1366348	-0.2304604 <sup>+</sup>	-0.1920384	-0.0408398	

B	SD	0.96560432	0.99154108	0.78455382	1.00067544	0.95702049	0.99286614	1.07305611
	N	123	123	121	123	123	123	123
	Min	-2.24047	-2.59599	-0.68884	-1.14701	-2.52974	-2.15437	-2.84265
	Max	1.72949	2.20486	3.17467	2.04225	2.00256	1.16255	1.62574
	Mean	0.0080957	-0.0502855	0.1094030 <sup>+</sup>	0.1753615	0.1411371	0.2793838 <sup>**</sup>	0.2151279 <sup>*</sup>
	SD	1.11021126	1.05157337	1.11846988	1.05733266	1.01860653	0.86084251	0.92365581
C	N	85	87	85	86	87	87	87
	Min	-2.24047	-2.06210	-0.68884	-1.14701	-2.76542	-2.15437	-2.80934
	Max	1.72949	2.14822	1.88683	2.04225	1.80837	1.16255	1.67886
	Mean	-0.0920236	0.0817637	0.0990102	-0.1210123	-0.1676338	-0.3910663 <sup>**</sup>	-0.2293681 <sup>*</sup>
	SD	0.86575017	0.86612539	0.97542022	0.89981089	0.99325415	1.07899513	1.06904412
	N	36	36	36	36	36	36	36
D	Min	-2.24047	-2.80884	-0.68884	-1.14701	-2.46471	-2.15437	-2.51236
	Max	1.72949	1.28363	3.17467	2.04225	1.59460	1.16255	1.70411
	Mean	0.2223732	-0.2535115	-0.2237908	0.0046627	-0.0090374	0.0108396	-0.0418542
	SD	0.95702316	1.11155229	0.87901172	0.96350405	0.99338972	0.97669677	0.82716028
	N	36	36	36	36	36	36	36
	Min	-2.24047	-2.80884	-0.68884	-1.14701	-2.46471	-2.15437	-2.51236

Indicators of statistically significant differences between the schools:

+ -  $p < 0.1$

\* -  $p < 0.01$

\*\* -  $p < 0.001$

## University entrepreneurship education experiences - enhancing the entrepreneurial ecosystems in a UK city-region

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**The recognition of a strong association between education and economic prosperity has enthused higher education institutions (HEIs) to amplify their initiatives to stimulate entrepreneurship within their local economies and beyond . However, the actual processes and impacts made through entrepreneurship education, and the extent to which and the conditions with which different types of programmes are effective, are not understood well. This article fills part of this gap by adopting the concept of university-based entrepreneurship ecosystems and contributes to the understanding of different impacts of entrepreneurship education and their implications for city-region development. Student-level data are gathered across two HEIs within one city-region in England, which include demographic backgrounds, university experiences, motivations and propensities to start-up businesses . The findings of the study highlight the need to develop a broader and more integrated conceptualisation of university-based entrepreneurial ecosystems, including not only high tech start-ups but also other areas such as social enterprise and start-ups in creative industry. Our analysis reveals that students who believe their university education has helped them develop competencies to address challenges of becoming an entrepreneur were 78 percent more likely to have experienced an increase in their stated preference to start-up a business. This suggests that HEIs should be more actively engaged in stimulating student entrepreneurial behaviour and developing university-based entrepreneurial ecosystems that may lead to greater city-region economic development. Different types of knowledge creation, skills and competences are needed in order to shape entrepreneurial developments and stimulate entrepreneurial propensities, and should be identified as an integral part of university-based entrepreneurial ecosystems.**

**Keywords**

Business start-up; Entrepreneurial propensity; Student motivations

## 1. Introduction

Entrepreneurship is established as a major stimulant of economic growth and social transformation, and the roles that higher education institutions (HEIs) play in developing regional and national entrepreneurship ecosystems have been attracting both policy and scholarly attention in many countries [1]. The recent increase in the number of HEIs using their initiatives to stimulate enterprise and entrepreneurship within their local economies and beyond is driven, at least in part, by the growing recognition of an association between students' entrepreneurship experiences at HEIs and the performance of the wider economy [2] [3][4]. As a consequence, educators of enterprise and entrepreneurship are likely to experience challenges to meet increasing and wider demands from policy communities, as well as pleas for entrepreneurial guidance from students at different life and career stages, who are from broadening disciplinary backgrounds, and who have varied, diverse and unevenly developed career aims and objectives.

In this light, this article locates universities' entrepreneurship education in broader institutional and local contexts of "university-based entrepreneurship ecosystems" [5]. Entrepreneurship education is implemented through different types of inputs at varying scales including individuals, organisations, society and the economy [2] but the actual processes and impacts of such mechanisms, and the extent to which and the conditions with which different types of programmes are effective, are not understood well. The operational definitions of enterprise and entrepreneurship across universities varies and there are different aspects covered under these concepts that can include employability skills, social enterprise, self-employment, venture creation, employment in small businesses, small business management and the management of high-growth ventures [6]. Moreover, the changing intellectual, economic, social and cultural movements for entrepreneurship education and learning will have been influenced by the recent recession, the growing interest in social, ethical and responsible entrepreneurship and the growing emphasis on the individual's active entrepreneurial learning rather than merely on supply side HEI initiatives.

Starting a business is just one of many alternatives for students who pass through the education system and transit into their working lives. In this article, we conceptualise entrepreneurship education broadly. *Entrepreneurship education* is defined as "the activities aiming to foster entrepreneurial mind-sets, attitudes and skills" and covers a range of aspects such as "idea generation, start-up, growth and innovation." [7] Entrepreneurship education is considered to be important not only for the development of entrepreneurship and self-employment but also for the enrichment of students' attitudes and characteristics necessary to manage the uncertain environment of self-employment.

