The impact of entrepreneurial orientation on the innovation of SME´s in Mexico

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Abstract
Innovation in the company has been addressed in the literature as a key factor for the success of companies, however the scholars and researchers recommend further study this construct in different contexts. In this study, entrepreneurial orientation is considered as a strategic orientation that promotes higher levels of innovation in the company, through a survey of 400 executives from top management of small and medium-sized enterprises (hereinafter "SMES") in Mexico, it is found that the entrepreneurial orientation impacts positively into innovation in the enterprise.

Key Words: Entrepreneurial orientation, innovation, Small and Medium Enterprises (SME´s)

1. - Introduction

Small and medium enterprises in Mexico have become an important engine of the economy and represent 99.8% of the business population, these enterprises contribute with 72% of the country's jobs, with 52% of gross domestic product, and even considered as the backbone of Mexico´s economy (INEGI 2004). During 2006 and 2009 the documentary memory of the *Center for Integral Attention to the Micro, Small and Medium Enterprises of the State of Aguascalientes* (CAIPYME) mentions that SMEs require useful information for creating new business.

The theory of resources and capabilities proposes the search of company`s internal aspects that will allow the company to achieve a competitive advantage. Such theory bases its attention on the company`s assets analysis and how the company controls them, these internal aspects are supported with information and knowledge (Barney, 1991; Vetri, 2000). On the other hand, the capacities refer to the resources of the

company that are not by themselves suppliers of competitive advantages since they depend on the way the company makes use of them and in the manner of implementing them in order to achieve the objectives (Barney, 1991).

Barney (1991) explains that the resources or capabilities of the company, are valuable, rare, difficult to imitate and non-substitutable, can be tangible (human, physical and financial) and intangible, including management skills of a company, its processes, organization and routines, as well as the information and knowledge. (Etchebarne, 2010; Barney, 1997; Pateraf, 1993).

OECD (2015) reports that in many countries companies have increased their investment in innovation, which has been easier with the use of the internet, this has had a positive effect on their economic growth. Therefore, its application has gained increasing importance for future growth. Consequently, it is recommended that in business contexts where they see little economic growth such as the emergent economies, to i) increase the investment in innovation; ii) invest in a system of creation and dissemination of knowledge; iii) take advantage of the benefits of the digital economy; iv) to promote talent and skills that optimize the its use and; v) to improve the management systems implementing innovation policies within the company.

The Mexican Ministry of Economy (2014) in its diagnosis of the *Program for the Promotion and Fostering Development, Competitiveness and Innovation in the Industrial, Commercial and Services Sectors*, describes that some sectors of the economy have been affected by losing competitiveness, which in part it is due to the limited capacity of innovation, which is why the development of public policies that foster innovation and economic growth are proposed.

On many occasions, the importance for companies to be flexible and adapt to the changing environment has been considered by literature. Additionally, business success is attributed to its ability to identify and exploit adequately and efficiently opportunities of the moment. In this regard, innovation is essential for the commercial success given the positive impact in the business performance (Galvez and Garcia, 2012).

According to Altindag, Sehir and Zafer (2011) in the organizational context, innovation has been linked with performance and growth through improvements in efficiency, productivity, quality, competitive positioning, market share, etc. Innovation is generally understood as the successful introduction of a new thing or method, and innovation is the combination or synthesis of original knowledge, relevant, new products, processes or services. Lueke and Katz (2003, p.2).

The entrepreneurial orientation can be understood as processes, practices and activities that enable a new entrepreneurial orientation are not to be used as synonyms. Entrepreneur can be understood as entrepreneurial spirit that the company has to risk entering new markets, the creation of companies and the renovation of such (Fernandez, Alegre and Chiva, 2012). Entrepreneurial orientation focuses on corporate strategy where is incorporated planning, analysis and business decisions that follow the company´s values and mission (Hart, 1992). It has also been related to the achievement of flexibility in the manufacturing processes and the performance of firms. (Chang, Lin, Chang and Chen 2007).

