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PRIMARY CRITERIA USED BY BUSINESS INCUBATORS FOR THE SELECTION OF NEW ENTERPRISES: ANALYSIS OF SELECTION NOTICES

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ABSTRACT

This article aims to analyze the primary criteria used by Brazilian business incubators to select new enterprises. The research method used was a documentary analysis with 124 selection notices available in the websites of business incubators. These criteria were divided into 17 categories, and the most mentioned among them were: innovation level, economic feasibility, and team capability, corroborating the ideas mentioned by other studies. The results presented in this research may be of great value for incubator managers and academics. Incubator managers may use these results to critically analyze their criteria and/or complement them. Academics, in turn, may use these results as a starting point for future research.

Keywords: Entrepreneurship; Business incubators; Selection criteria.

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1. INTRODUCTION

Currently, Brazil is one of the most enterprising countries in the world (Ferenhof et al., 2014; GEM, 2014). According to the Global Entrepreneurship Monitor (GEM), Brazil has higher initial entrepreneurship rates than Germany and the United States of America, considering the total number of people involved with some entrepreneurial activity created less than 42 months ago. In Brazil, this number reaches 22.8 million people and causes a positive impact, mainly associated with job and income creation (GEM, 2014).

It is important to highlight, however, that the reason for most Brazilians to become entrepreneurs is necessity rather than opportunity, leading to small survival rates (Furdas et Kohn, 2011). Bearing in mind the Brazilian entrepreneurial spirit and its improvement and evolution necessity, compared to other nations since the 1980s, associations arise to promote entrepreneurship and correlated initiatives (Canever et al., 2017; Dornelas, 2002). One of these associations is the Brazilian Association of Science Parks and Business Incubators (Anprotec), created in 1987 to represent and defend the interests of business incubators and technological parks (Canever et al., 2017; Sousa et Beuren, 2012).

Focusing on business incubators, they can be defined as organizations that promote the development of enterprising companies, supporting their survival and evolution during the most critical initial phase, when companies are more vulnerable. By orientation, consultation, and other activities, they create an environment that allows the maturation of the enterprises (Engelman et Fracasso, 2013; Lima et al., 2014; Shepard, 2013; Zattar et al., 2017). For Anholon et Silva (2015), in agreement with the previous point of view, business incubators provide assistance to supply deficiencies and minimize risks associated with the entry of enterprises in a highly competitive market. In an ecosystem characterized by variety and complexity, as it is the Brazilian scenario, the role of incubators is essential (Etzkowitz et al., 2005).

Very different types of entrepreneurs coexist in the Brazilian ecosystem: from those who start a new business without any structure to those who have an innovative idea that can revolutionize an economic segment. In this scenario, unfortunately, only 21.9% of the enterprises fit into the second category – a low value when compared to the value reported by GEM (2014) for Germany (37.3%). The difference between the failure and success of these enterprises may lay in the assistance and support provided, and incubators can perform this role.

According to the last census carried out by Anprotec, Brazil has 384 business incubators (Anprotec, 2012; Gomes et Marcondes, 2016; Vanderstraeten et al., 2016). This universe includes incubators considered benchmarks as well as incubators with serious difficulties to survive, and the latter are not capable of following the main objectives (Anholon et Silva, 2015; Engelman et Fracasso, 2013; Lima et al., 2014; Shepard, 2013; Zattar et al., 2017) previously presented. However, this universe presents interesting data, with 2,640 incubated enterprises that generate an income of R$ 5 billion and employ 45,599 people, what confirms the relevance of business incubators within the Brazilian economic sector.

To define the criteria for the correct selection of new enterprises to be incubated is a challenge for many incubators. They must identify companies that, regardless of their current weaknesses, have a good potential (Hackett et Dilts, 2004; Lumpkin et Ireland, 1988). Against this background, this article aims to analyze the selection criteria used by Brazilian incubators to identify new candidates. The referred analysis was conducted by a detailed study of the selection notices available in the websites of business incubators.