The *Developing Entrepreneurial Graduates: Putting entrepreneurship at the centre of higher education* [8] report called for a joined up approach across industry, government and higher education sectors to respond to societal and economic challenges to develop entrepreneurial environments within HEIs and beyond. These challenges require graduates to have innovative

and entrepreneurial mind-sets, skills and behaviour in order to enable them to be effective entrepreneurs. Government policy assumes that entrepreneurship education curriculum taught in UK HEIs can positively influence graduates' attitudes towards an alternative career path and simultaneously equip them with skills to enable them to become an entrepreneur with the necessary knowledge and skills to start up, manage and develop an economically viable business [9]. However, data show that the percentage of undergraduate students leaving universities in the UK to become self-employed is low. Greater comprehension of university-based entrepreneurship ecosystems, with specific foci on entrepreneurship training, would provide strategic understanding of the changing roles of universities. We will set this agenda in a particular geographical context: entrepreneurship education may lead to economic and social development in a city-region.

This article makes inroads into these issues by presenting empirical findings from research that was specifically designed to investigate students' attitudes towards entrepreneurship in relation to their entrepreneurship education experiences at their universities. This study has three aims: to investigate the motivations of students who embark on an education strongly related to entrepreneurship; to examine changes in students' attitudes towards setting up a business while attending an HEI and; to elucidate if differences in HEIs environments affect motivations, perceived barriers and actual student entrepreneurial behaviours. To carry out these investigations we draw on an original data set collated from a survey of students attending two universities with different organisational characteristics located in one of the UK city-region. The remainder of this article proceeds as follows. In the next section we present a review of the existing entrepreneurship ecosystems literature with emphasis on knowledge gaps. The subsequent section provides details of the method, data and institutional contexts including the UK policy development. The empirical analysis that follows highlights the relative importance of individual and contextual factors in shaping students' entrepreneurial propensities. The final sections discuss the findings and conclude with future research and policy implications.

## **2. Formatting Guidelines**

### **Conceptual frameworks**

#### ***2.1 University-based entrepreneurial ecosystems, incentives and entrepreneurship education***

Studies over recent decades demonstrate that the development of university-based entrepreneurship ecosystems [5] is conditioned by a number of factors including the knowledge infrastructure, industry environments, knowledge and technology transfer systems, policies at national and local levels and strategies adopted by individual universities and their leadership. The ecosystem concept is understood as "an economic community supported by a foundation of interacting organizations and individuals." [10] Business ecosystems are often described in

states: birth, expansion, leadership and self-renewal where a “business ecosystem, like its biological counterpart, gradually moves from a random collection of elements to a more structured community”. Meanwhile another conception of the ecosystem includes different actors and facets including individuals, organizations and resources, and specifically includes government, demand, invention, funding, infrastructure, entrepreneurs and culture.[11] This framework enables the schematic understanding of different types and sources of *inputs* of entrepreneurship education and makes, through ecosystems, multi-dimensional *outcomes*. Other conceptions of entrepreneurial ecosystems and incentives exist. Entrepreneurial event theory considers firm creation to be the result of interaction among contextual factors, which act on an individual’s perceptions of the desirability and feasibility of becoming an entrepreneur [4]. The subjectivist theory of entrepreneurship focuses on individuals, their knowledge, resources and skills, and the processes of discovery and creativity through interactions. As knowledge is invariably mentioned as a necessary requirement for entrepreneurial activity, it is opportune for universities to service their local and regional economies by providing entrepreneurship education and stimulating entrepreneurial activities. Outcomes of entrepreneurial education are varied and can include changes in individual actions, greater propensities to find a job (‘employability’), greater propensities to start a business, new entrepreneurs, new ‘intrapreneurs,’ societal change and social mobility and inclusion, and economic growth [2]. From this perspective the provision of enterprise and entrepreneurial knowledge could enhance the propensity of a student to embark on the path towards starting up a business, and this could affect the development of a local economy. For instance, studies in the US indicate that higher self-employment rates are associated with income and employment growth [12]. Recent literature on skills and workforce development argues for ‘pro-innovation’ organisational practices [13]. In this light, educating and training graduates with entrepreneurial behaviour and skills seem to be critical not only for business start-ups but also for workforce development and the inducement of workplace innovation.

## **2.2 Factors and processes that affect entrepreneurship attitudes, behaviour and career**

There is a lack of consensus on the factors that contribute to an individual’s decision to start a business [14]. Entrepreneurial careers are recognised as more complex than organisational careers and require the simultaneous appreciation of multiple factors [15]. Career choices are influenced by a number of issues including family background, social and economic background, educational experience, formal and informal exposures to entrepreneurial activities and enterprise training/education provisions at HEIs and throughout a student’s life course. Understanding of “entrepreneurial intension” [16] therefore requires an understanding of students’ demographic characteristics and social backgrounds, which can be idiosyncratic and heterogeneous, as well as an understanding of career patterns in order to design more effective entrepreneurial education initiatives [17].

There is still a considerable gap in the understanding of the influence of entrepreneurship

education in the making of an entrepreneur [18]. An individual's belief with respect to their abilities in a range of activities central to entrepreneurship may influence the likelihood of pursuing entrepreneurial behaviour. However, changing beliefs and attitudes are not always sufficient to bring about behaviour change. Individual's intentions matter here as intentions are conceived as reflecting a "person's willingness to pursue a certain behaviour, taking into account constraints and limits which might be imposed by the external environment or the background/abilities of the individual" [19]. High levels of confidence are seen as an essential component shaping the propensity to start-up a business, with self-confidence in one's own skills being linked to "innovation, opportunity recognition and intention to start a new venture" [19].

