Do innovation policies support micro and small enterprises to overcome barriers?

Alexandre de Vicente Bittar and Luiz Carlos Di Serio
Production and Operations Department,
Escola de Administração de Empresas de São Paulo da Fundação Getúlio Vargas (FGV EAESP), Sao Paulo, Brazil

Received 6 December 2021
Revised 21 December 2022
14 March 2023
11 May 2023
Accepted 12 May 2023

Abstract

Purpose – Micro and small enterprises (MSEs) play a crucial role in the development of any country by generating innovative ideas. However, they face inherent restrictions that hinder their innovation capabilities. It is essential to support innovation policies to overcome these barriers and foster innovation. This study aims to explore how innovation policies can reduce barriers to innovation in MSEs using the lens of innovation capabilities.

Design/methodology/approach – Through a multiple case study, the authors examined eight MSEs in São Paulo (Brazil) and five in Florence (Italy) to conduct this study. These countries share a similar level of importance when it comes to MSEs.

Findings – Current innovation policies could be more effective for MSEs if certain barriers they encounter are faced and resolved, such as limited financial resources and a scarcity of qualified workers. These barriers directly affect two key elements of their innovation capability: financial resources and human resources. Therefore, it is essential to develop innovation policies that target these elements directly to enable MSEs to overcome these obstacles and thrive.

Originality/value – This study aims to enhance the knowledge of how innovation policies can help alleviate obstacles to innovation and how they can influence the various components that comprise the innovation capability of MSEs. This research can be valuable for policymakers as it provides insight into which innovation policies impact each aspect of innovation capability, enabling them to choose the most suitable policy based on the specific needs and local circumstances of the MSEs.

Keywords Innovation capability, Micro and small enterprises, Innovation public policies

Paper type Research paper

1. Introduction

An innovative organization can transform ideas and actions into innovative results through its capabilities (Crossan & Apaydin, 2010; Lawson & Samson, 2001). It requires tackling multiple obstacles and creating opportunities for ideas to transform into innovations. There are several barriers that can hinder generation and performance of these innovation

The authors are grateful for FAPESP's financial support – Grant #2017/01971-0 – Fundação de Amparo à Pesquisa do Estado de São Paulo.

Erratum: It has come to the attention of the publisher that the article, Bittar, A.d.V. and Di Serio, L.C. (2023), "Do innovation policies support micro and small enterprises to overcome barriers?", *Innovation & Management Review*, Vol. ahead-of-print No. ahead-of-print. https://doi.org/10.1108/INMR-12-2021-0234, was published without including the name of the article's editor, Paulo Feitosa. This error was introduced in the production process and has now been corrected in the online version. The publisher sincerely apologises for this error and for any inconvenience caused.

capabilities. Although it is a demanding and lengthy process, it is crucial for achieving distinction and competitiveness. The path to innovation is much more complex for micro and small enterprises (MSEs) due to resource restrictions and structural difficulties that limit their competitive capacity and bring challenges to the innovation process (Forsman, 2011; Lee, Park, Yoon, & Park, 2010). On the other hand, MSEs have some characteristics, such as agility, flexibility, openness and fast decision-making, which make them more capable of innovating (Hoffman, Pajero, Bessant, & Perren, 1998).

MSEs and the innovation they can generate are crucial for the development of any country. Although these companies may not have significant representation when viewed individually, they have the potential to bring about significant social transformation when viewed collectively (Silva, Serio, & Bezerra, 2019). In Brazil and Italy, MSEs comprise 99% of all enterprises and contribute around 27% of the gross domestic product (GDP). Additionally, they account for 52% and 78.1% of formal employment in Italy and Brazil, respectively (SEBRAE, 2015; European Commission, 2019).

MSEs are often overlooked in discussions about innovation and public policies, despite their significant contributions to the economy and their ability to generate new ideas (Silva & Di Serio, 2021). These businesses typically operate in low-tech industries and rely on external resources such as universities and research institutes for innovation rather than in-house research and development processes (Moraes Silva, Lucas, & Vonortas, 2020; Silva & Di Serio, 2021). MSEs play a significant role in the economy and society. However, public policies regarding innovation tend to focus on large companies and those involved in R&D and technology. This results in innovation policies that do not reflect the reality of MSEs. Furthermore, most innovation policies for MSEs are narrow and generic, using metrics and evaluation criteria designed for larger companies. These metrics and criteria may only be relevant in certain small companies and local contexts (Silva *et al.*, 2019).

