The Role of a Private University in the State of Entrepreneurship in Mexico

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Entrepreneurship in Mexico, as in other emergent countries, has taken importance in the last decade because of the economic and social benefits that it generates. Three actors are responsible of the entrepreneurial development: the government, the institutions - such as universities, established organizations, etc.-, and the individuals. This study analyzes the contribution of a private university in the state of Entrepreneurship in Mexico through the use of the integrative entrepreneurial framework presented by Morris, Kuratko, and Schindehutte (2001). Such framework describes the variables that are necessary to generate theory in the field. Each of the variables - entrepreneurial process, the environment, the entrepreneur, the resources, the concept and the organizational context- are explained and the participation of the university is linked to each of those variables in order to define how the university contributes to the State of Entrepreneurship in the country.

**Keywords:** Entrepreneurship, University, Mexico
I. Introduction

Entrepreneurship has become an important phenomenon that has been studied and analyzed by academics and institutions in different countries because of the social (Aldrich, 2003) and economic development (Schumpeter, 1934) that it generates (Timmons & Spinelli, 2004; Leff, 1979). Morris, Kuratko, and Schindehutte (2001) have identified that the entrepreneurial activity in general has increased the last decade and that the barriers to entrepreneurship are lower today than ever before; the access to money and resources is easier and market opportunities seem to be plenty.

Entrepreneurship has been responsible for the economic development (Schumpeter, 1934) representing an important source of employment. According to the U.S. Small Business Administration’s Office of Advocacy (2007), small businesses represent 99% of all employers and provide 75% of all new net jobs. This organism also reported that from 2002 to 2003, there were 568,280 small firm births but only 4.9% of them survived during the first year. In Mexico, the Ministry of Economy has identified that 97.7% of the companies are micro and small businesses (Secretaria de Economia, 2007). From this group, 7.8% of the companies are dedicated to manufacturing, 69.1% are dedicated to commerce, and 23.1% to services. According to the economic census in 2004, INEGI (Mexican Census Bureau) reported 4,290,108 enterprises that generated 23,197,214 jobs; by 2014 numbers increased and 5,664,515 enterprises were operating providing 29,196,686 jobs (INEGI, 2014). Most of these companies were small and medium size companies.

Entrepreneurship has also been considered the great equalizer and mobilizer of opportunity because it can be developed by any person without caring of race, religion, sex or geography, providing self sufficiency, self-determination and economic improvement that creates wealth and social mobility (Timmons & Spinelli, 2004). Educative institutions play an important role because they provide the knowledge that is necessary to start a venture.

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2 Secretaría de Economía (Ministry of Economy) classifies the enterprises by their size and by the sales they have. The businesses are classified in micro, small, medium and large. The information that is shown in this section includes the companies that are classified as micro and small. Medium size companies are not included.
The objective of this paper is to define how a private university in Mexico has contributed to the entrepreneurial development in the country and how its contribution is relevant to the state of entrepreneurship in Mexico.

This study will use the theoretical integrative framework proposed by Morris, Kuratko, and Schindehutte (2001) which is shown in figure 1.

![Figure 1. Basic elements of entrepreneurship integrative framework (Morris et al., 2001)](image)

This model presents six key variables necessary to understand the phenomena of Entrepreneurship (Morris et al., 2001); each of them represents another framework that may have more variables:

a) The environment - all the external conditions that affect the creation of a new business

b) The entrepreneur – the person that has the creativity and ability to detect entrepreneurial opportunities and create a new venture. Entrepreneur’s human capital (Gonzalez, 2011) and social capital (Gonzalez, 2012) can be included within this variable and its framework.
c) The entrepreneurial process - all the steps that the entrepreneur needs to follow to identify the opportunity, develop, create, start, and harvest the new venture in any organizational context.

d) The resources - all the productive elements that conform a firm; there are six kinds of resources: physical, relational, organizational, financial, intellectual and human, and technological.

e) The concept - the types of innovation that are used and the economical models that follow the new ventures. Actually the concept may include the business model that is created for the venture.

f) The organizational context - the types of ventures that are created and the life-cycle of them.

The knowledge of these variables and the analysis of their interaction may provide support to the field for developing theory (Hunt, 1983). This paper represents a theoretical effort that analyzes a framework and explains the contribution of a private university on the state of entrepreneurship in Mexico.

The paper is developed as follows. First, I will explain and define the concepts of entrepreneurship in order to define the entrepreneurship concept that will be employed within this study. Second, I will explain Morris, Kuratko and Schindehutte’s frameworks model, which will provide a guide in the theoretical analysis of the variables that I have considered for this study. Third, I will make an overview of Mexico considering economic and demographic data; afterwards I will proceed with the analysis and description of how a private university has contributed to the state of each variable in Mexico and as a consequence how the role of this university has been an important stone in the state of entrepreneurship in Mexico.

