Acceleration Ecosystem: The stages of accelerators and their market differentials

Abstract

Accelerators are physical structures that provide the development of skills and capabilities for startups. This paper explores the process of accelerators grouping them in types according to their implemented processes. The literature reviewed involved on accelerators' five key elements: *seed and funding capital*, *business cohort model*, *capacity development programs*, *mentoring* and *location and physical space*. Under qualitative research approach, content analysis method was applied on 10 semi-structured interviews with managers of eight accelerators. As results that managers consider those irreplaceable stages in the accelerator process; however, the model and order can be adapted according to the focus set of skills and capabilities. It was identified that (i) the organizational format of the accelerators influences the companies' development process; (ii) the existence of micro business and innovation ecosystems influences the modulation of acceleration stages; (iii) each innovation ecosystem provides specific dynamics between the accelerators in the market. Finally, the literature contributions the paper provides are (a) the identification that the stages modulation is driven by ideation, prototyping, validation and pivoting processes; and (b) that the business and innovation ecosystem are constituted of micro-ecosystems, and each accelerator type accelerated business specific skills and capabilities fitting for a certain type of startup markets.

Keywords: Accelerators, Innovation Ecossystem, Innovation, Entrepreneurship, Startup

INTRODUCTION

The ecosystem of innovation and entrepreneurship is crowded with agents that play different roles in the development of companies (Oh, Phillips, Park & Lee, 2016). Among these agents stand the accelerators: physical structures with a series of processes linked to companies in the initial phase for a determined period of time, aiming at the development and business success in their markets (Pauwels, Clarysse, Wright, & Van Hove, 2016; Brown, Mawson, Lee & Peterson, 2019).

Despite having a procedural work model, the dynamics of operation may vary according to the business focus of each accelerator (Cohen, & Hochberg, 2014). In addition, the processes employed by each accelerator when perfecting the startup also make entrepreneurs accordingly to applied method refine their competencies and skills in the market in which they operate (Cohen, 2013). Some accelerators have competencies so latent that they make the accelerated company develop specific skills that, many times, are not practiced by their managers. Other accelerators are specifically sought for their differential, mission, vision and values (Kohler, 2016).

In the entrepreneurship and innovation ecosystem there are a number of accelerators with different models of business preparation. These accelerators and their specificities make up a new market dynamic within this ecosystem. According to Hochberg and Kamath (2012), accelerators can be (a) born within large companies, (b) be part of a university department, (c) a service within a technological hub, (d) a digital interface or (e) even groups of investors who informally develop and refine business processes for the security of their financial contributions.

Each accelerator has stages that differentiate them in the market and for that reason the accelerators present themselves with different purposes that reverberate in how

the company will develop (Pauwels, Clarysse, Wright, & Van Hove, 2016). These stages can be distinctive resulting in an increasingly competitive market for accelerators and presenting several possibilities for companies in the initial phase and their managers.

Accordingly, the research question aims to answer: "What are the main differences and similarities between the existing accelerators in the innovation ecosystem?". To answer the research question, the primary objective of the work is: (i) to map the differences and similarities between the accelerators in the market. Secondary objectives include: (ii) highlighting the main common stages in accelerating companies; and (iii) identify the importance of the role of accelerators in the ecosystem and innovation.

The literature has not yet delved into the acceleration stages from the processes and methodologies used within each of its elements (Bliemel, Flores, Klerk, & Miles, 2019). Oh, Phillips, Park, & Lee (2016) states that innovation ecosystems can have some impact on organizational processes, but it does not justify how to change or modify processes due to organizations such as accelerators.

This article intends to contribute to the theory by filling the research gaps found in Bliemel, Flores, Klerk, & Miles (2019) and Oh et al (2016); explaining the importance of accelerators in the innovation ecosystem based on its own organic and market acceleration. As a managerial contribution, it is evident that the acceleration stages can be adapted through their strategic differential. This allows startup and accelerator managers to develop refining goals for specific business models for their niche markets.

