

IDENTIFYING THE INCIDENCE OF OPEN INNOVATION IN SMEs

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ABSTRACT

The open innovation has been studied mainly by large corporations. This work investigates whether open innovation practices are applied in small and medium corporations (SMEs). Based on a study model of open innovation, we seek to identify its impact on SMEs. The research focuses on the reasons and noticed challenges when small and medium-sized corporations adopt open innovation practices. Among the organizations surveyed, it was observed that the open innovation practices have more space within these institutions. The study found new variables that can be used within the open innovation and not addressed in the proposed model. There are significant challenges to be overcome as regards the study of open innovation within SMEs.

Keywords: *Open innovation; Small enterprises; Medium enterprises; SMEs; Variables.*

1. INTRODUCTION

The constant consumer behavior changes, linked to the collection in the quality of services provided by the organizations, and the need to add larger scale of values and possible benefits to customers, can generate a pressure on companies to allow them to innovate (Veiga-Neto, Christo, 2012). The adoption of innovative actions can reflect on improving the competitiveness of the market organizations. Innovation can be configured as a process of evolution, which can include various stages of the business, such as financial, cultural, and administrative aspects (Chesbrough, 2006). Various innovation models have been proposed in the literature; Among these, one can be cited by the model of open innovation (“Open Innovation”), which according Gassmann, Enkel and Chesbrough (2009), is treated as a new paradigm for the management of innovation. This model adheres to the intentional use of inputs and outputs of knowledge, in order to accelerate the innovation process within one or more organizations, comprising both from the outside and from the inside out transaction technologies and ideas (Chesbrough, 2012).

Open innovation has increased more and more its popularity in scientific research, but so far has been observed by large corporations, companies that have the power of high technology (Vrande, Rochemont, et al., 2009). Few studies have demonstrated that there is open innovation in smaller organizations. Where large samples of small organizations are explored, the research is focused on specific issues, rather than the complete model of open innovation (Chesbrough, 2006). Lichtenthaler (2011) studies are some of the few who are facing empirical research in the incidence of open innovation in larger samples of companies, focusing their samples in medium and large European countries factories.

Regardless of the size of the organization, we see a need to seek in their structures an innovative vision with the intention of achieving competitive advantages (Dias, Veiga-Neto, Souza, 2013). This study aims to focus on how small and medium enterprises (SMEs) apply open innovation, using a qualitative research applied to SMEs in order to observe open innovation practices according to the model proposed by Chesbrough (2006), and for new variables that were not included in this model, which can be characterized as open innovation. For this, we developed a research roadmap is to be applied in different industrial organizations, services and trades retailers that are characterized as small or medium-sized. This study presents itself as one of the first to perform this type of research on open innovation applied to a sample of SMEs. We tried to see if open innovation is not only relevant for large high-tech organizations, but it can contribute a wider range of companies and businesses (Vrande, Rochemont, et al., 2009).

In this study, the second topic discusses innovation, comprising theoretical questions of open innovation and how it can be applied, or is being used by small and medium-sized businesses. Then develops the proposed research method, addressing how shall have the sample, universe and the research model, showing the variables that will be applied, if the proposals by the Chesbrough model (2006), as the data will be processed acquired in qualitative research, observing how they will be configured and applied in SMEs. In the fourth topic of the research the results will be presented, while the fifth topic seeks to complete the study, noting that there is an incidence of open innovation in SMEs, and seeks to identify different variables of open innovation, completing and discussing the limits and implications of this work.

2. INNOVATION

In times of globalization, deregulation, emergence of new technologies and e-commerce, noting the increased competition, all these factors can provide difficulties in the competition of an organization environment. In this environment, which shows dynamic and changeable, a way to generate growth and sustain performance can be found through innovation (Cottam et al., 2001). Innovation is presented as an important factor for long-term stability of generation, growth and return to shareholders, and sustainable performance and may place the organization in a privileged position in the market. One way to achieve growth and sustain performance may be through the promotion of incentives and internal creativity and innovation practices, taking place this within the organization. Of course, you can have a commitment from the administrative sector to facilitate this kind of innovative work environment.

The high level of competitiveness and market dynamics can challenge organizations to promote innovation in their methods and systems, and their services and products (Dias, 2012). One can understand innovation as an important component for the development and management of organizations in the current market context. This has resulted an evolution over the years. Schumpeter (1985) puts innovation as the center of capitalist dynamics within organizations. The discussion of this issue has become relevant. The high competitiveness in the market place and technological advances enable the adoption and deployment of innovation in organizational environments. A great stimulus to the development of research for innovation has emerged as a determining factor for the improvement of the results of the organizations and to improve their competitive positions.