Entrepreneurial orientation and innovation, have become a source of competitive advantage, they also help improve business efficiency in production, leading to increased profit (Figenbaum and Karmani, 1991;

Yuan, Hermes, Kuag. Pin and Chelliah 2015; van Hauken, Madrid and Gravel, 2008; Aramburu, Saenz and Blanco, 2014; Fernandez Alegre and Chiva, 2012; Frank, Kessler and Fink, 2010).

2. Literature Review

Different studies analyze the importance, and the impact on the business, of the entrepreneurial orientation and innovation, each one of the constructs have been studied in a separated manner and it has been also found evidence that imply similar relations with positive outcomes. (Karmani and Fiegenbaum, 1991; van Auken *et al.*, 2008; Aramburu *et al.*, 2014; Fernández, Alegre y Chiva, 2012; Frank, Kessler y Fink, 2010).

Other authors such as Yuan *et al.* (2015) explain the importance of innovation for the survival of businesses, and the need to introduce new products or services into the market. That is why, they presented theoretical foundation that suggests the impact of each of the dimensions of entrepreneurial orientation in innovation. Although the EO is theoretically beneficial to firms and a positive relationship with performance can be expected, some studies have not been entirely conclusive (Alegre and Chiva, 2013).

Filser and Eggers (2014) found in a study performed on 304 business in Austria, Liechtenstein and Switzerland, in which the influence of the dimensions of construct of entrepreneurial orientation on performance were analyzed, that innovation and risk taking have positive influence on performance, unlike proactiveness. This suggests that firms in different countries show different configurations of entrepreneurial orientation dimensions, which encourages further studies of EO in different contexts.

Nevertheless, there is still the need for empirical studies to investigate the relationship of entrepreneurial orientation in different contexts, such as developing countries, and the atmosphere that prevails in small and medium enterprises. That is why the main contributions are: a) To provide empirical evidence of the relationship of entrepreneurship and innovation in the context of small business in an emerging country. b) The use of structural equations as method of analysis.

Gálvez and García (2012) states that there are two approaches in order to measure innovation, quantitative and subjective, with the difference that the first is measured regarding the amount of new products or processes developed by the company, while the second focuses on the perception that the directors of the company have, relating with the innovative development. Hughes (2001) recommends the use of subjective classification when SMEs are studied. The French Ministry of Industry (1994) through the ITI survey entitled (by its initials in French, Innovation Technologique dans l'Industrie) and the Spanish Association of Accounting and Business Administration (1995) mark out that there are technological innovations and innovations management systems, the first of which is related to innovation in products and processes, and the second refers to the processes of selling, administrative and packaging company (Huiban and Boushina, 1996) this classification of the innovation (products, processes and management systems) has been used in several studies where the capacity for innovation in enterprises is measured. (Gálvez and García, 2012; Maldonado, Madrid, Martínez and Aguilera, 2009; García *et al.,* 2012; AECA, 2004).

The entrepreneurial orientation represents an orientation of the organization towards the research of opportunities that are reflected in the creation of a new business or will help managers for taking decisions especially when about entrepreneurial actions (Bojica and Arroyo, 2010; Tang, Tang, Marino, Zhang and Li, 2008). There are different objectives of entrepreneurship in business, one of the main ones is the renovation of strategies in order to obtain new forms to increase and achieve economic objectives (Birkinshaw, 1997),

using the development of innovations (Lumpkin and Dess, 1996), effectiveness when configure resources for gaining competitive advantage (Covin and Miles, 1999) and earning profit organizations (Zahra, 1991); In this regard a company with entrepreneurial orientation will integrate decisions to identify market opportunities and business (Dess and Lumpkin, 2005), one of the concepts of this construct is the one from Miller (1983) who classified through three dimensions, innovation, risk-taking and proactiveness, same classification was used to generate a measurement scale by Covin and Slevin (1989).

In the literature we can find another common scale to measure entrepreneurial orientation from Lumpkin and Dess (1996) who not just use the dimensions proposed by Miller (1983) they also add two additional dimensions, competitive aggressiveness and autonomy, these two perspectives of measurement entrepreneurial orientation differ primarily with the Covin and Slevin (1989) is seen as a strategic position where the company performs the processes and decision making of the company, while Lumpkin and Dess (1983) refers to entrepreneurial orientation as an orientation that leads the company to a new market entry (Arzubiaga, Iturralde and Maseda, 2012). The innovation dimension of entrepreneurial orientation refers to the trend and support of the company to the experimentation of new ideas (Fernandez, Cheerful, Chiva, 2012; Covin and Slevin, 1989; Lumpink and Dess, 1996).

