

## INNOVATION IN MICRO AND SMALL ENTERPRISES: A CONCEPTUAL PROPOSAL FOR RESEARCH

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### Resumo

Micro e Pequenas Empresas (MPE) são consideradas as mais dinâmicas e elásticas formas de atividade. Na economia, a fundação e desenvolvimento das mesmas são importantes para a criação do ambiente económico dito “normal”. No passado recente bastava apenas que as empresas atendessem as necessidades de forma rentável para se manterem no mercado, mas esse cenário mudou drasticamente. No presente é necessário estar um passo à frente em direção ao futuro, pois as estratégias que deram certo no passado não são garantias de sucesso sustentável. A chave da longevidade e competitividade empresarial encontra-se na inovação. Nessa conformidade, a presente investigação teve como objetivo principal apresentar um modelo conceitual de investigação da inovação em Micro e Pequenas Empresas para analisar (1) o grau de inovação das Micro e Pequenas Empresas, (2) a forma como a inovação nas Micro e Pequenas Empresas se apresenta em decorrência dos seus ambientes de negócios e (3) quais os fatores determinantes da inovação em função da localização geográfica. Esta investigação apresenta particular interesse para Micro e Pequenas Empresas de países em desenvolvimento, como o Brasil, dada a maior relevância das atividades de inovação do que a inovação em si, podendo fornecer subsídios para a formulação de políticas de inovação.

**Palavras-chave:** Micro e Pequenas Empresas; Inovação; Piauí; Brasil; Gestão.

## **Abstract**

Micro and Small Enterprises (MSE) are considered the most dynamic and elastic forms of activity. In the economy, the foundation and development of these are important for the creation of the so-called "normal" economic environment. In the recent past it was enough for companies to meet their needs in a profitable way to stay in the market, but that scenario has changed dramatically. At present it's necessary to be one step ahead towards the future, because the strategies that have worked well in the past are not guarantees of sustainable success. The key to longevity and business competitiveness lies in innovation. Accordingly, the main objective of the present research was to present a conceptual model of innovation research in Micro and Small Enterprises to analyze (1) the degree of innovation of Micro and Small Companies, (2) how the innovation presents itself in the MSE as a result of its business environments and (3) the determining factors of the innovation according to the geographical location. This research is of particular interest to Micro and Small Enterprises in developing countries, such as Brazil, given the greater relevance of innovation activities than innovation itself, and can provide subsidies for the formulation of innovation policies.

**Keywords:** Micro and Small Enterprises; Innovation; Piauí; Brazil; Management.

## **Introduction**

Satisfying unlimited human needs with increasingly scarce resources has always been the great challenge of the economic and business sciences and much of the materialization of this challenge is bequeathed to organizations with their most diverse purposes. Within this set of organizations one deserves special mention for its way of acting and the significant impact on society as a whole, the business organization. Companies engage in organized economic activity, efficiently managing people and resources to achieve results effectively, which most accurately means meeting the needs of their customers/consumers profitably and responsibly.

In the recent past it was enough for companies to meet their needs in a profitable way to stay in the market, but that scenario has changed dramatically. It's no longer enough simply to meet needs in a profitable way; at present it's necessary to be one

step ahead towards the future, because the strategies that have succeeded in the past aren't guarantees of sustainable success, which can be exemplified by Tidd, Bessant and Pavitt (2005, p. 42) asserting that "organizations build capacities around a particular trajectory, and those that may be strong at a later (specific) stage of an established trajectory find, in general, next". As an example, we can refer to large consolidated companies such as Nokia, Motorola, Oi and members of the automobile industry in France, the United Kingdom, the United States and Japan who, because of always betting on strategies that worked so brilliantly in the passed down the road, going bankrupt (Luedemann, 2003; Walter, Leite & Craveiro, 2015; Whittington, 2002).

Accordingly, organizations should seek tools and capabilities to assist them in gaining competitive advantages, which in Martín and López's (2007, p.267) conception refer to a "situation of superiority or favorable conditions that one thing has over other", or as the authors themselves point out, "the concept of competitive advantage is understood as any characteristic of the enterprise that differentiates it from the others, placing it in a relative position of superiority to compete" (p.267), which Tidd et al. (2005) effectively elect as innovation, although a competitive advantage may arise from size or heritage, among other factors, the scenario gradually shifts in favor of those organizations that continuously manage to mobilize knowledge, or what they already have; information, or what is available in the environment, and the creativity to design the creation of novelties in their offerings, be they products or services, and the ways in which they create and launch these offers.