Competitiveness demonstrates a stimulus to search advantages and offer superior value to customers. The focus on innovation may result in directing the actions for a competitive environment where innovation has had a leading role in research with marketing and strategy; its contribution and its impact on the competitiveness of organizations have played a major role in the literature (Christ, 2011). Its increasing value as a differential in the competition between organizations allows a perception, both in business atmosphere as in business plan, and may confer a privileged position to organizations. Innovations enable command a demand by the scope of competitive advantage, allowing ensure sustainability that can be gained in the medium to long term.

Ferraresi (2010) considers innovation as something that is part of marketing, from where it originated. Innovation is presented as an important component for an organization can attract new customers when a particular company can create an environment that promotes innovation and creativity, bringing them closer to consumers through inter-relationships between all sectors and functions the organization and importance attached to providing a higher value to the consumer. This strategy of action, market-oriented, can determine the actions of that organization through the adoption of new products and innovation policies.

Innovation can be a key strategic direction, which plays an important role in both the survival and prosperity of organizations of all sizes and sectors as Han, Pinsonneault, et al. (2012). An idea that prevailed in the late 90s was that the company should maintain its focus on internal efforts to develop innovations; this vision of internal creation of innovation presents weakened lately. For Iron (2010), the concept of work and to seek external sources of innovation has been heavily discussed by some of the fundamental schools of thought voted to

innovation in organizations, such as economics, sociology of innovation and disciplines in management. Chesbrough (2012) presents an application of innovative cooperation, within a vision of business models, tools and processes, in a language comprehensible to managers and entrepreneurs. This new model is known as open innovation.

2.1 Open Innovation

As Sisodiya, Johnson and Grégoire (2013), open innovation can be described as the intentional search for a company by integrating products and / or external services for the development of products and / or new services, presenting a new perspective on innovation. Pitassi and Bouzada (2011) advocate an increase in the effectiveness of research and development investments in panoramas of increasing costs and risks. The open innovation model has achieved a broad impact with the managers of large corporations in the developed world, engaged in research projects. Lately, this demand in favor of open innovation approached the executives of Brazilian organizations; however, as recommended by some scholars, some of the essential elements of open innovation are not new.

According to Gassmann, Enkel and Chesbrough (2009), three cases may differentiate the open innovation of others. These processes can be described as follows: the first is the process that starts from the outside in, and enriches the organization's knowledge base through interactions with customers, suppliers and external knowledge about their field. The second is the inverse process, the inside out; this, organizations gain profits by providing ideas to the market, selling information and knowledge, broadening their horizons by transferring ideas to the external environment. The organizations which make the process from the inside out as main activity have their focus on externalize their knowledge and innovation in order to bring ideas to market more quickly than it could get through the internal development of innovations. The third case concerns the collaboration between complementary partners through alliances, the main objective for the creation of open innovation, cooperation and collaboration, where organizations that provide, receive and share information make these obtain the fruits of this process. Organizations establish partnerships that combine the previous two processes: the process from the outside is carried out in order to acquire external knowledge, and the process from the inside out to provide and share ideas to market, developing and commercializing shared so open innovation. This process of cooperation is widely studied in the literature of open innovation.

For Chesbrough (2012) all views of open innovation processes generate the perception that remain open can be a stimulating factor for a number of innovations. Dahlander and Gann (2010) suggest that it is not clear that all organizations will have external partners. There are significant changes, the extent to which organizations embrace open innovation, and this degree of host changes, according to the appearance of external sources of innovation, as the maturity of technologies. The research could be favored gathering knowledge coming from external sources of innovation. Pitassi and Bouzada (2011), in their study, report that economists followers of this current cover up the idea that innovation is a systemic process, which proceeds from the company's interaction with a conglomerate of external agents. Also emphasize the importance of the ability of the internal compositions of R & D absorb information arising from external sources.

To Gassmann, Enkel and Chesbrough (2010), to establish a culture of values is essential to the practice of open innovation. This culture can be influenced by certain factors such as the principles of organization, management behaviors, such as standards of incentives, information and management systems, communications platforms, project decision insights on trial suppliers, among others. The relevance of these studies to Pitassi and Bouzada (2011), is not the fact that organizations have a connection with external partners, which provides the open innovation model the organizational nature of innovation. Relevant components of open innovation must be sought in organizational and institutional attributes research management and development, which may arise in response to intense transformations that are underway in the dynamics of the knowledge economy and world capitalism.

