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COMPARATIVE ANALYSIS ON THE ADOPTION OF INNOVATION IN FURNITURE COMPANIES

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ABSTRACT



This study aimed to identify factors categorical adoption of innovation in three main groups: in products, processes and administrative procedures in a group of micro and small enterprises in the furniture sector, located in the middle western state of Santa Catarina. In particular, the study sought to compare the data of a survey conducted by SEBRAE (2009) observed the same factors present innovation in micro and small businesses scattered throughout the Brazilian territory, in order to compare the national stage for the adoption of innovation in relation the scenario presented by the companies studied in this research. Data collection took place by means of a questionnaire consisting of multiple choice closed questions related to the three aforementioned groups of innovation, which was answered by managers of the constituent companies of the group studied. As a result of this research, it was found that the adoption of innovation in product development is the most important aspect in the surveyed companies. It was also found that they seek to adopt the innovation with the objective of entering new markets. However, the main

difficulties in adopting innovation were identified lack of skilled labor, shortage and /

or lack of access to technology and financial difficulties. Compared to general adoption of innovation by micro and small enterprises studied by SEBRAE (2009), the studied firms have a tendency to develop in the same direction.

Keywords: Innovation; small and micro enterprises, furniture sector.

1. INTRODUCTION

Faced with the steadily increasing market demand for greater productivity, innovation value, competitive differentiation and better quality standards in production of goods and services, the scope of the parameters gets globalized so as the competitiveness in micro and small businesses, forcing them to increase in its structure for competitive strategies, adoption of innovation in products, processes and administrative systems, which encourage the development of its innovative power to obtain competitive success beyond the market differences by developing new products, processes and services.

Thus, there is a need in the evolutionary development of new skills and in internal organizations to generate competitive advantages, which include both the actions of generating innovation, quality in its products, and production flexibility especially in the case of micro and small businesses, where the advancement of these capabilities is through the development of new technologies to develop products, processes and administrative processes.

Relationated to the micro and small enterprises in Brazilian's furniture scene, the IBGE (Brazilian Institute of Geography and Statistics), shows that it is composed of approximately 13,500 micro, small and medium enterprises, which employs about 185,000 people. The IEMI (Institute of Industrial Studies and Marketing) (2009) estimates, however, that between formal and informal enterprises in the country, there are currently more than 50,000 units producing furniture.

The IEMI (2009) argues that furniture industries in Brazil have been seeking to improve their actual production capacity which has developed considerably and the quality of its products due to increased exports. The furniture industry is currently investing in the adaptation of design and technology upgrade through the adoption of innovation processes in developing their products, but also in their productive and administrative processes, seeking to meet the consumers in European countries, as well as the United States and the United Kingdom.

However, Silverio and Pegoraro (2010) argue that generally in the industries, there are only few companies that have formalized the process of innovation. This occurrence is partly because of their processes have diverse and complex characteristics that hinder their development, such as the dependence on a wide range of sources, ideas, innovative, knowledge and information which are acquired through interaction among the various organizational levels of the company, as well as the interaction for inter organizational information exchange, in the case of a horizontal network cooperation.

Thus, this research aimed to identify participants in the Center of the SMEs from ACIC from Concordia which belongs the furniture makers of Santa Catarina State, South-Brazil. The determining factors in the adoption of innovation in products, processes and administrative processes was compared with data obtained by SEBRAE (2009) which was compared with the SMEs questionnaire results in order to override the national stage for adoption of innovation in SMEs to the scene of the companies studied by this research.

2. METHODOLOGICAL PROCEDURES

Through a literature research, it was identified the constituent factors pertinent to the three groups of innovations cited by Andreassi (2007), Ferreira et al. (2008); Sonaglio Marion and Son (2010), particularly from micro and small enterprises. Besides this, we identified these same factors in a survey conducted by SEBRAE (2009), which describes the scenario of SMEs innovative sprayed throughout Brazil scenario.

On this basis, an empirical research was conducted through a structured questionnaire composed of multiple choice closed questions, consistent with the factors of the innovations groups mentioned. This questionnaire was divided into three blocks: Innovative initiatives, innovation and factors, constraints to adoption of the constituent factors of the three innovations groups mentioned.