At the end I will make recommendations about possible research areas that require attention in Mexico and I will suggest modification to Morris, Kuratko and Schindehutte’s model that will be useful for further research in Mexico and other countries.
II. The State of Entrepreneurship

Entrepreneurship: origins and perspectives

Entrepreneurship is a very complex concept (Gartner, 1990, 1991). Its origins come from the French word “entrepreneur” which derives from the verb “entreprendre” –which means to undertake, to attempt, to try in hand- (Girard in Carland, Hoy, & Carland, 1988, p. 33). Meanwhile Schumpeter (1934) considered Mill responsible for the use of this term among the economists. Drucker (1985) identified that the term entrepreneur was coined by the French economist J.B. Say by 1800. Say’s entrepreneur was “responsible of shifting economic resources out of an area of lower productivity into an area of higher productivity and greater yield” (Drucker, 1985 p. 21). At that time, the concept of entrepreneurship explained the actions of the entrepreneur but did not explain who he or she was. It was not until McClelland’s theory of need for achievement in the 1960s that the analysis of the personality of the entrepreneur became an important issue to be studied.

For more than two hundred years, the terms entrepreneur and entrepreneurship have created confusion for academics and practitioners. Debates and conferences have discussed the meaning of entrepreneurship and its importance to become an academic field (Aldrich, 2003). In the 1970s researchers discussed the academic legitimacy of entrepreneurship; after the first research conference developed by Babson College in 1981, taxonomies, conceptual schemas and typologies were created (Aldrich, 2003).

On its way to becoming a discipline, the phenomena of entrepreneurship has been studied by different schools and disciplines which have defined, at first what entrepreneurship is, and then have analyzed the aspects that they consider important in the study of the phenomena. These disciplines are explained below.

Trait approach vs. Behavioral approach

The study of entrepreneurship has been concerned with two situations, the knowledge of the characteristics of the entrepreneur –who the entrepreneur is- (Carland, Hoy, & Carland, 1988), and the actions that the entrepreneur needs to do to create a new venture –what the entrepreneur does- (Shane & Venkataraman, 2000; Gartner
The traits approach and the behavioral approach schools that have given an explanation to the phenomena of entrepreneurship: the trait school and the behavioral school (see figure 2).

Figure 2. The traits approach vs. behavioral approach in entrepreneurship

The trait school explains that the entrepreneurs have certain characteristics that differentiate them from other groups such as managers in larger organizations (Carland et al., 1988; Stewart & Roth, 2001). To understand the new ventures that are created, we need to know the creator, the entrepreneur, his/her characteristics and the implications derived from his/her relations and interaction with the environment (Carland et al., 1988). So through this perspective one can differentiate between the entrepreneurs and the managers (non entrepreneurs). Carland et al. (1988), also identified that entrepreneurship can be distinguished from small business ownership by a venture strategy orientation toward growth and innovation.

The trait approach has been criticized by Gartner (1988) who considers that the study of entrepreneurship should be focused on the creation of organizations (Vesper, 1982) instead of the individuals. In this way, the question that Carland et al. (1988) considered of “who is the entrepreneur?” must change to “how does an organization come into existence?”

“Entrepreneurship is the creation of organizations” (Gartner, 1988 p. 11)
Gartner (1990) made a Delphi process among researchers, business leaders and politicians to identify the themes or basic concepts that were considered when people were talking about entrepreneurship. He identified the elements that were necessary to consider within the concept of entrepreneurship and he found out that the trait approach and the behavioral approach reflected only one part of the picture. Other disciplines have also contributed to the definition and analysis of entrepreneurship (Aldrich, 2003, Martinelli, 1994) such as economics (Jacobson, 1992; Kirzner, 1997; Schumpeter, 1934; Eckhardt & Shane, 2003; Hebert & Link, 1988), sociology (Weber, 1930), psychology (Busenitz, 1999; Gartner, 1988; Shaver & Scott, 1991; Stewart & Roth, 2001).

Economic theory

The economic explanation of the entrepreneur can be seen first by the Austrian School - emerged in 1870 with Carl Menger in Vienna and followed by his disciples Ludwig, Mises, Hayek and Kirzner- which established a new era in the study of entrepreneurship breaking up the paradigm established by neoclassical economics (Jacobson, 1992). Neoclassical microeconomic theory established that profit-maximizing firms in competitive environments earn zero economic profits; there was no chance to compete and generate new products and methods that generate profits (Jacobson, 1992; Eckhardt & Shane, 2003). The entrepreneurial discovery, the disequilibrium, the heterogeneity and the unobservable factors are the basis for Austrian approach.