In addition to the introduction, this article presents four more sections. Section 2 is dedicated to the literature review, with the characteristics of business incubators and selection processes. Section 3 is dedicated to the methodological procedures, showing considerations and other details used during the analysis of the selection notices. Section 4 presents the results of this analysis, followed by their discussion. Lastly, Section 5 presents the general conclusions of this research. The references are listed in the end of the article.

2. LITERATURE REVIEW

In her studies about the entrepreneur ecosystem, Chandra (2007) noted that Brazilian incubators, when compared to incubators of other countries, are those with a broader scope of action. The Brazilian scenario presents a large plurality of incubators, ranging from traditional to technology-based ones, and with connections ranging from public and private universities to the government (Canever et al., 2017; Chandra, 2007). This diversity has evolved in response to local needs, which exist because of the great inequality and territorial extension of the country (Chandra, 2007). Despite this vast typology of incubators, they serve as tools to accelerate the creation of new success enterprises, each one with its own particularity.

Technology-based incubators prevail in Brazil, consisting in organizations that house enterprises that create products, process, or services from scientific research, for which technology represents high added value. These incubators are normally close to research groups of excellence and their products and services have intellectual property rights (Aranha, 2003; Engelman et Fracasso, 2013; Fonseca, 2014). In contrast, the traditional model of incubators was created in response to social problems of unemployment, clearly aim-

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ing at regional development. According to Filion (2000), Serra et al. (2011) and Lima et al. (2014), this type of business incubator houses enterprises connected with the traditional sector of economy, in which the acknowledgement is in the public domain, as in apparel, footwear, and agricultural industries. In addition to these models, there are also mixed incubators that house, in the same environment, both technology-based and traditional enterprises (Barboza et al., 2017; Gomes et Marcondes, 2016; Lima et al., 2014).

Another characteristic that differentiate incubators is the type of institution with which they are connected. Government, universities, and research institutes are the institutions with most links observed. Technology and social development are the main objectives of the government to support and finance business incubators (Chandra, 2007). Therefore, incubators with strong governmental ties (municipal, state, or federal) support the development of new ventures with great potential for interaction with the region where the incubator is located. As stated by Schmidt et Balestrin (2015), Schmidt et al. (2016), Fonseca (2014), and Vanderstraeten et al. (2016), these organizations serve as tools for regional development and care about the economic impact that the new business may generate.

Despite the importance of the government as an incentive agent for entrepreneurship by its support for business incubators development, approximately 62% of these organizations are connected to an university or a research institute (Anprotec, 2012). In this case, the main goals are to promote benefits for society by academic research and develop new products and technologies (Chandra, 2007; Kuratko et LaFollette, 1986). Besides, the contact between university and industry helps the interchange of innovative ideas and resources. Thus, one is to expect a strong innovative character from enterprises supported by academic incubators (Chandra et Chao, 2016).

The characteristics that particularize each incubator lead them to select different types of enterprises. In accordance with this statement, Bergek et Norrman (2008) and Passoni et al. (2017) noticed that different incubators emphasize different selection criteria, creating a diversity of parameters to be used to select enterprises for incubation. Focusing on these criteria, Mian (1997), Verma (2005), and Carvalho et Galina (2015) argue that a rigorous and cautious selection of the incubated enterprises directly affects the achievement of good results. Some incubators may prioritize the technical and managerial experience of the entrepreneur, while others may prefer the market potential in which the new enterprise intends to operate. Moreover, there are those that choose the enterprises that can generate more profit. The difficulty to select the decisive criterion for the success of the new ventures is presented by Seno Wulung et al. (2014).

Despite this diversity of incubators, they need to select the enterprises to be incubated based on some criteria they consider relevant. According to Passoni et al. (2017), factors as entrepreneur profile, innovative character, technical feasibility, and attractiveness to the market are normally important and must be considered during the enterprise selection for the incubation process. To disclose this process and attract new enterprises, business incubators issue selection notices, in which they present their criteria to select incubated enterprises. These selection notices are well prepared, to make the selection process very transparent and in accordance with the objective of the incubator.