The population of this empirical research is the core of the ACIC Furniture makers of Concordia, which is incorporated into AMOESC - Furniture Association of the West of Santa Catarina, carrying out the joint and coordinated trade union, employers, strategic and operating in the furniture industries from West of Santa Catarina State. This center currently has 12 companies, which are distributed in the

cities of Peritiba, Concordia, Arabutã and Seara, all located in the middle west of Santa Catarina and engaged in the custom furniture industry.

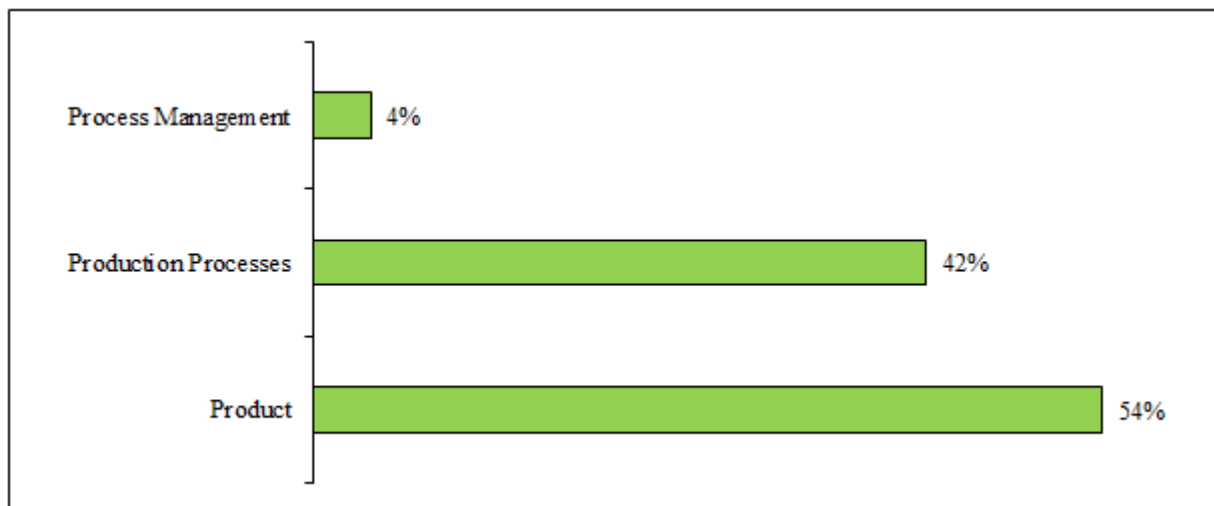
Thus, the data collection took place during a monthly meeting held by the group of companies and safeguarded by ACIC, which brought together managers from 12 companies participating of the core, and these were the respondents.

After the data collected in the SMEs of the ACIC (Furniture Center of Concordia) the answers were compared to data obtained from the study realized from SEBRAE (2009), in relation to the adoption of the constituent factors of the three groups of innovations cited by Andreassi (2007), Ferreira et al (2008); Sonaglio Marion and Son (2010) cited in the blocks and framed.

3. RESULTS AND DISCUSSION

3.1. Innovative initiatives

Initially we identified which of the three groups of innovations cited by Andreassi (2007), Ferreira et al. (2008); Sonaglio Marion and Son (2010) from the core sector of furniture companies studied have more activity, the data is shown in (Graphic 1).



Graphic 1 – In which innovation group the company has more innovative initiatives?
 Source: Research data (2011)