Sociology theory

Although the psychological and economic perspective have helped to analyzed how, where and why an enterprise is founded, relatively little is known about the specific contexts of organizational founding (Reynolds & White, 1997 in Thornton, 1999, p. 20). Beginning with Weber, sociologists have tried to explain the conditions under which new organizations are created (Aldrich, 2003). Weber (1930) identified that there was a relation between the religion (Protestantism) and the entrepreneurial activity. Over the past several decades, sociologists have analyzed the impact of networking among entrepreneurs; have identified that the inequalities of the society are replicated in the
founding process of the new business creation; and have identified the impact of the job
generation through the ventures creation (Aldrich, 2003).

Sociological research classifies entrepreneurship literature into two schools: the
supply side perspective and the demand side perspective (Thornton, 1999). The supply
side perspective analyzes entrepreneurship focusing on the individual characteristics of
entrepreneurs, and the availability of these individuals to occupy entrepreneurial roles.
The demand-side perspective, suggests different ways to analyze the context of
organizational founding; this perspective considers the analysis of the activity of
professions, the development of markets, the generation of new ventures by
organizational hierarchies (Freeman, 1986).

Organizational ecologists have focused on dynamics within existing populations
and have provided evidence that most of the new ventures tend to replicate
organizational forms and prefer to comprise incremental rather than novel additions to
the organizational landscape are operating in the market and that novel (Aldrich, 2003;
Baum & Oliver, 1996)

Entrepreneurship: the concept

Nevertheless when authors have talked about entrepreneurship they have agreed
on a fundamental characteristic, the creation (Brush, Duhaime, Gartner, et al., 2003) of
new ventures and organizations (Gartner, 1985), which solve problems innovatively
(Drucker, 1985; Schumpeter, 1934).

Based on all the theories and approaches of entrepreneurship that I explained in
the last section, during this paper I will refer to entrepreneurship as the process by which
individuals known as entrepreneurs create new organizations with novel procedures or
products based on opportunities or necessities of their communities. It requires the firm
to be novel at least in some sense, and there must be the ambition to grow. Considering
Eckhard & Shane (2003) and Venkataraman (2000) I will define an opportunity as
situations in which new goods, services, materials, markets, organizing methods can be
introduced through the formation of new means, ends, or means-ends relationships
(Eckhard & Shane, 2003; Venkataraman, 2000)
The State of Entrepreneurship will be defined as a function of the interaction of different variables such as environment—social, economic, and political; the entrepreneur – her psychological and behavioral characteristics- including her social or human capital; the process that is followed to create a venture; the opportunity recognition and the creativity and innovation necessary to identify such opportunity; and the venture creation and performance.

SEM= f(Environment, Entrepreneur, Entrepreneurship Process, Resources)

III. The Model

Morris, Kuratko, and Schindehutte (2001) identified that entrepreneurship is the result of the interaction amongst a number of variables that they represented through a framework. Basically they have considered six variables: the process, the entrepreneur, the environment, the resources, the business concept, and the organizational context. These variables are part of the framework of frameworks as it is shown in figure 1 -each variable is part of other more specific framework-. In this paper I have considered the analysis of such variables (see figure 1) to analyze how a private university may contribute to the state of entrepreneurship in an emerging economy. It is important to remark that the business concept and the organizational context will not be included within this study and represent an opportunity for further research.

1. The Environment

This aspect is common to the classical and contemporary sociology’s seminal argument which states that, individuals and organizations affect and are affected by their environment (Thornton, 1999). On the one hand the environment includes macro forces that facilitate or constrain the new business creation and performance (Morris, Kuratko & Schindehutte, 2001); if the environment provides certain conditions then the entrepreneur is able to perform effectively creating new ventures; if the environment is hostile, then the results may affect entrepreneurs performance to create and manage the venture.

Two different views of environment have been developed by the organization theory: the environmental determinism and the strategic choice (Gartner, 1985). In the former, the environment is considered an outside set of conditions to which the firm
should adapt; in the latter, it represents a reality that a firm establishes based on the selectivity of its own perception.

Researchers from the field of industrial economics have taken the deterministic perspective regarding the environment and the new business creation. Porter (1980) one of the main exponents of this stream identified the five environmental influences on organizations: barriers of entry, rivalry among existing competitors, pressures from substitute products, bargaining power of buyers and bargaining power of suppliers (see figure 2). In this case, entrepreneurs should analyze each of these forces in the industry where they will participate in order to establish its strategies to compete.

Porter (1980) explains that the five forces determine the industry profitability because they influence prices, costs, and required investment of firms in an industry (see Figure 2). In order to understand the effect of the industry environment on new ventures, I will explain Porter’s model.