Covin and Slevin (1989) as Lumpkin and Dess (1996) mention that the dimension of proactivity should be understood as the ability of companies to react in advance of future market needs, this will lead to a best performance in the markets and their development, as well as the generation of new products. They also explain the extent of risk-taking as the willingness of the company to invest its resources, whether monetary or human for take certain opportunities or new projects that are presented, but with the possibility of failure (Fernandez, 2012; Eggers, Kraus and Hughes, 2013).

There are several investigations in different contexts that show the relationship between the entrepreneurial orientation and innovation, mostly of them use the two scales described before for example the study of Reza and Tajeddini (2011) analyzes the effect of the orientation entrepreneurial innovation, in order to measure this orientation they use the scale of Covin and Slevin (1990) obtaining positive results in the proposed relationship, giving evidence of the importance that the acquire knowledge of trends, actions and strategies of their competitors and consumers, for the entrepreneurial orientation, such knowledge will support the right decisions, to be an important predictor for innovation levels increase.

Basile (2012) examines the factor that affects the entrepreneurial orientation as risk-taking for internationalization of SMEs, using the theory of resources and capabilities, their findings point to the importance to achieve internationalization as a way to compete and survive in times of market crisis. There are also studies whose results indicate a clear connection between the know-how of the entrepreneur and high growth firms, their working with external networks is a management capability that generates a competitive advantage, such example is the longitudinal study 200 SME's developed in the metal-mechanic industry service companies in Finland (Littunen and Niittykangas, 2010). There are also results that confirm the relationship between entrepreneurial orientation with the growth of 221 small businesses in Turkey (Gurbuz and Aykol, 2009). According with the theory of resources and capabilities entrepreneurial orientation contributes with the growth of small businesses, also empirical evidence shows on the entrepreneurial orientation is an important predictor for rise companies (Ferreira, Garrido and Fernandez, 2011). If one considers that growth implies the legitimacy of the market place and indirectly accesses

resources that allow you to achieve the objectives of the firm, it is understood that there are innovative activities in the process as they improve their skills both external and internal to the service market.

Mai and Gan (2007) is a study of 13 cities in China in order to understand the relationship between environmental factors and entrepreneurial opportunities or capabilities, it was found that if a city has more favorable conditions in the atmosphere it has more entrepreneurial opportunities and its entrepreneurship will increase their capabilities, then we understand that there is an impact of cultural and economic environments for entrepreneurial opportunities (Mai and Gan, 2007).

Another study in which the entrepreneurial orientation is related to the innovation is the one of Fernández et al., (2012), who studied the impact of entrepreneurial orientation in the innovative performance, his study suggests the organizational learning as a moderator variable, the study results showed a positive impact of EO on the innovative performance and this relationship was favored with the help of organizational learning, which impacted positively on the competitive advantages of the company and its results. Lumpkin and Dess (1996) point out the strong relationship between entrepreneurial orientation and new product development and performance. Other studies show the relationship between market orientation and successful firms (Gonzalez and Muñoz, 2009).

A study in Spain about start-ups, which explores the relationship between the entrepreneurial orientation and innovation, includes the analysis of learning orientation (Gómez, Andreu and Bred 2010), the relationship turned out to be positive, also it shows the relationship between the entrepreneurial orientation and performance, but through innovation. This relationship is another evidence of the importance of entrepreneurial orientation as antecedent of innovation.

Chiva and Alegre (2013) develop a conceptual model and demonstrate empirically that innovation increases the positive effect of entrepreneurial orientation and performance in Italian and Spain ceramic firms. Also some of theirs finding reflects the positive effect that entrepreneurial orientation has over innovation (Filser and Eggers 2014). So there is evidence of the following hypothesis:

H1: Within SMEs, the higher the entrepreneurial orientation, the higher the innovation will be.