In pure tactics of open innovation, can be considered relevant research and development; it has the ability to absorb and develop solutions based on external information. In this context we can see many cases of organizations without internal structures of research and development, which have gained a recognized innovative success. Organizations such as Cisco, confirm that it is not necessary that the innovation process is acquired from internal form, so that an organization can take advantage of it (Lichtenthaler, 2011). From this premise, Baldaia (2013) shows that small and medium enterprises, mostly, have an active role in driving innovation and world economic development. It is understandable that its relevance has been hidden by the shadow of multinational large organizations; however, the advent of open innovation presents a new horizon for small and medium enterprises able to enjoy the benefits that the creation of new products and / or services can provide.

2.2 *Open Innovation in SMEs*

The fundamental premise of open innovation, according to Chesbrough (2003), is the opening and the consequent expansion of the innovation process. Chesbrough, Spohrer, et al. (2009) report that open innovation is up to date in studies focused on high-tech multinational organizations. To Chesbrough (2003), if we imagine such large organizations as large trees in a forest, faced around with small and medium-sized trees, small and medium enterprises can be considered (SMEs). Small and medium-sized trees (SMEs) that nourish the robust trees, large (large organizations), making possible the remarkable visibility of multinationals.

According to Lee, Park and Yoon (2010), although there is growing interest in open innovation, the discussion on the relevance and its potential use in the SME sector, was away from the literature. The debate on the implication of the size of the company and the effectiveness of the innovation is relevant to the question related to SMEs are treated. For Chesbrough (2003), SMEs need to adopt open innovation, especially relevant reasons the market, how to meet claims customers (in several large companies occasions), or to get markets compete with other competitors. To resist uneven competitive environment, SMEs face major obstacles that are manifested in organizational and cultural issues, in particular those arising from the need to deal with the significant growth of external organizations.

In consideration of open innovation, as Yang (2010), the responsibility is shared with innovation partners such as suppliers and even with possible organizations in that area of expertise. To Chesbrough (2003), one should be careful about how and when to happen to transfer knowledge across organizational boundaries. If knowledge is explicit, the difficulty can not be too large; But if knowledge is tacit, it becomes more complicated express, transfer and absorb. Tacit knowledge sharing can require an extended deadline for the enrichment of trusts, which can be essential to support any problem happens during the sharing.

Effective sharing of tacit knowledge, according to Chesbrough (2003), demand shared practices, and at that point the stakeholders should strive to achieve support the performance needs of challenges. Open innovation is pondering in many ways, all of them are based on the concept of knowledge exchange or external knowledge absorption. Maybe open innovation has begun through large organizations, able to understand the need for development; SMEs need to understand that their actions and focusing attention in this sense, can achieve significant results in their development.

To Vanhaverbeke (2012), several small organizations are confronted with adverse situations. This economic crisis may weaken the financial health of many SMEs, especially in sectors in which the products and / or low-cost foreign services enter the market, threatening the existence of small organizations. News related to government regulations may change a profitable business from night to day. Changes in market conditions may force smaller organizations to adapt their markets to new value propositions. One of the difficulties is that small businesses do not have internal, essential financial resources for training and internal expansion. These organizations need the assistance of external partners so they can innovate successfully developing new and diversified sources of income, getting more lucrative positions in the market. Open innovation can be considered a logical step for the success of many SMEs (Chesbrough, Spohrer, et al., 2009).

Chesbrough (2003) explains that SMEs need to be alert to the activities of large corporations, including where these require their actions, trying to make the most of their innovative potential. On the other hand, SMEs can, in partnership with other SMEs, combine efforts to meet their domestic needs, be it for local use or to satisfy the desires of large companies. The perception or awareness of the environment in which they are embedded brings to small organizations a competitive advantage in refining products and / or services to be provided to consumers by adding a not noticeable value to large organizations. This can occur by proximity to consumers that condition the transparent absorption of cultural attachments and needs of environments where they operate.

For Lee, Park and Yoon (2010), uncover the characteristics of SMEs, which are more likely to benefit from open innovation, it is necessary to put these organizations disadvantaged economically in a more competitive market position. Supporting himself on conjecture Chesbrough (2006) on aspects whose active use in the management of research and development in organizations admit individualize open innovation from other studies that emphasized the importance of external sources of knowledge, in the next section presents the framework with the open innovation variables to be considered in this study.

