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1. Introduction: entrepreneurship and innovation

Innovation and entrepreneurship are interlinked because innovation is the specific tool of entrepreneurs, the means by which they exploit changes as an opportunity for a different business or service. Szerb (2003) describes an entrepreneur as someone who is profit and growth oriented, can bear calculated risk, and who has innovative vein. Cunningham and Lischeron (1991 cited in Verhees and Meulenber, 2004, p. 138) argue that an entrepreneur is someone “who creates, manages, and assumes the risk of a new venture embraces the total innovative process”. More general, entrepreneurship can be seen as “a process of creating new and valuable things” (Hisrich and Peters, 1989, cited in Szerb, 2003). By creating new and valuable things, the entrepreneur can be seen as a “key figure of economic growth in the sense of Schumpeter” (Szerb, 2003, p. 86).

While the connection between entrepreneurship and innovation is explained throughout the literature, measuring it becomes complex. In future, entrepreneurial research should include organizational variables in the individual level analysis in order to better explain performance differentials among new ventures (Canina *et al.*, 2012). Van Praag and Versloot (2007), argue that innovation can be seen as a broad concept, and that there are multiple indicators for measuring innovation. Among the reasons for this complexity are the impact of innovation across countries and institutional contexts; the conditions under which entrepreneurs innovate; the policies and institutional environments that determine innovative behavior; the global environment and its challenges (Szirmai *et al.*, 2010).

Entrepreneurs contribute in important ways to economic development (Nissan *et al.*, 2011). One way they do this is through innovation, which involves the development of new products, new processes, new sources of supply, but also the exploitation of new markets and the development of new ways to organize business. However, not all entrepreneurs innovate.

The question is, why do certain organizations seem to be more successful than others in innovation? Why business plans from which excellent results were expected did not fulfill expectations, and why others that were not so encouraging obtained better results than expected in the market? Research in this field supports the notion that it is the attitude of the entrepreneur that determined the results. Entrepreneurs can actively shape institutions but how this happens, and how such institutions stimulate further innovation, needs to be further examined. The best design of institutions, organizations, and policies to foster both entrepreneurship and innovation remains a challenge as well as the investigation of the intersection of the fields of entrepreneurship and innovation studies. (Szirmai *et al.*, 2010). A window of opportunity for research and understanding of the interconnection between innovation and entrepreneurship exists. Entrepreneurial innovation can be defined as the willingness to support creativity and experimentation in introducing new products/services, and novelty, during the process to bring inventions to market (Kreiser *et al.*, 2002). It is critical to understand the entrepreneurial capacity of the individual (or series of individuals) leading organizations in order to produce a successful business project. According to Zhou *et al.* (2010), more studies that address the interconnection between innovation, entrepreneurship and the development of capabilities are needed. This paper proposes that by comparing both entrepreneurial and innovative competences, we can create a model to build innovation capabilities.

Some authors claim that individuals are born and not made entrepreneurs, and therefore, anyone with the right characteristics may be almost predestined to be a CEO. Others suggest that being a CEO depends on the surrounding context and the influence of cultural, economic, psychological and sociological factors. Studies have focused on specific factors that foster innovation in organizations. According to Hage and Aiken (1970), high levels of innovation are related to the following characteristics:

- High complexity in the professional training of employees.
- High percentage of decentralized power.
- Low level of formal structure.
- Low stratification of compensation in the distribution of compensations.
- Low volume of production (the focus being on quality not quantity).
- Low emphasis on efficiency versus cost of production or service provided.
- High level of employee satisfaction.

It has been found that high complexity in the professional training of employees in an organization and the high concentration of talent and expertise often yields the most radical innovations (Hage and Aiken, 1970).