2. Methodology

To address the proposed hypothesis, an empirical study was conducted in SMEs in the state of Aguascalientes (Mexico), the Statistical Directory of Economic Units (DENUE) of the National Institute of Statistics and Geography (INEGI) was taken as frame of reference, which contains 3,586 SMEs of the state of Aguascalientes. The sample was selected by simple random sampling, leaving a total of 347 companies with a maximum error of ± 5% and a confidence level of 95%, and the surveys were conducted between June and August 2014. Likewise, survey was applied to managers and/or owners of SMEs through a personal interview among the 347 selected companies.

The concept of innovation can be divided into two different types, technological innovation and innovation of organizational methods. The first refers to changes made by the company in the products or the design of new products and production processes that it already has (products and processes) (Freeman, 1974). The second type of innovation (organizational processes) refers to changes in the administrative processes of the company or in its organizational structure (AECA, 1995; Huiban and Boushina, 1998). Therefore, to

measure innovation scale that ranks product innovation, processes and management was used (Huiban and Boushina, 1998; Ministry of Industry, 1994 AECA, 1995).

To measure the construct of innovation it was requested to the managers of the companies to answer whether the company had made innovations within the prior two years to the implementation of the survey (1 = Yes, 2 = No), and if the answer was Yes it meant that such firm have had products, processes or management innovation, inquiring whether such companies have had considered such innovations as important (1 = Not important 5 = Very important, as limits). A subjective method was used to collect information, such method is the most appropriate method for the case of SMEs (Hughes, 2001; Garcia, Martinez Maldonado et al. 2009). To measure Entrepreneurial orientation it was used the scale given by Lumpkin and Dess (1996) that contains 5 dimensions (innovation, risk taking, proactiveness, competitive aggressiveness and autonomy).

Table 1. Research Design.

Characteristics	**Research**
Population	3,586 Enterprises
Geographical area	The state of Aguascalientes, Mexico
Object of Study	SME´s in the state.
Data collection method	Personal interviews with managers
Sample size	347 SME´s
Sample Error	±5% error, reliability level of 95%
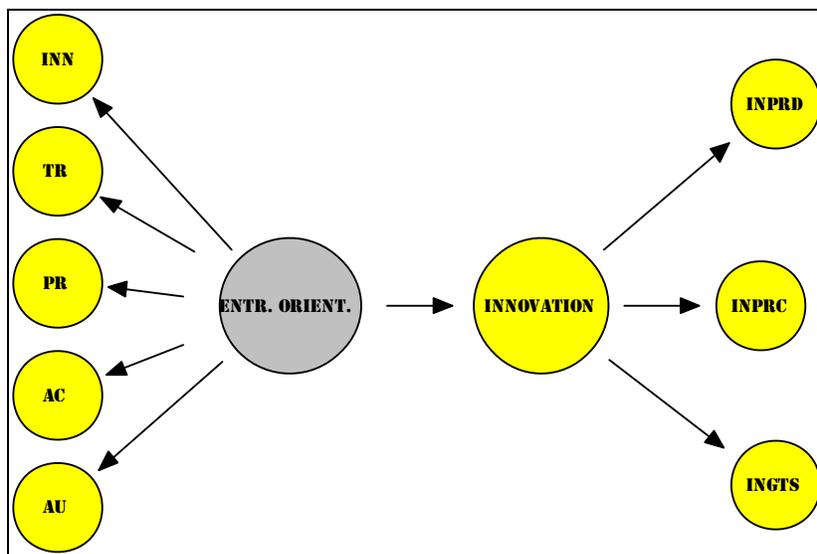
 Figure 1. Theoretical Model

3. Analysis

To assess the reliability and validity of scales a confirmatory factor analysis (CFA) was performed, through the maximum verisimilitude method with the use of the software EQS 6.3 (Bentler, 2005; Brown, 2006; Byrne, 2006). For measuring scale reliability Cronbach's alpha coefficients and composite reliability index (IFC) (Bagozzi & Yi, 1988) were used. Additionally, pursuant Chou, Bentler and Satorra (1991), Hu and

Bentler Kano (1992), who recommend that in order to be able to statistically correct the theoretical model and to grant a better statistical fit of data it should be done through robust statistical (Satorra & Bentler, 1988), in special when it is considered the presence of problems with normality data.