BUSINESS ACCELERATORS AND THEIR PROCESSUAL ELEMENTS

Business accelerators are commonly known as physical structures that aggregate and provide services for a limited time which are linked to mentoring and supporting entrepreneurs in business development (Cohen, & Hochberg, 2014). Accelerator services can be diverse and are focused on the type of startup that engages in business acceleration programs and processes (Brown, Mawson, Lee & Peterson, 2019).

Bliemel, Flores, Klerk, & Miles, (2019) affirm that accelerators have five key elements that characterize their business development processes, these elements are: (i) *seed capital and funding capital*, (ii) *business cohort model*, (iii) *capacity development programs*, (iv) *mentoring* and (v) *location and physical space*. To address the accelerators in this section, we will use the work of Bliemel, Flores, Klerk, & Miles, (2019) along researchers' considerations of the phenomenon on each of the five elements established to define an accelerator.

The attraction of investment and proximity to investors is linked to the acceleration element of (i) *Seed Capital and Funding Capital*. Access to different forms of financial capital investment allows entrepreneurs to have resources and to allocate their activity schedules and product refinement. Cohen (2013) reinforces that product development and access to investment in accelerators is captured within the period of three to six months and can be extended through the investment contract captured by entrepreneurs and accelerator.

An essential element for the accelerator is the model for selecting companies that will go through the refinement processes, this model is known as (ii) *Cohort Model*. The cohort model is a set of criteria that allow accelerators to select companies with more mature models and ideas for a possible investment contribution (Pauwels, Clarysse, Wright, & Van Hove, 2016). The cohort is a factor of transparency that an accelerator communicates to startup investors thus promoting investment contracts.

(III) *Capacity development programs* are essential for companies to learn. Pauwels, Clarysse, Wright, & Van Hove (2016) shows that accelerators have procedural stages that enable startups to improve their skills and knowledge in forms of competence to perform in selected markets. These programs are educational and customized in accordance with the business demands of the accelerated company (Bliemel, Flores, Klerk, & Miles, 2019).

The element of (iv) *mentoring* is directly linked to the generation and learning of performance strategies and intellectual property. These intellectual property strategies are acknowledged in the market by licenses, contractual forms and consolidated processes that are legally registered to protect against copies (Kohler, 2016). Mentorship also contributes with guidance in the areas of Finance, Marketing, Human Resources, Public Relations and Communication (Hochberg, Cohen, & Fedher, 2016).

(V) *Location and physical space* are fundamental for the entrepreneur's network and the allocation of the accelerated companies' fixed labor costs (Pauwels, Clarysse, Wright, & Van Hove, 2016). According to Bliemel, Flores, Klerk, & Miles (2019), some accelerators are pegged to universities, incubators and/or coworking spaces, thus contributing to the development of business networks and opportunities to develop social, human and financial capital.

The five elements of this section will serve as theoretical tools for investigating the stages and types of companies' acceleration in the market. These five elements serve mainly the purpose of assisting with the scientific framing and categorization of the discoveries made during the data collection.

From the premises presented in this section, the following proposals are suggested:

Proposition 1: The five acceleration elements are present in all accelerators.

Proposition 1a: Accelerator managers consider the five elements of acceleration to be irreplaceable stages.

Proposition 1b: Accelerator managers adapt the acceleration stage.

Proposition 1c: The organizational format (mission, vision and values) influences the acceleration stages of companies.

BUSINESS AND INNOVATION ECOSYSTEMS

Entrepreneurship and innovation ecosystems are dynamic environments that foster an extensive network between agents, built with trust, co-creation of value and mutual benefit from a set of technologies and skills (Gobble, 2014). Some of the factors that underpin the business and innovation ecosystem are scientific and market research, facilitating institutions, access to capital, a favorable regulatory environment, and entrepreneurial agents (Global, 2014). Another important factor within this ecosystem is that administrative and unique skills of each agent are essential for doing business.

Oh, Phillips, Park, & Lee, (2016) state that the types of existing innovation ecosystems are: (i) *corporate innovation ecosystems*; (ii) *national and regional innovation ecosystems*; (iii*) digital innovation ecosystems*; (iv) *innovation ecosystems based on cities and districts*; (v) *ecosystems focused on Small and Medium Enterprises* (SMEs) *with high technology*; (vi) *incubators and accelerators*; and (vii) *university*

ecosystems. The paragraphs below this section focus on explaining the main types of existing innovation ecosystems.

