

B-Side of Innovation for SMEs in Latin America: A Systematic Literature Review through a PRISMA Approach

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DOI:

Fecha de recepción: 31 de enero de 2022
Fecha de aprobación: 01 de septiembre de 2022
Fecha de publicación:



Cómo citar este artículo: García-Rosas, A. G., & García-Contreras, R. (2022). B-Side of Innovation for SMEs in Latin America: A Systematic Literature Review through a PRISMA Approach. *Revista Escuela de Administración de Negocios*, (93), (páginas). DOI:

Abstract

This article aims to synthesize the existing literature on innovation in Latin America's small and medium-sized enterprises (SMEs). Through a PRISMA approach and based on data from 34 screened articles. A systematic literature review allowed us to understand the variables that compromise innovation implementation of in Latin American SMEs. These results show three main dimensions covering the unexplored side of innovation in Latin America: (1) Institutional environment, (2) Knowledge issues, and (3) Entrepreneurial traits. The findings shape a conceptual framework on the factors that hinder the innovation processes of SMEs in Latin America to integrate the substantive analysis efforts for future directions and research agendas about the topic.

Keywords: Innovation; SMEs; Latin America; PRISMA approach; entrepreneurship; management; unexplored side.

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B-Side de la innovación para las PYMES en América Latina: una revisión sistemática de la literatura a través de un enfoque PRISMA

Resumen

El objetivo de este artículo es hacer una síntesis de la literatura existente sobre la innovación en las pequeñas y medianas empresas (Pymes) de América Latina. A través de un enfoque PRISMA y a partir de los datos de 34 artículos seleccionados. La revisión sistemática de la literatura permitió conocer las variables que comprometen la plena implementación de la innovación en las PYMES latinoamericanas. Los resultados muestran tres dimensiones principales que limitan la innovación para América Latina: (1) Barreras institucionales, (2) Limitaciones de conocimiento y (3) Rasgos empresariales. Los hallazgos conforman un marco conceptual sobre los factores que obstaculizan los procesos de innovación en el contexto de las Pymes de América Latina para integrar los esfuerzos en análisis sustantivo para futuras direcciones y agendas de investigación sobre el tema.

Palabras clave: innovación; Pymes; América Latina; enfoque PRISMA; emprendimiento; gestión; lado inexplorado.

1. Introduction

Nowadays, innovation represents more than a business strategy. It has become a pillar of business activity by allowing companies to enter new markets through the innovation prospects. Furthermore, authors such as Yun (2015) consider the ability of innovation to lead society toward a new knowledge-based approach driven by a social innovation broker through an open innovation economic system (Gassmann *et al.*, 2010; Yun, 2015).

In Latin America, numerous entrepreneurs bring the characteristic of being a region with a high number of business owners per capita. However, SMEs present lower levels of innovative practices than larger firms (Yang, 2017). Although large companies are usually the reference for economic growth, SMEs play a fundamental role in the progress of countries, serving as an engine for economic and social development integrated by some conditions such as educational levels, business climate, and legal and political conditions (Yun, 2015). Nevertheless, in Latin America, there is inefficient performance in infrastructure, skills, and innovation activities (Amorós *et al.*, 2019; Benites-Gutierrez *et al.*, 2020).

Innovation and its newest conceptions are emerging as a trending topic for global organisms, R&D institutions, and knowledge brokers who attend to their importance for the actual context and organization's future. Progress in innovation knowledge in Latin America is scarce compared to other countries (Santi & Santoleri, 2017). Two main features are considered: First, the number of entrepreneurs is higher than in other developing countries (regions of Asia and Europe). Second, the evident situation of inequality and other several social and economic problems linked to any of the largest economies in Latin America (Amorós *et al.*, 2019; Yang, 2017). Therefore, companies try to implement different practices for effective innovation process management for successful organizations and seek a competitive advantage (Crespi *et al.*, 2015; Pertuz & Pérez, 2020; Teece, 2010).

Innovation represents a key factor for organizational development because it generates significant positive effects on entrepreneurial performance and becomes essential for economic growth (García-Vidales *et al.*, 2019; Pertuz & Pérez, 2020). In addition, for SMEs, the pursuit of innovation can benefit long-term success and stand out from the competition in dynamic markets (Hueske & Guenther, 2015; Rosenbusch *et al.*, 2011; Schiavi *et al.*, 2019). Literature suggests the benefits of innovation. Nevertheless, it is necessary to inquire about the other effects (Bunduchi *et al.*, 2015).

Although innovation uses internal and external knowledge to develop and accelerate the innovative behavior of companies for their external performance, it was observed that innovation works differently for all types of companies, both by size and by industry, including the country. Innovation can also bring negative effects due to an inadequate strategy design (Rosenbusch *et al.*, 2011). In this regard, under certain conditions, SMEs resist innovation attempts because of their characteristics (Rosenbusch *et al.*, 2011). Institutional constraints (e.g., financial resources provided by governments, development organizations, and innovation policies) restrict SMEs from developing their potential to increase profits, jobs generation, and at last economic growth (Cravo & Piza, 2019).

In addition, the absence of an organizational structure leads SMEs to financial issues, inefficiency and increases the probability of failure, limiting the capability of SMEs, making

them vulnerable to unfavorable business conditions (Wang, 2016). Innovation performance outcomes motivate innovation practices, such as technological evolution, product introduction, and collaboration methods. Consequently, SMEs should reorganize their resources to develop capacities, design opportunities, or seek the creation of competitiveness, applying strategies linked to innovative practices (Guerrero *et al.*, 2017; Parada *et al.*, 2016).