In order to improve the innovation capabilities of MSEs, public policies can reduce barriers and boost factors that fuel MSEs' innovation capabilities. Research has shown that barriers to innovation can negatively affect a companies' innovation results (Segarra-Blasco, García-Quevedo, & Teruel-Carrizosa, 2008; Talegeta, 2014). Larger companies are better equipped to overcome these barriers (Talegeta, 2014), indicating that company size plays a crucial role in innovation. MSEs often face both internal and external barriers to innovation (Lee *et al.*, 2010; Silva & Dacorso, 2013), which can be addressed through public innovation policies. By reducing these barriers, the innovative spirit of small business owners can thrive, leading to increased innovation in MSEs.

As MSEs play a vital role in the economy, it is crucial to thoroughly investigate the obstacles that hinder their ability to turn new ideas into innovative products or services and how public policies can assist in overcoming them. This research focuses on exploring how innovative public policies can help alleviate these barriers and promote innovation within MSEs. This study seeks to answer the central question: How can innovation public policies reduce barriers to innovation in MSEs?

Public policies can support MSEs to innovate and sustain their businesses as long as they target their innovation capabilities. The primary goal of this research is to understand how public policies can alleviate hurdles to innovation in the MSEs by using the lenses of innovation capability. To answer this research question, a multiple case study approach was applied to understand the barriers to innovation and the missing factors to make them innovate. The results will give us the answer to the research question. Interviews were conducted with the owner or main executive of eight MSEs in São Paulo, Brazil and five main executives in Florence, Italy (Eisenhardt, 1989). Although the cases are restricted to two cities, limiting possible extrapolations to other contexts, MSEs have similar importance in both countries' economic and social aspects. The criteria for case selection were: to be classified as an MSE according to the country's legislation and to have public recognition of its innovation

or competitiveness. Also, one innovation policies specialist in each country was interviewed, totaling fifteen interviews. First, we analyzed each case, identifying the codes related to the theoretical basis. Subsequently, we made a case cross-analysis, relating the codes and comparing the perspectives found in each case (Eisenhardt, 1989).

The remainder of this paper is organized as follows. In the next section, we provide a theoretical basis for innovation public policies and their interface with MSEs, capabilities and barriers to innovation. Next, we present the research methodology, findings and propositions. The paper concludes by addressing the research limitations and indicating suggestions for future research.

2. Literature review

In this section we provide a literature review of innovation public policies and their impact on MSEs, including their innovation capabilities and the obstacles they face when striving to innovate.

2.1 Innovation public policies

Innovation policy refers to the various activities and tools the government uses to assist organizations in their pursuit of innovation (Edler & Fagerberg, 2017). Such support can be direct, in the form of financial and non-financial assistance, or indirect through regulations and standards (OECD, 2011).

According to Jugend, Fiorini, Armellini, and Ferrari (2020), there are various reasons for implementing innovation policies. These include market failures (Hottenrott, Lopes-Bento, & Veugelers, 2017), difficulty in financing research and development activities (Cano-Kollmann, Hamilton, & Mudambi, 2017), informational asymmetries (Hewitt-Dundas & Roper, 2018), undertaking riskier projects (Vanino, Roper, & Becker, 2019) and promoting high-skilled work and qualifying the workforce (Castillo, Figal Garone, Maffioli, Rojo, & Stucchi, 2020). However, innovation policies focused on research and development only sometimes bring positive results. Companies may become reliant on public investment (Carboni, 2017) and may not be certain of increasing their competitiveness (Carvalho, 2017).

Edler (2016) developed a typology of innovation policies based on evidence from practice. The author identified fifteen different tools that can be utilized to achieve innovation goals, divided into:

(1) focus on the creation of innovation and new knowledge: (1) fiscal incentives for R&D and (2) direct support to firm R&D and innovation;

(2) support for continuous learning, training new skills and generation of capabilities to innovate and sell in the market innovations: (3) policies for training and skills; (4) entrepreneurship policy and (5) technical services and advice;

(3) support for interaction and learning at national and regional levels: (6) cluster policies; (7) policies to support collaboration and (8) network policies;

(4) focus on influencing demand for innovation: (9) private demand for innovation; (10) public procurement policies; (11) pre-commercial procurement and (12) innovation inducement prizes;

(5) focus on standards and norms: (13) standards and (14) regulation;

(6) understanding and focus on future technological trends: (15) technology foresight.

2.2 Innovation public policies and MSEs

MSEs are vital to a country' economies, providing employment opportunities and working to lessen social disparities (Aldrich, 2012). Public policies encouraging innovation to aid in social

development and poverty reduction can help entrepreneurs make their ideas and dreams come true (Silva *et al.*, 2019). MSEs play a role in decreasing income inequality promoting a sense of accomplishment and well-being and improving the population's independence and its purchasing power (Barkhatov, Pletnev, & Campa, 2016). As such, it is crucial to implement appropriate innovation policies to promote innovation in MSEs.