An innovation according to the Oslo Manual, which is a reference in the subject in several countries, is the implementation of a new or significantly improved product or service, or a process, or a new marketing method, or a new method organization of the workplace or in external relations (OCDE & FINEP, 2005). According to Nóbrega and Lima (2010, p.19) "innovation represents today what 'Quality' represented 20 years ago: it's the condition to stay in the game. In many business environments, it's no longer enough to operate efficiently; new sources of value generation must be systematically discovered".

For Anthony and Christensen (2007, p.19), "innovation is imperative to maintain the health of the company. In fact, the creation of new products, services, processes and operational models contribute to the growth not only of the company, but also of the national and global economy". Innovation is the specific instrument of business ac-

tivity. It's the action that endows the resources of a new capacity to create wealth. Innovation actually creates the resource. A "resource" is something that does not exist until man discovers a use for something existing in nature and thus endows with economic value (Drucker, 1987).

Ultimately, as Tidd et al. (2005, p.30), "the truth is that, whatever the technological, social or market conditions involved, the key to creating - and maintaining - competitive advantage tends to belong to those organizations that innovate continuously". However, it should be noted that there are significant differences in the way large organizations innovate compared to their smaller counterparts, particularly Micro and Small Enterprises (MSE). Large organizations may have large resources invested in Research and Development (R&D) or market research, which is almost impossible for MSE because of their financial fragility and strong competitive pressure from the globalization of markets. While large organizations are able to develop large-scale innovations, MSE often adopt innovation strategies through the acquisition of technology (Tidd, Bessant & Pavitt, 2005).

Another important finding concerns the environment in which organizations are inserted, as referred to in the Oslo Manual (OCDE & FINEP, 2005), since innovation in developed countries is more likely to be successful, as these countries have regional environments which provide companies with access to the sources of knowledge they need, as well as broad access to the main global knowledge bases, which for developing countries are restricted, as well as having important market failures, such as economies of scale, few R&D, resources and structural factors such as macroeconomic uncertainty, political instability, lack of physical infrastructures and other exogenous systemic conditions that minimize the ability of companies to innovate.

Given the importance attributed to innovation, this paper has as its main objective to present a conceptual model for the investigation of innovation in Micro and Small Companies, considered as the key to obtain competitive advantages, generating positive results both for the companies involved in the innovation process and for the economy as a whole.

Besides this brief introduction, the paper is structured in four points. The following is the framework of the study, where the main concepts that guided the investigation are explained. Subsequently the conceptual model and the hypotheses of investigation

are presented, being this the core of this paper. This research is finished with the presentation of the methodology to be used and the potential contributions of the same.

## **Theoretical Framework**

### *Concepts of Innovation*

Reichert et al. (2015) postulate that innovation is the result of the capacity of companies, taking into account the technological and market patterns in each branch of activity, of absorbing, adapting and transforming knowledge into technology and this into operational, managerial routines and commercial practices that lead companies to achieve superior performance, in keeping with Drucker's (1987) thinking that innovation is action that provides the resources of a new capacity to create wealth. In the words of Drucker (1987, p. 42), "Innovation creates, in fact, the resource. A resource is something that doesn't exist until man discovers a use for something existing in nature, and thereby endowing it with an economic value".

Schumpeter (1997), considered by some authors (e.g., Titu et al., 2015, Bayarçelik et al., 2014, Tidd et al., 2005) as a pioneer in innovation studies, states that innovation would be a spontaneous and discontinuous change in the flow channels, disturbance of equilibrium, which forever changes and shifts the pre-existing state of equilibrium, a new combination of elements in the economic system, a "creative destruction", as the result of this combination would break with the existing standards giving rise to new standards that would be followed by all the economic agents who could adapt to the new circumstances. It is a dynamic process in which new technologies replace old ones.

