

Profile of the degree of innovation of micro and small enterprises in the state of Parana - Brazil

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ABSTRACT

According to SEBRAE 2009, Micro and small enterprises represent 99% of formal establishments and account for 60% of formal jobs in Brazil and Parana State. Innovation and technology, however, are still poorly explored in micro and small businesses in the country. According to the latest research, GEM (Global Entrepreneurship Monitor) has revealed that only 3.3% of Brazilian entrepreneurs want to engage in innovation and technology as market differential.

The main objective of this work was to obtain a profile of the micro and small enterprises of Parana State, with the goal of establishing a reference for assessing the impact of actions directed at innovation as a tool of competitiveness.

The methodology used was exploratory research based on secondary data according to a primary research done by SEBRAE/PR 2009, which used the methodology of Bachmann & Associates based on the dimensions of innovation described by Professor Mohanbir Sawhney of the Kellogg School Of Management.

The average degree of innovation of the enterprises evaluated was 2,0. As the scale is 1-5, this value corresponds to the first quarter of the scale, indicating that innovation in micro and small enterprises in the State of Parana are incipient. The overall results of each of the three business sectors studied (Clothing, Civil Construction and Agri-business) who participated in the research are fairly similar in format, and highlighting the cultural aspect can be decisive, since all companies researched are located in the State o Parana.

Keywords: innovation, micro and small, enterprises, degree

INTRODUCTION

According to Beaver and Prince (2002), “policy makers and academics rarely undertake the importance of innovation. Indeed, innovation is an essential condition of economic progress and a critical element in the competitive struggle of both enterprises and nation states.

Sawhney, Wolcott and Arroniz (2006) argue, “See innovation only as synonymous with new product development or traditional research and development can lead to the systematic erosion.”

According to Sawhney, Wolcott and Arroniz (2006), “Business innovation is about new value, not new things. Innovation is relevant only if it creates value for customers – and therefore for the firm. Thus creating new things is neither necessary nor sufficient for business innovation.”

According to Beaver and Prince (2002), “Smaller firms enjoyed many unique advantages associated with lack of bureaucracy, efficient and often informal communications, plus flexibility and adaptability through nearness to markets.” On the other hand, this kind of enterprise faced strong constraints associated with a lack of technical labor, poor use of external information and expertise. In general, the advantages enjoyed by Micro and Small Enterprises are fundamentally behavioral, while constraints are related by resource issues.

The project "Local Innovation Agents" of SEBRAE/PR represents an effort to offer intelligence to effort to micro and small entrepreneurs and access to knowledge and resources to facilitate the settlement of innovation processes that contribute to increased competitiveness. For this, recent college graduates were trained in the concepts of innovation, tools devoted to the search for innovative solutions and information about entities and facilities that can help boost innovation in SMEs.

To allow an evaluation of the process, we developed a measure of the degree of innovation in SMEs. Thus, it is possible to portray the situation found at the beginning of the Project and at later times. The historical monitoring results will reveal the effectiveness of the Project and also decide on its improvement, as specific situations best and worst performance can be compared, leading to learning and the opportunity to identify best practices.

The Degree of innovation used in this study was measured in the methodology based on the Innovation Radar created by Professor Mohanbir Sawhney, director of the Center for Research in Technology & Innovation, Kellogg School of Management, Illinois, USA, which relates the dimensions by which a company can seek ways to innovate. Radar Innovation meets four main dimensions:

1. Offerings (What)
2. Customers (Who)
3. Processes (How)
4. Presence (Where)

Among these were identified eight dimensions that must be observed. Complementing the approach of Sawhney was added an dimension designated "Ambience innovative," which verifies the existence of an organizational climate conducive to innovation, an important prerequisite for an innovative company.

The methodology adopted recognizes that innovation is not an isolated event or fact, but the result of a process of innovation. Hence the concern to assess not simply

the result (number of innovations), but the maturity of the innovation processes of companies.