2. Characteristics of the entrepreneur

The experience of working for many years in this field has led consultants to conclude that the entrepreneur is normally an expert on her/his activity, but must learn many other aspects related to being a CEO. Entrepreneurs perceive as the major obstacles those related essentially to institutional and managerial aspects. [Becherer and Maurer \(1999\)](#) highlighted that proactive personality is directly linked to entrepreneurship and [Evans and Volery \(2001\)](#), explained that the entrepreneur who identifies opportunities, combines resources and creates new services is the catalyst for the process of wealth creation. Therefore, it becomes crucial for the entrepreneur to develop certain successful competences both when starting a project alone or with a collective entrepreneurship approach. The study of personal entrepreneurial competences of each member of the company and analysis of the complementarity of their profiles is important in order to assign roles and responsibilities and therefore optimize the capabilities of each of them ([Nielsen and Lassen, 2012](#)).

A previous paper ([Garzon, 2010](#)) analyzed personal entrepreneurial competences (PECs), which appear to characterize the behavior of successful entrepreneurs based on [McClelland's \(1961, 1965\)](#) research. [McClelland \(1961, 1962, 1965\)](#) and [McClelland and Winter \(1969\)](#), stated that there are a number of key personal entrepreneurial competences that distinguish successful people from those that do not achieve success easily ([Bergh et al., 2011](#)). The results of these studies identified, among others, the following hypotheses:

1. There are 30 common competences among the entrepreneurs included in the survey that are crucial for their success.
2. These 30 competences can be grouped into ten PECs:
 - • Opportunity seeking and initiative.
 - • Risk taking.
 - • Demand for efficiency and quality.
 - • Persistence.
 - • Commitment to the work contract.
 - • Information seeking.
 - • Goal setting.
 - • Systematic planning and monitoring.
 - • Persuasion and networking.
 - • Independence and self-confidence.

PECs are decisive when starting up a business venture. These competences can be developed through specific techniques.

3. These competences (and their corresponding behaviors) are clustered into three main groups in accordance with [Table I](#): achievement cluster, planning cluster and power cluster.
4. The competences can be analyzed one by one or studying the relations between them.
5. The theoretical relations between competences identified by [McClelland](#) in successful entrepreneurs are the following:
 - • “Goal setting” must have the highest value and, in particular, must be above “Persistence”.
 - • “Persistence” must have a similar value to “Opportunity seeking and initiative”.
 - • “Independence and self-confidence” must have a similar value to “Commitment”.
 - • The “Risk taking” competence is related to those of “Independence and self-confidence” and “Information seeking”.

In her research, [Garzon \(2010\)](#), found that there exists a real evolution of the PCEs from the moment at which the entrepreneur conceives an idea to the time when they are a fully-fledged and experienced CEO. The samples studied consisted of 1.163 innovative entrepreneurs and 27 CEOs from an association of innovative companies.

In [Figure 1](#) we can appreciate the PCEs put into practice by entrepreneurs and the frequency they do so. In [Figure 2](#) we observe both again in the CEOs group.

It is worth noting the evolution of PCEs observed.

- • There are common competences: the entrepreneur puts into practice the PCEs “Goal setting” and “Persistence”, but does so more often after years of experience; “Independence and self-confidence” become more important over time and the capacity for “Risk taking” increases.
- • However, there are also four PECs in which differences between entrepreneurs before and after running a business can be highlighted. Those competences are: “Opportunity seeking and initiative”, “Demand for efficiency and quality”, “Systematic planning and monitoring” and

“Independence and self-confidence”, and this fact means that these four are the real characteristic competences of CEOs. The rest are non-defining ones.

3. Competences demanded by innovative companies

Once we identify these competences it would be interesting to see if they adapt to the reality of business. First, because there are no studies of the competences required by companies; instead, there are studies that evaluate workers for their skills.