MSEs often receive little benefit from innovation policies (Bajmócy & Gébert, 2014; Silva *et al.*, 2019). Despite government efforts to include these businesses in the political agenda, innovation policies are often not well-suited to the needs of MSEs and may be difficult to adapt to their unique realities (Bajmócy & Gébert, 2014; Silva *et al.*, 2019).

Silva *et al.* (2019) have noted that there are very few innovation policies in Brazil specifically targeting MSEs. The existing innovation policies are geared toward larger companies, and there is a lack of understanding of the unique needs of small businesses.

In Italy, policymakers often follow the regional innovation system theory to create technological and regional districts (Bertamino, Bronzini, De Maggio, & Revelli, 2017). These districts aim to boost local companies' innovation capabilities and competitiveness by bringing together universities, research centers and businesses to create synergies (Bertamino *et al.*, 2017). In the north, the focus is mainly on high-tech districts, while in the South the emphasis is on promoting regional development and innovation for MSEs through networks of players, such as research centers and large companies in their value chain. Additionally, access to national and European public funds is an advantage. However, evidence suggests that a company's performance may not be strongly linked to its participation in a district (Bertamino *et al.*, 2017).

Nascia and Pianta (2018) attributed Italy's low levels of innovation and competitiveness to shortcomings in regional innovation systems and policy-making. It has resulted in decreased funding for R&D, a focus on established industries, minimal involvement in high-tech fields and foreign corporations' acquisition of innovative Italian companies.

2.3 Innovation capabilities

The ability to innovate products, services and processes is an essential aspect for organizations to achieve and maintain high performance and a competitive edge (Hogan, Soutar, McColl-Kennedy, & Sweeney, 2011) and involves using novel ideas in a productive manner (Francis & Bessant, 2005).

Innovation capability is a key component to the success of any organization. According to Helfat *et al.* (2007) (p. 4), innovation capability is the "*capacity of an organization to purposefully create, extend, or modify its resource base*". This capability empowers businesses to make substantial enhancements and changes to their current technologies, products and procedures while also developing new ones (Romijn & Albaladejo, 2002). The literature explores several elements of the innovation capability, capable of leading it to successful results, including leadership, employees' skills and creativity (human resources), organizational structure, culture and climate, organizational learning, networking, financial resources and exploitation of external knowledge. A company can improve its innovation capability and drive meaningful results by focusing on these elements (Crossan & Apaydin, 2010; Lawson & Samson, 2001; Saunila, 2016).

2.4 Barriers to innovation

A barrier to innovation can be understood as a factor that prevents, delays, or blocks innovation development (Hueske, Endrikat, & Guenther, 2015). Several barriers affect organization innovation (Benito-Hernandez, Platero-Jaime, & Rodriguez-Duarte, 2012; Hueske *et al.*, 2015; Moraes Silva *et al.*, 2020). This research classified them according to the framework developed by Hueske *et al.* (2015): (a) individual barriers, (b) organizational

issues and (c) external environmental factors. The influence of each of these levels can impact a company's ability to innovate.

Innovation can be hindered by various factors, including the skills and mindsets of an organization's employees and the commitment of its management (Hueske *et al.*, 2015). Additionally, the unique personal characteristics of a given MSE entrepreneur can impact the innovation process (Lefebvre & Lefebvre, 1992), as well as the abilities and attitudes of the individuals within the organization (Anderson, De Dreu, & Nijstad, 2004; Necadová & Scholleová, 2011). By recognizing and addressing these barriers, organizations can better foster a culture of innovation and drive growth and success in their respective industries.

Organizational barriers to innovation emerge from internal factors and innovation capability failures. MSEs have the potential for high levels of innovation due to their flexibility and adaptability, which is often greater than that of larger companies (Forsman, 2011). However, they face structural and resource difficulties that limit their competitive capacity and bring challenges to the practice of innovation (Ren, 2009; Silva & Dacorso, 2013). The main internal difficulties are lack of innovation capability, dependence on innovation by imitation (Lee *et al.*, 2010), low capacity for research and development (Benito-Hernandez *et al.*, 2012), lack of technological innovation and little knowledge of the market (Galia & Legros, 2004; Moraes Silva *et al.*, 2020).

External environmental barriers can be studied using the stakeholder theory. One stakeholder can affect the organization or is affected by it, benefiting or threatening its competitiveness and innovation (Hueske *et al.*, 2015). Suppliers can promote ideas, new technologies and processes to improve product development and provide better customers services (Spithoven, Vanhaverbeke, & Roijakkers, 2013). On the other hand, innovation can be enhanced through increased technical support from suppliers and unlimited access to innovative suppliers (Baldwin & Lin, 2002).