3. METHODS

3.1 *Search Type*

This is a qualitative research that aims to confirm and / or identify new open innovation variables, relying on the adapted model Chesbrough (2006). The use of qualitative technique is due to open innovation identification Within Answers acquired in SMEs, noting organizational behavior, correlating the model variables to the results.

3.2 Universe and Sample

We chose to use research, research, a universe of small and medium enterprises (SMEs), entrepreneurial people own the own business or managers of these organizations, in a non-probabilistic sample for convenience of access, that for Christ (2011) , comprises a non-random selection of elements of a population. The sample was drawn using twenty SMEs that are located in the Northeast, the states of Rio Grande do Norte, Paraíba, Pernambuco and Ceará, plus a SEBRAE-RN analyst. Were selected to answer the questionnaire as the accessibility of researchers. Those who had been chosen profile characteristics or experiences as business owners own directors or managers (managers, head of production and management, etc.) within the organization.

3.3 Study Variables

Table 1 shows the relationship of open innovation variables to be considered in this study, and were adapted from the model of Chesbrough (2006).

For a better comprehension of Tables 1 and 2: V stands for VARIABLES

TABLE 1: Open Innovation Variables

Variables	Explanation of Variables
V1 - Knowledge perception of the Environment	Perception of the technological environment as dispersed, relevant, quality and accessible. Organization removes the term "not innovate here," using technology competitive intelligence. Innovation can come and go at any stage of research and development. Participation in open knowledge community.
V2 - Weight Assigned to Knowledge Sources	Weight of external sources of knowledge on the internal sources. Integration position of technological systems and technological capabilities of networks in organizational culture.
V3 - Business Model influence on Research and Development	The business model adopted by the organization plays a central role in the way the company chooses transform technology goods and services, where the important thing is not the technology, but the customer value proposition.
V4 - Agility on Acquisitions	Quickly to effect and complete acquisitions of innovative technology-based organizations identified as opportunities.
V5 - Use of Partnerships	Ability to lead, participate and develop projects with external partners, lending credit quality and technical memory of projects made.
V6 - Mitigation Project Failures	According to their business model, organizations use procedures to mitigate both false negatives and false positives.
V7 - Importance of Knowledge Contractor	Proactive use of knowledge not directly related to the technologies themselves, translated in the financing of knowledge acquisitions arising from third party companies.
V8 - Intellectual Property	Research and development of proactive and integrated intellectual property, both in input and output of knowledge, allowing the organization to internally develop their innovations and technologies to the market performance.
V9 - Importance of Intermediaries	The new intermediaries have direct participation in the organization's innovation chain, performing important activities of research and development before kept internally.
V10 - Use of Information Technology	Field of information technology systems able to organize the flow of ideas in the organization and coordination of information, there is a constant concern for the codification of knowledge.
V11- Evaluation of Research and Development Performance	Organizations adopt metrics geared to joint research and development endeavors in the supply chain and commercial use of intellectual property generated by the organization itself.

3.4 Qualitative Research

According to Christo (2011), qualitative research can be useful when you want to look for aspects that can not be measured and observed directly, such as feelings, thoughts, intentions and behaviors arising from others. In order to verify and confirm the variables of the model Chesbrough (2006), a qualitative research was carried out and, from the content analysis, it was found that there are other variables that were not included in the model.

3.5 Instrument and Research Data Collection Qualitative

We designed a structured interview (research tool), twenty-two topics that were later used from the qualitative research technique and applied in twenty managers individuals of SMEs located in the northeast region, comprising the states of Rio Grande do Norte, Paraíba, Ceará and Pernambuco, and a SEBRAE-RN analyst. The questions addressed in the interview sought to identify the responses of the interviewees new variables not identified in the literature, trying to confirm those observed. Before the questions, the researcher presented concepts of open innovation, in order to place the respondent in the subject, so that it could contribute to inspiring your answers.

All topics were situated within the model proposed in this research study; the questions were related to open innovation variables proposed by the model Chesbrough (2006). We tried to find answers that would fit in the construct of the study model in this research. Individual interviews applied using qualitative research, has no policy characteristics, since, as Christo (2011), the respondent can have greater freedom of response following the parameters of the interviewer interest of subject, looking for does not influence the content of responses. Data collection for this phase took place by recording the audio recording of the answers of the interviewees, whose permission was acquired in advance.