The bargaining power of the buyer influences the prices that firms can charge; power of buyers can also influence cost and investment because powerful buyers demand costly service. Both, the bargaining power of the buyers and the suppliers can make an industry attractive or unattractive. A buyer group is powerful if “it is concentrated or the products it purchases from the industry represent a significant fraction of the buyer’s costs or purchases; the product it purchases from the industry are standard or undifferentiated; it faces few switching costs; it earns low profits; and buyers pose a credible treat of backward integration” (Porter, 1980, p. 24-25).
In the case of the Bargaining Power of Suppliers, a supplier group is powerful if the group is formed by few companies and it is more concentrated than the industry it sells; does not require to contend with other substitute products for sale to the industry; the industry where it participates is not an important customer of the supplier group; the product that provides to the industry is an important input to the buyer’s business (Porter, 1980, p. 25)

The threats are considered in Porter’s Model too. A threat is an event in the future that can affect the operations of the company and that is out of the control of the firm. “The threat of entry into an industry depends on the barriers to entry that are present, coupled with the reaction from existing competitors that the entrant can expect. If barriers are high and/or the newcomer can expect sharp retaliation from entrenched competitors, the threat of entry is low” (Porter, 1980, p. 7)

Porter also identified that there are six major sources of barriers to entry (Porter, 1980) to an industry: economies of scale, product differentiation, capital requirements, switching costs, access to distribution channels, absolute cost advantages, government policy and expected retaliation. The entrepreneur needs to know and understand if the industry, where his/her company will be launched, presents one of these barriers in order to diminish the risk of failure for the new venture.

The last force in Porter’s Model is the Industry Competitors. In this issue, it is important to understand the concept of fragmented industry. A fragmented industry is composed of a lot of competitors and most of them are small and medium size companies. In fragmented industries, a firm does not have a significant market share and it cannot strongly influence the industry outcome. There are other characteristics that are present in a fragmented industry such as: low overall, entry barriers, high transportation costs, high inventory costs or erratic sales fluctuations, diseconomies of scale, diverse market needs, high product differentiation, exit barriers, local regulations, government prohibition of concentration, newness.

Porter’s model represents a valuable tool for entrepreneurs since they can use it to analyze part of the environment where their ventures will operate.
2. The Entrepreneur

In the integrative framework (Morris, Kuratko & Schindehutte, 2001) the third framework is concerned about the entrepreneur. The entrepreneur has been defined most of the times as the person that has the ability to identify an opportunity (Venkataraman, 1997; Shane & Venkataraman, 2000) combining with creativity the means of production (Schumpeter, 1934) in order to found a new company (Gartner, 1988).

But this behavioral definition has not answered the question of who the entrepreneur is. Some researchers have been interested in knowing what traits or characteristics are common among the founders of a new venture (Carland, Hoy & Carland, 1988; Shaver & Scott, 1991; Stewart & Roth, 2001). Particularly psychologists have desired to know which people will create a new venture or why not everyone sees the market opportunity. To answer these questions, they have analyzed variables such as risk-taking (Busenitz, 1999; Stewart & Roth, 2001; Shaver & Scott, 1991,Gartner, 1985), internal locus of control (Shaver & Scott, 1991; Gartner, 1985), and need of achievement (McClelland in Shaver & Scott, 1991, p. 23; Garner, 1985). Although there is not a particular profile for entrepreneurs, these characteristics seem to be present in most of them.

Risk taking

McClelland’s entrepreneurial work (1961) identified that entrepreneurs are moderate risk takers. Busenitz (1999) analyzed the way that entrepreneurs take decisions and identified that entrepreneurs are guided by representativeness and overconfidence. The risk that an entrepreneur seems to take is not precisely a risk for him/her. Factors such as previous knowledge and his/her mental cognitive processes (heuristics) helps to identify that the risk that is taken is relative.

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3 Representativeness consists that an individual closely associated with a new project is likely to sketch a representative scenario that captures the essential elements of the history or the future (Kahneman & Lovallo., 1993 in Busenitz, 1999)
Locus of control

This is one the two most considered personological variables that is found in entrepreneurial literature. A person with an external locus of control finds one associating outcomes with external forces such as destiny, luck, social context and powerful others. Entrepreneurs are characterized by having an internal locus of control, which means that he/she is self confident to the events that can occur in his/her life. Some researchers have employed the Rotter (1966) Internal-External Locus of control scale (e.g., Ahmed, 1985; Cromie & Johns, 1983; Timmons, 1978; Venkatapathy, 1987)

Achievement

Achievement is the other personological variable that has received the most attention in the past entrepreneurial literature because this is the most convincing variable that is associated with the new venture creation. McClelland (1961) identified that high achievement motivation is represented by a desire to assume a personal responsibility to solve problems or tasks, with moderate risk and the willingness to receive feedback of their accomplishment. It is remarkable that “Achievement motivation was originally defined in Murray’s (1938) system of personality” (p.31).