For OCDE and FINEP (2005) innovation can be understood as the implementation of a new or significantly improved product (product or service), or a process, or a new marketing method, or a new organizational business practices, the organization of the workplace or in external relations. The minimum requirement for defining an innovation is that the product, process, marketing method, or organizational are new (or significantly improved) for the company. This includes products, processes and methods that companies are the pioneers to develop and those that have been adopted by other companies or organizations (OCDE & FINEP, 2005).

### *Innovation and Competitive Advantage*

The concept of competitive advantage is related to any characteristic of the company that differentiates it from the others, placing it in a position of relative superiority to compete. Martín and López (2007), explain that a competitive advantage must meet three criteria, must be related to a key factor of success in the market, must be substantial enough to give the company a differential and be sustainable in the face of changes in the environment. Although in the long run none is totally free from attacks by competitors.

In today's economy, which is considered to be a knowledge-intensive economy, innovation management is becoming one of the main drivers of change and gaining competitive advantage (Apak and Atay, 2014).

Thus, given the current competitive conditions in the markets, the only form of competitive advantage is continuous innovation at a faster pace than rival organizations (Toivonen, 2015).

Rusu (2016, pp.166-167) states that “successful companies to survive and thrive introduce innovations that generate change within companies by implementing processes that have consequences on their business model enabling profit generation”.

It's clear that the company of the present century is operating in an increasingly globalized environment, and that resources and capabilities and innovation should be considered as key elements in the strategy and in the maintenance and development of competitive advantages (Molano and Campo, 2014). For Seo and Chae (2016, p.708), “the business world harbours a number of threats and uncertainties requiring a high degree of innovation as a factor of success. A strong degree of innovation can cover several risks when facing the market”.

Specifically, innovation means efforts by companies to create economic value for consumers by positively increasing the difference between the perceived value of consumers and the economic costs incurred by companies. Companies will have a competitive advantage when they can create marginal economic value greater than their competitors. Thus, innovation can be a source of competitive advantage (Hamdani and Wirawan, 2012).

The competitiveness of a company in the market depends on the ability to “capture the market” using ideas and marketing innovation through business relationships.

In this way, the competitiveness of the markets demands of the companies an innovative position, especially in what concerns the marketing (Gupta et al., 2016).

### *Innovation in Micro and Small Enterprises.*

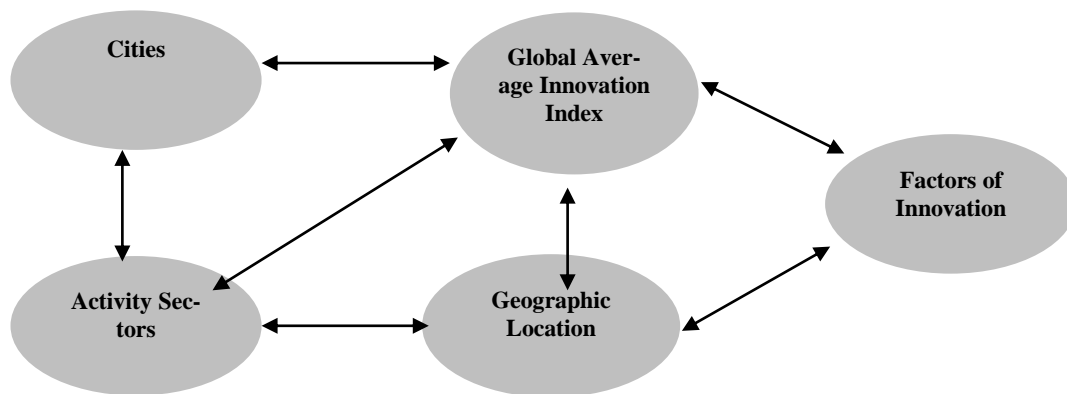
Innovation and the development of innovative capabilities in MSE entails a number of difficulties, as Rovere (2001, p.22) states “the innovative capacity of MSE depends on several factors related to the organization of the sector and the system of innovations in which they meet”. Paula (2014) says that for MSE it's possible to notice a greater difficulty in the innovation process, because they have less access to sources of information on technologies and sources of financing, complemented by the lack of resources, few or non-existent investments in Research and Development (R&D), strong dependence on technology acquisition (Machinery and equipment) and limited managerial capacities (Demonel and Marx, 2015, Reichert et al., 2015, Taborda et al., 2013), which leads them to operate with equipment and technologically outdated facilities, carrying out low investment in Research and Development, being slow and reluctant to adopt managerial and organizational innovations (Rodrigues, 2003).