AFC results are presented in Table 2 and suggest that the measurement model has a good fit to the data (S-BX2 = 534.75, df = 202, p = .000, NFI = 0.901; NNFI = 0.919, CFI = 0.935, and RMSEA = 0.064). As evidence of convergent validity, the results of AFC indicate that all items of the factors are significant (p <0.01), the size of all the standardized factor loadings outweigh 0.60 (Bagozzi & Yi, 1988), and there is a high internal consistency of the constructs, as in each of the factors Cronbach's alpha and the CRI exceed the value of 0.70 recommended by Nunnally and Bernstein (1994) and Hair et al. (1995). The extracted variance index (VEI) was calculated for each pair of factors, resulting in a value higher than 0.50 as recommended by Fornell and Larcker (1981) IVE.

Table 2. Internal consistency and convergent validity of the theoretical model

Variable	Indicator	load factor	Valor t robust	Cronbach´s Alpha	IFC	IVE
Innovation	IN1	0.600***	1.000			
	IN3	0.703***	13.57	0.856	0.824	0.543
	IN4	0.886***	12.69			
	IN5	0.732***	12.70			
Risk Taking	TR1	0.930***	1.000			
	TR2	0.925***	33.21	0.913	0.912	0.776
	TR3	0.781***	25.20			
Proactiviness	PR1	0.557***	1.000			
	PR5	0.733***	12.05	0.836	0.808	0.595
	PR6	0.969***	12.00			
Competitive aggressiveness	AC1	0.960***	1.000			
	AC2	0.665***	14.98	0.779	0.764	0.536
	AC6	0.496***	10.02			
Autonomy	AU1	0.515***	1.000			
	AU5	0.700***	8.55	0.766	0.736	0.515
	AU6	0.890***	8.34			
Product innovation	P2801B	0.868***	1.000	0.839	0.840	0.724
	P2802B	0.834***	20.32			
Process innovation	P2803B	0.866***	1.000	0.868	0.868	0.767
	P2804B	0.886***	30.49			
Innovation Management	P2805B	0.875***	1.000			
	P2806B	0.882***	30.80	0.919	0.918	0.789
	P2807B	0.909***	34.58			
X^2 = 2.64 ; NFI= 0.901 , NNFI= 0.919; CFI= 0.935, RMSEA= 0.064						

[a] = Constrained parameter value in this identification process.
*** = p < 0.01

In addition to the feasibility calculation of the construct and AFC, validity tests were conducted to the scale, this analysis where performed through the confidence interval test and the extracted variable test, which are presented in Table 3. With a 95% of reliability, none of the individual elements of the correlation matrix latent factors contain the value 1.0 (Anderson & Gerbing, 1988). Additionally, it can be noted that each one of the different amounts of extracted variances between each one of the pairs of constructs, are lower that its correspondent extracted variance index (Fornell & Larcker, 1981). Based in this criteria in can be concluded that the different measurements performed in this method show enough evidence of feciability and convergent and discriminant validity.

Table 3. Discriminant Validity of the theoretical model

Variables	1	2	3	4	5	6	7	9
1 **Innovation**	**0.543**	0,08	0,022	0,096	0,033	0,075	0,035	0,047
2 **Risk Taking**	0.385 0.189	**0.776**	0,049	0,212	0,283	0,381	0,361	0,195
3 **Proactiveness**	0.207 0.091	0.310 0.134	**0.595**	0,199	0,021	0,024	0,03	0,048
4 **Competitive aggressiveness**	0.406 0.214	0.601 0.321	0.559 0.335	**0.536**	0,079	0,133	0,143	0,133
5 **Autonomy**	0.248 0.116	0.672 0.392	0.204 0.088	0.376 0.188	**0.515**	0,058	0,059	0,047
6 **Product Innovation**	0.407 0.143	0.834 0.404	0.272 0.044	0.561 0.169	0.363 0.119	**0.725**	0,245	0,501
7 **Process Innovation**	0.319 0.059	0.821 0.381	0.295 0.055	0.581 0.177	0.370 0.118	0.595 0.395	**0.767**	0,419
8 **Management innovation**	0.349 0.089	0.654 0.230	0.343 0.099	0.565 0.165	0.340 0.096	0.800 0.616	0.712 0.584	**0.789**

The diagonal represents the index variance extracted (VEI). The part of the variance is shown above the diagonal (Correlation to the square). Below the diagonal, the estimate of the correlation of factors with a confidence interval of 95% is represented.