Here the question that arises is if these three characteristics make a difference between the entrepreneurs and the non entrepreneurs. Empirical research has provided evidence of significant differences between the two groups of people. Stewart and Roth (2001) identify that entrepreneurs have a higher need of achievement than managers who have a higher need of power. Nevertheless in some studies where potential entrepreneurs have been studied (Shaver, Williams, and Scott, 1990), the differences have been determined by the cognitive heuristics and the attributes of the entrepreneur. The cognitive heuristics is the result of the environment in the way that a person perceives the reality; it implies that the individual can inference judgments under uncertainty based on the knowledge that he/she has. For example, a child whose parents are entrepreneurs has not only a role model in his/her parents, but has more information than other children whose parents are not entrepreneurs. In this way, the child can take some decisions based on the way that he has experienced the
entrepreneurial activity in his/her family. Thus it is evident that the environment plays a very important role in the way that people behave as entrepreneurs.

**Modern psychological approach**

Shaver & Scott (1991) assures that in the entrepreneurship literature the psychological approach has been inadequately represented by studies interested in “personality of the entrepreneur” which is called a personological endeavor for the psychologists. This perspective was out of style in psychology over twenty years ago when Mischel (1968) argued that behavior should be regarded as the consequence of person-situation interactions. The Lewin’s expression

$$B = f(P,E)$$

Means that behavior is a function of the combination of person and environment (Lewin, in Cartwright, 1951). Upon this modern perspective of Psychology, Shaver & Scott (1991) have emphasized in the person, not the personality.

**3. The Entrepreneurial Process**

“Entrepreneurship is the creation of new organizations” (Gartner, 1988, p. 62). The importance of the entrepreneurial process is shown in the Morris, Kuratko and Shindehutte’s (2001) integrative framework. The process, located at the center of the framework, represents all the activities that are necessary to create the venture. There are two perspectives that we can consider to analyze the process, one that comes from a theoretical base and another that comes from empirical studies.

Morris, Kuratko, and Schindehutte (2001) defined also six phases in the entrepreneurial process:

- a) identification of an opportunity;
- b) developing the concept;
- c) determining the required resources;
- d) acquire the necessary resources;
- e) implementing and managing the venture; and harvesting the venture.

The first two stages represent the ideation phase of the new venture; the other phases represent its implementation.
Opportunities are the beginning of the entrepreneurial process (Timmons & Spinelli, 2004). Researchers have identified when and how opportunities emerge and have identified a variety of forms (Ardichvili & Cardozo, 2000; Shane & Venkataraman, 2000; Singh, 2000). Schumpeter (1934), centered on factor markets, identified five different loci of these changes: those that stem from the creation of new products or services; those that stem from the discovery of new geographical markets, those that emerge from the creation or discovery of new raw materials, those that emerge from the creation of new raw materials, those that emerge from new methods of production, and those generated from new ways of organizing.

The detection and analysis of opportunities has been of interest in developed countries and the stream of research upon opportunities has taken more importance in the entrepreneurship field. Opportunities require resources of all kinds: physical, monetary, technological, human, social, organizational (Greene, Brush, & Hart, 1999). In the next section, I will explain what resources are and how the resource based theory can be applied to entrepreneurship field.

4. The Concept

In the integrative model framework, the concept involves the types of innovation and the economic models of the new ventures (Morris et al., 2001). Innovation has become a strategy for the new ventures (Kim & Mauborgne, 1997). “In business, innovation rarely comes from a flash of inspiration; it arises from the cold eyed analysis of seven kinds of opportunities” (Drucker, 2002, p. 5). Drucker (2002) assures that innovation comes from a process that is conceptual and perceptual: the innovator requires to go out, look and ask. The innovation also requires time (Drucker, 2002).

The sources of innovation that Drucker suggests are: unexpected occurrences; incongruities, process needs, industry and market changes, demographic changes, changes in perception and new knowledge. Morris et al. (2001) summarize different innovation types: new to the world; new to the country; new to the firm; addition to the company; product/service improvement; new application; repositioning of an existing product or service; process improvement that leads to the customer value creation, productivity enhancement, and/or cost reduction.
Entrepreneurs must be aware of the kind of innovation that are generating with the product or service that they are offering. Also, they must know the economical model that their firm follows. An economical model consider variables such as the operational leverage of the new firm, the contribution margins that it generates, the volumes that it operates and the product/service mix that it has (Morris et al., 2001)

5. Resources

Although a diversity of resources is necessary for successful entrepreneurship, must of the entrepreneurs and researchers tend to place more emphasis on money (Morris, Kuratko & Schindehutte, 2001). Many individuals who have had the financial resources to start and operate their new ventures have failed. For this reason, entrepreneurs must identify the correct resources for their enterprise.