Finally, Amorós *et al.* (2019) identify that some entrepreneurial practices do not benefit the innovative activity or even present unexpected side causes on the economic outcomes. For this reason, they realize a specific type of entrepreneur must identify business opportunities and guide human capital supported by innovation and competitive advantages.

Thus, we based our analysis on the following research question: Which features included in the literature are less evident for Latin American SMEs but have significant effects on their innovative activity? Regarding the above, this study aims address this gap in the literature by conceptualizing some of the unknown factors that compromise the efficiency innovation process of this kind of firm, mentioned by the existent scientific literature around the topic. Although other reviews and meta-analyses were found, they do not focus on the less favorable side of innovation or its consequences for SMEs, as in the case of Rosenbusch *et al.* (2011). Moreover, through the literature review, no document compiled all the features structured in the discussion (all the papers reviewed are focused on a single feature by itself). Therefore, we propose a framework for a better understanding of the topic. The research develops a systematic literature review of scientific articles related to the unnoticed factors which have restricted innovation (B-Side³) in Latin American SMEs. Besides, the literature reviewed allows for building a framework that helps SMEs cross innovation boundaries. For this reason, a PRISMA analysis was conducted to review and evaluate the effects of the intervention on the elements. Indeed, authors such as Jobin *et al.* (2019) and Mu and Wang (2020) conducted PRISMA methodology on topics such as open innovation through public policy and ethical guidelines of artificial intelligence, respectively.

³ B-side is the flip side of a record. Sometimes, the less important or the one that receives the least attention (Cambridge English Dictionary, 2021).

The remainder of this article is as follows: The first section presents an overview of the benefits of innovations for SMEs; the second section describes the methodology based on a PRISMA approach (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) and explains the eligibility criteria, search strategies, and study selection; the third section presents the results of the systematic review, including the features of the eligible studies and the answers to the research question. Finally, we concluded some trends for future research agenda.

2. Innovation benefits for Latin America SMEs

Innovation is a combination of technological, organizational, and marketing subjects that impulse the introduction of new products or practices (radical innovation) or the improvement of processes looking for efficiency and quality (incremental innovation) in the SMEs activity (Hueske & Guenther, 2015). Some capacities are generally considered for their useful potential to develop innovation in SMEs, like adoption, absorption, collaboration, and a risk-taking attitude. Indeed, Schumpeter and Nichol (1934) recognize innovation as the determinant of entrepreneurial activity success. Likewise, Amorós *et al.* (2019) mentioned the role of innovation and its stretch, unbreakable and complementary relationship with entrepreneurial activity.

There was identified that the level of innovation in Latin American SMEs positively affects the external economic environment (García-Vidales *et al.*, 2019; Maldonado-Guzmán *et al.*, 2017). For instance, Castellacci and Natera (2015) found a positive relationship between innovation performance and gross domestic product (GDP) in Latin American countries. It is shown that business model innovation benefits SMEs' international performance and entrepreneurial orientation (Asemokha *et al.*, 2019). The literature has also registered that in some Latin American countries like Brazil, the capacity for innovation positively effects export performance (Oura *et al.*, 2015). In addition, Martins *et al.* (2015) confirm similar factors, such as innovation, which improves export propensity and international sales for SMEs in Colombia.

Besides, for the natural resource-based on SMEs, Basco and Calabrò (2016) identified that open innovation search strategies help to understand the orientation needed for more efficient development of policies, which indirectly has a positive effect on local and regional development. Similarly, Valdez-Juárez and Castillo-Vergara (2021) found a positive outcome of open innovation and eco-innovation around SMEs' performance.

In addition, research focused on radical innovation demonstrates a positive impact on client satisfaction, job satisfaction, employee incentive systems, and higher profitability (Bianchi *et al.*, 2010; Valdez-Juárez *et al.*, 2018). According to the above, the presence of radical innovation in the manufacturing industry in Chile confirms a high level of employment generation (Crespi *et al.*, 2019). Moreover, Seclen-Luna *et al.* (2020) found a positive effect on the relationship between labor productivity and human capital influenced by innovation.

Recognizing the high value of innovation for SMEs, organizations such as the World Bank support countries with different instruments such as public policies and funds to encourage R&D institutions to develop innovation in addition to the National Council for Science and Technology (CONCYTEC) as in the cases of Peru, Guatemala, COLCIENCIAS in Colombia and Chile.

Lastly, García-Pérez de Lema *et al.* (2016) identified the positive innovation effects of the overdeveloping and entrepreneurial performance of the SMEs in the Pacific Alliance about factors such as sales growth, job generation, and increased profitability. Moreover, it is inevitable to have a successful business model without the presence of an innovation strategy (Tece, 2010).

Undoubtedly, innovation has demonstrated its potential to develop regions, countries, industries, and firms (Ayele *et al.*, 2012; Egbetokun *et al.*, 2017). However, some contexts and economic sectors have unresolved problems and unintended consequences (Hossain, 2015). Therefore, it is necessary to know the factors that hold back the innovative potential of Latin American SMEs. The following section features the systematic literature review of the B-side of innovation for SMEs in Latin America based on the PRISMA approach.