Individual differences in business start-up propensities are known to stem from various characteristics including a number of demographic factors such as age, education, work status and household income [20] and past economic inactivity or unemployment [21]. There is contested evidence about the factors that affect the propensity to start-up a business. Previous studies show that women are significantly less likely to own a business than men [20] [22] even though business failure rates are not related to the gender of the proprietor [23] [24]. The neoclassical economics literature assumes that students make a rational choice to embark on self-employment and that this choice is affected by a range of de/incentivising issues. There is evidence to suggest that starting a business may be related to the fixed costs of work and hence are related to convenience, such as for a parent with childcare responsibilities [25]. There is also evidence to suggest that decisions concerning employment, marriage, household production and child-rearing are interdependent [26] and that men are more likely to opt for self-employment to improve their long-term career options while women are more likely to start their own business from a position of economic inactivity or unemployment [21]. The empirical analysis that follows highlights the relative importance of individual and contextual factors in shaping entrepreneurial propensities. Within the university-based entrepreneurial ecosystems framework, entrepreneurship education is seen as an incentivising factor for individuals to become an entrepreneur as it provides knowledge of the entrepreneurial institutional framework [12] and of entrepreneurial competencies [27] that give extra credence to an individual's tenacity to become an entrepreneur.

### **3. Research method and institutional contexts of the study**

#### ***3.1 Context of the study: The UK policy background***

In the UK, the government agenda has focused on encouraging more graduates to pursue an entrepreneurial career path (i.e. to start-up their own business) with an aspiration for the UK to be "the best place in the world to start and grow a business" [28]. During the last decade, a number of initiatives have been created to stimulate enterprise and entrepreneurship at HEIs in the UK [8]. A study [29] found that the provision of entrepreneurship education is varied, with

both entrepreneurship and innovation courses on offer. Entrepreneurship education is most often offered at postgraduate level and on a part time basis , including courses on technology transfer. Another study [9] provided a longitudinal study of UK HEIs and recognise that there are a number of actual and perceived barriers for educators that need to be overcome or mitigated against in order to facilitate a better understanding of stakeholder needs. They also emphasised that the measurement of the outcomes of entrepreneurship education in the UK is still proving elusive. The challenges for educators of entrepreneurship remain in the scaling-up of provision and in generating sustainable demand.

It is also known that institutional differences between old universities (pre-1992) and new universities (post-1992) in the UK will condition the delivery of entrepreneurship education [29] and hence potentially shape entrepreneurial aspirations differently. Post-1992 universities have always been more tightly integrated into their locality and have always encompassed a broader range of activities, including interacting with local schools, firms, local authorities and communities, and providing consultancy and Continuing Professional Development (CPD) training opportunities to local industry. Other universities, often the more traditional and prestigious institutions, tend to emphasise their national and international orientations of research, teaching and other scholarly activities, rather than local and regional connections. Nevertheless, recent years have witnessed that even those less locally-oriented institutions are increasingly looking to their regions and localities for support and claim credit for adding to the area's economic and social strength [30].

Recent policy changes in the UK have affected the institutional conditions for start-ups and the potential roles of HEIs. In England, the recent change in home undergraduate students' tuition fees seems to have further raised students' interest in the employability agenda, which includes start-ups opportunities as part of their career options. Under the 2010-2015 coalition government, changes in the governance of local economic development increased the importance of city-regions [31] (Kitagawa and Robertson, 2011) and this 'scalar shift' happened against the backdrop of the financial and economic crisis [30] which has been used as a justification for the policies of central government. These changes have had knock-on effects on universities including a shortage of private sector investment, changes in student behaviour and changes in demands and expectations from local stakeholders [30].

### **3.2 Research methods**

Against such policy backgrounds, this study investigates the changing entrepreneurial attitudes of students by comparing student cohorts from two universities in one city-region in England. In order to carry out this comparative study, an online questionnaire survey was developed in order to collect data that would contribute to improving the understanding of university students' experiences, perceptions and attitudes towards entrepreneurship, their entrepreneurial activities and education experiences, and their perceptions of skills and knowledge gained through their university's programmes. For convenience the survey was distributed between March 2011 and May 2011 at both undergraduate and postgraduate levels across two universities located in a

single core city of the UK: The University of Bristol (UoB) and the University of the West of England, Bristol (UWE). UWE is classified as a new (post-1992) university while UoB is an old university. The two universities have different strengths and strategies regarding enterprise education and academic entrepreneurship which reflects the two institutions' historical developments and differences in teaching and research activities.

In order to highlight some of the characteristics of the two universities, Tables 1 to 3 present data from the HEBCI survey (2009/10) of the two HEIs. While this institutional level data only presents a snap-shot of entrepreneurial activities of the two institutions, the different natures of university-based entrepreneurial ecosystems may emerge through such data. In terms of the estimated current turnover of all active firms, UWE graduate start-up firms exceeds all other English HEIs and the nature of entrepreneurial ecosystems at the two HEIs seems to be very different. While UoB has strength in "Spin-offs with some HEI ownership," UWE has a higher number of graduate and staff start-ups. For universities, there tends to be a tension between resourcing university-owned spin-outs and student-owned start-ups, which are subsidised by public funding. In the case of the latter, the motivation is more about education process and individual development than about traditional tech transfer.