(I) *Corporate innovation ecosystems* consider manufacturers, suppliers, users and partners as part of the open innovation process (Xiaoren, Ling, & Xiangdong, 2014). Open innovation is a concept brought by Chesbrough (2003), which consists of the integration of external and internal agents of companies as a competitive strategy. The main practices adopted by companies that encourage innovation internally are established within some criteria such as: focus on ideas to refine business, connection with the outside world and use of work methodologies.

(II) *National and regional innovation ecosystems* are defined as networks of institutions in the public and private sectors whose activities and interactions initiate, import, modify and disseminate new technologies which determine the performance of national companies (Nelson, & Rosenberg, 1994; Freeman, 1987). Regional innovation systems are those institutions, flows of knowledge, people, research capital, regulation, and technology within a region (Niosi, 2005).

(III) *Digital innovation ecosystems* are online platforms where consumers, users and developers can build synergistic relationships, generating an external network, in which they can increase the value of innovations in hardware and software (Rao and Jimenez, 2011). These ecosystems can make the technology of applications, platforms, and distributors viable (Xiaoren, Ling, & Xiangdong, 2014).

(IV) *Innovation ecosystems based on cities and districts* are associated with entrepreneurial spirals, which consist of the convergence of urbanization paradigms, democratization of innovation and technologies in order to direct entrepreneurship and innovation in urban areas (Cohen, Almirall, & Chesbrough, 2016). They are planned by the municipalities with the help of universities and tend to focus on small and medium-sized companies and start with real estate development instead of business growth (Xiaoren, Ling, & Xiangdong, 2014).

(V) *High-tech SMEs centered ecosystems* of focus on the economic development that this type of companies can offer to stimulate innovation. These companies may have technological backgrounds and high assets mobility to promote innovative processes. This ecosystem focuses on SMEs with high technology that increase the manufacturing capacity of small and medium-sized companies (Frenkel, & Maital, 2014).

(VI) *Incubators and accelerators* incorporate an ecosystem for the preparation of SMEs and companies at an early stage (Cohen, 2013). This ecosystem is composed of spaces that refine business models of companies based on partnerships, consultancies and attracting investment to generate innovation. Xiaoren, Ling, & Xiangdong (2014) state that accelerators and incubators provide combined services and facilities to create hyper-local innovation ecosystems.

(VII) *University-based ecosystems* are defined by Fetters, Greene and Rice (2010) as the performance of multidimensional companies in academic environments, supporting entrepreneurship through a variety of initiatives related to teaching, research and proximity, such as courses on entrepreneurship, writing business cases and entrepreneurs within the academic staff.

Based on the ecosystems presented in this section, the following propositions are suggested to meet the objectives of the work by answering the central research question:

Proposition 2: The business and innovation ecosystem influence the creation of acceleration stages;

Proposition 2a: The business ecosystem provides specific dynamics between the different accelerators in the market.

METHODOLOGY

The methodological approach adopted is based on a qualitative research approach. The qualitative research framework for the study of the acceleration stages phenomenon and its market, has the intention of presenting the main field reports to explore a topic not stressed by the literature (Silverman, 2016). Based on this premise, the present work is an exploratory research. Exploratory research aims to provide familiarity with the phenomenon to support the propositions presented throughout the text (Gil, 2008).

The qualitative research had three essential points for the work: (1) literature review, (2) interviews with people who had practical experience with the researched phenomenon and (3) analysis of material and examples to understand the phenomenon (Gerhardt & Silveira, 2009).

During the research, 10 managers of accelerators were interviewed in order to map the main perceptions and reflections collected in the field. The main selection criterion was established based on the work of Cohen (2013), which demonstrates that accelerator managers are vectors of process formation within this type of organization.