3. Methodology

This article performs a systematic literature review guided by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) approach protocol. This performance guides us to identify, classify, and consolidate the scientific knowledge about the topic, supported by its principal advantage of transparency and quality over the selected items collected from the literature, becoming easier to replicate the method and verify the results (Gomes de Sousa *et al.*, 2019; Hossain & Kauranen, 2016; Mu & Wang, 2020).

The PRISMA protocol is integrated: First, for an Identification procedure, a scope for the potential studies defining the inclusion and exclusion criteria for searching databases is performed. Second, the Screening part aimed to exclude papers sorted by title and abstract. Third, the eligibility phase conducts another exclusion process to exclude no useful papers after reading full texts. Finally, the inclusion phase integrates the sample with the resulting studies, excluding duplicated ones. Attending to the objective of carrying on the quality, transparency, and item coverage, this methodology does not need the implementation of bibliometric networking software (Page *et al.*, 2021).

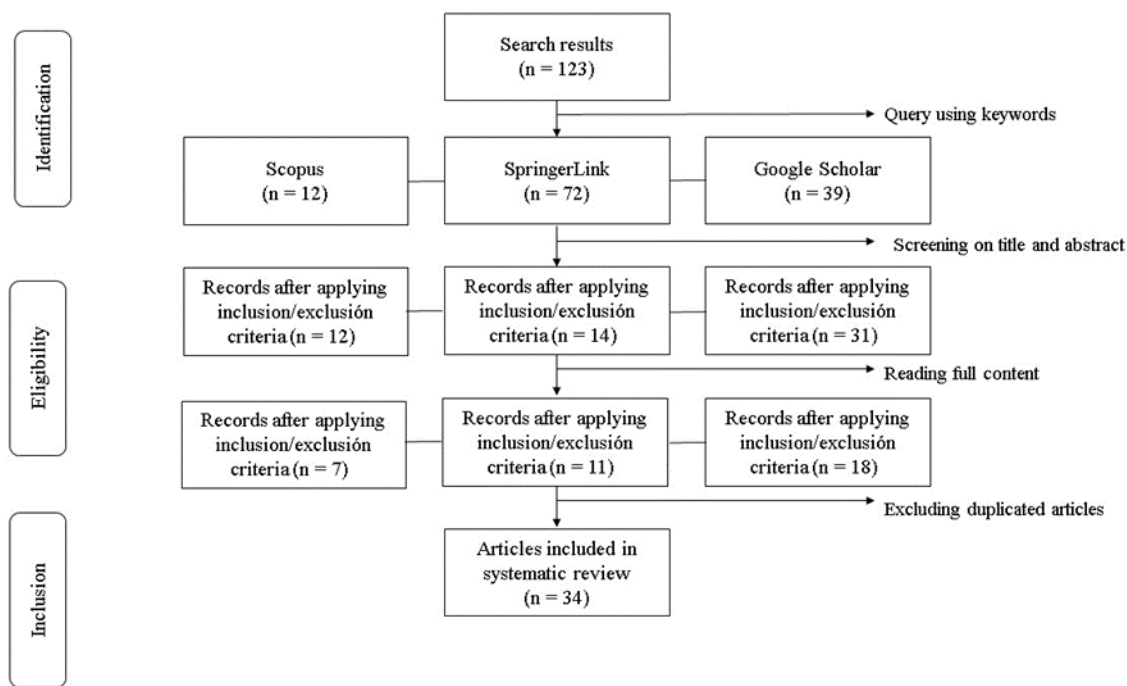
3.1 Search strategies

The search was conducted through a multi-stage screening strategy of online collections to identify relevant documents about the topic. The query was performed using the following keywords: ("Innovation" OR "Radical Innovation" OR "Incremental Innovation") AND ("Microenterprises" OR "Medium enterprises" OR "Small enterprises" OR "SMEs") AND ("Latin America") AND ("Effects" OR "Negative effects" OR "Positive effects" OR "Side effects"). This search was applied to the three principal scientific repositories: Scopus, Springer Link, and Google Scholar.

At first, 123 articles were identified (Scopus = 12, SpringerLink = 72, and Google Scholar = 39). The first screening was based on the article's name, year (2015-2020), disciplines (economic and business), and only scientific papers, excluding conference papers and book

chapters. Second, the articles were separated regarding potential texts sorting those by name and abstract, which reduces the sample to 47 articles (Scopus = 12, SpringerLink = 14, and Google Scholar = 21). After reading, all full texts were delimited, which articles accomplished our eligibility criteria, and in this stage, the sample turned to 36 articles (Scopus = 7, SpringerLink = 11, and Google Scholar = 18). Finally, were excluded the duplicated articles ended in a sample of 34 articles for the report (Scopus = 7, SpringerLink = 10, and Google Scholar = 17). The eligibility process is in Figure 1.

Figure 1. PRISMA-based flowchart: 34 eligible and non-duplicate articles for systematic literature review



Source. Own elaboration.