Pereira et al. (2009) argue that, even though MSE have difficulties in assimilating managerial professionalization, precarious levels of control, financial problems such as lack of working capital and incipient knowledge of the market in which they operate, most MSE entrepreneurs associate innovation less with the differentiated elaboration of products and services and more as a business model.

As a result of this context, innovation in MSE presents itself as the result of simple actions, in some cases with its own development, acquisitions of new equipment, adoption of innovation management practices and, usually, incremental innovations, presenting as an alternative types of advantages, resulting from attributes such as quality, processes, offer of new products that promote the differentiation of the organization, since they have particularities that are presented as sources of competitive advantage when compared to large companies. They usually have a leaner and more flexible organizational structure, placing them in closer contact with their clients, as well as carrying out activities with low capital intensity and high labour intensity, which can lead to differentiated production conditions (Rodrigues, 2003; Paula, 2014).

### *Conceptual Model and Research Hypotheses*

The Figure 1 presents the conceptual research model proposed to evaluate how innovation presents itself in MSE. The proposed model was developed based on recommendations of the Oslo Manual (OCDE & FINEP, 2005), considering innovation as a



system of interactions and interdependencies.

Figure 1-Research Model.

The justification of the model is based on Skibinski and Sipa (2015). They claim that MSE because they have limited internal resources should make use of external knowledge sources. In this way, the ability to exploit and use the knowledge that comes from abroad becomes a key element and predictor of successful innovation, which makes the environment in which they are located and the development of appropriate tools to exploit it. The general and classic models of innovation presented by Rothwell (1994) define innovation as a set of processes that should be undertaken by the organizations in isolation for the development of innovations, especially in the development of new products. Recent models of innovation such as Cooper (1988), Khurana and Rhosental (1997), Koen et al. (2001), Flynn et al. (2003), Boeddrich (2004), Reid and Brentani (2004), Wihtney (2007), Brem and Voigt (2009) and Kurkkio et al. (2011), besides being strictly theoretical, focused on large companies and on processes that companies must undertake in isolation, they also emphasize the development of products to the detriment of the development of other types of innovation, such as services, processes, marketing and organizational. The theoretical model presented in this paper differs from the models listed by (i) being a model that seeks to investigate how the degree of innovation is configured to the detriment of the business environment, having a



more comprehensive perspective than the company object alone, as is the case with the abovementioned models; (ii) to characterize itself as a suitable model for the investigation of innovation in Micro and Small Enterprises by presenting a system of interactions between Micro and Small Enterprises and their business environments, thus enabling the investigation of the degree of innovation according to location geographical; (iii) to provide information on Micro and Small Enterprises innovation in a global way, not limited solely to the development of products.

Accordingly, with the main objective of testing the conceptual model presented in Figure 1, the following research hypotheses are established:

H<sub>1</sub>: The Micro and Small Enterprises of the State of Piauí present themselves as little innovative.

The conceptual framework of the research hypothesis 1 is based on Demonel and Marx, (2015); Reichert et al. (2015) and Taborda et al. (2013), because they say that innovation in MSE entails greater difficulties related to lack of resources, scarce or nonexistent investments in Research and Development (R&D), strong dependence on technology acquisition (Machinery and equipment) and limited managerial capacities. Nevertheless, in developing countries (DC), as Rojas and Carrillo (2014) point out, market failures such as imperfect competition, externalities and information asymmetries have a negative impact on companies' capacity for innovation, that they assume defensive and merely reactive strategies.

H<sub>2</sub>: Innovation in Micro and Small Enterprises in the State of Piauí presents itself differently due to its business environments (geographical location and sectors of activity).

H<sub>2.1</sub>: The Global Average Innovation Index is different for cities;

H<sub>2.2</sub>: The Global Average Innovation Index is different for the activity segments;

H<sub>2.3</sub>: The Global Average Innovation Index is different for geographic location.