**Table 1: Active and surviving firms**

		Number of active firms							
		Spin-offs with some HEI ownership		Formal spin-offs, not HEI owned		Staff start-ups		Graduate start-ups	
		2009/10	2008/09	2009/10	2008/09	2009/10	2008/09	2009/10	2008/09
UoB		20	21	7	6	2	1	2	3
		1	1	1	1	14	11	41	30
UWE									
		Number still active which have survived at least 3 years							
		Spin-offs with some HEI ownership		Formal spin-offs, not HEI owned		Staff start-ups		Graduate start-ups	

	2009/10	2008/09	2009/10	2008/09	2009/10	2008/09	2009/10	2008/09
UoB	17	16	7	6	1	1	2	3
UWE	1	1	1	1	9	5	15	13

**Table 2: Employment and turnover of active firms**

Estimated current employment of all active firms (FTE)

	Spin-offs with some HEI ownership		Formal spin-offs, not HEI owned		Staff start-ups		Graduate start-ups	
	2009/10	2008/09	2009/10	2008/09	2009/10	2008/09	2009/10	2008/09
UoB	120	92	49	72	28	28	10	12
UWE	0	0	2	2	30	28	174	162

Number still active which have survived at least 3 years

	Spin-offs with some HEI ownership		Formal spin-offs, not HEI owned		Staff start-ups		Graduate start-ups	
	2009/10	2008/09	2009/10	2008/09	2009/10	2008/09	2009/10	2008/09
UoB	6400	3539	532	450	300	300	830	508
UWE	0	0	100	100	2692	2395	44217	12555

**Table 3: Estimated external investment received (£ thousands)**

	Spin-offs with some HEI ownership		Formal spin-offs, not HEI owned		Staff start-ups		Graduate start-ups	
	2009/10	2008/09	2009/10	2008/09	2009/10	2008/09	2009/10	2008/09
UoB	7800	8790	8000	3000	0	0	0	0
UWE	0	0	0	0	0	0	25	5045

The following sections present the findings from the student survey conducted at the two universities in 2011 about the students' attitudes and orientations about starting up businesses.

### 3.3 Data description

The response rate of the questionnaire turned out to be 4 percent and the profile of our respondents at the two HEIs is set out in Tables 4 to 10. After accounting for omitted observations of variables that are necessary for this study, the final sample sizes were 1,210 UWE students and 1,144 UoB students. Table 4 shows the greater representation of postgraduate students at the UoB, which reflects the composition of the student body across these two universities. It is difficult to compare the Faculty composition of the two universities in our sample as the Faculty structures differ.

Both full-time and part-time students are included in the sample, and the differences in part-time/full-time student ratio at under- and post-graduate levels are broadly in line with the two universities' cohorts. Table 5 reveals the gender bias in the sample and Table 6 shows the age distribution of respondents, which reflects the higher proportion of mature students in the student population at UWE, all of which reflect differences between the cohorts.

**Table 4: Enrolment status of sample population**

	UWE		UoB	
	Number	% of respondents	Number	% of respondents
UG Full-time	930	77	730	64
UG Part-time	46	4	11	1
PG Full-time	130	11	312	27
PG Part-time	88	7	70	6

UG Exchange student (< a year)	3	0	13	1
PG Exchange student	3	0	3	0
<i>Other</i>	10	1	5	0
Totals	1210	100	1144	100
Response rate	4.84	6.36		

**Table 5: Gender of sample population**

Gender	UoB (N=1144)	UWE (N=1210)	Total (N=2354)
	%	%	%
Male (N=903)	39.4	37.4	38.4
Female (N=1451)	60.6	62.6	61.6

**Table 6: Age range of sample population**

Age	UoB	UWE	Total
	(N=1144)	(N=1210)	(N=2354)
	%	%	%
17-21	52.3	45.9	48.9
22-26	31.6	30.1	30.7
27-31	8.0	8.6	8.3
31-35	2.5	5.0	3.7
36-40	1.5	3.3	2.4
41-plus	4.1	7.2	5.6
Total	100	100	100

A complex web of factors characterise the relationships between the educational achievement of children and the educational level of their parents. As there have been many studies showing a significant positive relationship, it is not surprising that the higher grades required to obtain a place at the UoB are reflected in our sample with a greater proportion of parents attaining

tertiary education, as shown in Table 7. Table 8 shows a higher proportion of UK students amongst UWE respondents than those attending UoB, which reflects the composition of the student body at the UoB that traditionally attracts a greater proportion of international students. Table 9 shows that a greater proportion of UWE respondents studying applied disciplines than at UoB, and this too reflects the very different origins and evolution of the two HEIs.

**Table 7: Highest level of education of father and mother by institution**

Highest level		UoB	UWE
		%	%
Father	primary	4.5	7.4
	secondary	29.3	47.1
	tertiary	66.3	45.5
Mother	primary	4.4	6.9
	secondary	33.2	51.6
	tertiary	62.4	41.6
Total		100	100

**Table 8: Region of origin of student sample population**

	UoB	UWE	Total
	%	%	%
UK home	76.7	85.2	81.2
EU	8.6	7.2	7.8
International (non EU)	13.2	6.4	9.7
Other	1.6	1.2	1.3

**Table 9: Frequency of respondents by Faculty and University**

Respondents by Faculty/Division (N=2354)	% Respondents by Faculty/Division
UoB (48.6%)	
Arts	9
Engineering	8
Medical and Vet	5
Medicine and Dentistry	3
Science	13
Social Science and Law	11
UWE (51.4%)	
Business and Law	10
Creative Arts, Humanities and Education	14
Environment and Technology	11
Health and Life Sciences	14
Hartbury College	2
Other	1

### **3.4 Entrepreneurial attitudes**

A key question in our survey focused on students stated intentions of starting up a business. Given the importance of the business cycle and confidence for the realisation of entrepreneurial orientations, we generate a new variable called “Start-up soon” which is equal to 1 (one) if the student responded to the questions “Are you interesting in starting-up a business sometime in the future” with either “Yes, within five years”, “Yes, within ten years” or “Yes, in the future, not decided when”; this variable is equal to 0 (zero) if the responded instead stated “No.” We excluded those who answered “Unsure”. This is our proxy for entrepreneurial orientation and is the dependent variable in the regression estimations below. Table 10 presents the full

breakdown of this variable split by university. Although about the same proportion of students in both universities stated that they would not start up their own business (33% for UoB, 29% for UWE), there is an important disparity between universities with students at UWE being almost 50 percent more likely to want to start up their own business within the next five years (13 percent at UoB, 20 percent at UWE).

