

La innovación tecnológica como herramienta para el desarrollo de la competitividad en las pymes

Technological innovation as a tool for the development of competitiveness in smes

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Resumen

Las compañías pequeñas responden de manera más cercana a las demandas del mercado, en comparación con las grandes compañías; por lo que estas compañías pequeñas disfrutan de una ventaja competitiva relacionada a una burocracia más pequeña; eficiente, algunas veces informal, sistemas de información internos, y una flexibilidad y adaptabilidad a través de la cercanía con el mercado. En contraste, las pequeñas compañías presentan una serie de limitaciones por la falta de: trabajadores técnicamente calificados, uso pobre de la información externa y experiencia; dificultad en la atracción de financiamientos y seguridad financiera, relacionado todo esto con la poca capacidad para tomar riesgos en inversiones; inusual administración desde el inicio del negocio; y un alto costo para operar dentro del margen regulatorio. En esencia, la ventaja de las pequeñas compañías se ve reflejada en su comportamiento fundamentalmente, con lo cual puede generar innovaciones.

Las PyMES representan para el desarrollo de la economía en México, un sector empresarial en donde existe una enorme diversidad de intereses al interior del empresariado, que dependen del sector en que encuentran las empresas, de la región en que se ubican, el tamaño de la empresa, sus características tecnológicas y organizacionales. La visión dada por los manuales con respecto a lo que debe ser una empresa, no responde necesariamente a las características heterogéneas de las PyMES que, aunque son básicas en la generación de empleo y riqueza nacionales, son desdeñadas en el estereotipo tradicional, para considerarse competitivas.

Palabras clave. competitividad, innovación, pequeñas empresas, ventaja competitiva.

Abstract

Small companies respond more closely to the demands of the market, compared with large companies; so these small companies enjoy a competitive advantage to a smaller bureaucracy; efficient, sometimes informal, internal information systems, and a flexibility and adaptability through the proximity to the market. In contrast, smaller companies have a series of limitations due to the lack of: technically skilled workers, poor use of external information and experience; difficulty in attracting financing and financial security, all this related to the limited capacity to take risks on investments; unusual administration since the start of the business; and a high cost to operate within the regulatory scope. In essence, the advantage of small companies is reflected in their behavior, which can generate innovations.

SMEs represent the development of the economy in Mexico, a business sector in which there is an enormous diversity of interests inside businesses, which depend on the sector in which companies are, of the region in which they are located, the size of the company, its technological and organizational characteristics. The vision given by the manuals with respect to what should be a company, does not necessarily respond to the heterogeneous characteristics of the SMEs which, although they are basic in the generation of national wealth and employment, they are scorned in the traditional stereotype, to be competitive.

Key words: competitiveness, innovation, small companies, competitive advantage.

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Introduction

Entrepreneurs of small and medium enterprises (SMEs) face every day new challenges related to the successful retention of your company in a competitive and increasingly complicated environment for this type of organizations. The decisions that face these challenges generally mark the difference between permanence and the failure of the them. In response, these challenges technological innovation may have elements with which you can improve the performance of its administrative and production processes, considered a systematic and holistic approach to long-term business management in which the environment is analyzed, strengths and weaknesses are evaluated, and we identify the opportunities that are capable of generating a competitive advantage in this sector.

Today it can be said that SMEs consider that technological innovation is only done by large companies, conversely the innovation can be performed with the integration of all and each one of the involved factors, but where substantial changes in processes are achieved. SMEs in the majority of cases, have remained on the sidelines in regards to implementing a formal system, resigning to receiving the benefits that this provides; thus, the uncertainty and high competitive pressure that drives technological development manifests itself particularly to small and medium-sized enterprises (SMEs) that are characterized by their greater difficulty to innovate and identify technological demands, whether to the severity of their economic or organisational problems, as well as its poor access to information market and lack of frequent links with the technological offer. However, within the heterogeneity that distinguishes this group, it is possible to identify companies with similar innovative dynamics and in some cases, superior to that of the large companies (Ghezán, ML et. Al., 2003). One Further studies on the flow of technological innovation is focused on new knowledge and management of information technology; but this is not everything and that technological innovation can be focused to: applied innovation, product innovation, process innovation, experimental innovation, marketing innovation, business model innovation (Moore, 2004). An investigation of Damanpour argues that technological innovation is a specialized process in which basic and applied research, product development, manufacturing, marketing, sales, in the best possible way you engage to develop innovations (Damanpour, 1991). The process of technological innovation is carried out by individuals or groups of individuals to micro levels in an orderly, to be able to accumulate knowledge through the processes of creation, integration and modulation (Ghezán, ML et. Al., 2003). However, to see technological innovation as a process, it is important to associate with the culture and the creation of a dynamic interaction or repetitive result of negotiations through various relevant groups within the company (Nieto, 2003).