3.2 Eligibility criteria

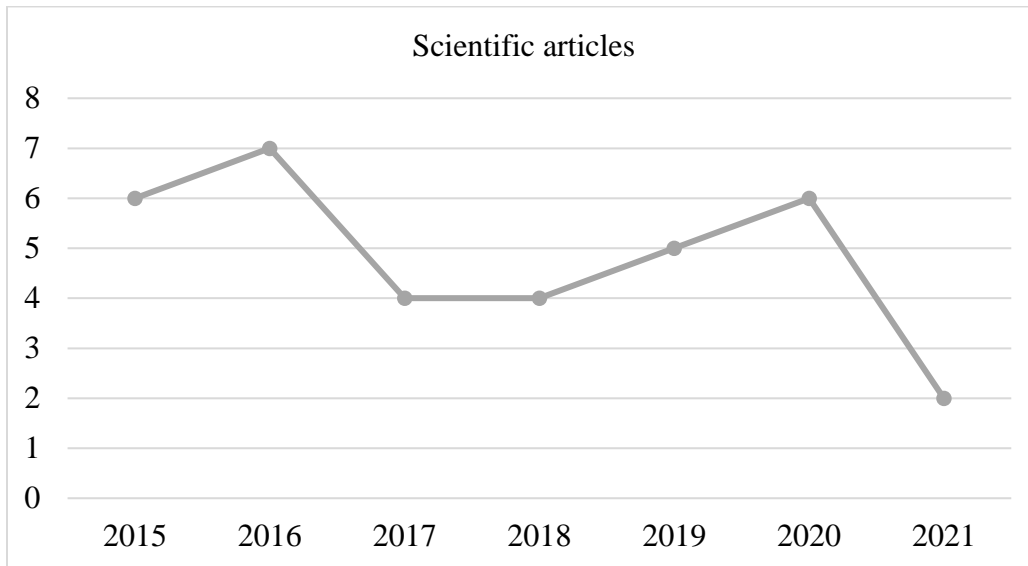
The keywords already mentioned were considered for the database screening. Regarding the publication year, we included articles published from 2015 (the pacific alliance entered into force) to the end of 2020 (Novak & Namihas, 2015). About the countries, considering only articles that focus on the Latin American context around the SMEs population the countries where the articles were published did not matter.

4. Results of systematic literature review

4.1 Mapping the publications of the field

Figure 2 shows that the research distribution for Innovation in Latin America has decreased over the last five years. For 2015, we identified six articles. These articles inquire about the effects of any feature around innovation in SMEs in Latin America. They include topics such as open innovation economic systems, incentive policies for research and development around innovation and their capacity to sort SMEs performance barriers, innovation promotion programs, the effect of innovation at income per capita for some Latin American countries, and the role of innovation for the internationalization (especially innovation capacity to develop export performance). Showing an increase in the studies, mainly evoked to barriers or variables with a positive and significant effect around innovation, including external environment, financial and human barriers for firm growth, market orientation, entrepreneurial traits, and innovation search strategies. In 2016, seven articles were found. In 2017, the number of studies decreased to four. However, that year the distribution of topics was more unified, converging in R&D for innovation as a variable that represents a positive relationship with internationalization (export), sorting barriers like a firm's age and size and other variables, topics like informal competence for SMEs became another target for investigators that year. Afterward, for 2018 number of articles stood again at 4, and the main content is oriented to support policies, modes of learning, family firms, demand size, supply-side, and local specificities. Next, in 2019 the number of articles increased to five, and the research topics became varied, mainly investigating public funding programs and government intervention, business models innovation, responsible innovation, and employment growth. In 2020, the research increased to six articles, where the main topics are competitiveness, absorptive capacity, innovation management practices, and human capital development. Finally, in 2021 the number of articles has been reduced; however, it is significant that studies on this area are still being carried out (Mu & Wang, 2020).

Figure 2. Number of articles published per year



Source. Own elaboration.

Regarding the geographic distribution of the sample of studies carried out by country (Figure 3), data shows incidence in the largest economies in Latin America, such as Mexico, Chile, Colombia, Peru, Brazil, and Argentina, covering 41%, 35%, 32%, 29%, 26%, and 23%. The gap gets clear in the rest of the countries, indicating 14% for Costa Rica and Uruguay and 11% for Ecuador. While El Salvador, Guatemala, Panama, Bolivia, Honduras, Nicaragua, Venezuela, and Trinidad and Tobago comprehended by 8%, Paraguay 5%, and by the end, Cuba and the Dominican Republic covered 2% of the articles⁴ (Jobin *et al.*, 2019).

⁴ This rate represents the number of articles in which investigation objects are the mentioned countries over the total of articles chosen, *i.e.*, some studies cover two or more countries.

Figure 3. Geographic distribution of studies carried out by country



Latin American country with the higher number of studies is Mexico ($n = 14$), followed by Chile ($n = 12$), Colombia ($n = 11$), Peru ($n = 10$), Brazil ($n = 9$), and Argentina ($n = 8$). The remaining countries presented a gap around the number of studies in a drastic reduction of mentions in the articles those are: Costa Rica and Uruguay ($n = 5$); Ecuador, El Salvador, Guatemala, and Panama ($n = 4$); Bolivia, Honduras, Nicaragua, Venezuela and Trinidad and Tobago ($n = 3$); Paraguay ($n = 2$), finally, Cuba and Dominican Republic ($n = 1$).

Source. Own elaboration.

4.2 Articles and journals

The identified articles are published in 25 different journals (Table 1). The journals covering the topic are Small Business Economics ($n = 4$), Journal of Technology Management & Innovation ($n = 3$), Journal of Open Innovation: Technology, Market, and Complexity (3), Sustainability (2), and Journal of Technology Transfer (2). Including all these identified journals business, administration, economy, technology, and innovation categories, except Sustainability and ESPACIOS, which are multidisciplinary.