Considering the different types of incubators in Brazil and the importance of an efficient selection process of the enterprises to become graduate companies, one can understand the complexity to define the selection criteria used by business incubators. The identification of promising businesses that need to be supported by an incubation program, while avoiding those that do not need to be incubated, is a challenge that requires a great understanding of the development process of new businesses (Hackett et Dilts, 2004; Lumpkin et Ireland, 1988).

3. METHODOLOGICAL PROCEDURES

Initially, a literature review was carried out to structure the conceptual basis of this research. In this stage, the main goal of the study was to understand the role of business incubators within the Brazilian entrepreneurial scenario, their management model, and how they interact with their stakeholders, focusing on the attraction and selection of incubated enterprises. The terms “business incubator,” “selection process,” and “selection criteria” were searched in the following databases: Capes, Emerald Insight, and Science Direct.

After understating the role of incubators as agents for the success of entrepreneur ecosystems, 124 business incubators associated with Anprotec were selected. Therefore, the study was directed to a mapping of the characteristics and typologies of each incubator, classifying them according to their state, institution to which they are linked, and type of enterprise incubated.

Additionally, in the website of the selected incubators, the most recent selection notices were collected. All the selection notices contained information regarding the selection criteria used in the evaluation of submitted proposals/projects. This information was collected to be tabulated, to identify the most used criteria.

It is important to highlight that criteria with different writing, but same content, were grouped. For example, the

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criteria "technical and managerial capacity of the entrepreneurs" and "technical team of the company/enterprise" seek to evaluate the ability of entrepreneurs to manage the incubated enterprise, despite the different way of writing it. Therefore, a category named "Team capacity" was created to combine both criteria. Following this reasoning, the criteria of each selection notice were evaluated, observing the possibilities to allocate them in groups that already exist or the necessity to create new groups. After the analysis of the 124 selection notices, 17 categories were created to group the criteria. Criteria with few mentions in the selection notices were allocated in the category "Others." The characteristics of these 17 categories are described below.

One of the aspects present in the selection notices was the evaluation of the capacity of new entrepreneurs and, to analyze this topic, the following categories were defined: "Team capacity," "Entrepreneurial profile," "Team commitment," and "Affinity with the enterprise."

Besides the enterprise itself, one must consider the other stakeholders, because the maintenance of a good relationship with them is essential for its success. To consider these issues, the following categories were defined: "Market feasibility," "Incubator/Region alignment," "Social and economic impact," and "Environmental impact."

It is difficult to analyze the success of an enterprise without considering its profitability and sustainability as a business. Therefore, to evaluate resource availability (such as human resources or raw material), the main income source, the amount of money needed for the initial investment, and the forecast of entry and exit of resources, the following categories were defined: "Economic feasibility," "Financial feasibility," "Management feasibility," "Business model analysis," and "Resource availability."

Lastly, because incubators are an innovative and mostly technology-based business, it is important to consider the technological content of the new enterprise, how innovative it is, and how much it has developed. Hence, the following categories were defined: "Innovation level," "Technical feasibility," and "Development stage."

Even with the definition of these 16 groups, some criteria did not fit into none of them, as "Intellectual property" or "Potential of internationalization." These criteria were then classified into the category "Others."

With the quantitative results obtained, the study was concluded with a discussion on the 16 criteria used by incubators in their selection process of new enterprises. Figure 1 summarizes the steps of this research.

4. RESULTS

This section starts with the characterization of the sample studied, followed by the presentation of the results and discussion.

According to the last research carried out by Anprotec (2012), 67% of the Brazilian incubators focus on technology, that is, they provide support for companies that create products, processes, or services from scientific research, for which technology represents high added value. In the set of 124 incubators analyzed, this proportion is slightly higher, since 73% (91 incubators) are technology-based. The others are either mixed (24) or traditional (9).