The interviewees are identified by E1, E2, E3, E4, E5, E6, E7, E8, E9 and E10 followed by the position held, the name of the accelerator and the duration of the interview noted in (minutes:seconds). The E1 is CEO and founder of AZYS Inovação (50:27); E2 is Superintendent at Tecvitória (46:35); E3 is Innovation Specialist at FindesLab (49:21); E4 is responsible for several acceleration programs at Brooder (40:15); E5 is Director of Innovation at EDP Brasil at Aceleradora EDP (38:50); E6 is a Innovation Leader at ACE Startups (20:12); E7 is CTO and Partner at ACE Startups (25:30); E8 is Product Manager at ACE Startups (28:42); E9 is Innovation Manager at Eretz.Bio (40:38); E10 is Project Manager of Innovation at Oxigênio (43:54).

The research tool was based on a research script with semi-structured interviews with 21 questions subdivided into the concepts of acceleration and innovation ecosystem that were addressed during the theoretical framework (Longhurst, 2003).

Considering Vergne and Vry (2014) categorization guidelines, this work is divided into categories and subcategories presenting the quantitative relevance of the appearance of the theme of each category. The categories are divided into inductive and deductive categories (Chwalisz, Wiersma, & Stark-Wroblewski, 1996). The deductive categories emerge from the literature and previous research, serving as a reference for the paper. Inductive categories, on the other hand, are based on the immersion of themes that have been repeated and are not in the theoretical lens of work evaluation. Below is a table of the categories and subcategories of the work (Table 1).

Table 1: Deductive categories and subcategories of work.

Category Block	**Subcategory Block**	**Relevance**
Business Acceleration	Funding Capital	21
	Selection criteria	26
	Capacity Development Program	42
	Mentoring	28
	Location and Physical Space	14
	Adaptation of Stages	53

Business and Innovation Ecosystems	Organic and Relationship between Ecosystems	37
	Corporate Innovation	38
	Nationalization and Regionalization of Innovation	12
	Digitization of Products and Services	34
	Incubation Spaces and Cooperative Work	19
	Cities and Districts and their implications	13
	Small and Medium Business	31
	Universities and Scientific Research	26

Source: Authors (2020).

The deductive categories that emerged from the present work are: (i) Impacts of Organizations on the Acceleration Model (ii) Different Types of Accelerator (iii) Acceleration Methodologies. Below are the deductive categories presented in the paper (Table 2).

Table 2: Inductive categories emerging from research.

Category (Deductive)	**Relevance**
Impacts of Organizations on the Acceleration Model	27
Different types of Accelerator	33
Acceleration Methodologies	14

Source: Authors (2020).

In addition to interviews, as a form of validation, this work used secondary data extracted from websites, magazines, podcasts, and corporate videos found on internet and on official websites of organizations. The collection of secondary data enabled the creation of a database with the main evidence that ratified the reports of the interviewees and intersected to add richness to the results explored at the time of analysis. The documents analyzed in this work are presented in the table 3 below and are named to be presented during the content analysis.

Table 3. Secondary data and documents used.

Magazine and Journalistic News	*"ACE procura startups em estágio inicial para investir até R$ 1 milhão".* Source: EXAME online version, 2019.	*"Por dentro da empresa ACE uma das maiores aceleradoras da América Latina".* Source: EXAME online version, 2019.
	Document 1 = D1	*Document 5 = D5*
Website news	*"O que esperar do mercado de startups em 2020?".* Source: Forbes Brazil online version, 2019.	*"ACE medirá inovação corporativa da sua empresa por software*. Source: EXAME online version, 2019.
	Document 2 = D2	*Document 6 = D6*
Podcasts	*"Como funciona uma aceleradora de startups?"*, Oxigênio Porto Seguro. Source: Imagem Corporativa podcast available on Spotify.	*"Startups e aceleradoras",* Worth a Million. Source: Café de Bug podcast available on Spotify.
	Document 3 = D3	*Document 7 = D7*

Videos	*"Como é a aceleração da ACE?"*. Source: ACE Startups.	*"Como é o processo seletivo da ACE?".* Source: ACE Startups
	Document 4 = D4	*Document 8 = D8*

Source: Authors (2020).