**Table 10: Entrepreneurial orientation**

		UoB (N=1144)		UWE (N=1210)	
Already started my own business		28	2	50	4
Yes, within five years	} =1 for "Start-up soon"	78	7	161	13
Yes, within ten years		74	6	81	7
Yes, in the future, not decided when		230	20	303	25
No	} =0 for "Start-up soon"	373	33	345	29
Unsure		361	32	270	22
Totals		1144	100	1210	100
Total intending at any time		410	36	595	49
My attitude towards setting up my own business has changed since I enrolled in my university degree					
I was initially very positive but now I am negative		14		1.4 %	
I was slightly positive but now I am negative		51		5.1 %	
My attitude has not changed		770		76.9 %	
I was slightly negative but now I am positive		138		13.8 %	
I was very negative but now I am positive		28		2.8 %	

Also included at the bottom of Table 10 is the distribution of attitude changes to entrepreneurial orientation since the student enrolled in the university degree. Although the majority of students' entrepreneurial orientation had not changed, there was a positive movement towards greater entrepreneurial orientation with 16.6% of respondents indicating that they were more positive towards entrepreneurial activities after their studies than before they started their degree.

### 3.5 Entrepreneurial intentions

It is possible to achieve a greater understanding of student-level entrepreneurial orientations by using this data set to investigate the likelihood of respondents to express an intention of starting up a business. Although this research does not circumnavigate the terminal issue of intentions not necessarily matching realisation, it is nevertheless a step towards better understanding of entrepreneurial aspirations. This is achieved by undertaking a series of regressions as set out below in Table 11 where we adopt a specific-to-general model building approach. The dependent variable in each regression is binary corresponding to whether the student suggested that they will "Start-up soon" their own business.

**Table 11: Ordinary logistic regression: desire to start-up a business<sup>a</sup>**

	(1)	(2) <sup>b</sup>	(3) <sup>c</sup>	(4) <sup>d</sup>	(5) <sup>e</sup>
<i>N</i>	1638	1638	1638	1638	1638
Male	2.135*** (0.227)	2.141*** (0.228)	2.144*** (0.231)	2.161*** (0.236)	2.291*** (0.324)
Female	Control variable				
UWE	1.656*** (0.174)	1.728*** (0.188)	1.753*** (0.199)	1.863*** (0.215)	1.349** (0.204)
Bristol University	Control variable				
Under graduate	0.799 (0.101)	0.795 (0.101)	0.776** (0.100)	0.793 (0.105)	0.603*** (0.102)
Post graduate	Control variable				
Full time	1.397 (0.248)	1.387 (0.247)	1.354 (0.247)	1.388 (0.256)	1.000 (0.236)
Part time	Control variable				
Dad: Tertiary education	–	0.610 (0.165)	0.614 (0.169)	0.610 (0.170)	0.628 (0.224)

Dad: Secondary education	–	0.550**	0.546**	0.550**	0.690
		(0.145)	(0.145)	(0.148)	(0.240)
Dad: Primary education			Control variable		
Mum: Lower supervisory and technical occupations	–	–	0.313***	0.296***	0.237***
			(0.138)	(0.132)	(0.133)
Mum: Unemployed			Control variable		
Gained enterprise experience while spending time as an intern	–	–	–	1.857***	1.394
				(0.336)	(0.315)
Gained enterprise experience: started up own business before university	–	–	–	1.654	2.156**
				(0.509)	(0.839)
Start business skills	–	–	–	–	3.213***
					(0.256)
Family member owns a business	–	–	–	–	1.683***
					(0.248)
Constant	0.647	0.747	0.690	0.533	0.042***
	(0.114)	(0.210)	(0.282)	(0.226)	(0.032)
Log pseudo-likelihood	-1084.432	-1080.603	-1070.921	-1061.487	-712.426
Wald chi <sup>2</sup>	75.91***	83.57***	102.93***	121.80***	725.57***

Notes:

<sup>a</sup> Dependent variable in all these regressions is “Start-up soon”. Odds-ratios are presented with robust standard errors in parentheses. \*\*\*, \*\* and \* signify statistical significance at the 1%, 5% and 10% levels respectively.

<sup>b</sup> Mother’s education was also included from this regression onwards, but remained consistently statistically insignificant.

<sup>c</sup> All dad job occupation variables were included from this point onwards with *Dad: Unemployed* as the control variable. All variables were consistently statistically insignificant throughout. Also included from this regression onwards were all the job descriptions of the mother; in this case all jobs descriptions were statistically insignificant throughout except for *Mum: Low sup job*, with *Mum: Unemployed* as the control variable.

<sup>d</sup> Also included from this regression onwards were *Gained enterprise experience in full time work*, *Gained enterprise experience in part time work while in education* and *Gained enterprise experience*

*in a formerly organized program*, all of which remained statistically insignificant throughout.

<sup>e</sup> Also included in this regression were issues related to the benefits of going to university, including *Qualifications are important*, *Personal Development is important*, *Advancement of career opportunities*, *Academic Knowledge*, *Technical knowledge* and *Management skills*, all of which were not found to be statistically significant.

Column 1 indicates that males are 2.1 times more likely to want to start up a business soon than are females and UWE students are 1.7 times more likely to want to start up a business soon than are UoB students. This might be associated with the greater emphasis placed on vocational and applied programs in newer HEIs. Both of these results are statistically significant across all five columns. There is also only weak tentative evidence that full-time students are more entrepreneurial than part-time students and postgraduate are more entrepreneurial than undergraduate students, suggesting that university entrepreneurial guidance should be available to all students across all levels and modes of study.

