PANORAMA OF INNOVATION IN BRAZILIAN SMALL BUSINESSES

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Abstract. The ALI Program of the Brazilian Micro and Small Business Support Service (SEBRAE) *has monitored over 150,000 small businesses throughout Brazil over the last few years. Within this setting, this article aims to demonstrate the panorama of innovation and management of Brazilian micro and small businesses (MSBs) that were in the initial phase of the ALI program. The analysis of the thirteen dimensions of the Innovation Radar (IR) and the eight dimensions of the Excellence Management Model (EMM) was performed in a sample of 27,422 small businesses from all over Brazil. Regarding innovation results, four dimensions stand out: Brand, Platform, Offer, and Client Relationship. Besides, the results of the EMM show that Brazilian MSBs still need to improve their management.*

Keywords: SMEs; small enterprises; innovation; SEBRAE; Brazil.

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1   INTRODUCTION

Due to the economic importance of small businesses in Brazil, in 1990 the Brazilian Micro and Small Business Support Service (SEBRAE) was created, a parastatal institution focused on strengthening entrepreneurship and accelerating the process of formalization of the economy, training programs, credit access and innovation. (SEBRAE, 2016). In Brazil, in 2016, small businesses represented 12 (twelve) million enterprises, corresponding to 98.5% of the total number of formal enterprises in the country and 41% of the wage bill, of which 5 (five) million are Micro and Small Businesses (MSB) and 7 (seven) million are Individual Micro Entrepreneurs (MEI), considering the classification of the size divided by annual billing rate according to the criteria of the National Complementary Law 123/2006 (SEBRAE, 2016a).

However, small Brazilian businesses erroneously consider innovation as a myth. For most, innovating has a high cost, needs to have cutting-edge technology and contributes little to its competitiveness (SEBRAE, 2013). The survey on small business survival in Brazil pointed out that the second main factor for the company to cease activities was the low customer demand and the market increased competition for 29% of the respondents. (SEBRAE, 2013). The survey also pointed out that companies that mote innovate survive for longer. This demonstrates the need for innovation, acting directly on the competitiveness of companies. Believing in the innovation potential of small businesses, Sebrae, in partnership with the National Council for Scientific and Technological Development (CNPq), have been promoting the Local Innovation Agents Program (ALI) since 2011. The proposal of the program is to take the concept of innovation to small businesses, door-to-door, showing that the innovation practice should be taken daily, entering the company's DNA, demystifying the notion that innovation is associated with a highly technological process at also higher costs (SEBRAE, 2014). Local Innovation Agents (ALI) are young graduates who work by identifying opportunities and seeking innovation solutions for MSBs. (SEBRAE, 2014)

The Sebrae and CNPq partnership allows funding for each of these agents to visit 40 (forty) small businesses. They interact with the entrepreneurs applying two instruments. The first is the Business Diagnostics (BD), a management questionnaire from Sebrae based on the Excellence Management Model (EMM) developed by the National Quality Foundation . The second is the Innovation Radar (IR) of the Sebrae, a questionnaire assessing innovation in the company (Bachmann, 2008), which is inspired by the dimensions of innovation as proposed by Sawhney et al. (2006). From the analysis of the data are prepared working plans, which are

validated by a senior specialist. The entrepreneur is encouraged to execute the plan. The monitoring is continuous up to 24 (twenty-four) months per company. The entrepreneur does not pay for the orientation service provided, but the working plan may incur some costs. (SEBRAE, 2014)

The ALI Program has monitored over 150,000 small businesses throughout the country over the last few years. Thus, this article aims to demonstrate the panorama of innovation and management of Brazilian MSB that were in the initial phase of the ALI program. The data collected, between the years of 2015 and 2016, allowed to assess the average of points in each of the thirteen dimensions of the Innovation Radar (IR) and the eight dimensions of the Excellence Management Model (EMM). The analysis of the 21 dimensions was done in a sample of 27,422 small businesses from all over Brazil, which was extracted from the Management and Monitoring System of the ALI - SistemAli Program of Sebrae..