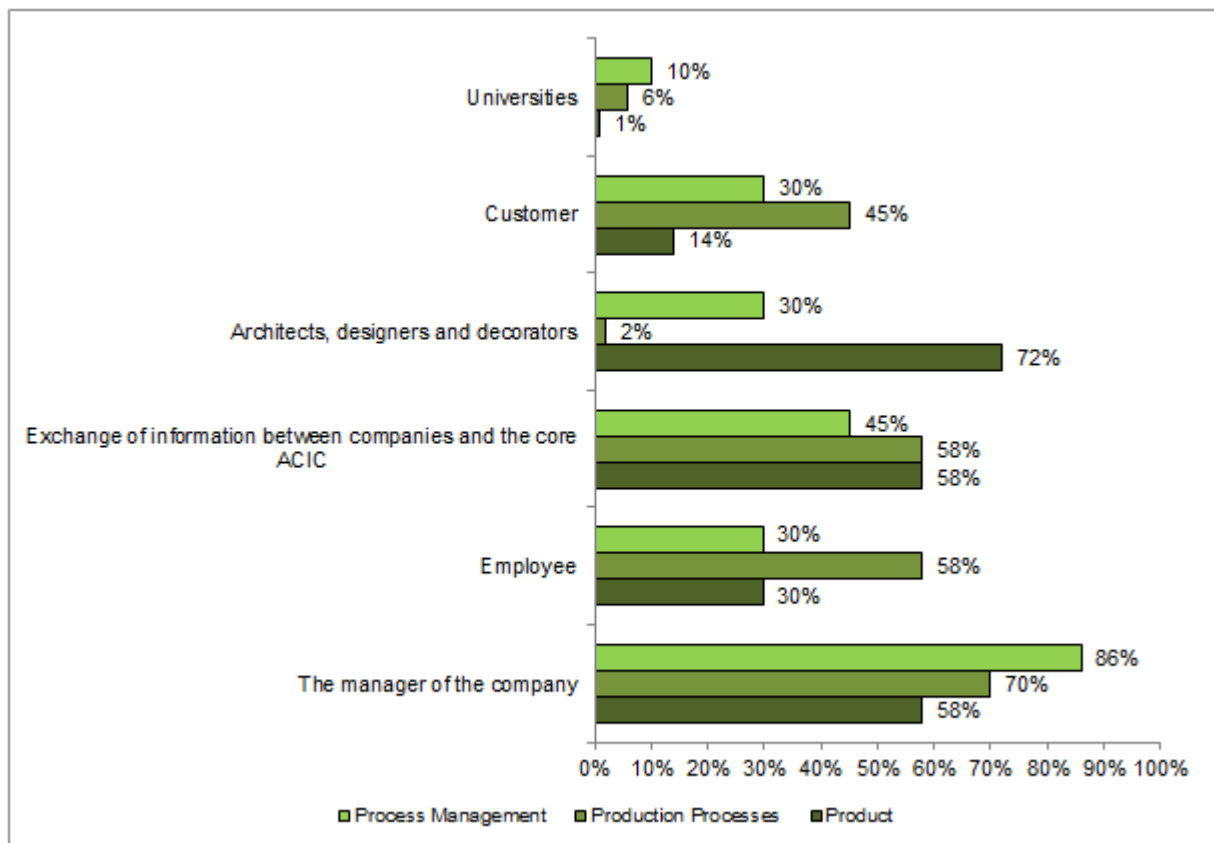
It was found that the highest concentration of innovative activities are focused on the product (54%). This finding is based on the need for these companies to maintain a constant process of evolutionary development and differential offered in their products. Thus adding more exclusive, differential structural and aesthetic. These differentials are generating aspects of the driving force direct confrontation

with the major manufacturers of custom furniture, which are considered direct competition to the Center of the furniture.

With the production processes (42%), the actions directed seek for innovative alternatives that add value to products, reflecting an increase in its final quality. From this, innovation in production processes becomes an enabler for reducing costs through increased productivity.

With regard to innovation in administrative (4%), there is a constant monitoring of the managers of core businesses in relation to new proposals and administrative arrangements applicable to mold the business. With this goal, the development of innovation in the other two innovative groups is satisfactorily sustained.

Given this scope, and based on the fact that innovation often part of the generation, discussion and development of ideas, which we identified as the main potential sources of innovative ideas among the three groups discussed innovations, and these data is shown in (Graphic 2).



Graphic 2 – Potential fonts for innovative ideas
Source: Research data (2011)

It was verified that the largest potential source of innovative ideas for products come from professionals in architecture and product development (72%). Since the manufactured products by the Center projects are unique, the process for the development of customized products follows the specific needs and desires of customers, not making use of models and therefore pre-structured process of product development.

The potential sources of innovative subsequent ideas, both representing 58% of quotes. These are generated from the monthly meetings of the Furniture Center, through the exchange of experiences and technical information between corporative managers, in order to generate solutions and differentiated products offered by them.