Customers also have the potential to provide innovative ideas about product design and functionalities (Flint, Larsson, Gammelgaard, & Mentzer, 2005). However, there may be external resistance from customers (Abdul-Hadi, Al-Sudairi, & Alqahtani, 2005), a lack of customer interest in new products (Tourigny & Le, 2004) or a weak reputation of MSEs in the market (Taneja, Pryor, & Hayek, 2016).

Other external environment actors that may trigger or restrict innovation are: the State and society (Hueske *et al.*, 2015), legislation (Galia & Legros, 2004), the credit system (Segarra-Blasco *et al.*, 2008) and the labor availability in the market (Lee *et al.*, 2010).

3. Methodology

The authors used multiple case study research as their methodology in this study. This approach was deemed appropriate for gaining insight into the various factors and obstacles that impact innovation in MSEs. Additionally, the authors sought to investigate the effects of innovation policies through this approach (Eisenhardt, 1989; Yin, 2009).

The data were collected through semi-structured interviews, direct observation and document analysis to ensure that the findings were accurate and reliable. This extensive approach provided a deep understanding of the subject matter and enhanced the validity of the study (Voss, Tsikriktsis, & Frohlich, 2002). Appendix A provides further detail on the protocol used.

The authors interviewed the owner or leading executive of eight MSEs in São Paulo, Brazil, the country's most economically significant city. Additionally, they interviewed five leading executives in Florence, Italy, which has one of the largest concentrations of companies in the country and is of great significance its economy (Table 1) (Eisenhardt, 1989). MSEs have similar economic and social importance in both countries. The selection criteria for the MSEs included classification as an MSE according to the country's

Case (fictitious name)	Market segment	Interviewee	Founded in	Location	Number of employees	Innovation
Industrial bakery (IB)	Food industry and commerce	Managing partner	2009	São Paulo - Brazil	40	Product formula with an emphasis on flavor (bread with cheese). Differentiated service
Judicial system (JS)	IT system to law firms	Owner	2015	São Paulo - Brazil	3	Developed an IT system that improves efficiency and productivity in legal services/law firms
Car platform (CP)	Commerce (sales intermediation)	Owner	2016	São Paulo - Brazil	5	The IT platform makes the intermediation between car sellers and buyers—used vehicle warranty service
Pension system (PS)	IT system to law firms	Managing partner	2013	São Paulo - Brazil	3	Created a website social offering a comprehensive social security petitions database. It will increase efficiency and productivity for law firms
Education services (ES)	Education services	Managing partner	2015	São Paulo - Brazil	6	An education business model built around competencies and curriculum flexibility. It is managed through na in-house platform
Logistics platform (LP)	Logistics services	Director	2015	São Paulo - Brazil	10	IT platform is integrated with GPS and maps, allowing for seamless management and monitoring of deliveries
Bijouterie (BJ)	Recyclable bijou	Managing partner	2017	São Paulo - Brazil	2	Bijoux produced in 3D printing with biodegradable and recyclable material

Table 1.
List of cases

(*continued*)

Case (fictitious name)	Market segment	Interviewee	Founded in	Location	Number of employees	Innovation
Tourism platform (TP)	Tourism sales intermediation	Managing partner	2013	São Paulo - Brazil	25	Platform created to provide consumers with improved travel options and competitive prices. The platform connects travelers with various players in the tourism industry
Embedded electronic devices (ED)	Technological solutions	Director	2001	Firenze - Italy	48	Technological solutions integrating hardware and software
Chemical Solvents (CS)	Chemical solutions	Managing partner	2012	Firenze - Italy	7	Development and production of new solvents according to customer needs
Automation Solutions (AS)	Automation and Industry 4.0	Managing partner	2014	Firenze - Italy	32	Conception, design and manufacturing of machines and systems dedicated to automating industrial processes
Sustainable network (SN)	Social network	Managing partner	2012	Firenze - Italy	10	Social network that allows people to seek and share sustainable actions and ideas, connecting consumers and companies
Fourth Industrial Revolution (FI)	Automation and Industry 4.0	Managing partner	2016	Firenze - Italy	8	Development of Industry 4.0 solutions to companies

Source(s): Prepared by the authors

Table 1.

legislation and public recognition of their innovation or competitiveness, which means they were mentioned in the media as innovative companies. These enterprises have similar economic and social importance in both countries. (Table 1) (Eisenhardt, 1989). In addition, a public policy specialist was also interviewed in each country, thus totaling fifteen interviews.