2 THEORETICAL FRAMEWORK

Love and Hoper (2015) gathered in a literature review the main areas of agreement and contention regarding internal and external enablers of MSB innovation and exporting, as well as their relationship with growth. Some areas of agreement include: high-quality skills contribute to innovation and exporting; Positive relationship between R & D and innovation; Purpose-driven links between SMEs influence positively innovation and export growth; Public support for innovation and exporting produce additionality; There is a positive relationship between innovation, exporting, and growth. Triguero et al. (2014) analyzed the impact of persistent product and process innovations on employment and found by means of panel data the positive effect of process innovation on employment. Furthermore, this effect increased with the number of lags for SMEs than for larger firms, indicating the importance of persistent process innovation for these companies.

On a similar standpoint, Liao et al. (2015) classified 449 Australian SMEs into four groups according to their growth variation (disadvantage sustainers, advantage losers, advantage creators, advantage sustainers) and they analyzed the differences between the groups in regard to innovation investments, market-orientation (in practice, And firm performance. Their results showed few differences with regard to innovation investments, whereas many differences with regard to market-orientation and firm performance, revealing that innovation only, i.e., without efforts to really introduce innovations in the market, are not able to sustain competitive advantage. Didonet, et al. (2016) also verified by SEM that market

orientation (MO) positively affects external sources of innovation (SI), such as supply chain links and other sources such as universities, etc. They also found that SI positively influences intra-firm mechanisms to support innovation (IN). Last, they verified the indirect impact of MO on IN mediated by SI, revealing the importance of market orientation to SMEs intra-firm innovation mechanisms.

For Sawhney et al. (2006), successful business innovation requires a holistic consideration of the business. For these authors, for a new product to be successful, a fail-proof distribution channel is needed, just as a new technology lacks valuable end-user application. Thus, when innovating, a company must consider all the dimensions of its business system, or the 12 dimensions of the Innovation Radar (Offerings, Platform, Solutions, Customers, Customer experience, Value capture, Processes, Networking, and Brand). In addition, the Innovation Radar can help the company determine its innovation strategy vis-à-vis its competitors, identify opportunities and prioritize actions.

The studies performed with companies in which the Innovation Radar developed by Bachman (2008) were applied point to Platform and Brand as dimensions with the highest average scores, above 3 on a scale of 1 to 5. In addition, the dimensions Offering, Clients and Relationship scored above 2 (Silva Neto and Teixeira, 2014, Paredes et al., 2015; Carvalho et al., 2016). Paredes et al. (2015) justify that companies in the industrial sector need to invest more in production technology, therefore, the highlight of the Platform dimension. However, other sectors such as commerce and services also scored high in this dimension. Thus, Carvalho et al. (2017) believe that the Platform dimension is related to incremental innovation, which would be more commonly introduced by MSBs.

Sawnhey et al. (2006) highlight what is and how to innovate in these dimensions:

● Platform is a set of common components, assembly methods or technologies that serve as building blocks for a portfolio of products or services. Innovation in the Platform dimension involves exploring modularity to create a diversified set of derived offerings faster and cheaper than if they were independent items. Innovations along this dimension are often ignored, although their power to create value can be considerable.

● Brand are the symbols, words or marks through which a company communicates and deliver satisfaction to customers. To innovate in this dimension, the company shall apply its brand in a creative way.

● Offers are products of a company and services. Innovation in this dimension requires the creation of new products and services that are valued by customers.

● Customer Experience considers everything a customer sees, hears, feels, and otherwise experiences while interacting with a company at all times. To innovate here, the company needs to rethink the interface between the organization and its customers.

Besides innovation, management is also important for companies competitiveness. Bassan and Martins (2016) evaluated how the acknowledgment of companies that adopt good practices practices influence their value. They have reported companies that have won the Brazilian National Prize on Quality by comparing them to other companies from the same economic industry. This prize is held by the National Quality Foundation, who developed and applies the Excellence Management Model (EMM) as the parameter to evaluate all the contenders, which includes eight dimensions: results, leadership, people, processes, clients, strategy and planning, information And knowledgement, and society. By applying the Student-t test, it was recognized that the companies owning the Prize on Quality increased their value over the years.