Related to the corporative managers as sources of potential generation of innovative ideas, the finding is translated by the most of the activities of which are centered on the manager in charge of micro and small enterprises. Thus, the manager also becomes a key part in generating ideas for potential products.

Tangent to the potential generation of innovative ideas for processes, the results show that fundamentally depart from the managers of these companies (86%). These findings are based on the experience and knowledge that these managers have faced to production processes. Besides this, it was contacted that employees are one of the most significant potential sources of generation of innovative ideas for production processes (58%).

The potential for generating innovative ideas in administrative proceedings, are controverting of update actions and / or incremental innovations, which features a parallel monitoring of the evolution of administrative existing models and are constantly evolving as mentioned by Marion and Son Sonaglio (2010). Thus, the main potential source of innovative ideas for administrative processes comes from the managers of companies (86%), which is primarily responsible for the administrative sector.

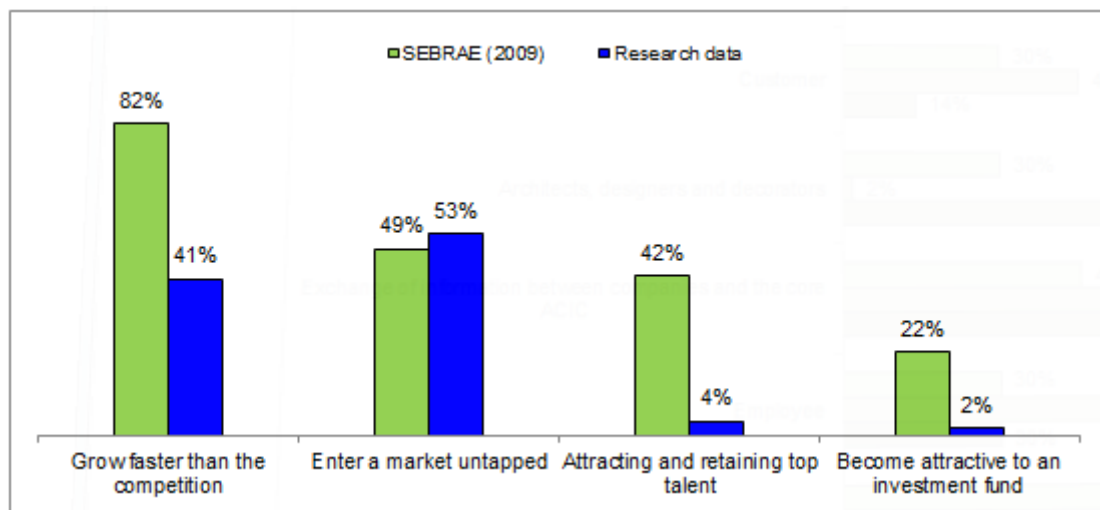
As important as the potential generation of innovative ideas for the three groups of innovations cited by Andreassi (2007), Ferreira et al. (2008); Sonaglio Marion and Son (2010), is the understanding of why innovate, that is, the objectives for which the core sector companies studied furniture seeking to achieve through the

adoption of innovation compared to the goals pursued by the SMEs surveyed by SEBRAE (2009). This discussion is presented in Section 4.2 of this research.

3.2. Comparative study of the factors of innovation

According to the collected data from Brazilian SMEs surveyed by SEBRAE (2009), the importance attributed to an adoption of innovation is mostly linked to the objective of growth ahead of competition (82%) With the objective of structuring and consolidation of an innovative business in the three groups of innovations (products, processes and administrative processes).

Compared to data collected by SEBRAE (2009), it was asked to the managers of the companies which forming the core of the ACIC furniture makers about the importance of these same factors in the adoption of innovation in their companies, obtaining the results shown by the (Graphic 3).



Graphic 3 – Why innovate is important?
 Source: The authors

Through the data shown in (Graphic 3), it's possible to compare and see clearly that the core companies studied have a trend line, containing a difference of 4 (four) percentage points to data SEBRAE (2009), in relation to the insertion in factor markets unexplored (53%) through the adoption of innovation in one or more of the three groups ranked by Andreassi (2007), Ferreira et al. (2008); Sonaglio Marion and Son (2010). However, it was diagnosed a misalignment between the two groups of companies surveyed in factor linked to growth faster than the competition.