Table 1. Publications in journals regarding B-side innovation, SMEs, and Latin America

No	Article title	Journal
1	The governance environment and innovative SMEs	Small Business Economics
2	The impact of business-support services on firm performance: a meta-analysis.	Small Business Economics
3	Exploring the link between innovation and growth in Chilean firms	Small Business Economics
4	Determinants of the growth aspiration: a quantitative study of Venezuelan entrepreneurs	Small Business Economics
5	An empirical study of the internal factors influencing the application of compensation incentives in SMEs	Competitiveness Review. An International Business Journal
6	The Fast Lane of Internationalization of Latin American SMEs: A Location-Based Approach	Sustainability
7	Social Entrepreneurship in the Conduct of Responsible Innovation: Analysis Cluster in Mexican SMEs	Sustainability
8	Analysis of competitiveness factors for the sustainable productivity of SMEs in Trujillo (Peru)	Revista de Métodos Cuantitativos para la Economía y la Empresa.
9	The Impact of Absorptive Capacity on Innovation in Peru	Journal of Technology Management & Innovation
10	Effects of informal competition on innovation performance: the case of Pacific Alliance	Journal of Technology Management & Innovation
11	Mutual Effects between Innovation Commitment and Exports: Evidence from the Owner-Manager in Colombia	Journal of Technology Management & Innovation
12	The Impact of Dynamic Balanced Scorecard in Knowledge-Intensive Organizations' Business Process Management: A New Approach Evidenced by Small and Medium-Size Enterprises in Latin America	Journal of Information Technology Management
13	Financial Difficulties in the Internationalization Process of Brazilian SMEs in Latin America	Journal ESPACIOS
14	Innovation management practices: review and guidance for future research in SMEs	Management Review Quarterly
15	How do we conquer the growth limits of capitalism? Schumpeterian Dynamics of Open Innovation	Journal of Open Innovation: Technology, Market, and Complexity
16	Innovation systems research: an agenda for developing countries	Journal of Open Innovation: Technology, Market, and Complexity
17	Technological Capabilities, Open Innovation, and Eco-Innovation: Dynamic Capabilities to Increase Corporate Performance of SMEs	Journal of Open Innovation: Technology, Market, and Complexity
18	Innovation practices in emerging economies: Do university partnerships matter?	Journal of Technology Transfer

19	R&D transfer, policy, and innovative, ambitious entrepreneurship: evidence from Latin American countries	Journal of Technology Transfer
20	What hampers innovation? External stakeholders, the organization, groups, and individuals: a systematic review of empirical barrier research	Management Review Quarterly
21	Entrepreneurial traits and firm innovation	Eurasian Business Review
22	Effects of innovation on employment in Latin America	Industrial and Corporate Change
23	Barriers to innovation in service SMEs: evidence from Mexico	Industrial Management & Data System
24	Innovation capacity, international experience, and export performance of SMEs in Brazil	International Business Review
25	Open innovation search strategies in family and non-family SMEs Evidence from a natural resource-based cluster in Chile	Academia. Revista Latinoamericana de Administración
26	Modes of learning and profitability in Colombian and Mexican SMEs	Journal of High Technology Management Research
27	Innovation and Performance in Latin-American Small Family Firms	Asian Economic and Financial Review
28	Innovation in mining value chains: new evidence from Latin America	Resources Policy
29	Long-Term Productivity Effects of Public Support on Innovation in Colombia	Emerging Markets Finance and Trade
30	Effects of public funding on firm innovation: transforming or reinforcing a weak innovation pattern?	Economics of Innovation and New Technology
31	Absorptive Capacity and Growth Heterogeneity: Development Paths in Latin America	Structural Change and Economic Dynamics
32	Business model innovation and entrepreneurial orientation relationships in SMEs: Implications for international performance	Journal of International Entrepreneurship
33	Market Orientation's Boundary-Spanning Role to Support Innovation in SMEs	Journal of Small Business Management
34	Assessing the effects of human capital composition, innovation portfolio, and size on manufacturing firm performance	Competitiveness Review: An International Business Journal

Source. Own elaboration.

5. Discussion: B-side of innovation for SMEs in Latin America

Through our systematic review and looking for a better understanding of the guidelines on this document, we concentrate most of the B-Sides innovation and some features into three main categories: Institutional Environment, Knowledge Issues, and Entrepreneur Traits. To expose the essence of the factors, these categories gather items found in literature as drivers of success constraints for Latin American SMEs, traditionally known as agents with no significant relation to innovation implementation. This section analyzed the B-side of innovation for SMEs in Latin America (Figure 4).

5.1 Institutional Environment

The institutional environment is already integrated with some structural arrangements, shaping how entrepreneurship emerges and operates. Therefore, these institutional frameworks force entrepreneurs' activities and strategies to adapt to their SMEs' optimal performance focusing on the institutional limitations and opportunities. This concludes that these factors (institutional frameworks) are the entrepreneurship driving conditions (Puente *et al.*, 2017; Santi & Santoleri, 2016).

Innovation support for SMEs involves a systematic integration of entities. Those institutions can provide firms' facilities and impulse their capabilities supporting each institution individually (Government, financial institutions, Universities, foreign organizations).

Innovation support includes funding to improve processes, which captures externalities from innovations. Hence, there exist programs designed to support the innovation transfer for SMEs, like certifications aimed at innovations, either as an innovative product or process differentiation (Cravo & Piza, 2019). Moreover, Gil-Barragan and Lopéz-Sánchez (2021) confirm that institutional ambiguities usually characterize SMEs in Latin American countries, manifest entrepreneurial disadvantages, mainly closer to market weaknesses, limited access to resources, lower level of specialization, and lack of competitive capabilities.