Other research focused on managing a current generating factors affecting technological innovation, which are related to factors such as organizational change, labor, communication and technological complexity (Ghezán, ML et. Al., 2003). Some significant studies are:

- The organizational framework mixed, potential developments of the company to achieve technological change and the possibility of meeting the cost and schedule the disappearance of other forms of work.

- The individual communication within the company as a positive influence on the success of technological innovation.
- The technological framework aimed at improving the regulation of tools that promote efficiency of technological innovation system.
- Different types of knowledge likely to inspire new research projects or new applications and this generates new knowledge to use.

Druker Peter (1986) makes a distinction in regards to improving three activities, evolution and innovation itself managed. The improvement aims to make what is successful even better. Requires specific quantitative targets, for example, an improvement of 3 or 5% per year in cost, quality or customer satisfaction, Druker warns that "any new product, process or service begins to be dated from the first day generating profits. "

Target

Knowing how you can predict the degree of technological innovation required for the development of competitiveness in SMEs.

Justification

The purpose of this study is to establish an appropriate relationship between technological innovation and improving competitiveness within SMEs, by analyzing each and every one of the elements necessary to generate technological innovation and its application in the processes , seeking to develop the necessary features to achieve competitive advantages in the market. Industries and companies that have achieved competitive advantages through technological innovation depend heavily on their organizational skills, such as skills in the marketing process, flexibility in their processes, etc. (Nelson, 1991). The technological capabilities of firms are linked to organizational capabilities that account as the skills and knowledge of the process key operation (know - how) of the company, which allow the organization to carry out activities to develop innovation processes (Acha, 2000).

Theoretical Framework

When technological innovation processes are restricted field, especially technological sophistication, the goals included in the proposed Schumpeter forget. On the one hand, it refers to the total field of the company, and not only the technological aspects. On the other hand, suggests that innovation changes are aimed at customer satisfaction,

which means the company will hold and grow. Moreover, even when arranged and some technical tools, innovation is primarily the art of turning ideas and knowledge into products, processes or services or improved customers recognize and value. That is, it is converting knowledge and ideas into wealth. (Escorsa and Valls, 2001).

Innovation involves changes that lead to products that are better adapted to market needs. Its content includes:

- Technological innovation.
- Organizational Innovation.
- Business Innovation.

The same authors mention that ideas and knowledge lead to innovation:

- From technology
- In the internal organization and resource settings
- Technical
- Economic
- Staff From

They also indicate that the concept of innovation is given special attention, so some definitions would be useful to have more understanding. The Frenchman André Piatier defines innovation with "an idea transformed into something sold or used". Similarly the American Sherman Gee is expressed by stating that "innovation is the process in which from an idea, invention or recognition of a need, a product, technique or useful service develops until it is commercially accepted".

These definitions are derived from Schumpeter, which according to its classic definition, innovation cover the following five steps:

- 1) The market introduction of a new good, ie, a commodity with which consumers are not yet familiar, or a new kind of goods.
- 2) The introduction of a new production method, ie a method not yet experienced in the branch of industry concerned, requiring built on a new scientific discovery; and can also be innovation in a new way to try a new product commercially.

- 3) The opening of a new market in a country, whether this market already existed in another country or not.
- 4) The conquest of a new source of supply of raw materials or intermediate products, again regardless of whether this source already exists or has to either be created again.
- 5) The implementation of a new structure in a market, for example, the creation of a monopoly position.

There is agreement that innovation is the key element that explains competitiveness. Porter, for example, shows resounding: "The competitiveness of a nation depends on the capacity of its industry to innovate and improve. Companies achieve competitive advantage through innovation. " All these definitions agree that innovation ends with the successful introduction in the market. If new products, processes or services are not accepted by the market, there is no innovation. Christopher Freeman, professor emeritus at the University of Sussex, insists that innovation attempt fails when not get a position in the market and / or benefit, even if the product or process "works" in a technical sense (Escorsa and Valls, 2001).

Barriers to innovation in SMEs

According to Freel (1998) small companies respond nearest to the demands of the market, compared to large companies manner; so these companies enjoy a competitive advantage related to a smaller, efficient bureaucracy, sometimes casual, internal information systems, and flexibility and adaptability through proximity to the market. In contrast, small companies have a number of limitations by the lack of technically skilled workers, poor use of external information and experience difficulty in attracting funding and financial security, all related to poor ability to take risks on investments , unusual administration since starting the business and a high cost to operate within the regulatory margin. In essence, the advantage of small companies is reflected in what is its fundamental behavior, while the most important is related to the resources mentioned above. As should consider the greater resources available to determine the rate at which small companies can reap the benefits related to the use of technologies and thereby to participate in greater proportion in the market. But everything can be set in four main resources: finance, management and marketing, job skills and information. Resources that occur rarely together in the development of the

activities of small businesses and are the main barriers to generate innovation (Freel, 1998).