This condition, often in response of 41% for companies in the Furniture Center of the ACIC and 82% for firms studied by SEBRAE (2009), taking place on the

grounds that the core companies studied operate in a network of horizontal cooperation. Taking this as their fundamental purpose of performance inter-companies cooperation. That means that the companies in the Furniture Center of ACIC are looking through cooperative action to expand their operations in new and larger markets, such as internationally.

The fact cooperate dampens rivalry generated by this competition, converting it into inter firm trust and reciprocity, thereby promoting the evolutionary development of competitive firms in a joint core, thus giving the basis for them to achieve their common goal of expanding market.

The second most often factor (41%), is the external competition in the businesses core, by the companies which are not pertinent from the core businesses groups. But these are considered by their managers when questioned as direct competition, thus supporting the second highest frequency of responses in growth factor faster than the competition.

Among this, are the two factors with greater frequency responses (Graphic 3) which become cornerstones for the survival of this group of companies in its segment, with the adoption of innovation as the key factor of competitive differentiation, hence of its development evolution.

Within this context, Pereira et al. (2009) makes the determination of SMEs to innovate, they are simultaneously improving its positioning in terms of competitive advantage over the competition, fostering and perpetuating the longevity of the business. Still, the adoption of innovation is seen by the author as a measure of success, since it is the skill that the company has to survive in the market. Thus, the company acquires the ability to be self-perpetuating, which is directly linked to the ability of these companies continues the search for innovations with the goal of meeting the new and exacting demands.

In the same proportion as the importance of setting objectives to innovate, is the process of adoption and / or operationalization of these ideas. However, for this it was found a series of restrictions. Because of that, the group of companies asked, answered that the major constraints encountered at the time of adoption of innovations in at least one of the three groups mentioned, and the data collected was

compared to those collected in the SMEs surveyed by SEBRAE (2009). These data and their comparisons are discussed in section 4.3 of this research.

3.3. Comparative study of restrictions on adoption of innovation

Initially, the research made from SEBRAE (2009) sought to identify which of the three groups of innovations cited by Andreassi (2007), Ferreira et al. (2008); Sonaglio Marion and Son (2010) is considered critical in the adoption of the Brazilian innovation in SMEs, and the group of organizational innovations and/or administrative proceedings was diagnosed as the most critical.

According to research, this finding is directly related to the centralization of the administration that exists in Brazilian SMEs about the managers which, in most cases, is also the owner of the company. This feature makes the way the company acts organizationally, and is very similar to the way of particular job of the manager.

In this context, it was diagnosed that the professionalization of management has proven to be a critical constraint in organizational innovation process of the Brazilian SMEs. This finding assumes that these managers do not have a very advanced academic training, reaching the maximum average degree of schooling, with low regard to the university level.

Based on this identification, we diagnosed a number of constraints that hinder the implementation of innovative actions, both in organizational processes, and in processes of innovation in products and in innovation in Brazilian production from SMEs. Such restrictions are listed in (Table 1) and classified, as their level of criticality on innovative actions.

Tabela 1 – Difficulty companies causes

Categories / Causes	Ranking	Nº	Restrictions	Answers (%)
Fault Management	1º	1	Lack of working capital	42%
	3º	2	Financial problems	21%
	8º	3	Point / inappropriate location	8%
	9º	4	Lack of knowledge management	7%
Economic causes and cyclical	2º	5	Lack of customers	25%
	4º	6	Defaulted	16%
	6º	7	Country's economic recession	14%
Operational Logistics	12º	8	Inadequate facilities	3%
	11º	9	Lack of skilled labor	5%

Public policies and legal framework	5º	10	Lack of bank credit	14%
	10º	11	Problems with monitoring	6%
	13º	12	High tax burden	1%

Source: SEBRAE (2009)

Based on (Table 1), we have sought to identify the group of companies which forming the core of the ACIC Furniture of Concordia, which due to the restrictions outlined by SEBRAE(2009) are present when seeking to innovate in any one of three groups of innovations. The results are elucidated in (Table 2).