Regarding regional distribution, according to the same survey, the South and Southeast regions concentrate the largest number of incubators (about 70%), whereas in our sample approximately 63% are from these regions. Concerning connection, 76% of them are linked to a university or teaching/research institution, while 26% have a governmental link (municipal, state, or federal).

The analysis of the selection criteria presented by the 124 notices and the definition of the 17 groups allowed the structuring of Table 1, through which one can observe the total number of incubators that use each criterion.

The aim of the incubators in performing these selection processes was also described in all analyzed notices. Despite some differences, all incubators sought to identify the most promising and innovative enterprises to support and stimulate the creation of new businesses. When this objective is compared with Anprotec's (2012) definition of a business incubator, "The incubator is an entity that provides support for entrepreneurs to develop innovative ideas and transform them into successful enterprises", one can observe that both are well aligned.

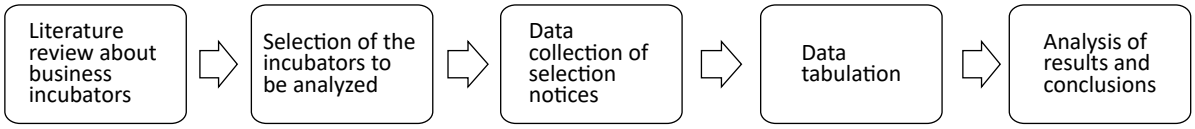

Figure 1. Summary of the procedures used in this research
(Source: Authors)

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Table 1. Number of incubators that use each selection criterion

Selection criterion	No. of incubators
Innovation level	109
Economic feasibility	101
Technical feasibility	100
Team capacity	98
Market feasibility	94
Incubator/Region alignment	84
Financial feasibility	76
Entrepreneurial profile	64
Social and economic impact	55
Management feasibility	45
Business model analysis	42
Team commitment	36
Development stage	20
Environmental impact	20
Resource availability	16
Affinity with the enterprise	13
Others	48

(Source: Authors)

To identify the enterprise with greater potential, the first characteristic to be considered is the ability of the enterprise to stand out from those that already exist. To succeed in a competitive market, the company is expected to have a differential, something innovative that will make its customers prefer this company rather than its competitors.

Although the innovative nature of the enterprise may initially seem like common sense, the category "Innovation level" is reinforced in 109 of the 124 studied enterprises. The importance of this criterion was already identified in a study conducted by Verma (2005). In his research, the author interviewed 31 Canadian incubator managers, and the second most important criterion for selecting new enterprises was being a company related to advanced technology. Gomes et Marcondes (2016) also pointed out the importance of innovation as a prerequisite to select an enterprise for an incubator.

Comparing these data with the results obtained from the 124 selection notices, we can observe that the incubators remain faithful to their goal of developing innovative ideas mentioned above, and to achieve it, they look for new businesses with a high degree of innovation.

In Verma's (2005) research, the criterion cited as most important by the interviewees was to be able to pay their operating expenses, that is, the managers are also interested in the financial sustainability of the new enterprise. This criterion is included in the category "Economic feasibility", which is present in 81% of the analyzed notices. This relevance can be understood when the success of the incubated enterprise is considered.

Incubators must evaluate the innovation level of an enterprise, its potential to compete in a market, and the economic feasibility of its profitability. However, the real possibility of developing the technology or service in question is what guarantees for the incubator that this potential will materialize.

A simple and direct manner to evaluate this progress is by the criterion "Development stage"; however, only 16% of the analyzed notices present this concern. This is because when the incubators select the enterprises to be incubated, the development stages are diverse; some have just completed the prototype, others have already been tested, and others are still at the beginning. Nonetheless, incubators do not intend to discard an enterprise with a high innovative potential and a good profitability that has not developed its solution, because the incubation process itself will help the candidate in this process. Therefore, to ensure that the new product or service of the company will be delivery as proposed, 100 of the 124 studied incubators use technical feasibility as a selection criterion.