3.6 Treatment of Qualitative Research Data

After the acquisition of the testimony of the participants of qualitative research, transcribed all the information recorded by audio recording. Later, we tried to identify amongst the respondents' answers, which had characteristics of new variables and that could be implemented to model Chesbrough (2006). Even though some statements out of the pattern of other interviewees, we sought to identify the relevance of the answers to the studied model. As Christo (2011), the analysis and the interpretation of the information is subjective, since the researcher can find something for convenience.

4. RESULTS

4.1 Characteristics of Respondents Content Analysis

All interview participants are entrepreneurs, owners or managers of SMEs, except for one SEBRAE-RN analyst, which was included in the interviews. Have 25-65 years, predominantly male, and only two of the respondents were female. All participants agreed to answer voluntarily to qualitative research and all responses were recorded from a mobile device with audio recorder, being acquired prior permission, before the interview execution.

4.2 Analysis of Qualitative Results

During investigation of the content from the qualitative research technique, open questions were asked, in open innovation model proposed by Chesbrough (2006), the first topic of the questionnaire in order to know a little about the organizations and what they produce. Most respondents showed in their answers a variable belonging to the model "Knowledge Perception Environment" (V1). As for topics related to what competitors bring new to the market, what is the opinion of the organization in this regard, in which field of activity there are new products and / or services and what is the opinion of the companies, similarities were found with the variable "Weight Assigned to Knowledge Sources" (V2).

Regarding variables "Business Model influence on Research and Development" (V3) and "Intellectual Property" (V8), when asked through the script on how to give research and development within their organization, in their line of business and their competitors, except for SEBRAE-RN analyst, all respondents confirmed there is no specific sector for research and development and thus creating innovations. A few respondents expressed interest in entering this sector within their organizations; however, claimed that the cost and the maintenance of such sector are the biggest obstacles. Remember that Lichtenthaler (2011) says that in open innovation pure tactics can be considered more relevant to the research and development, organization's ability to absorb and develop solutions from external information. To Baldaia (2013), open innovation is the best alternative for SMBs to procure competitive advantages.

All respondents answers were collected claiming that fit their realities, very quickly, the new products within their line of business, other companies are waiting a little longer to adopt such products, and we can see features present in the variable "Agility in Acquisitions" (V4). There were few, but there were organizations that have

adopted partnerships to create products; of these partner companies was cited SEBRAE-RN itself which, along with SMEs, created new products and / or services and had the occurrence, even timidly, the "Partnerships of Use" (V5) variable. One of the research topics address the issue of failure in creating a new product and / or service, and the measures adopted by the company. Most organizations claimed abandon the project; however, we found some instances of companies that can reverse or improve, turning it into something productive, and we have a timid instance variable "Mitigation Project Failures" (V6).

One of the interview topics directly addresses the hiring of outsourcing services to create new products and / or services, and the only effect in the form of partnership, not service contract, occurred in the SEBRAE-RN; this is said to have partnerships with SENAI-RN for creating courses and services, but not so contracted, signaling no implication of variables "Knowledge Importance Contractor" (V7) and "The importance of intermediaries" (V9). Regarding the use of information technology, part of the respondents signaled their relevance for the acquisition of new products and / or services; many cited also social networks as innovative source, noting the use of the variable "Use of Information Technology" (V10). Now, the variable "Performance Evaluation of Research and Development" (V11) was evaluated, although much of the surveyed companies have not demonstrated oriented sectors for research and development; but present and available to the market new products and / or services. It is contemplated in the script, which the priority that they have within the organization, quite varied responses being obtained, but can evaluate positively or negatively their efforts, and we can adapt these questions for the occurrence of this variable.

Variables were identified not found in the model Chesbrough (2006) as: "Customer Perception" (V12), as testimony of the respondent who says: "Our customers usually arrive with needs of their retail customers, giving a light to creation and innovation of new products," and several respondents cited the customer as the main innovative motivator. When asked in which companies they seek their innovations, most of the answers were directed towards the search for products and not companies, identifying the variable "Product Influence Base" (V13). In mitigation projects, some respondents reported that keep the projects so that base can be used for future projects, and one respondent states: "A product might not even revenge, the more it can serve as a future basis for a new product and may leverage a new project, something bigger." Then we come to the variable "Influence of Flawed Projects New Projects (V14).