The conceptual framework of the research hypothesis 2 is based on Aarstad et al. (2016), since they point to the geographic environment as an important factor influencing growth, profits and business development, including survival and innovation performance. In this sense, as established by Skibinski and Sipa (2015), innovation in MSE may be associated with its ability to explore and use the knowledge that comes from its environment.

H3: The determinants of innovation are different for MSEs in the interior and capital.

The Oslo Manual (OCDE & FINEP, 2005), which is a reference in innovation studies, presents a general framework for measuring innovation, analyzing the company and its interactions with a number of factors, such as the infra - structure and institutional structure, interactions with other companies, with universities and research institutes and with consumers. Accordingly, the research hypothesis 3 is based on the premise that the innovation factors for the MSE in the interior and in the capital are different due to differences in the level of the interactions of the MSE with the factors listed.

### *Methodology*

The data collection instrument shall be a questionnaire survey. The instrument is composed of 32 items that evaluate 13 dimensions of the innovation, resulting from an adaptation made by Bachmann (2011) for application in MSE of the Innovation Radar, Sawhney, Wolcott and Arroniz (2006), originally constituted of 12 (Twelve) dimensions. The innovation dimensions assessed by the Innovation Radar are: (1) Supply; (2) Platform; (3) Brand; (4) Customers; (5) Solutions; (6) Relationship; (7) Value Aggregation; (8) Processes; (9) Organization; (10) Supply Chain; (11) Presence; (12) Network and (13) Innovative Environment.

The study will be conducted with a sample of Micro and Small Enterprises of the State of Piauí, Brazil, during the month of September 2017. For the treatment, analysis and interpretation of the data will be used the software SPSS Statistics in its version 22 and Numbers in Version 3.1. The statistical techniques used will be descriptive, exploratory and inferential, to describe, analyze and interpret the behavior of the attributes under study, mainly the calculation of the Global Average Innovation Index (GAI),

which will be obtained by means of the arithmetic mean of the 13 Dimensions of the Radar of Innovation (Equation 1), as well as multivariate statistical techniques, such as an Exploratory Factor Analysis, to identify the explanatory factors of GAI for the MSE in the interior and capital.

$$GAI = \frac{1}{n} \sum_{i=1}^n X_i$$

[1]

At where,

$n$ , corresponds to the number of independent variables of the Innovation Radar;

$X_i$ , corresponds to the independent variables of the Innovation Radar ( $i = 1, \dots, 13$ )

### *Research Contributions*

Like Hamdani and Wirawan (2012) and Rocha (2012), it is believed that Micro, Small and Medium Enterprises, besides contributing significantly to the economy are better able to survive in a turbulent environment than the big companies, given their flexibility and adaptability to change, and that in addition, because they are normally labor-intensive, supporting job creation, they are a great possibility for improving the living conditions of the poorest people, therefore, it is indispensable to provide a favorable business environment for them.

This research will make an important contribution by providing rich and detailed information on how MSE innovate, in line with the recommendations of the Oslo Manual (OCDE & FINEP, 2005), which determines that in developing countries, such as Brazil, it is more pertinent to study innovation activities than innovation itself, since, in this way, it will be possible to provide subsidies for the formulation of innovation policies, in addition to obstacles and incentives for innovation that can play a significant role in this context.

Nevertheless, in addition to the identification of innovation factors for MSE located in the interior and in the capital and its relation to global innovation, the results to be

obtained will make an important practical contribution to the management and monitoring of innovation in Micro and Small Business in a given region for presenting an indicator that reflects how much innovation is present, serving as a parameter for potential improvements both by companies and by the public power.

As theoretical contributions, the presented model will lead to useful and systematic information on the way in which innovation presents itself in Micro and Small Enterprises in a global way due to its business environments, and can thus be useful as a model that serves as a parameter for the improvement of innovation through public policies aimed at improving the business environment that increase the degree of innovation of the companies that constitute it. Possible public policies are the establishment of partnerships with universities and local research institutes, with a view to obtaining the necessary resources for innovation, the formation of innovation networks between Micro and Small Enterprises and financial subsidies by the government for companies that join the innovation networks.

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