A research conducted by [Canós and Santandreu \(2010\)](#), shows common characteristics for innovative companies, all of them associated with employees' competences and skills. To compare competences with real world, we first have to explain briefly the methodology used in the paper [Canós and Santandreu \(2010\)](#) in which, by following the qualitative methodology called grounded theory, we are able to understand different contents that lead to an event. The aim is to select the cases to be studied in a progressive way. Only when we gather information on the basis of some cases, we know new cases that should also be considered to maximize differences. It is also important in the process of obtaining information, to be conscious of the extent to which the qualitative method constantly works, and to take into account various ways in which the questions are understood by respondents ([Marin-Garcia et al., 2009](#); [Marin-Garcia et al., 2010](#)). Grounded theory provides us with a general methodology for developing theory from data that are systematically captured and analyzed. It is a way of thinking about data and their conceptualization. Although there are many points of affinity in which grounded theory is identified with other approaches of qualitative research, the main differentiation is its emphasis on theory building. Grounded theory was originally developed by [Glaser and Strauss \(1967\)](#) and was expanded in different directions by [Glaser \(1978, 2000, 2002\)](#) and [Strauss \(1987\)](#). [Strauss and Corbin \(1990, 1998\)](#) developed detailed procedures to be followed by researchers, while Glaser moved away from them by arguing that they forced an overall and conceptual description as opposed to emerging theory. Thus, the process of grounded theory can be summarized in ([Murillo and Lozano, 2006](#)):

- Collection and analysis of data are concurrent.
- Data determine processes and products of research rather than preconceived theoretical frameworks.
- Analytical processes give rise to the discovery and new theoretical development, not only verify already known theories.
- Sampling is based on partial results emerging from the data. It is called theoretical sampling and is useful to refine, develop and complete categories.
- The systematic use of analytical procedures leads to more abstract levels of analysis.

In [Canós and Santandreu \(2010\)](#) a theoretical framework which justifies the relationship of the organizational structure of companies and the circuit through which information flows is presented. In our case, the event or phenomenon we want to analyze can be described as the circuit that follows the information in the company according to its organizational structure and the management of ideas, the ones evaluated through the ideas management system in order to reach innovation.

It is also demonstrated in another study by [Santandreu-Mascarell et al. \(2011\)](#), that the specific characteristics of innovative companies are the competences that employees must have so that companies can generate innovation. Therefore, employees must have them in advance or acquire them afterwards.

The competences wanted by companies for their staff, are:

- *Shared vision*: degree of staff identification with corporate culture, level of socialization and entrepreneurial orientation ([Zortea-Johnson et al., 2012](#)).
- *Rotation*: understood as the change between jobs or tasks in the company. Rotation allows employees to know the company from multiple perspectives and develop not only one routine, but creative work. Rotation allows duplication, that is, the deliberate overlapping of information, operational and management responsibilities, to create knowledge ([Nonaka et al., 2000](#); [Ortt and Smits, 2006](#); [Tajeddini and Mueller, 2012](#)).
- *Free access to information*: business knowledge becomes more fluid and easy to implement through transparency in reporting.
- *Teamwork*: teamwork techniques, roles, cooperation, status, coordination, etc ([Chiesa et al., 1996](#); [Rothwell, 1992](#); [Souitaris, 2002](#); [Quinn et al., 1996](#)).
- *Project teams*: it is based in the interpretation of top managers' ideals. Teams play a key role because they provide a shared context where people can interact and establish an ongoing dialogue that enables effective reflection. Through dialogue and discussion, team members

create different views that are integrated into a collective perspective (Nonaka *et al.*, 2000; Quinn *et al.*, 1996).

- *Communication channels*: this issue is clearly related to information, assertiveness and information systems (Rogers and Shoemaker, 1971).
- *Experience*: we consider this competence if University offers the possibility of doing business practices or internship to students.
- *Company vision*: it has its origin in managers, with responsibilities related with multidisciplinary, considering different views, openness, etc (Choi and Lee, 2003).
- *Corporate strategy (innovation)*: it is considered if training about manage innovation is offered (Quinn *et al.*, 1996).
- *Involvement of managers*: degree of management commitment in the implementation of strategies. No references have been found in any University.

We might say that the result of research study gives us a view of the professional profile demanded by companies.

4. Conclusions

As Figure 3 shows, we have found that innovative organizations value six characteristics in their employees, which are related to entrepreneurs' characteristics. These are:

1. persuasion and networking;
2. opportunity seeking and initiative;
3. information seeking;
4. risk taking;
5. independence and self-confidence; and
6. commitment to the work contract.