First, looking for the association of this primary concept, we have implemented a code structure to identify all the information about this topic: Institutions, Innovation Policies, Government Intervention, Financial Programs, Development Organizations, Export Policies, Government, Public Funding Programs, Competition, Informal Institutions, Bribery, Market, and Collaboration.

Due to the inputs, the interpretation of these barriers is extensive, making them permeable to these (inputs) by systematic formal structures involving SMEs. Firms' innovation found institutional frictions around the following dimensions:

a) Government

Innovation in Latin American SMEs finds its first barriers in requirements as licenses, regulation (recently added ecologic regulations), bureaucratic processes, and additional costs (Amorós *et al.*, 2019; Bahena-Álvarez *et al.*, 2019). Being an innovator in Latin American countries usually guarantees lower profits and is immediately affected by the quality of governance in Latin America. Innovators are commonly victims of corruption, being subject to bribery regarding a proportion of their annual sales (Yang, 2017; Balogh *et al.*, 2021).

The tax system is the government's most basic control mechanism. It also directly affects firms, especially SMEs (Dalla-Costa & El Alam, 2016; Berrutti & Bianchi, 2020). On the other hand, according to Salazar-Elena and Guimon (2019), the proper management practices for SMEs become influenced even by regional factors such as the country's income level.

b) Financial entities

The quality of the financial sector has a determinant inherency over innovation. In this sense, access to financial sources represents an obstacle for SMEs, resulting in financial limitations, like the adverse tackle selection in credit markets (Cravo & Piza, 2019; Berrutti & Bianchi, 2020). Latin American countries play a crucial role in financial institutions that support SMEs' growth. These financial resources are still key factors for organizations facing

institutional barriers and guide SMEs to optimal performance and enrich their productivity growth. For example, Puente *et al.* (2017), based on their research over the Base of the Pyramid (BoP) SMEs diagram through the economic system in Venezuela, found that these businesses are characterized by low innovation. By this aim, subsistence necessity is the main reason entrepreneurs initiate their business without financial support other than the high interest charged microcredits usually intended to buy raw materials, machinery, or even integrate an adequate workplace for their business activity. (Puente *et al.*, 2017; Dalla-Costa & El Alam, 2017).

c) External and internal markets

These barriers are mainly made up of market requirements such as customers' requests and demands. Formal institutional voids, in this sense, results in support deficiencies and market knowledge (Gil-Barragan & Lopez-Sanchez, 2021). Moreover, informal competition in the case of Latin America is evidence of many entrepreneurs that are self-employed in informal SMEs, created by them for survival purposes, without growing expectations or innovation development capacities (Heredia *et al.*, 2017; Puente *et al.*, 2017).

In addition, the entrance to foreign markets represents a real challenge for SMEs due to advantage costs, product or process differentiation, capital requirements, customer associated volatilities costs, logistic improvements and access to distribution channels, packaging, qualified experts, internationalization, export financial barriers, subcontracting, product manufacturing, and public policies. Moreover, the turbulence caused by the fast development and the drastic changes in the actual markets usually made some of the innovation strategies implemented get obsolete faster than others (Teece, 2021; Guerrero *et al.*, 2017; Dalla-Costa & El Alam, 2017; Oura *et al.*, 2015; Egbetokun *et al.*, 2017; Schiavi *et al.*, 2019).

This item (external and internal markets) represents several difficulties related to the firm's internationalization, decreasing SMEs' possibility and capabilities to enter a market and

develop as competitors against market holders (Asemokha *et al.*, 2019; Didonet *et al.*, 2016; Dalla-Costa & El Alam, 2017; Guerrero *et al.*, 2017; Martins *et al.*, 2015).

d) R&D institutions

Development of radical and incremental innovation has a strict relation with R&D; Gil-Barragan & López-Sánchez (2021) proposes that SMEs could collaborate with other institutions to develop information oriented to create better products to the market effort and promote competition by the concept of innovation networking (Pietrobelli *et al.*, 2018). Science-based, commercial, and mixed organizations associated with the introduction to foreign markets cooperate with firms to apply R&D (Amorós *et al.*, 2019; Castellacci & Natera, 2015; Guerrero *et al.*, 2017). These barriers have a systemic link with the government that decides to set them aside. This means that the individualized institutional decisions ignore or depreciate the R&D value for economic development and specifically for the SMEs' growth and support (Berrutti & Bianchi, 2020). Linked to other institutional barriers, Latin American countries do not invest in R&D as other economies (Amorós *et al.*, 2019).

5.2 Knowledge Issues

In Latin American countries, knowledge gets voiced drastically mainly at their resources and capabilities attributes. Nevertheless, Universities still play a crucial role as pillars to reinforce the innovation ecosystem via collaborative government programs aimed to improve science relevance for organizations and industries' requirements to develop a more clear sense for radical innovation activities inclusion which enables the knowledge flow and absorption for the new information with the other already existent that institutions bring to this type of firms (Guerrero *et al.*, 2017; Teece, 2010; Yanine *et al.*, 2020).