The Excellence Management Model (EMM) questionnaire for medium-sized and large enterprises contains two sets of dimensions: Results and Management. Results by amount 45 points and the management dimensions have to sum up to 55 points. Among the management dimensions, the evaluated company has to choose a set of criterias among the following groups, and the range of points available is as follows: the highest group is leaded by Leadership (9-13), followed by People and Processes (9-12 each). Last, there are four remaining dimensions in a lower level: Clients (5-8), Strategy and Planning (5-8), Information and Knowledgement (5-8), and Society (5-8). Although the Excellence Management Model (EMM) questionnaire for micro and small businesses contains the same dimensions as the former, the weights for each dimension are different and already set for all companies: Leadership (15), Strategy and planning (9), clients (9), society (6), Information and knowledgement (6), people (9), processes (16), and results (30).

In order to investigate how to increase competitiveness in small businesses, Cândido and Silva (2016) undergone a series of interviews with micro and small businesses managers, specifically with companies located in Santa Catarina, a southern state from Brazil. For micro businesses, none of the EMM dimensions have been identified as relevant for competitiveness. On the other hand, for small companies the dimensions Leadership, Society and People have better correlation with competitiveness.

By comparing different management models from around the globe (such as the American and European model), Silva et al. (2014) identified that despite all the variables in each perspective, the criteria Information and Knowledgment (and its contents under similar

names) have always been present with almost the same score. Such a finding recognizes how important it is for a company to look after its knowledge management, improving its internal processes continually. One of the ways to summon that, naturally, is to invest in innovation, no matter if the company is located in Brazil, Europe or the United States. Garcia (2016) supports this contribution by discussing how companies top-evaluated on each EMM regional program has developed practices in knowledge management.

On the other hand, as observed by Pereira (2014), the management of indicators in a micro and small-enterprise occurs more tacitly than empirically. As the employees of these companies are often focused on day-to-day business operations, the improvement of indicator management shall be preceded by process automation and data collection. Thus, the definition of processes and their automation is an important aspect for the competitive development of a company, and for the improvement of the management of its operational results. To manage a business is to be responsible for the analysis and evaluation of each economic segment to identify its main competitive differentials. As Bliska, Junior and Ferraz (2012) demonstrate, a specialized analysis can identify the management criteria more relevant to each particular company as a way to prioritize investments and take specific management measures. For innovation, recognizing in which aspects of management the investments will have a greater chance of being recognized is of fundamental importance.

3   METHODOLOGY

This research used secondary data available from the Innovation Radar (IR) and the Excellence Management Model (EMM) that were extracted from the Management and Monitoring System of the ALI - SistemAli. The sample involved 27,422 small businesses from all over Brazil that started in the ALI Program between 2015 and 2016. For the analysis of the data, descriptive and graphic statistics were performed to visualize the innovation panorama and the management of the Brazilian MPEs.

The Innovation Radar was developed by Bachman (2008) and contains 13 dimensions that are evaluated on a scale of 1 to 5: Offerings, Platform, Solutions, Customers, Customer experience, Value capture, Processes, Organization, Supply chain, Presence, Networking, Brand, and Innovative environment. Further information about IR questionnaire can also be found in Carvalho et al. (2015).

Developed by the National Quality Foundation, The Excellence Management Model (EMM) for micro and small businesses sets a specific maximum score for each dimension,

leading to a quicker use of the questionnaire compared to the medium-sized and large enterprises version. The maximum score for each dimension is as follows: Leadership (15), Strategy and planning (9), Clients (9), Society (6), Information and knowledgement (6), People (9), Processes Results (30).