Penrose (1957) assured that beyond a bundle of administrative functions, a firm is a collection of productive resources: assets that the firm owns like brand names, in-house knowledge of technology, the human resources that are available for the company –skilled and unskilled labor, administrative, financial, technical and managerial staff-, trade contacts, machinery, plant, equipment, land and natural resources (Penrose, 1959; Wernerfelt, 1984).

The relation between entrepreneurship and the resources, has been studied by various academic fields. Some researchers have found a predictive relationship between the resource profile and the probability of a business’s failure, survival and growth (Greene and Brown, 1997). Others have identified that the resources are fundamental in the entrepreneurial opportunities (Alvarez and Busenitz, 2001); they represent a way to compete and obtain an advantage within the industry in which the firm will be established.

IV. The Contribution of Tecnologico de Monterrey to Entrepreneurship

During this section, I will explain how the Tecnológico de Monterrey, the largest private university in Mexico has contributed to the state of entrepreneurship in the country. It is important to remark that Tecnologico de Monterrey is a private university
which entrepreneurial culture has given impact to other universities and institutions – government and private enterprises- from Mexico and Latin America over the last 36 years. The university has been considered the pioneer of the entrepreneurial education in Mexico and Latin America; it has developed different models to promote the entrepreneurial education within the country and abroad. Continuing with Morris, Kuratko & Schindehutte’s integrative framework, I will analyze the variables of such framework with the contribution that Tecnologico de Monterrey has provided to each of them.

At the end I will propose a variation in the integrative framework which will be useful for further studies in Mexico and other emergent countries.

1. The Environment

In order to understand the context where the private university is established, I will explain some macoeconomics and demographics data. Mexico is a country that is conformed by 32 states with a population approximately of 112 million of inhabitants. The three main cities Mexico City, Monterrey and Guadalajara concentrate most of the industrial activity in the country. Industries such as metal-mechanics, cement, automotive, brewery, pharmaceutics, are the most important in the country.

The Gross Domestic Product in 2012 was 993.30 US dollars (exchange rate of 12.5 pesos per US dollar) and the distribution of the household income is shown in table 2.

<table>
<thead>
<tr>
<th>Socio economic level</th>
<th>Households</th>
<th>Average monthly income in US dollars</th>
</tr>
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<tbody>
<tr>
<td>A/B</td>
<td>1,150,000</td>
<td>$ 6,364</td>
</tr>
<tr>
<td>C+</td>
<td>2,370,000</td>
<td>$ 2,727</td>
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<tr>
<td>C</td>
<td>4,160,000</td>
<td>$ 1,363</td>
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<tr>
<td>D+</td>
<td>5,240,000</td>
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<td>D</td>
<td>8,990,000</td>
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<td>E</td>
<td>3,650,000</td>
<td>$ 227</td>
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<td></td>
<td>25,560,000</td>
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</tbody>
</table>

Table 2. Average monthly income in Mexican households in US dollars
(Source: INEGI http://www.inegi.gob.mx)

4 Exchange rate has been considered 13 pesos per US dollar (Average 2012)
The literacy has increased from 74% in 1970 to 92% in 2014 (INEGI, 2014). The entrepreneurial culture that is present in most of the country is the result of the collaboration among institutions (public and private universities, corporations, financial institutions), the government, and the individuals. States located at the North of Mexico, such as Nuevo Leon, present a higher literacy rate (high school) compared to other states located at the Center or South of Mexico (some have a literacy rate of elementary school).

The University

The private institution that has been the subject of study in this paper is Tecnologico de Monterrey, a multi-campus university that has presence in most states of the country. There are 31 campuses in 25 different cities around the country that offer undergraduate, graduate, and continuing education programs. Graduate programs are available in the largest campuses offering masters and doctoral programs specialized in engineering, business administration, medicine, law, and architecture, among others. A virtual university also offers this kind of programs for small campuses and offices abroad located in Latin America. The university has almost 93,000 students in the whole country and in the virtual mode, approximately 6,180 individuals participate in masters programs and 47,420 are taking continuous education each semester.