The literature reveals different studies through which classifications related to technological innovation and technological innovation types have several effects on the operation and administration of companies is. Therefore, it is necessary to clarify a bit this problem of the various types of technological innovation, before we can discuss how such innovation affects growth companies. Here several studies on the taxonomy of technological innovation according to (Yonghong, 2005), in which different views are presented and described below are presented:

- It is based on different types for innovations, which are four types of innovation including product or service, processes, organizational structure and personnel (Knight, 1967).
- According to the effects generated around the technology, such as technology development, market development and a radical increase in commitments (Fu, 1998) innovation; (Chandy and Tellis, 2000).
- In terms of fashion where technological innovation takes place (Tushman's Anderson, 1990) of continuous and discontinuous innovation (Meyer and Utterback, 1993) radical or routine (Christensen's, 1997).
- Considering the effects of the magnitude of technological innovation made, this is a technological innovation used in taxonomy, including radical and incremental (Balachandra and Friar, 1997).

To analyze the nature of innovation as an evolutionary and systemic process involving cumulative learning through search, discovery and imitation of new products, new processes and new organizational forms within a technological trajectory (Dosi, G, 1988) ; (Nerlson, R and Winter, S 1982); (Amendola, M, 1989), to analyze innovation in industry and particularly in the SME sector. Generally refers to incremental innovations (small transformations in products or processes) technologies from other industries. Therefore, technological progress in the industry depends on progress in other fields such as materials and specialized equipment, microelectronics and other components involved in the processes of these companies. (Bye, P, 1997); (Rama, R, 1993).

Several studies like (Yoguel, 1996) and (Nooteboom, 1994) suggest the existence of a positive correlation between firm size and innovation development. They conclude that SMEs meet a complementary role with respect to large companies, charting its own

technological trajectory through the implementation, application and adaptation of existing innovations in the market. The development of innovative processes in SMEs is not linked to both formal research and development (R & D) carried out in specific laboratories, but human resources engaged in different areas of the organization (quality, production, distribution, sales, marketing, etc.), continuously and stably.

On the other hand, innovation is related to the characteristics of the entrepreneur (history, motivation and personal goals) and business (management procedures, previous history of the company in terms of accumulation of tangible or intangible competitive assets, strategies, etc.); these are not the only determinants of success or failure in introducing changes to their processes or products.

Although a feature of SMEs is the familiar presence in their driving cases in this group with some more professional organizational structure are recorded. Some of them have more than two levels of decision, allowing some decentralization in defining production and administrative issues. Instead, the tasks associated with long-term strategic decisions are still concentrated in the owners, preventing the possibility to interact and carry out shared strategic projects. (Ghezán, ML et al., 2003).

The social / institutional environment has an important role in the innovation process. This aspect is particularly relevant in the case of SMEs where a local environment that fosters positive synergies through interactions between firms, links with science and technology agencies, local policies, available infrastructure, stimulate innovation (López, A and Lugones , G, 1998); (Kosacoff, B, and López A, 2000); (Ghezán, ML et al., 2003).

Methodology

It should be mentioned that the research is in the part of description of the theoretical and contextual concepts. The research aims to develop in companies manufacturing sector, which may present some technological innovation operational, according to research carried out in order to get to know the current environment and development trend of the technology in these companies and can be seen as an innovation in its processes, interest in this study.

As regards the methodology, is to conduct field research based on the realization of a model in which the relationship between technological innovation and competitiveness processes within companies are displayed. This can be used as a reference for how involved the elements of change in the environment of the relations between operational technological innovation and competitiveness of SMEs.

Conclusions

After the literature review and analysis of the characteristics of SMEs, as well as the business environment in which they operate, we find that the development of technological innovations is not easy to perform; and in the case of achieving this also is not a guarantee of success of the company in all aspects, mainly in increasing their competitiveness. Furthermore, it is transferred and make contributions in the field of SMEs, in order to increase their levels of development while showing signs for change in the paradigm of business in which they should not rely on big companies to grow as a sector. The concepts, principles and practices of SMEs should have much to offer as a sector because resource management, agility market, proximity to customers and the lack of laws, allowing them greater mobility than large enterprises , thus the development of knowledge and information flow have much opportunity in these areas.

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