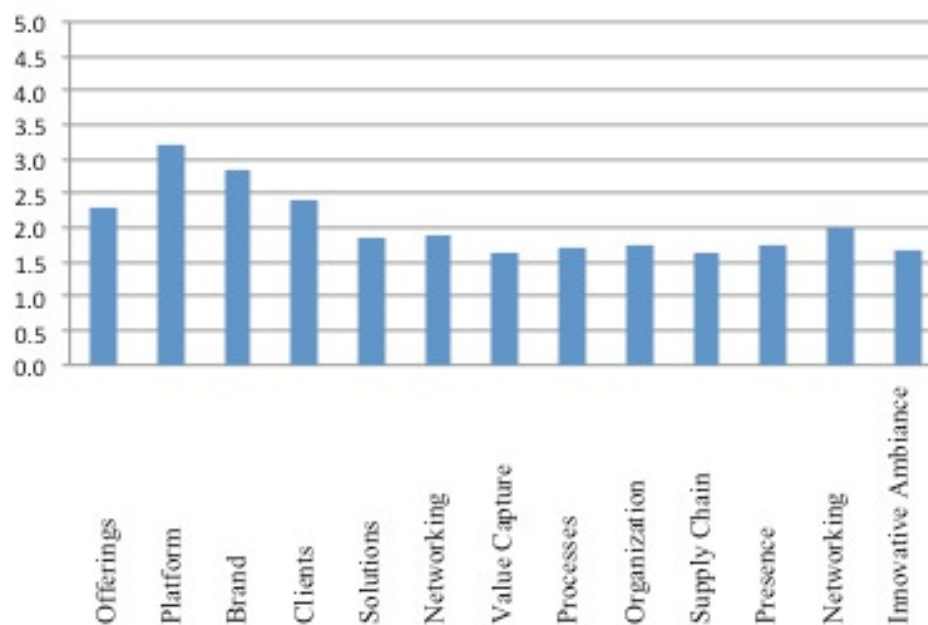
The data used in this study were collected by the Local Agents of Innovation in the period from December 2008 to July 2009 and corresponds to the initial situation of the Project, describing the situation prior to the work of the Local Agents of Innovation.

ANALYSIS

The average degree of innovation of the companies evaluated was 2.0. As the scale is 1 to 5, this value corresponds to the first quarter of the scale, indicating that innovation still is incipient.

The average level of innovation in each of the dimensions of the whole sample (showed on the figure below) shows a wide variation in the results and highlights that the best results were obtained in the dimensions Brand and Platform, while the dimensions Adding Value and Presence obtained the lowest scores.

Figure 1 - Degree of Innovation X Dimension



A different view (Table 1) indicates that more than half of the companies got Degree of Innovation around one and only two managed Degree of Innovation close to 4.

Table 1 - Percentage of companies in each Degree of Innovation

Degree of Innovation	Number of Companies	Percentage
4	2	0.4
3	20	3.8
2	234	44.2
1	274	51.7
TOTAL	530	100

Among the factors that contribute to innovation in larger or smaller companies, several are related to characteristics of the sector of activity. Thus, for a more detailed analysis, we compared the results obtained in each of the three sectors surveyed. The deal that had the highest degree of innovation (Table 2) was Clothing and Apparel (2.17). Companies in the productive chain of Construction emerged as the most conservative (1.89), while the Agri-business placed itself in an intermediate position (1.95)

Table 2 - Degree of Innovation - Sector Comparison (average).

Dimension	Civil Construction	Clothing	Agribusiness
Offerings	2.04	2.39	2.08
Platform	2.61	3.33	3.25
Brand	2.55	2.81	2.56
Clients	2.17	2.78	2.15
Solutions	1.88	2.18	1.72
Relationship	1.94	2.09	1.72
Value Capture	1.46	1.66	1.55
Processes	1.61	1.73	1.65
Organization	1.65	1.7	1.82
Supply Chain	1.73	1.57	1.76
Presence	1.39	1.94	1.58
Networking	1.71	2.31	1.78
Innovative Ambience	1.76	1.77	1.65
General	1.89	2.17	1.95

The analysis according to the size of companies was taken to the classification noted by Local Agents of Innovation in the form of data collection. In the three sectors analyzed (Table 3), small firms were more innovative than small firms, with the greatest difference occurring in the construction industry.