Columns 2 and 3 introduce family factors into the regression. If the father has primary education as their highest level of education then the student is most likely to want to start up a business: if the father has secondary education then the student is about  $(1 / 0.550 =)$  82 percent more likely *not* to want to start up a business and if the father has a tertiary education then there is no statistically significant additional effect but if anything the effect would seem to be to reduce entrepreneurial aspirations even further. Note that neither mothers' educational attainment nor fathers' occupational status appear to have any effect on a students' entrepreneurial aspirations. Relative to the mother being unemployed, if a student's mother is in a lower supervisory and technical occupation then the student is likely to have greater entrepreneurial aspirations. These findings are in line with the suggestion that students of relatively poorly educated parents and/or a mother in a relatively poor employment position are more likely to have the perception that they need to rely on their own employment initiatives (including entrepreneurial expertise) rather than on the value of educational credentials as a ticket to a good job.

### **3.6 Prior experiences**

The survey asked about prior vocationally-relevant experience, and this information is included in column 4. Prior vocationally-relevant experience was categorised as full-time work experience, part-time work experience, informally arranged internships (e.g. organized on student's own initiative), formal internships (e.g. placement year provided as part of degree programme) and experience in running their own business. Of these, students who had arranged an internship informally were 1.9 times more likely to intend to start their own business. Column 5 also provides evidence that those students who had already had experience of running their own business were 2.2 times more likely to intend to start their own business. Both of these results are sensitive to the inclusion of perceived benefits of going to university, as included in column 5. Students who suggested that going to university to gain skills in order to start up their own businesses were 3.2 times more likely to want to start up a business than those who did not go to university for this reason. The lack of

statistical significance of a range of entrepreneurial-related activities that may be associated with the decision to go to university could reflect a broad interpretation of entrepreneurship and a lack of a perceived relevance of education for starting up a business. Finally, students who have a family member who owns a business are 1.7 times more likely to want to start up their own business.

The analysis above suggests that entrepreneurial orientation is developed *prior* to attending an HEI and is associated with only certain family backgrounds. Prior activity associated with starting a business is most strongly associated with an intention to start a business after leaving university. There is also the indication that those students who show initiative in arranging work experience and internships are more likely to start a business; this effect is likely to be associated with prior entrepreneurial orientation, peer groups, university guidance and/or something else. Having established this indicative baseline, it is opportune to progress and identify factors that change students' entrepreneurial orientations.

### 3.7 Changing attitudes to setting up a business

This section examines the change in students' entrepreneurial orientation since starting their degree, as tabulated in Table 10. The questionnaire administered to UWE students included supplementary questions designed to explore this issue, thus the remaining analysis refers to respondents from UWE only. As the change in students' entrepreneurial orientation has an ordered Likert response, an option for the analysis of this data is to implement ordered logistic regression; these are presented in Table 12.

**Table 12: Ordered logistic regression: changing attitudes to setting up a business**

	(1)	(2) <sup>a</sup>	(3) <sup>b</sup>
<i>N</i>	1001	1001	969
Male	1.189 (0.186)	1.192 (0.193)	1.086 (0.182)
Female	Control variable		
Undergraduate	1.453* (0.313)	1.476* (0.321)	1.622** (0.367)
Post graduate	Control variable		
Full time	1.226 (0.320)	1.254 (0.330)	1.124 (0.307)
Part time	Control variable		
Perceives the current economic situation encourages	1.868***	1.860**	1.747**

them to start up a business	(0.450)	(0.453)	(0.441)
Perceives the current economic situation neither encourages nor discourages them to start up a business		Control variable	
Perceives the current economic situation discourages them to start up a business	0.669**	0.683**	0.726*
Think communication skills needed to become an entrepreneur	(0.111)	(0.114)	(0.125)
Biggest challenge to becoming an entrepreneur is identifying markets	–	1.327*	1.433**
Believes UWE education has helped them develop the competences to address challenges of being an entrepreneur	–	(0.216)	(0.246)
	–	–	1.195**
	–	–	((0.107)
	–	–	1.777***
	–	–	(0.170)
Cut 1	-3.925	-4.167	-2.868
	(0.371)	(0.642)	(0.744)
Cut 2	-2.330	-2.571	-1.245
	(0.286)	(0.597)	(0.702)
Cut 3	2.070	1.865	3.422
	(0.281)	(0.593)	(0.716)
Cut 4	4.025	3.862	5.514
	(0.331)	(0.617)	(0.742)
LR chi <sup>2</sup>	27.88***	36.50***	80.08***
Log likelihood	-773.27	-768.96	-712.42

Notes: Odds-ratios are presented with robust standard errors in parentheses. \*\*\*, \*\* and \* signify statistical significance at the 1%, 5% and 10% levels respectively.

<sup>a</sup> Also included in this regression onwards are *Motivation, Team work, Negotiation skills, Management skills, Finance skills, Market knowledge, Technical competency* and *Innovative capacity*. None of these were found to be statistically significant at the 5% level.

<sup>b</sup> Also included in this regression are the importance of entrepreneurial challenges associated with *finance, having a business idea, being competitive in the market, working as a team* and *acquiring management skills and knowledge*. None of these were found to be statistically significant at the 10% statistical significance level.

Column 1 assesses whether gender, degree stage, student type and the 2011 business cycle economic situation were associated with changes in entrepreneurial orientation while at

university. Although attitudes did not change more for males than females or more for full-time students relative to part-time students, attitudes did change more for undergraduates relative to postgraduates with undergraduates being 1.5 times more likely to state an improvement in their entrepreneurial attitude while attending the HEI. Perhaps PG programmes are generally viewed as less relevant to entrepreneurship or perhaps the students' entrepreneurial tendencies were already affected in their undergraduate studies. Further investment by a student in a PG programme may be viewed as more valuable for mainstream employment than starting a business.