All of the above describe individuals within the organization that are able to work in teams, are committed to their work, seek information and new opportunities, and are able to take risks in innovative ventures. However, there are characteristics that entrepreneurs have and that organizations that want to be innovative are not seeking. These are: goal setting, systematic planning and monitoring, demand for efficiency and quality and persistence. If employees had these characteristics and could apply them, they would have an optimum work strategy that would include goals, a plan on how to achieve them, as well as the best and more efficient strategic planning to achieve them. This would allow them to be persistent despite difficulties. Finally, we found that there is a competency that innovative organizations need but entrepreneurs may not have, this is previous experience in the field.

5. Future research

Innovation is the result of the development of an idea and bringing that idea into the market. This process is carried by individuals, who manage information and decision making, individuals who develop ideas and bring them to a new market, resulting in innovation. Based on the studies that analyzed characteristics of the entrepreneur and the common characteristics found in this study, we conclude that both are characteristics that are also competencies that can be developed. According to Bunk (1994), professional competence is developed by the knowledge, expertise and aptitudes needed in particular professions. In addition, professional competence means that individuals who possess it are autonomous and flexible and are able to contribute to the workplace and their profession. On one hand, we present competencies that individuals who want to become entrepreneurs need; on the other hand, we present competencies that these individuals must have individually and within an organization, The entrepreneurship spirit is therefore fostered both at the individual level, and within the organizational context. This results in an organization that has the ability to innovate and adapt continuously to a changing environment and new needs. In conclusion, we find that the above mentioned individual competencies that characterize the entrepreneur are found also in innovative organizations. We have measured characteristics of the entrepreneur and the innovative organization by looking at two different studies and finding common areas that are needed for fostering innovation. The areas we found in common represent an opportunity that can be used for training these skills at the individual and organizational level, for both the entrepreneurs and organizations seeking innovation. Future research can assess the dynamic capabilities by using a questionnaire that provides the same terminology for innovative organizations and entrepreneurs.

Finally, innovation strategy should be part of the organizational culture, and organizational leaders, must work to integrate innovation into the very core of an organization. Innovation also requires the ability to lead and execute continuous change. This means that organizations that seek innovation must create a unique organizational culture that supports an entrepreneurial mindset of continuous innovation. The identified characteristics needed in such organizations and the characteristics of the entrepreneurs themselves lead us to suggest that it is critical to leverage both human capital (knowledge, skills and abilities) and social capital (networks and relationships) at the individual and organizational levels. Also, it is crucial for organizational leaders to share a vision that inspires and motivates individuals to embrace innovation and collaboration, and empowers them to take risks. Future research could explore

organizational cultures that foster innovation and an entrepreneurial mindset, and find best practices that could be incorporated in preparing future entrepreneurs.



Figure 1

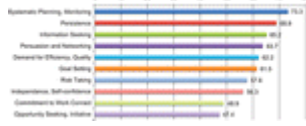


Figure 2



Figure 3

Entrepreneurial Mindset	Planning Model	Plan Model
Entrepreneurial Mindset: A set of beliefs and attitudes that influence the way an individual perceives and reacts to the environment. It includes a willingness to take risks, a desire for autonomy, and a focus on innovation and growth.	Planning Model: A process of setting goals and determining the best way to achieve them. It involves identifying opportunities, assessing risks, and developing a strategy.	Plan Model: A document that outlines the organization's goals, strategy, and financial projections. It serves as a roadmap for the organization's future.
Entrepreneurial Mindset: A set of beliefs and attitudes that influence the way an individual perceives and reacts to the environment. It includes a willingness to take risks, a desire for autonomy, and a focus on innovation and growth.	Planning Model: A process of setting goals and determining the best way to achieve them. It involves identifying opportunities, assessing risks, and developing a strategy.	Plan Model: A document that outlines the organization's goals, strategy, and financial projections. It serves as a roadmap for the organization's future.
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Table I

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