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5 Literacy means the ability to read and write
History of the Entrepreneurship Program at Tecnologico de Monterrey

In 1979 the entrepreneurship program started as a pilot project where students from the university and people from the community decided to learn a methodology to start their own business. It was in 1985 when a formal academic program started. Students from different disciplines had the option to take a course in entrepreneurship; at that time most of the students interested in this topic were from the business school and engineering school. It was until 1990 that the university included in its mission statement the commitment for developing entrepreneurial skills within the curricula of the students. Since that time, entrepreneurship course became mandatory for all the students. In 1995, the university, concerned with the economic situation of the country and the unemployment in different countries in Latin America, developed a model called “Transfer Model”. This model was created with the objective to transfer its knowledge in entrepreneurial education to other institutions that were interested in entrepreneurship such as universities, private enterprises, federal government offices, and state or local government offices. In 1998 the Mexican federal government developed an initiative to promote the entrepreneurial culture in the whole country through training programs in different modalities: face to face, virtual and self-learning. The university developed this
model and trained facilitators that would continue the process like in a pyramid way. From 1995 to 2005 more than 30 universities from Mexico and Latin America received training in entrepreneurial education.

In 1996 the university participated in the development of the first incubator in the city of Monterrey and in 1998 it contributed with designed the models of the incubators that the federal government with the support of different state governments implemented in Mexico.

It was in 2001 when the site for the virtual incubator was launched and in 2002 the first university incubator started operations within the main campus of this university. The university also participated in the definition of the national incubators that the federal government would develop in the country.

As the entrepreneurial culture was taking more importance in 2001 the concept of incubators was replicated in different cities and universities.

**The government**

As a result of social economic problems derived from the Mexican peso devaluation in 1994, and the increasing unemployment and underemployment, the government decided to create new programs and promote the entrepreneurial activity for the general community.

The first national program PROMODE -Programa de Capacitación y Modernización Empresarial- (Contacto PYME, 2015), in which the university participated, had emphasis in promoting and training entrepreneurship and management topics; the program began in 1998 and was launched particularly for two segments: the individuals who wanted to start a new venture and that required training on business creation; and the small business owners of retailing stores, pharmacies, shoe shops, hardware stores among others, who required a special training in administration, marketing and finance to grow their own businesses. This program comprised three modalities: face to face; in situ (at the facilities of the business owner); and virtual, which included the creation of videos for television.

A second entrepreneurship training program, where Tecnologico de Monterrey also participated, was launched in 2010. It was called “Modelo Jovenes Emprendedores”.
The participation of the university in nation wide programs has increased the knowledge of entrepreneurship within the country. It is necessary to analyze the impact of these efforts and determine if programs are still operating to capitalize the university effort.

2. The Entrepreneur

Since the beginning of the entrepreneurship program, students have been the center of the entrepreneurial education. The trait approach –from psychology- and the supply-side perspective -from sociology- characterize the focus that has been given to the course of entrepreneurship in the university. This mandatory course was created with the objective to promote the entrepreneurial attitude among the individuals, in this case the students; in this way the business plan creation was considered a means instead of an end.

The first entrepreneurial education model defined by Tecnologico de Monterrey, called the “U” model, shows how the student is the main element in the educational model (see figure 6)

![Figure 6. “U” Model of the university (Source: Modelo de Transferencia brochure: 2002)](image-url)
Figure 6 shows how the university through motivational extra academic activities help students to have a positive attitude towards being entrepreneur; the training courses and workshop are the formal way to teach the student; the support given by the physical installations, and financing, help to close the cycle and that entrepreneurs would be ready to start a new one. Incubators have played an important role within the entrepreneurship culture. Nowadays students can start their new ventures when studying their entrepreneurship course or by attending programs that the incubator offers.

Although the perspective of the entrepreneurial education has been centered in students, the results of the entrepreneurial education that is promoted by the university are showed with the alumni. According to a survey developed by ExaTEC Department, 68% of the alumni whose graduation was 20 years ago have created their own business. Over the last year, 13% of the graduate students have decided to become entrepreneurs.

The objective to promote the firm creation has been developed by a new program call “Entrepreneurship Specialty” which will be explained in the following section.

3. The Entrepreneurial Process

The resources

Considering that the resources are only one component of the entrepreneurial process (Greene and Brown, 1997) and that opportunities should match with them in order to create synergy, the university has created a network of incubators in the whole country. The incubators represent a great support to the entrepreneurs because of the physical space and facilities that provide to the new venture at a very low cost. In 2001 the first incubator initiated. It was a traditional incubator with 11 new ventures, most of them from students. The concept was improved and in 2003 was founded the network of incubators of the university. Up to date, 30 incubators are present in the whole country.

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6 Entrepreneurship Specialty is an exclusive program developed since 2004 where students are selected based on their motivation to start a company. Actually, there is no formal instrument—which would have validity and reliance—to measure the abilities or characteristics of the student that participate in the program.