4   RESULTS

Considering the innovation panorama of Brazilian MSBs, most of the businesses are able to innovate using strategies and identifying opportunities in the dimensions Platform, Brand, Relationship with customers and Supply. Figure 1 presents the means of the 13 dimensions of the Radar Innovation considering all 27,422 SMEs. Four dimensions stand out as their means are higher than the others: Brand (3.1), Platform (2.9), Offer (2.7), and Client Relationship (2.7). Other two dimensions have an intermediate level, Networks (2.3) and Clients (2.2), whereas the seven remaining dimensions have values lower than 2.

These results are in part similar to previous studies that considered smaller samples of different economic sectors and specific regions in Brazil, in which, in general, the most developed dimensions were Platform and Brand (Teresa and Teixeira, 2014; Paredes et al). In addition, the high value of the Platform dimension for MSBs across Brazil supports Carvalho's (2017) view that incremental innovation is one of the main types introduced by those companies. On the other hand, with the exception of the service sector in the study of Paredes et al. (1995), the Brand dimension was not found to be the most relevant, but it always figured as the second or third most developed dimension, while the Platform dimension appeared absolutely on the first place. This result suggests that there was a slight reduction in Platform innovation and Brand innovation has increased, considering the MSBs that entered the ALI program in 2015-2016 compared to previous periods, which may be related to the brazilian economic crisis. However, more in-depth studies are needed to validate this hypothesis. Finally, Radar demonstrates the potential of companies to innovate more and better, because in 7 dimensions of innovation, small Brazilian businesses are still low. Investments in these dimensions can help expand the opportunities of these companies to become more competitive.

Figure 1 – Mean of Innovation Dimensions

Source: the authors (2017)

Overall, the results of the Excellence Management Model (EMM) show that Brazilian MSBs still need to improve the management criteria, since no dimension evaluated has reached the average value of the scale, i.e. 50% of the maximum. Figure 2 presents the means of the 8 dimensions of the Excellence Management Model (EMM) considering all 27,422 SMEs. Differently from the Innovation Radar, within each dimension ranges from 1 to 5, the dimensions from the EMM have different ranges, which are depicted In Figure 2 in faded gray representing the maximum potential value that each dimension could achieve, as presented on the Methodology.

Considering the maximum values of each dimension, the EMM dimensions most developed by the Brazilian MSBs were Society (2.7 / 6 = 46%) and Processes (7/16 = 44%). At an intermediate level, the dimensions Leadership (5.6 / 15 = 37%), People (3.3 / 9 = 36%), Clients (3.2 / 9 = 36%) and Information & Knowledgement (1.9 / 6 = 31%). Finally, the least developed dimensions were Strategy & Planning (1.9 / 9 = 21%) and Results (2.4 / 30 = 8%).

Figure 2 – Mean of Management Excellence Model Dimensions
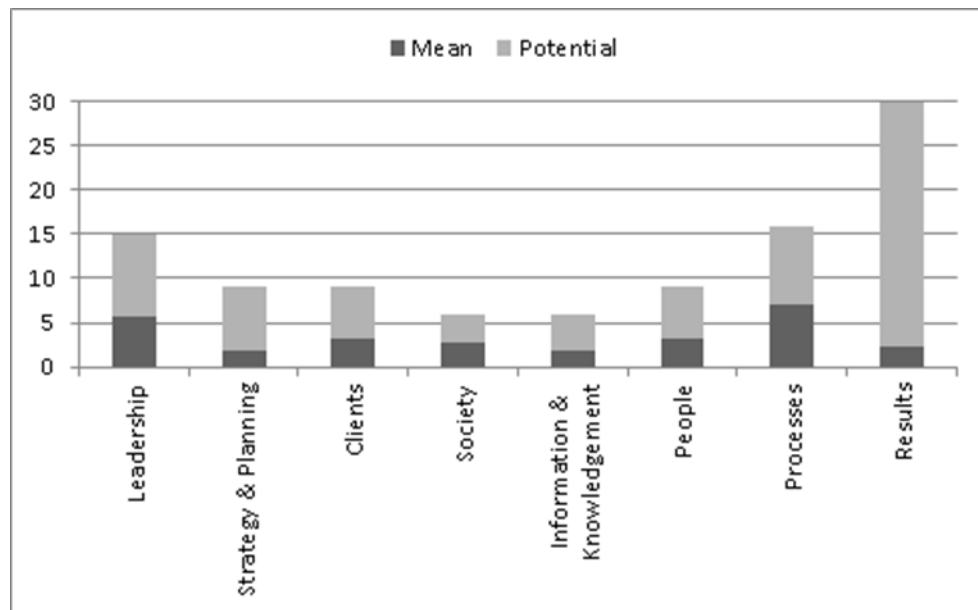
Source: the authors (2017)