Table 3 - Degree of Innovation, by size of company.

Sector	Micro	Small
Clothing	2.22	2.29
Agribusiness	1.85	2.29
Civil Construction	1.92	2.46
Total	2	2.31

Unlike the quantitative analysis that uses mathematical tools and allows for greater objectivity, textual analysis must be viewed with caution as the result of interpretations with high dose of subjectivity. Still, with appropriate caveats, comments and observations noted in the data collection forms allow for enrichment of the analysis, for bringing the sensibility of people who felt the environment of organizations. Making use of TextStat software (version 3.0), a survey was made of frequency of words in their responses, see Table 4.

Table 4 - Word frequency in the responses.

Word	Frequency
No	737
None	407
Enterprise	278
Information	257
Products	221
Innovation	184
New	178
Clients	131
Increase	127
Equipment	38
Quality	29

While the word "no" occurs 737 times, often in phrases like "There were no new releases in the last year" or "There was no innovation," the word innovation "is mentioned only 184 times and" clients "only 131. The words "training" and "training" appear only one time each, indicating the low priority of the subject.

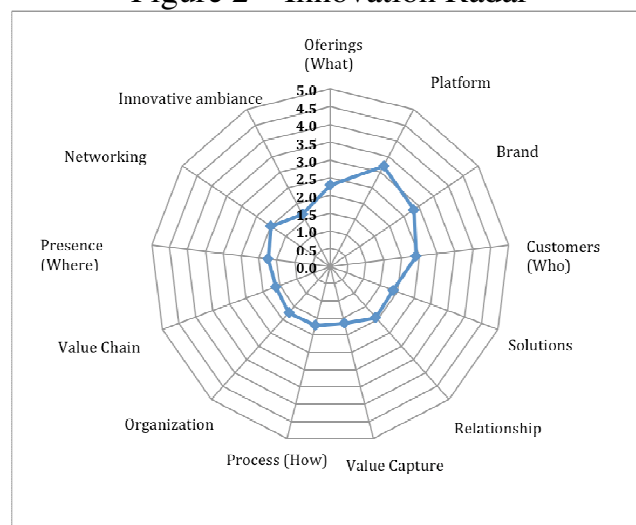
The number of references to the word "equipment" (38 citations) confirms the importance of suppliers as vectors for the spread of technology to SMEs.

The number of sentences that amount to "Information not available" or "Do not inform you " characterizes a situation where the employer has no control over essential information for the domain of your business. This is an aspect that goes beyond the question of innovation and deserves attention.

CONCLUSION

The main results of the mapping can be observed in the Radar Innovation (Figure 2) and show that there is plenty of room for improvement.

Figure 2 – Innovation Radar



The overall performance of each business sector (Clothing & Clothing, Construction and Agribusiness) who participated in the survey are fairly similar and show that the cultural aspect can be decisive, since all businesses are located in Parana. The garment sector was more innovative than others, while construction was characterized as the most conservative.

The analysis according to the size of the companies indicated that small firms are more innovative than small firms, with the greatest difference occurring in the construction industry. In the agri-business sector, the differences in results indicate that relying on larger clients positively influenced innovation.

Variations in results obtained showed that the methodology used to measure the degree of innovation has sensitivity to different situations and is therefore suitable for the purpose of assessing the progress achieved by the Project.

In short, the resulting indicator of average scores (degree of maturity) of each of the 13 dimensions of innovation (obtained by the answers to some questions) can be a useful metric to measure the degree of Innovation in Small and Medium Enterprises. Repeating this survey, after a period of work of Local Agents of Innovation, will assess progress and provide elements for improving the project, as the identification of best practices in every sector of business can be replicated in order to enhance the innovative capability companies attended.

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