All the companies' interviews took place in 2019 at their facilities. It was an opportunity to understand better how they work. On average, the interviews lasted about 60 minutes. They were recorded with the consent of the interviewees, transcribed and analyzed using a software to support the analysis of qualitative data (Atlas.ti). Secondary data were collected from companies' websites and news coverage. The latter data sources are recommended as a means of triangulation for case study research (Eisenhardt, 1989).

After collection, the data were analyzed. First, each case was analyzed, identifying the codes related to the theoretical basis. From this within-case perspective, it was possible to identify barriers faced in each case. Subsequently, a cross-case analysis was conducted to identify patterns, similarities and differences, relating the codes and comparing the perspectives found in each case (Eisenhardt, 1989). An iterative process followed, comparing the data and principles with theory, revisiting the data and confirming or modifying the codes (Miles, Huberman, & Saldana, 2013).

4. Case study

This section details the data from the within-case and cross-case analysis, considering the codes relevant to the research.

4.1 Within-case analysis

The within-case analysis allows for the reduction and management of data (Miles *et al.*, 2013), enabling the structuring and processing of information. Each company has its characteristics and vision about the barriers it faces to survive and compete in the market. All selected companies innovated in their market. Despite the obstacles, they launched new products and services on the market.

4.2 Cross-case analysis

Comparing all the codes extracted from the cross-case analysis enabled the perception of similarities and differences between cases. Appendix B summarizes the twenty-four codes found through this analysis, divided by external, organizational and individual barriers to innovation. Each code was named "evidence from the cases" and is linked with the innovation barrier from the literature. The cases in which the evidence was found are detailed and include illustrative quotes. The quotes from the Brazilian cases were translated into English. The Italian case interviews were conducted in English.

5. Discussion

This section involves analyzing coding and cross-case analysis to compare findings with the literature review. Although no new barriers to innovation were found, similar barriers were identified in several cases. It was also observed that the same barriers existed in both Brazilian and Italian cases. The next step was to determine which elements of innovation capability were affected by these barriers and which innovation policies could help to reduce their effects. The following topics provide a detailed discussion of each level of analysis.

5.1 External environmental barriers

Based on the evidence from the cases, the external environment is the most influential level of analysis. It has been observed that customers, suppliers and competitors can create barriers that affect innovation in MSEs. These dimensions are part of the value chain and can impact the growth potential of these businesses.

Small businesses, particularly start-ups, often need help to do business with large companies that dominate the market (D'Este, Iammarino, Savona, & von Tunzelmann, 2012). It is due to an inefficient bureaucracy on the part of multinationals and other large companies when hiring suppliers. This difficulty in doing business is a major barrier for MSEs in delivering their innovation. "*You arrive at a large company and the guy asks for the balance sheet for the last 3 years. I don't even have 3 years! And then you can't be approved by compliance because you didn't send the balance sheets*. . .", the LP director told us. This barrier

prevented LP from closing a deal with a large client, even with a better logistic solution. FI and AS, based in Italy, faced the same issue.

Another innovation barrier is a limited reputation in the market (Taneja *et al.*, 2016). Companies such as CP, ES and SN struggled to acquire new customers who could not understand and trust their innovations. The first impact is distrust in the company. Customers are reluctant to do business due to lack of trust (González-Torre, Álvarez, Sarkis, & Adenso-Díaz, 2010).

CP developed a platform intermediating used car sale, connecting sellers and buyers through virtual means. The business model tried to solve the problem of those who wanted to sell or buy a used car. Intermediation was viewed with distrust, which led CP to invest in the disclosing its process based on transaction security. "*We are doing a new thing... there is a lack of confidence because it is a different form of business... one customer came up and said she was finding it very strange, weird... someone told her it was a scam and she decided to come here. See if our company existed!*", the CP owner told us.

These companies have created new business models focused on customer service, and their main challenge was to build trust with their customers. It has been observed that external customer resistance (Abdul-Hadi *et al.*, 2005) and customer reluctance (González-Torre *et al.*, 2010) have been significant hurdles. Therefore, we propose that:

P1. Service MSEs that come up with innovative business models struggle to gain customer trust, which makes it hard for them to sell their services in the market.

Both countries cited barriers caused by the State, including complex tax systems, high tax burden, expensive and bureaucratic labor legislation and inefficient public administration. Florence's cases also mentioned excessive bureaucracy when applying for government funding. In São Paulo, the condition is different: there are practically no credit lines offered by the government.

Skilled labor is a scarce resource in both cities. It is difficult for companies to hire qualified employees, especially in Information Technology and Industry 4.0. In addition to the limited supply in the job market, there is competition with larger companies that offer more attractive pay and benefits packages than the MSEs.