Three of the four dimensions most developed by the MSBs of this research (Leadership, Society and People) presented a positive correlation with competitiveness in the study of Candido and Silva (2016), which confirms the importance of these management dimensions for MSBs. On the other hand, these dimensions still have a great potential to increase, as they did not reach the medium scale value. In addition, the results suggests that most of the MSBs did not give importance to the Information & Knowledgement dimension, which is considered critical by Silva et al. (2013) and Garcia (2016). Finally, Table 1 summarizes the descriptive statistics such as mean, variance, minimum, maximum, and quartile, for the Innovation Radar and for the Excellence Management Model.

Model	Dimension	Minimum	25th perc.	50th perc.	75th. perc.	Maximum	Mean	Variance
Management Excellence Model	Leadership	0	3.4	5.1	7.4	15	5.6	8.8
	Strategy & Planning	0	0.0	1.4	2.7	9	1.9	3.7
	Clients	0	2.2	2.7	4.3	9	3.2	3.2
	Society	0	2.0	2.6	3.5	6	2.7	1.6
	Information & Knowledgement	0	0.9	1.8	2.5	6	1.9	1.3
	People	0	2.2	3.0	4.3	9	3.3	3.3
	Processes	0	4.8	6.6	8.4	16	7.0	10.0
	Results	0	0.0	0.0	5.0	45	2.4	17.9
Innovation Radar	Offer	1	1.7	2.6	3.6	5	2.7	1.5
	Platform	1	1.0	3.0	5.0	5	2.9	2.6
	Brand	1	2.0	3.0	4.0	5	3.1	1.4
	Client	1	1.7	2.3	3.0	5	2.2	0.9
	Solution	1	1.0	2.0	3.0	5	1.9	1.2
	Client Relationship	1	2.0	3.0	4.0	5	2.7	1.6
	Added Value	1	1.0	1.0	2.0	5	1.6	0.7
	Process	1	1.3	1.7	2.0	5	1.8	0.4
	Organization	1	1.0	1.7	2.3	5	1.9	0.8
	Supply Chain	1	1.0	1.0	3.0	5	1.9	1.4
	Presence	1	1.0	1.0	2.0	5	1.5	0.9
	Networks	1	1.0	3.0	3.0	5	2.3	2.1
	Innovative Environment	1	1.3	1.7	2.1	5	1.8	0.4

Source: the authors (2017)

5   CONCLUSION

The objective of the article was reached, which was to demonstrate the panorama of innovation and management of brazilian MSBs that were in the initial phase of the ALI program. In addition, this research contributes to the theory as it is one of the few studies on brazilian MSBs with a large sample (more than 27,000 business) from every corner of country. This research is also applied as small business managers can compare their levels of management and innovation with the brazilian reality, in addition to making these results

available to public policy managers. Regarding the methodology, this was limited by the use of descriptive statistics. Future work can use advanced statistics such as regression analysis to study the influence of management dimensions on MSBs innovation. In addition, future work can also be deepened in the comparison of the most developed dimensions by MSB that participated in the ALI program in 2015-16 in relation to other periods prior to the national economic crisis, especially in relation to the platform Dimension that apparently presented a reduction when compared to previous studies. Another development may involve a general analysis of the efficiency of the ALI Program, ie, to verify if taking part in the program has contributed effectively to the innovation of the business attended.

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