**Business Incubators**

The environment presents new opportunities to create and generate new products or services (Schumpeter, 1934). The work developed by the university has been dynamic, the time as an element to generate innovations (Drucker, 2002) has contributed to the analysis of new opportunities to the incubators and to the entrepreneur. Up to date, there are 31 incubators across the country and they create 2,524 direct jobs. The distribution of the new ventures in the different kind of incubators is represented in figure 5. Six hundred and eighty two companies belonging to the program are physically present, 162 are virtual while there are 119 businesses in the entrepreneurial mode. (Gonzalez, 2007)

The set of resources that used to be employed by one incubator in 2002, now have been multiplied in order to attend new markets. Based on these premises, the university in 2007 had with four kinds of incubators, each incubator attending different kinds of entrepreneurs.

- **Medium-Technology Incubators.**- This kind of incubators represent most of the companies that are generated by the students of the university. Some individuals from the community can apply to this kind of incubators. Its main activity is services and the second activity is manufacturing. Up to date there are 31 incubators and it is expected an increase of 84%, which will be 57 incubators in the whole country.

- **Technology incubators.**- This kind of incubators are very specialized. Most of the projects derive in a patent and require of research and development for the start ups. Up to date the university counts with 5 incubators in the whole country at this time but it is expected that at the end of this year the number increases to 8.

- **Accelerators.**- This is the most sophisticated incubator. The main objective of the accelerator is to bring into the market innovations that have been developed and that most of the sometimes have not been exploited by the inventor. The value creation and the innovation are facts required in this kind of incubator.

- **The accelerator has generated an interested model where the inventor, a student and a professor develop the concept of a new venture, present a business plan to angels and institutions such as Nafin.**
- Social incubators.- this kind of incubator attends all the projects that come from people of the bottom of the pyramid, people that have basic skills and want to start their own business. The efforts of this incubator are centered in people from the segment D and D+ which represent 55.6% of the population in Mexico (see table 2).

The kinds of ventures that are in the university incubator are represented in figure 6. Information technology companies have led the cluster of companies, followed by design and manufacturing, and sustainable development.

![Pie chart showing the types of companies](Image)

Figure 6. Activities of the new firms (Source: Incubadora de iniciativas emprendedoras, 2015).

Analyzing some of the information that has been collected and classified by the incubator, it is interesting the fact that most of the firms that are incubated belong to men (77%); women own only 23% of the businesses as it is indicated in figure 7.
Another fact that has been identified is the type of entrepreneur that is incubating the venture. 26% of the companies belong to people from the community that has applied to the incubator and have accomplished the requirements to have a space there. 40% are students, 6% are teachers and 28% are alumni’s businesses.
The Entrepreneurship Course

“Entrepreneurship is the creation of new organizations” (Gartner, 1988, p. 62).

The process that students follow inside the mandatory course of Entrepreneurship and through the courses of the Speciality in Entrepreneurship have some similarities: the student has to develop a business plan detecting an opportunity at first and second, defining how the team will be integrated; afterwards come the analysis of the industry, the market and the analysis of the required resources for the new venture; finally it is developed a financial projection and funding analysis. Once that the student has a business plan the differences start in the mind. Some students from the mandatory course decide not to take the entrepreneurial career as an option, even though the students from the specialty continue the process with the help of a specialized advisor. The student from the specialty in entrepreneurship continues the process until the company is founded and starts operations. Staying periods of incubating can vary from 6 months to 1.5 years.

CONCLUSION

In this paper I have explained some of the contributions that Tecnologico de Monterrey, the largest private university in Mexico, has provided to the state of entrepreneurship in Mexico. This paper has been limited since the data was only from one campus, however, it was the main campus that concentrates the largest student population. Also, in order to complement this study, I recommend to include more variables or frameworks to be analyzed for a further research. For example, every semester new initiatives in entrepreneurship are created in the university; activities such as challenges for entrepreneurs, business model contests, family business activities – courses, seminars, etc.- can be included to determine how they can make an impact on the entrepreneurship activity in the country.

I would also suggest a second part of this study, which may include an analysis of the variables “organizational context” and “concept of the business”; an analysis of other institutions that besides the university have contributed to the state of entrepreneurship in
a country such as business associations (chamber of commerce, chamber of manufacturing); and the analysis of the minorities (women, ethnical group as private profit companies, non profit companies, etc.). The analysis of the framework -environment, entrepreneur, process, and resources-, and the university confirm the impact that educative institutions can have in the promotion of entrepreneurship culture and the state of entrepreneurship in a country. As I mentioned, entrepreneurship is the result of efforts from entrepreneurs and all the institutions that participate in the social and economical development of the country have to be analyzed to determine how really the state of entrepreneurship is.
REFERENCES