The economic situation of 2011 affected students' attitudes towards entrepreneurial activities with students who stated that the economy encouraged (discouraging) them to start up a business being 1.8 ( $[1/0.669=] 1.49$ ) times more likely to state that their attitude improved (deteriorated). This may reflect perceptions of the probability of achieving projected returns, or return-related threshold issues as emphasised by McCann and Folta (2012), but may be less relevant for students if they do not have a baseline estimate of projected returns.

Students' perceptions of the skills needed for entrepreneurial success were included in column 2, as greater knowledge, reflection and/or recognition of the need for these skills may have been accrued while attending university. Out of a wide variety of potentially important skills and competencies included in the regression (see notes on the bottom of Table 12) the only statistically significant one that the students suggested was important in changing their entrepreneurial orientation was communication skills. Students who think that communication skills are needed to become an entrepreneur are about 1.4 times more likely to have experienced an improvement in their attitude towards setting up a business, perhaps because they believe they are good at this skill.

### ***3.8 Challenges associated with becoming an entrepreneur***

The questionnaire also asked students to provide information about their perceptions of the challenges associated with becoming an entrepreneur. The list of potential challenges included: obtaining finance, evolving a business idea, competition in the market, building a team, acquiring the necessary management skills and identifying markets. Respondents were asked whether UWE had helped them develop the skills necessary to overcome these challenges. Only one issue was reported by students as being a potential challenge: if the student suggested that their biggest challenge to becoming an entrepreneur is identifying markets then they were 1.2 times more likely to have experienced an improvement in their attitude to setting up their own business, perhaps because they have improved their knowledge of markets at UWE. Similarly, students who believe that their UWE education has helped them develop competencies to address challenges of being an entrepreneur were about 1.8 times more likely to have experienced an improvement in their attitude towards setting up their own business.

### ***3.9 Extracurricular and extra-university activities***

Questions were also asked about enterprise and entrepreneurship extracurricular activities and whether these were perceived to be useful for their future career development. The

response rates to these extra questions varied and would have severely restricted the regression sample and hence these issues are addressed separately.

Table 13 highlights students' perceptions of the usefulness of a range of extracurricular activities. Roughly 75 percent of students indicated that they did not find these activities useful. There is only one activity which more than 30 percent of students suggested was useful: short/intensive programmes on entrepreneurship and enterprise skills. One-to-one drop in sessions on enterprise advice was also perceived to be relatively useful. This suggests that universities promotion of entrepreneurial and enterprise extracurricular skills should focus on the provision of either intensive courses or a drop in session.

**Table 13: Percentages finding extracurricular activities useful**

	Short/intensive programme on entrepreneurship and enterprise skills	1:1 drop in session on enterprise advice	Ideas and social networking challenge	Bizidea competition	Business incubator	Local enterprise network
Not useful (1)	32	32	30	36	37	43
(2)	12	18	20	15	17	12
Neither / nor (3)	20	21	24	24	21	19
(4)	19	18	16	15	14	12
Very useful (5)	17	11	10	12	11	14
(4) + (5)	36	29	26	27	25	26

In contrast, Table 14 highlights the students' perceptions of the usefulness of a range of extra-university activities. The vast majority of these extra-university activities were perceived to be much more useful than extracurricular activities. The two most useful activities were volunteering in enterprise activities and enterprise activities in the private sector; the perception of the usefulness of the latter was found to be equally helpful irrespective of whether the activity was locally or internationally focused, whereas the former seems to have been more useful if it had a domestic focus. The perceived usefulness of learning from friends or through buying or selling on the Internet were both low, with less than a third of respondents suggesting that these were useful. Nevertheless, less than half the students suggest that extra-university activities were useful, suggesting the need for greater effort to identify a better match between private enterprise activities and students' entrepreneurial needs.

**Table 14: Percentages finding extra-university activities useful**

	Local enterprise activity in private sector	Volunteer enterprise activities	International enterprise activity in private sector	International volunteer enterprise activities	Learning through media	Learning through friends	Buying & selling on Internet (e.g. Ebay)
Not useful (1)	12	11	13	16	15	12	22
(2)	13	14	19	17	27	25	23
Neither / nor (3)	33	30	25	30	30	33	28
(4)	22	24	17	16	17	18	15
Very useful (5)	20	20	26	23	11	12	11
% (4) + (5)	42	44	43	39	28	30	26

The analysis of the survey data shows that the entrepreneurial propensity of the students are influenced by a variety of demographic attributes, educational levels, parental education, parental occupational backgrounds, family influences, previous work experiences (including having already started up a business), and being affiliated with different HEI. Additional analyses related the impact of university experiences to the entrepreneurial propensities of the student. Student background characteristics, self-selection into courses providing start up business skills and already having experience in running a business do explain part of the differences between the universities . However, findings in this article also reveal that students who think that the task of identifying markets is a big challenge to becoming an entrepreneur are more likely to have experienced an improvement in their attitudes to setting up their own business, perhaps due to the provision of such useful knowledge at their HEIs. In particular, students who believe that their university education has helped them develop competencies to address challenges of becoming an entrepreneur are about 78 percent more likely to have experienced an improvement in their attitude to setting up their own business.

#### **4. Concluding remarks: towards a broader conception and communication of the university-based entrepreneurial ecosystems**

The findings from this study provide unique insights to the literature in terms of students' learning experiences and how different entrepreneurship factors such as demographic attributes and prior experiences interplay in their changes in attitudes, competences development and career making processes. The data set provides a unique comparative study of two universities and their students' perceptions set in one city-region. Analysis of the data reveals clear asymmetries. One asymmetry is found in terms of gender while another asymmetry is found in the nature of university-based entrepreneurial ecosystems across the two HEIs. These condition both the likelihood of a student being aspirational and any

behavioural changes experienced at university towards starting their own business.