5.2 Organizational barriers

The main hurdle to innovation for most MSEs is financial resources. Obtaining capital from the market or government is difficult, so many MSEs cannot develop or market their innovative ideas. This lack of financial resources often leads to a heavy reliance on the owners' capital. "*I control the launch of new products based on the company's profit and in its cash flow... I had recently to invest in a new 3D printer, I had to use my own capital, otherwise my company will not grow*", the BJ owner told us.

One of the barriers to organizational learning is the low level of knowledge management. Since MSEs have few employees, knowledge is usually centralized in each individual without due disclosure or adequate recording. If one employee decides to leave the company, valuable knowledge may be lost. "*Most codes are in the minds of developers, this can be a problem in the future*", the manager of SN told us.

5.3 Individual-level barriers

According to Baldwin and Lin (2002) and Ren (2009), two individual-level barriers can affect innovation: lack of innovative attitude and difficulty in finding committed employees. Anderson *et al.* (2004) state that innovation relies on individuals' skills and attitudes, which means that these barriers can limit the innovation of MSEs.

According to the JS manager, the absence of an innovative mindset is a problem that stems from the culture: "*We were not taught to think innovatively ... our innovation is annihilated by*

the kind of our upbringing, our parents don't want us to be innovative, and this has resulted in a lack of innovation. The culture discourages innovation, which is seen as disruptive and messy. ... So, the model we were raised is the one that kills innovation every day... we must disconnect ourselves from this kind of behavior to innovate."

5.4 Barriers to innovation and innovation capability

The cases presented highlight obstacles to innovation. By examining the key components of innovation capability, such as human and financial resources, organizational structure and leadership, we can pinpoint which elements these barriers impact. Appendix C provides a clear connection between barriers to innovation and innovation capability, which we will discuss in this section. In the next section, we will examine how innovation policies impact the innovative capability of MSEs.

The main barriers to innovation faced by the MSEs are the lack of financial resources to invest in innovation and the difficulty in obtaining financial resources in the market. One of the elements of innovative capability is financial resources. With adequate funding for R&D and innovation, the MSEs can leverage innovative ideas, launch new products and services, or improve new business processes.

Another barrier to innovation is the need for more qualified professionals in the job market. In addition to the difficulty for MSEs to hire this workforce, there is competition from larger companies that can pay higher wages and offer more benefits. This barrier affects the human resource element of innovation capability, hampering the innovation performance.

The ability to learn within an organization is a crucial aspect of innovation capability. It involves taking knowledge within the organization and using it to make improvements. There are two perspectives to consider: a technical perspective, which deals with processing, interpreting and responding to information and a social perspective, which sees organizational learning as arising from social interactions that involve both explicit and tacit knowledge, skills and experience (Raj & Srivastava, 2016). Poor internal knowledge management can hinder organizational learning and knowledge sharing among the MSEs' employees.

5.5 Innovation capability and innovation policies

In this section we will be delving into innovation policies and how they can help reduce barriers and improve the innovation capability of the MSEs – see Figure 1 for more details.

During the interviews, no innovation policy was explicitly mentioned by the interviewees, except for the ALI (Local Agents of Innovation) program. The ALI program was established

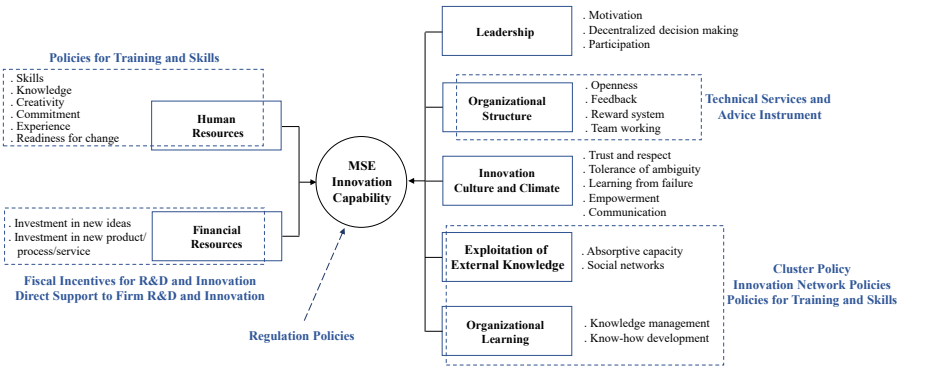

Figure 1.
Elements of innovation capability and innovation policies

Source(s): Figure by authors

by collaborating with SEBRAE (Brazilian Support Service for MSEs) and the National Council for Scientific and Technological Development (CNPq) in Brazil. The program aims to work with small companies to enhance innovation. According to the director of industrial bakery (IB), "*the program assists in identifying the company's limitations, organizing teams with goals, and implementing a reward system.*" The program serves as a "technical services and advisory instrument" (Edler & Fagerberg, 2017), supporting and motivating improvements in MSEs' business operations. It focuses on innovation in design, products, services and business models. MSEs can receive more comprehensive support with the help of this instrument. It can conduct a thorough analysis of their operations, identify areas for improvement and explore innovative technologies and processes that could benefit their business. Moreover, it can guide the structuring of their organizations to maximize efficiency and profitability. Thus, we propose that:

> P2. "Technical Services and Advisory instrument" is an innovation policy that helps improve the organizational structure of MSEs, which, in turn, enhances their innovation capability.

The Italian specialist interviewed considered that "*. . . in recent years there were efforts and investments have been made to promote technological clusters, and to foster public-private cooperation. . . there has been an increase in the collaboration between universities and research centers with companies, which is good. . .*". In this narrative, it is possible to identify that Italy has been using two specific instruments: "cluster policy" and "innovation network policies." Italy has a tradition of supporting MSEs located in clusters (Uyarra & Ramlogan, 2016). It was a pioneer in the use of policies to generate inter-firm networks that promote collaboration among companies, universities, research centers and public sectors in a value chain network (Cunningham & Ramlogan, 2016). These policies encourage the circulation and sharing of knowledge, as highlighted by the AS director: "*We are very close to some suppliers and a university. . . these suppliers support us a lot with new knowledge and new technologies. . . and we work very closely with the university, using its labs and we have a student collaborating with us on a new project.*" Therefore, we propose that:

> P3. "Cluster Policy" and "Innovation Network Policies" are innovation policies that positively affect external knowledge exploitation by the MSEs, promoting their innovation capability.

The cases evidenced the inefficiency of government bureaucracy. Several examples are cited in the cases, such as tax complexity, high tax burdens, bureaucratic and costly labor legislation and inefficient public administration. This bureaucracy affects the competitiveness of MSEs due to increased costs and lead times. In addition, it demands more significant efforts and resources for the MSEs, diverting them from the focus of innovation.

A regulatory policy can improve the business conditions through standardization and create conditions to promote innovation (Edler & Fagerberg, 2017). Only one Brazilian enterprise, the JS company, presented an example: "Simples Nacional". It is a unified tax system specifically designed for MSEs. All eight different taxes levied by the federal, state and municipal spheres of government are declared and collected once a month, facilitating MSEs' tax management. In addition to being a fiscal and tax policy, it can be considered a regulatory policy, as it aims to facilitate the collection of such taxes. It reduces the bureaucracy of managing the company's taxes and allows for a single collection operation. Thus, the owners and managers can focus on improving processes and innovative ideas.

Regulation can improve the competitive environment for small businesses, ensuring the sustainability of their economic survival and encouraging innovation. Therefore, we propose that:

P4. "Regulation Policies" are Innovation Policies that improve the business environment, positively affecting the MSEs' innovation capability.

The "Fiscal Incentives for R&D and Innovation" are an indirect instrument that can also have the same effect, contributing to the MSEs through tax incentives. It allows a company to reduce its tax burden or other mandatory contributions, as long as there are investments to innovate. For instance, Italy was among the first countries to implement an accelerated depreciation policy for R&D assets such as equipment and intangibles. The Italian tax incentive program has focused on increasing indirect tax incentives to companies regardless of their activities. Incentives include areas such as R&D, patents, human capital, investment in machinery and digital technologies of Industry 4.0 (Nascia & Pianta, 2018). It is a horizontal approach, and there are no public priorities. It is based on the efficiency of the market, which better decides how and where to innovate.

The "Direct Support to Business R&D and Innovation" is an instrument that can support MSEs with funds, reducing their financial constraints. Financing is granted based on the project proposed by the MSE and approved by the funding source. Public funds are the main source allocated to MSEs in OECD countries (Cunningham & Ramlogan, 2016), targeting specific areas where government intervention can be beneficial. The expected results are new (or updated) products, services, processes and greater collaboration with universities and research centers (Cunningham & Ramlogan, 2016).

The lack of financial resources is the main barrier to innovation identified in the research. The MSEs face difficulties in acquiring financial resources. Both countries have a concentrated banking market, making credit expensive. In Italy, public policies facilitate public finance, despite the bureaucracy involved. However, it is still insufficient to serve MSEs. Only one public institution in Brazil offers cheap lines of credit *("Desenvolve SP",* in the State of São Paulo). Thus, there is a significant dependence on venture capital resources, which limits the ability to innovate. One of the elements of the innovation capability is financial resources, which is a barrier to developing innovation capability. Consequently, we propose that:

P5. "Fiscal Incentives for R&D and Innovation" and "Direct Support to Business R&D and Innovation" are innovation policies that positively affect the financial resources of the MSEs, promoting their innovation capability.