The role of R&D Institutions in incubating and transferring knowledge to SMEs could be the core for improving products, services, and processes. The above-mentioned represents the potential to create a safe but challenging context where the turbulent process of growth

becomes essential for entrepreneurs integrating them through a cooperation system characterized by new business models, knowledge share co-relations, or introductive partnerships for new markets aimed for the achievement of high levels of social progress (Puentes *et al.*, 2019; Puentes *et al.*, 2017). Moreover, compared to large firms, SMEs face barriers such as access to qualified human talent or knowledge, which limits growth opportunities and innovation (Ortigueira-Sánchez *et al.*, 2020). Latin American firms' collaboration allows for exploring new opportunities; when the enterprises have incremental and radical innovation orientation, the probability that Latin American SMEs collaborate with universities or another internal/external agent increases (Guerrero *et al.*, 2017).

For this category, we distinguish two main situations that represent barriers to knowledge and its understanding for Latin American SMEs innovators; guided by the following codes for our interpretation of main topics: Knowledge, R&D, Strategies, Ignorance, Information, Disinformation, Misunderstanding, and Lack of Information. During the analysis process, we identified the following features in Latin American SMEs.

a) Knowledge interpretation

The impact of aptitudes, attitudes, and abilities is underlined by entrepreneurship research as cognitive properties to the necessary value of innovation. A lack of these can create innovation barriers, named “poor knowledge” by Hueske and Guenther (2015). In Latin America, there is a barrier to knowledge access, and deeply there are barriers to comprehension of theoretical references about innovation and ignorance about terms, applications, types, and strategies for innovative development (Teece, 2010; Castellacci & Nateri, 2015; Ortigueira *et al.*, 2020).

b) Innovation required

Different kinds of innovative activities exist for companies that vary according to their field of action. In this sense, entrepreneurs must have a clear approach to which strategy is optimal for their firms (Pertuz & Perez, 2020; Valdez-Juárez *et al.*, 2018). To this aim, the efficiency

of innovation management practices is highly context-specific vary by industry (Benites-Gutierrez *et al.*, 2020; Pertuz & Perez, 2020). Not too far from this principle, firms' owners who decided to innovate do not know which road should take. Some firms' owners make the mistake of directing their resources and efforts to radical innovation instead of considering incremental innovation with its processes or products, becoming a barrier to the effective development of innovation and taking the erroneous innovation strategy, converging with the main idea of the first dimension (radical). Many firm owners ignore the importance of these innovation concepts (Bunduchi *et al.*, 2015; Schiavi *et al.*, 2019).

5.3 Entrepreneur traits

The entrepreneurial function is linked to innovation and is a decisive factor for successful innovation implementation, as defined by Schumpeter and Nichol (1934). Furthermore, this is especially applicable to small firms. The entrepreneur is responsible for the decision-making process; in this condition, personality, motivations, skills, and behavior influence the firms' performance (Balogh *et al.*, 2021), mainly in the Latin American context, where firms' performance is relatively poor in innovation development. On the other hand, the literature shows that high levels of education and intrinsically motivated entrepreneurs encouraged to firm management are more likely to introduce innovations. However, education seems more important than motivation (Olivari, 2016). For this classification, we suggest three categories considering human attributes that develop entrepreneurial innovator sense; those categories attach personal attributes and intellectual and organizational skills, each which complements the entrepreneurial profile. We use the Schumpeterian entrepreneur concept as the basis to identify which factors represent limitations for the innovative activity.

Codes used in this section are Motivation, Aspirations, Personal attributes, Attitudes, Aptitudes, Skills, Capabilities, and Education. The barriers shape three features or elements mutable to human behavior involved in entrepreneurial activity, innovation implementation, and firm performance, clarifying the representative factors that determine potential success

factors, or in their wrong development represents weaknesses for SMEs growth and innovative activity, as the aim of this article remarks.

a) Personal attributes

First, Puente *et al.* (2019) found that high growth aspirations represent a determinant factor for innovation development around Latin American entrepreneurs, interlinked with other personal attributes. In this sense, entrepreneurs who operate in a weak institutional environment develop negative entrepreneurial attitudes and aspirations. Secondly, there is a fear of failure, assumed to be a barrier, inhibitor of growth ambitions, and an indirect innovation constraint factor.

Moreover, motivation represents a systematic influence and nature to impulse people to start a business on entrepreneurial activity. For this reason, indirectly and with the mutual impact of aspirations: motivation can represent inclusively a critical factor that can turn to the edge for entrepreneurs to decide to innovate to cover needs such as auto-employment or subsistence introducing itself to the competitive SMEs environment (Seclen-Luna *et al.*, 2021; Balogh *et al.*, 2021). Motivation is a crucial factor that needs to be covered in human capital to incentivize the firm's innovation. The mutability existing in all the systems engaged in the SMEs market brings another difficulty against firms' performance, and this is a resistance to change caused by the loss of habits as well as the lacking understanding of the innovation's usefulness (Hueske & Guenther, 2015; Amorós *et al.*, 2019).

b) Educational attributes

The first underestimated factor is academic education. Less than half of the SME owners have reached only middle school, and even a lower number has a bachelor's degree (Seclen-Luna *et al.*, 2021). The lack of educational attributes leads to bad decisions or limits innovation performance because business owners may assume they know more than they know and make decisions with limited information. Second, the decision-making process engages entrepreneurs and is mainly guided by experience. Consequently, when entrepreneurs face