The findings are useful from two main different perspectives. First, although the study is of specific value to the universities at both institutional level and School/Departmental levels in terms of gaining profiles of student populations that capture their entrepreneurship experiences and their perceptions of university programmes, it is also a strong indication that student bodies are heterogeneous in their propensities to start-up businesses and the possibilities of being encouraged to start-up businesses. Such knowledge helps university academics and educators in designing future entrepreneurship provisions to meet growing diverse students' demands and experiences within and across universities.

Secondly, the study would be of value to Bristol city-region where the two universities provide a large number of graduates with a variety of high-level skills as part of the university-based entrepreneurial ecosystems. As the HEBCI data indicates, graduate start-ups impact the local economy in terms of external investment, number of firms and turnover. Although universities in Bristol attract young and mature students with a variety of experiences both from the UK and beyond, a significant number of graduates remain in the city-region after their studies, including those who start-up their own businesses. Greater understanding the entrepreneurship and enterprise education profiles of university graduates and their destinations can shape strategies of city-region development. Different universities have different organisational structures and different student needs and demands. Further study is needed in order to understand the institutional characteristics of entrepreneurship education and activities at the two HEIs as well as the relationships and embeddedness of this education to the city-region entrepreneurial ecosystems, for example through incubators.

While the literature highlights concepts such as the entrepreneurial university [32] [33] and university entrepreneurship [34] as important university-based entrepreneurial orientations, earlier studies on universities' entrepreneurship activities tended to focus on a rather narrow set of activities related to the commercialisation of research, such as patenting and spin-off firm formation. Recent studies argue that undue policy and research interest has been placed on the commercialisation of research results and the protection of intellectual properties emanating from universities while neglecting other types of entrepreneurial and engagement activities that can be less visible but equally or even more important [35]. It has been pointed out that leading research universities seem to benefit from the commercialisation of publicly funded research [36] and also that economic returns from patent application and university spin-off companies is small and skewed [37].

For most universities, effective knowledge transfer is made through graduates and local processes and practices that are contingent upon the nature of industrial development in the regional economy [38]. The conceptualisation of university-based entrepreneurial ecosystems needs to balance the diverse characteristics associated with different types of HEIs and the synergies between research, teaching and other types of entrepreneurial activities. Furthermore, through our investigation, several issues have emerged that need further consideration in order to ensure greater integration of students' experiences in to the conceptualisation of the university-based entrepreneurial ecosystems.

First, the number of students engaged in entrepreneurship education is not large in relation to the whole student population. The impact of entrepreneurship education needs to be put in

perspective as it seems to be directly and positively influencing a small portion of the students. Secondly, entrepreneurship education consist of a diverse range of activities, such as combining curricular and non-curricular activities , awareness raising, supporting those with experiences and encouraging those who had no prior experiences. In particular, there is a lack of data and insufficient understanding of students ' experiences including the relative importance of extra-curricular activities and informal enterprise experiences. Thirdly, there is a lack of consistent data on entrepreneurship education and related activities available at the city-region level encompassing universities' organisational boundaries.

Given the growing role of city-regions in local economic governance in England, and the increasing attention focused towards entrepreneurial-based local development, the student-level data and the results presented in this study contribute to an improved future strategic development policy. Furthermore, greater access to and use of cross-HEI data on graduates' destinations and the roles played by local intermediaries (including local incubators) could improve understanding of the impact of co-organised training courses at the city-region level on strategic development.

The findings of the study highlight the need to develop a broader and more integrated conceptualisation of university-based entrepreneurial ecosystems. University-based entrepreneurial ecosystems need to be seen as a wide spectrum consisting of education and extra curriculum activities as well as the more usual conceptualisation based on the commercialisation of research and spin-off firm formation. Entrepreneurial activities encompass not only technology-based start-ups but also other areas such as social enterprise and start-ups in creative industry. Different types of knowledge creation, skills and competences are needed in order to shape entrepreneurial developments and stimulate entrepreneurial propensities, and should be identified as an integral part of university-based entrepreneurial ecosystems. For example, a n important issue appears to be the need for universities to use outreach policies and activities to engage students with private sector enterprises, including alumni networks.

Through learning-by-doing activities students can improve their entrepreneurial and enterprise skills. We further argue that HEIs should be aware of the important roles that university-based entrepreneurial ecosystems can have in addressing the development problems experienced by their city-regions. HEIs should be more aware of the important roles that they have in influencing student entrepreneurial behaviour, and should communicate their contributions more effectively. The impacts that entrepreneurship education has on business start-ups and entrepreneurial activities in general need to be integrated in a broad conceptualisation of the university-based entrepreneurial ecosystems. Future research should investigate and improve understanding of students ' perceived barriers and challenges to becoming an entrepreneur . The trajectories and impact of graduate start-ups of local development are also areas that need further examination as part of the long term evolution of university-based entrepreneurial ecosystems. Greater understanding of the processes of entrepreneurial training and of the wider impacts on skills and the economy will can be used to enhance the functioning and sustainability of entrepreneurship ecosystems at the city-region level.

## **Acknowledgement:**

The authors thank the ESRC LLAKES programme for funding data collection and conference delegates for helpful comments at the SW England and Wales branches joint Regional Studies Association conference.

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<http://www.oxforddictionaries.com/definition/english/place>. Accessed 1/5/15.

# The 8th International Conference for Entrepreneurship, Innovation and Regional Development.

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Innovation and Regional Development.



ISBN 978-0-9932801-0-8  
ISSN 2411-5320