It was quoted further that for the particular environment in which the organization operates may influence the creation of new products and / or services, featuring a new variable, "Peculiarities of Creation Process" (V15), we can observe in the report: "The SMEs at Seridó region have particularities regarding their management processes, and adapted solutions to these realities." Some organizations do not accept the fact that a product fails and expressed concern regarding the error correction and prevention. One company reported that: "If the creation of a new product fails, we take corrective action; based on the error, we worked a preventive measure." We note here the emergence of another variable, the "Influence of Corrective and Preventive Measures" (V16). Was cited also the participation of suppliers as motivating members to create new products. In one of the interviews it was said that: "The vendor has a new product, in this case, colored cotton yarn course, and it gave us an idea to create products using this new cotton yarn that does not take chemicals. Today this product is a success both in Brazil and outside the country. "

Identified thus a variable related to the participation of the supplier, which can be described as "Perception of Partner Supplier" (V17).

With the analysis of the results, it was confirmed many of the variables proposed in the model Chesbrough (2006), which reinforced its relevance in the application of open innovation in SMEs. The application of the analysis of the qualitative study also provided the identification of new variables that have been proposed in use, into the open innovation.

TABLE 2: New Insertion of Open Innovation variables after analysis of Qualitative Research

Variables	Explanation of Variables
V12 - Customer Perception	Perception that the client transmit in relation to his market vision. Innovation can come from customer demands and needs.
V13 - Base Product influence	The adopted base product for creating and adapting the new product has a central role in how the company makes or creates their products, which are important not technology or processes, but the base product.
V14 - Influence of Flawed Projects New Projects	The business model adopted by the company plays a key role in how this flawed files and projects can turn them into viable projects.

V15 - Particularities of Creation Process	Special features in the management and creation of a new product processes may be related to regional, organizational culture, or even the company members involved.
V16 - Influence of Corrective and Preventive Measures	The organization adopted by management model influences the way the company takes corrective action regarding a new project, and consequently how this works a preventative measure for future errors.
V17 - Perception of Partner Supplier	Suppliers as partners, can adapt their new products as raw material, recommending them to be used as a basis for new inventions.

Source: Elaborated by the present authors.

5. CONCLUSIONS

It was observed that open innovation has been used more frequently by large companies, but the open innovation practice in SMEs has been forgotten. This study addresses this gap by exploring the incidence of open innovation in SMEs. Based on the model proposed by Chesbrough (2006), used in an open script qualitative research applied to small and medium enterprises in the Northeast region, comprising the states of Rio Grande do Norte, Paraíba, Pernambuco and Ceará, in addition to the interview applied to a SEBRAE-RN analyst, we can conclude that SMEs, even if informally, practiced in their day to day open innovation through analysis of the results made based on the variables covered by the study Chesbrough (2006). These companies are practicing open innovation activities, seeking to improve this technique every day.

Open innovation is present in the daily business and does not apply only to multinational companies, but at a much larger group of small and medium enterprises. The results are in line with the recent research studies Vrande, Rochemont, et al. (2009) and the Lee, Park, et al. (2010), which include the open innovation practices in SMEs. Small and medium-sized companies often lack the resources to develop and market new products; as a result, are forced to work with other organizations, or may remain stagnant in the market. In this research, we found that SMEs analyzed do not hold sufficient resources to create research and development sectors (R & D), a result that is not surprising, given the limited resources of these companies; however, we note that this is not a limiting factor for new product innovation, when they can resort to open innovation.

It was identified in addition to the impact of the variables available in the model Chesbrough (2006), the emergence of other new variables, reaching the objective of this study, which is to identify the incidence of open innovation in SMEs using the variables of the model, and possibly, identify new variables that can be inserted in this construct. We can recognize, through qualitative research applied to SMEs, which they can apply open innovation through possible partnerships or methods to be used within their realities, and managed to innovate with the resources available to them.

It is recommended that for a further research should be done oriented to the validation and verification of the presence of the variables found in this study to detect from these an open innovation behavior. It is advisable for a future research regarding the model proposed by Chesbrough (2006), with the intention of seek further clarification of many aspects related to the behavior in open innovation. It can be searched the applicability of this model study with a larger number of SMEs, or even study largest companies in other regions, and analyze the degree of influence that this study may have on entrepreneurial behavior related to the use of open innovation comprising its relevance and which can affect directly in future studies of open innovation.

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