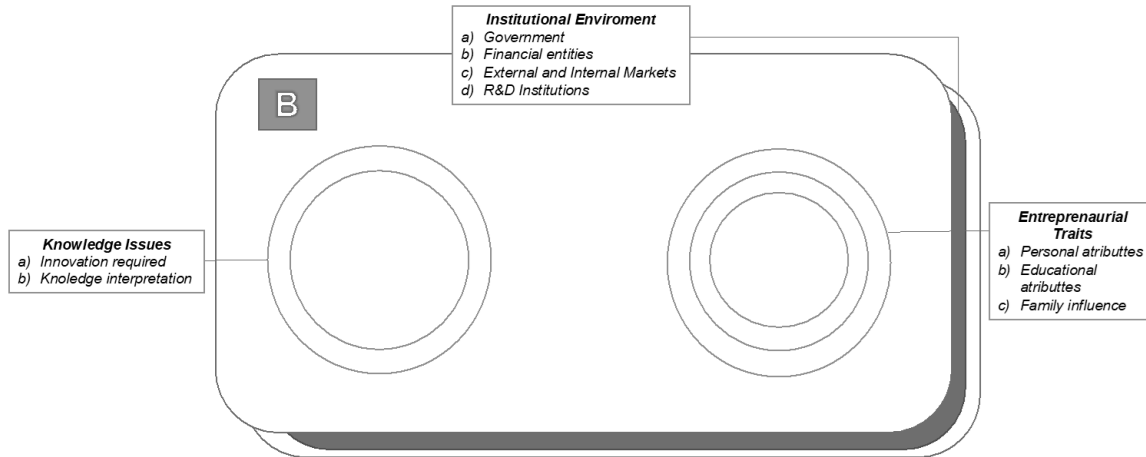
difficulties, sooner or later, their innovativeness is affected by these barriers and will become less innovative (Olivari, 2016).

Another feature that influences growth aspiration is non-specialized skills because entrepreneurs feel they have the required ones (skills) to start a business. Nevertheless, their limited experience and interpretations of the market and entrepreneurial performance lead innovation-oriented entrepreneurs to face simultaneous reality shocks to all barriers described, especially in Latin American Countries (Puente *et al.*, 2017).

c) Family influence

Innovation is considered one of the most helpful business strategies for the organizational structure of familiar SMEs because it offers a higher increase in their level of business performance. Family participation in SMEs is the main stakeholder for these Latin American firms and directly affects the firm's innovative development. For instance, family as a dominant group in SMEs usually represents a vice over the entrepreneur's decisions; specifically, in family firms, innovatory decision-making is affected because the entrepreneur must consider family demands to formulate the firm objectives (Maldonado-Guzmán *et al.*, 2018). Hence, diversity in the family goals leads SMEs to perform different strategic guidelines, taking apart entrepreneurial logic thinking. Furthermore, for family firms (SMEs), innovation decisions are deliberated on an emotional, social, and economic spectrum; for this reason, familiar SMEs are comfortable in a closed set of external relationships for their innovative performance. It induces SMEs entrepreneurs to develop new ideas, products, and innovatory processes guided by a close knowledge frame. Therefore, family firms prefer to reduce innovation risks, looking for their core knowledge ideas that already exist in the firm. Finally, family members do not favor of risk-taking investment in innovation, even when it could be more effective around SMEs results (Basco & Calabrò, 2016).

Figure 4. B-side of Innovation in Latin American SMEs preliminary Framework



Source. Own elaboration

6. Conclusion

Innovation in SMEs represents a key for the companies' development, providing all the capabilities to introduce them into new markets, redesign processes, competitive presence in the market, and revolutions of products and services. Firms must develop and integrate proper innovative practices for their subsistence across the actual context and continue evolving with the environment. It is important for business owners in Latin America to intend that the implications of innovation are more depth than the usual and optimistic perspective given by their traditional fonts of information. These implications are already flawed by the features systematically linked to innovation development presented in the framework and the side effects that a non-adequate innovation strategy can induce over the entrepreneurial activity.

The findings of this review introduce a perspective on features that compromise Latin American firms' performance through innovation through the integration of a framework that categorizes the nature of the features of innovative SMEs systems. Non-evident aspects of innovation shown in this article highlight the lack of educational, systematic, and

individual gap linked to the complete organizational culture of Latin American SMEs. Nevertheless, even if it seems difficult to sort all these features in a simultaneous way, the reward for considering and attending one at a time, develop the capacity to sort out them. For this, we recommend focusing on the Knowledge Issues and Entrepreneurial Traits, which according to the literature, represents deeper boundaries for this kind of firm.

On the other hand, we conclude that there is a low level of R&D on innovation, research on innovation in Latin America needs to improve, and so on, and talk of innovation in Latin American SMEs is scarcer. In addition, the variables associated with innovation represent a dichotomy in which they can essentially act as a driver. Meanwhile, all the vices linked to the mentioned variables lead to inefficient business performance.

The findings provide an approach that can help understand the variables that represent the innovation of B-side in SMEs and how they play a role that becomes inclusively limited to the optimal performance and growth of this class of firms. With the Latin American context, we provide a comprehensive systematic approach that can guide Latin American entrepreneurs and institutions to improve adequate innovation strategies to facilitate the performance and capabilities of SMEs to overcome these barriers.

For future research, it is recommended that researchers develop more information on SMEs to fill the gap of studies on the B-side of innovation in this type of firms in Latin America and focus on knowledge and entrepreneurial approaches, which can improve the understanding of the barriers of SMEs in this world region. Finally, research on specific phenomena and their impact on innovation in Latin American SMEs, such as the context brought by COVID-19, could add another exciting dimension to this framework. Similarly, to complement and enhance the theoretical framework, other repositories such as Web of Science or EBSCO help bring the quality of the information closer.

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