Table 2 - Causes of the restrictions cited by the companies studied

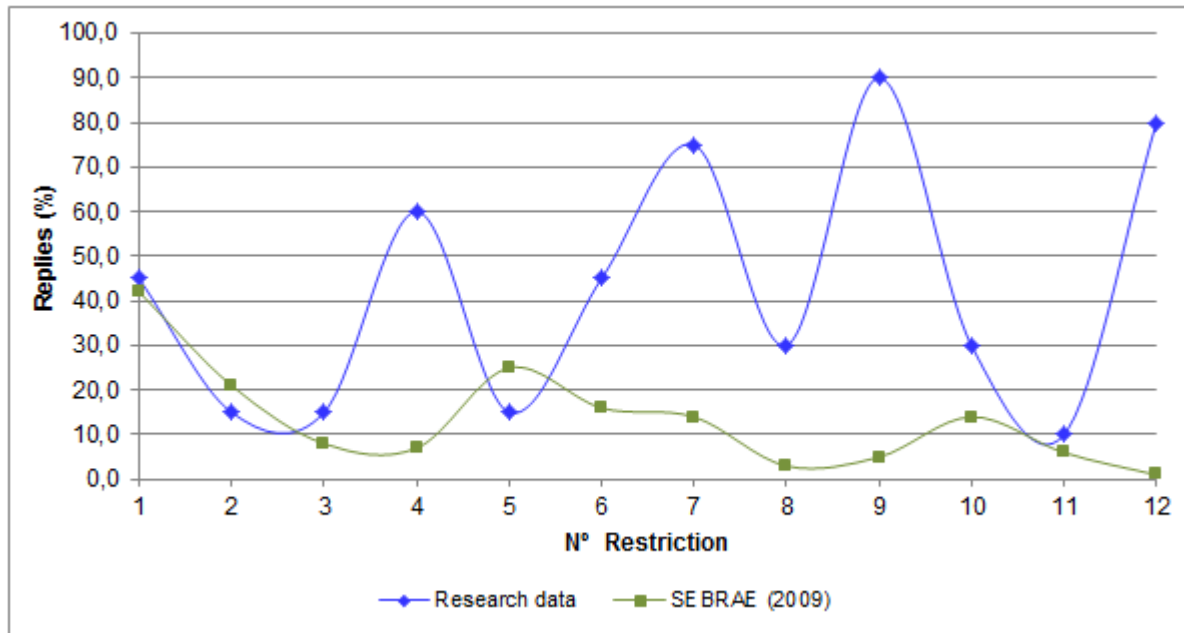
Categories / Causes	Nº	Restrictions
Fault Management	1	Lack of working capital 45%
	2	Financial problems 15%
	3	Point / inappropriate location 15%
	4	Lack of knowledge management 60%
Economic causes and cyclical	5	Lack of customers 15%
	6	Defaulted 45%
	7	Country's economic recession 75%
Operational Logistics	8	Inadequate facilities 30%
	9	Lack of skilled labor 90%
Public policies and legal framework	10	Lack of bank credit 30%
	11	Problems with monitoring 10%
	12	High tax burden 80%

Source: Survey data (2011)

From these data, it is possible to compare the company's answers from the core of the ACIC - Furniture Concordia which has demonstrated the same restrictions in relation to SMEs surveyed by SEBRAE (2009). To elucidate this comparison, it was generated the (Graphic 4), which is based on the data presented in (Table 1 and Table2).

As can be seen in (Graphic 4) there are spines of differences. The first concerns the restriction (lack of management knowledge, 60%), and the evidence is clearly justified by the fact of low educational background of managers of the companies studied. Thus, it is observable that the lack present in knowledge management highlighted by SEBRAE (2009) reflects more strongly in the companies studied. This occurs through the strong relationship between the decision-making

process and the difficulty of professional management, where both problems fall into the academic deficiency.



Graphic 4 – Empiric data comparison between SEBRAE (2009) X researched companies

Source: The author

General Note: figures for the X axis of Figure 4 we have: 1 - Lack of working capital; 2 - financial problems; 3 - Point / inappropriate location; 4 - Lack of knowledge management; 5 - Lack of customers; 6 - Delinquent, 7 - the country's economic recession, 8 - inadequate facilities; 9 - Lack of skilled labor; 10 - Lack of bank credit; 11 - Problems with the control, 12 - high tax burden.