4. Results

After the theoretical model showed sufficient reliability and validity, statistical analysis of data using structural equation modeling was developed. The EQS software was used in version 6.3 (Bentler, 2005; Byrne, 2006; Brown, 2006) what could test the proposed investigation hypothesis.

Chi square test was performed for the analysis of the nomological validity of the theoretical model, in which the initial theoretical model is compared with the measurement of the fitted model. The results of this analysis show that nonsignificant differences are correct for explaining the relationships between the model´s latent variables (Anderson & Gerbing, 1988; Hatcher, 1994). After this analysis, the structural model was conducted, the results of this approach are expressed in Table 4.

Table 4. Results structural model

Hypothesis	Structural relationship	Standardized coefficient	Value t Robust
H1: Within SMEs, the higher the entrepreneurial orientation, the higher the innovation will be.	OE → INN	0.344***	4.933
$S\text{-}BX^2 = 508.69$ (df = 211) = ; p < 0.000; NFI = 0.906; NNFI = 0.931; CFI = 0.942; RMSEA = 0.059			

*** = $p < 0.01$

With regard to the H1 research hypotheses, in Table 3 shows the results obtained ($\beta = 0.347$, $p < 0.01$) indicate that entrepreneurial orientation has significant positive effects on innovation. Therefore, if SMEs of the state of Aguascalientes desire to improve their level of innovation, such SMEs will have to adopt and implement entrepreneurial orientation in the business.

5. Conclusion and Discussion
Currently, the diversity of offerings on the market, has led companies to have the need to increase their competitive advantages, resources and capabilities theory says that is necessary to know the internal aspects of the company to support increasing them. After reviewing the literature it can be concluded that companies that innovate have greater competitive advantages, but to innovate certain capabilities that facilitate their development are necessary. Studies show that a greater entrepreneurial orientation provide the business resources and capabilities needed to provide information that leads them to take innovative actions.

As mentioned in the introduction to this study, the hypothesis was that the entrepreneurial orientation has a positive impact on innovation of SMEs in Mexico. What with the information obtained it can be concluded that the hypothesis was accepted. The results of the study support the conclusion that entrepreneurial orientation is a resource that can bring to SMEs in Mexico to increase innovation. Therefore, if managers of firms want innovate in every aspect of their organization, they should have a good entrepreneurial orientation, since by take risks, be aggressive with competitors, be proactive and generate autonomy in their human resources, it will facilitate the process of innovation within the SME.

The interest of a company to have an entrepreneurial orientation to innovate involves making strategic actions inside and outside the organization. Many times the company will have to change their culture to risk taking inside and outside the organization, since often the environment in which it operates is changing and encourage members of the same to propose ideas that may be factors change in different areas of the company. Likewise, companies must develop strategies to stay ahead of the competition with these changes in their environment which will increase its entrepreneurial orientation and facilitate their process of innovation. Another important aspect is that company's change their culture of autonomy within them, resulting in the need for culture allow members of the organization have the ease of making decisions for themselves.

The limitations are to be made in a single state in Mexico, so the results cannot be generalized in Mexico, from the center of the country this state has been internationalized and there are areas in the southeast with lower business development. It is important to generate studies in emerging economies know what dimensions of EO are promoting higher levels of innovation.

The same results as in other studies in other contexts, so in an emerging economy of the western world are similar findings are confirmed, given the characteristics of SMEs in Mexico, can be recommended to entrepreneurial orientation in their strategic planning develop an entrepreneurial orientation itself to be a good predictor towards innovative activities (Gómez et al.2010; Fernández et al., 2012)

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