Finding qualified labor in the job market is another constraint to innovation capability development. One of the main resources of an innovative MSE is its skilled workforce, which is responsible for ideas, research and development of products and services. When a country fails to educate its citizens or does not correctly align the school curriculum with the new needs of the labor market, there is a shortage of qualified labor. A lack of a skilled, committed workforce limits innovation development (Castillo *et al.*, 2020).

Innovative companies tend to spend more on formal and informal training (Jones & Grimshaw, 2016). Additionally, MSEs benefit from building a 'knowledge pool,' which includes the technical skills and innovation history of owners, managers and employees. While having a skilled workforce is crucial for a company, the specific skill mix that leads to optimal innovation performance varies. Policies focused on training and skills development can increase the number of qualified workers in the labor market, while targeted programs can enhance the entrepreneurial abilities of these workers. Therefore, Jones and Grimshaw suggest that "Policies for training and skills" "*should finance higher education and better-quality schooling, subsidize publicly funded scientific research and coordinate or invest in vocational education and training*" (Jones & Grimshaw, 2016, p. 109). Therefore, we propose that:

P6. "Policies for Training and Skills" are innovation policies that positively affect the human resources of the MSEs, promoting their innovation capability.

P7. "Policies for Training and Skills" are innovation policies that positively affect the human resources of the MSEs, indirectly influencing their organizational learning and their exploitation of external knowledge, promoting their innovation capability.

6. Conclusion

This research sought to understand the relationship between barriers to innovation and policies through the lens of innovation capability. Multiple case studies were conducted with MSEs in two cities across countries. The results revealed similarities in the challenges encountered by MSEs, the impact of these challenges on their ability to innovate and the role of innovation policies on their innovation capability.

This research explored the barriers to innovation and their impact on innovation capability. Limited access to financial resources and a shortage of skilled labor in the job market are two significant barriers that hinder the ability of MSEs to innovate. Without consistent funding and a competent workforce, investing in new and innovative ideas or developing new products and services is impossible. Furthermore, the inefficiency of government bureaucracy adds to the cost and cycle time of MSEs, which reduces their competitiveness.

The theoretical contribution of this research is to enhance the understanding of how innovation policies can help overcome barriers to innovation and improve the innovation capabilities of MSEs. "Fiscal Incentives for R&D and Innovation" and "Direct Support to Firm R&D and Innovation" are types of policies that can directly impact the "financial resources" aspect of innovation capability. Meanwhile, "Cluster Policy" and "Innovation Network Policies" can foster collaboration in the value chain and the connection with universities and research centers, thereby promoting "exploitation of external knowledge" and "organizational learning" in terms of innovation capability. The authors are unaware of studies with the same approach, which possibly emphasizes the originality of this contribution.

This research provides a practical guide for policymakers to understand which innovation policies affect each element of innovation capability. Investments in these elements allow for leveraging innovation capability and better innovation performance. Thus, one can rationalize the choice of the type of public policy and the consequent impact on the innovation capability elements of MSEs. By identifying barriers to innovation, the needs and the local context of MSEs, it is possible to determine which part of innovation capability should deserve more attention and which type of innovation policy is the most appropriate.

There are research limitations. The authors have categorized innovation policies into fifteen types or instruments, as Edler (2016) and Edler and Fagerberg (2017) recommended. Unfortunately, this study did not explore specific aspects of each innovation policy. Nevertheless, policymakers can turn to the literature to uncover policy options for each type.

There are other limitations in this research. Due to the methodological design, a limited number of companies are surveyed. To reduce this problem, the authors chose innovative companies. Despite facing barriers, they managed to innovate, thus highlighting the elements of innovation capability and the difficulties encountered. National and local contexts also limit this research. The cases are restricted to two cities with specificities and needs in two countries. An opportunity for future studies is to replicate this research in other cities or countries to identify similarities and differences.

A potential avenue for future research is to investigate the propositions put forth in this study quantitatively. Although it can be challenging to assess the impact of public policies, it is vital for future studies to determine how innovation policies affect various aspects of MSEs' innovation capability.

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Appendix

The supplementary material for this article can be found online.

Corresponding author
Alexandre de Vicente Bittar can be contacted at: alex_bittar@yahoo.com.br

Associate Editor: Paulo Feitosa