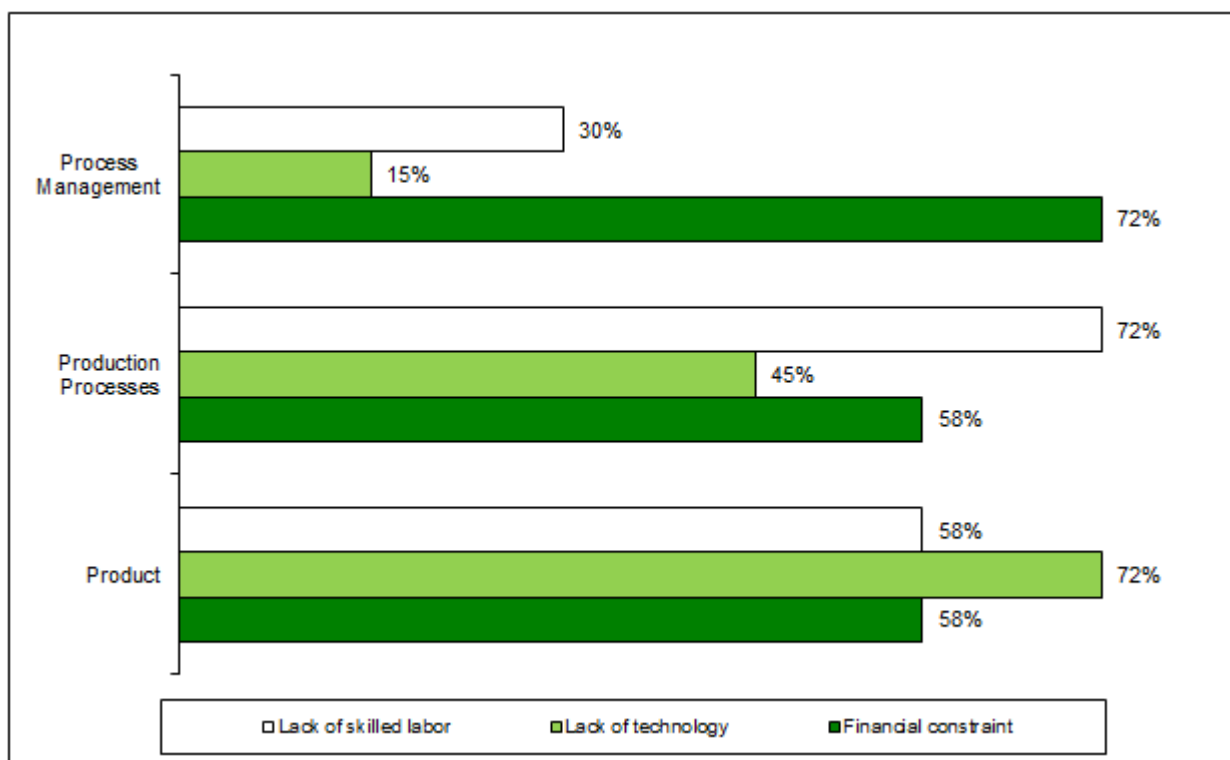
The second divergent thorns, is the constraint No. 7 (the country's economic recession, 75%). Considering the constant oscillation of this factor, it is justified by the economy aculeus floating around the valuation of inputs and raw materials arranged in a country where the managers of the Furniture Center considering the situation of recession, generating a potential cause and permanent difficulties with regard to its market performance.

The third aculeus being controversial restriction No. 9 (lack of skilled labor, 90%). This is due to the lack of human resources specialized in furniture. Besides this, companies do not have the core of financial resources available to support and invest in training units specialized in the furniture industry.

Finally, the fourth aculeus refers to the aspect of constraint # 12 (high taxes, 80%). This was widely cited by the companies studied, because of the wide variety of raw materials and components to the furniture industry uses in its products. This makes the tax burden for companies to become very buoyant. This restriction has been considered by the Center for Furniture and studied by SMEs by SEBRAE (2009), as a major constraining factor in the adoption of innovation for companies that mold.