For Bergek et Norrman (2008), the selection of new enterprises may be divided into two types of approximation: one focused on the idea and the other focused on the entrepreneurial team. The first one is directly related to the criterion "Technical feasibility," since to evaluate the feasibility of ideas, incubator managers need to know technologies and have the expertise to know whether it will be possible to execute and implement them in the market. In contrast, the second type relates mainly to the criterion "Team capacity," but also to Entrepreneurial profile, since it is based on the judgment of incubator managers, on whether they believe or not in the capacity and experience of future entrepreneurs.

Regardless of the types of approach, the criterion "Team capacity" was present in 80% of incubators, which makes sense, since people are responsible for the management of the new enterprise. This shows the belief that incubators have in the entrepreneurs, because their technical and/or managerial experiences and skills will determine the success or failure of the new business (Bergek et Norrman, 2008). It is important to emphasize that the evaluation is provided regarding the team and how they interact and complement each other. During interviews with managers and entrepreneurial ecosystem experts, they stated that, in addition to personal characteristics, the strength and ability of the team are always considered (Pauwels et al., 2016).

An affirmation made by another interviewee of this same survey was that there were three important selection criteria: the team, the innovation level, and the opportunity. The first two were already mentioned. The latter can be interpreted as the criterion "Market feasibility," which was in

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almost 76% of the analyzed notices. The relevance of this criterion lies in the fact that it considers the incubator relationship with its clients, stakeholders that will provide support to the enterprise. In addition, market feasibility encompasses factors such as market growth, current competitors, possible partnerships, among others.

The previous paragraphs discussed the objectives of business incubators. However, considering the focus of the incubator, the region in which it is located, and the institution with which it is connected, it is natural for them to look for projects aligned with such characteristics. This adjustment between the incubator and the region in which the incubated enterprise is located is essential to the success of both the enterprise and the incubator, and this importance is confirmed by the appearance of the criterion "Incubator/region alignment" in 84 of the notices analyzed.

If incubators host companies from different sectors, for example, they will need to offer infrastructure, services, and access to a fully diversified network. But by choosing to specialize in one sector, preferably one that is favored by the region, the incubator is able to offer more focused services, becoming a reference in the subject (Bruneel et al., 2012).

5. CONCLUSION

This research aimed to map the main criteria used by Brazilian business incubators in the selection of new enterprises, and the results showed evidence that this was achieved. In total, 124 selection notices were analyzed and separated into 17 categories.

The most mentioned criteria in the notices were related to innovation level, economic feasibility, technical feasibility, team capacity, market feasibility, and incubator/region alignment, in line with the ideas mentioned by other researches. It was possible to observe a great heterogeneity in the selection criteria, since they could be classified into 17 different categories.

It is important to highlight that these criteria must be considered together, due to the uselessness of an innovative idea that does not have economic, technical or market feasibility, for example. In another perspective, it is not the incubators' role to support an enterprise that, although may have a good market acceptance, will not provide anything new, just offering more of the same that already exists.

When a venture presents the most mentioned criteria, it will present great attractiveness to the incubators, as their chances of success are high. As previously detached, the project does not need to be advanced; however, a high innovative potential and a good profitability are essential. Additionally, the team capacity and incubator/region alignment are important to boost the ventures' chances of success. In this sense, the entrepreneurs should analyze in detail the incubator to which they will apply, since when choosing correctly, the chances of prosperity are greater.

The main limitation of this research was related to the fact that the information was obtained only by the selection notices. It is possible that, in practice, the evaluation commissions of these incubators use additional criteria for the correct selection of their incubated enterprises.

The results presented in this study are extremely valuable both for incubator managers and for academics. Incubator managers can use the findings presented here to critically analyze their criteria and/or complement them. Academics, for their part, can use the criteria presented here as a starting point for future research.

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