Given this context, the comparison of data collected by the Center for Furniture studied in relation to data SEBRAE (2009), except the divergent spines identified, follow the same trends. You can then point out that the SMEs studied and face it in a balanced proportion, with the same restrictions of the adoption of other innovations that SMEs which were studied by SEBRAE (2009).

However, in relation of the adoption and/or operationalization of potential innovations in at least one of the three groups of innovations cited by Andreassi (2007), Ferreira et al. (2008); Sonaglio Marion and Son (2010), companies in the Furniture Center of ACIC, which showed three restrictions are regarded as the most difficult of resolution (Graphic 5).



Graphic 5 – Restrictions in innovation of adoption/operations

Source: Research data (2011)

Observing the data collected, it has to be a major constraint in adopting and/or operate a product innovation for the lack of technology (72%). This restriction interferes directly with the ability to value assignment on manufactured products as well as difficulty in meeting the demand in terms of satisfaction on the desire to meet the customer about the product ordered. This fact is due to technological limitations of the equipment to perform more complex procedures, which assign the value needed to meet customer's satisfactory, but also differences in the generation of product.

The production processes, diagnosed that the main restriction comes from the lack of skilled labor (72%) in the furniture segment. Next to this finding, the financial constraint (58%) for investment in innovation is considered the second biggest constraint to the adoption of innovation in production processes. Given this, it detects that the notes for the product to hold and become contradictory when business managers' point to a lack of core technology as the most difficult.

This contradiction is explained by the strong dependence of access to new technologies and financial restriction of the company. If these companies have financial constraints for access to new technologies and hiring skilled labor, the central constraint to the adoption of innovation in products of companies in the Furniture Center of the financial factor is not lacked with the available technology.

For the group of innovations in administrative proceedings, the most cited constraint was financial (72%), supported this need for computerization in the Center's industry's management. However, according to managers, as much as the equipment which involves the restriction of this lack in technology in these companies, the administrative software have high added value, both purchase and maintenance.

Given this context, it is clear that the notes are directed specifically to the financial constraint, even this is not the most relevant for the adoption of innovation in any company and mold in the three groups of innovations cited by Andreassi (2007), Ferreira et al (2008); Sonaglio Marion and Son (2010). For it is clear that innovation can be adopted by non-financial factors such as creativity and adaptability that the company has.

4. FINAL THOUGHTS

Initially it was diagnosed as an isolated setting of the group constituting the core of SMEs surveyed in relation to which of the three groups mentioned innovations these companies seek to adopt more frequently and effort. Having this diagnosis for the group-oriented product innovations, which is based on the need for constant evolution of the characteristics of products manufactured by them? In the case of these customized products, which require each new project a certain level of exclusivity and differential structural and aesthetic?

On this basis, was diagnosed with a second phase where the emphasis placed by these companies to innovate in fact, and what goals they seek to foster innovation in the three groups mentioned innovations. Thus, as a result it was found that for the MSE of the Center Furniture by adopting the goal of innovation is the opening and entry into new markets, or to expand their scale of operation. As for SMEs surveyed by SEBRAE (2009), they seek to foster innovation with the main objective to grow faster than its competition.

Thus, the comparative study of data on the importance to adopt the innovation has been a trend towards alignment between the research answers, the only difference of four percentage points more about the adoption of innovation with the goal of entry into new markets. That this divergence is based on the model performance in this horizontal cooperation network core. For these companies, through the implementation of cooperative efforts aimed at innovation, encourage the expansion of its market.

Finally, the third stage of the research was diagnosed, what are the main limiting factors for adoption of innovation in SMEs of the nucleus studied. Thus the scope of this comparative study led to confirmation of a trend in the data assimilation of research conducted by SEBRAE (2009) and the research conducted at the Center of the ACIC Concordia Furniture. But for the core constituents of the SMEs of Furniture, was diagnosed with four different restriction prickles, and they respectively lack of managerial expertise, the country's economic recession, lack of skilled labor and high taxes.

Consequently, we can infer that this research has a good grip on the reality of micro and small enterprises in the furniture sector in tangent to the understanding, identification and adoption of innovations in products, processes and administrative

processes. Serving this search as an indicator for evaluating the innovative scenario of regional furniture industry effectively and efficiently.

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