The data analysis technique selected for this research was Content Analysis: systematization and inference in the data collected considering the speeches and reports of the interviewees (Mayring, 2004). The technique is based on the researchers' ability to relate and can rely on software Atlas T.I for support and thematic organization of the material surveyed. This method provides thematic understanding from the face-to-face communication between the researcher and the researched (Gerhardt & Silveira, 2009). The content analysis technique included the following steps: (1) pre-analysis, (2) material exploration and (3) data treatment, inference, and interpretation. Bardin's steps were applied in this section for material analysis (Bardin, 1977).

CONTENT ANALYSIS RESULTS

The interviews provided evidence in the interviewees' statements when asked about the main stages of acceleration. Most of the interviewed answered that the elements: investment input, capacity development, business selection model, business mentoring and location exist in their acceleration stages and are adapted according to processes called by respondents: *(a) ideation, (b) prototyping, (c) validation, (d) measurement and (e) pivoting*. According to the interviewees, these processes originate from scientific experimentation and are used based on Design Thinking methodologies.

(a) Ideation is a process that consists of identifying a problem and its possible solutions, as well as the guiding criteria for designing the solution and the possible audiences that will be impacted. It is part of the development of kills of the company. *(b) Prototyping* consists of the creation of the solution initial model, being the primary representation of the idea proposed in the ideation stage. The *(c) validation* process consists of testing the hypotheses and prototypes developed, with the purpose of obtaining generating knowledge through tests. Validated: value proposition, customer segmentation, sales channels, distribution channels, revenue sources, business model, partnerships, cost structure, among other factors. In the *(d) measurement process*, results from the first tests are analyzed. Last, the *(e) pivoting* process supports a change in strategy when the tests have not been conclusive or were negative: a new hypothesis aligning with the initial objectives defined in the ideation process is made.

> *We are based on scientific experimentation, in which entrepreneurs and intrapreneurs create new businesses or revise the model of their startups using the processes of ideation, prototyping, validation, measurement and pivoting (E8).*

This procedural adaptation can be distinguished according to the focus of the acceleration model or based on the strategic differential of each accelerator. Transversal initiatives and activities that are present at different moments of the acceleration, such as mentoring and fundraising rounds, also stood out. E1 points out that there is an adaptation of the element seed capital and funding capital and mentoring, as in to Bliemel, Flores, Klerk, & Miles, (2019).

> *In our acceleration process, we have three phases: validation, MVP and investment. (...) The validation phase is the one that works as our biggest sieve,. In the MVP phase, the entrepreneur has to sustain a mini operation of*

> *his business.. The third investment phase depends on the result of the second phase. So, we measured what kind of results are coming up with that project and started to probe investors in order to measure interest, feedbacks and understand mainly the direction of the project. (E1)*

According to E7, these steps can contribute to the reduction of market risks in the process. For the entrepreneur to be successful in his market operations, it cannot be missing in any accelerator.

> *The stage of validating ideas and business is the most important to us, as it is when we create the basis for the business. It contains the greatest risk assumptions and is the stage that entrepreneurs most need help and effort to make the startup get off the ground to something scalable (E7).*

The interviewees' statements reinforce the findings by Bliemel, Flores, Klerk, & Miles (2019) in relation to the acceleration elements and also show that the terminology may vary. Based on this assumption, proposition P1 is answered by showing that these elements are present in all accelerators and can only change their nomenclature according to the organization's acceleration planning.

D3 and D4 and the E5 reiterate that the steps to accelerate their organization provide the entrepreneur with exclusivity for being part of a certain sector, adapting in a focused way his business mentoring and cohort process to the company's industry. These statements support the proposition P.1b showing how managers are flexible to adapt their acceleration steps.

> *We have developed an initiative to engage startups by accelerating the adoption of new technologies in an easier, simpler and less investment way. [...] Our selection criteria bring startups from Latin America, North America, Europe and Asia We selected 10 around 500 per modules and spend with us for a period of immersion and mentoring, so there are a total of 30 companies in the global program. The first week is very focused on energy sector and related projects, because we are looking for more mature startups that have: technology, quality and paying customers. The company must have a viable solution and business model* (E5).

The strategic differential, mission, vision and values (MVV) of the company provide specific increments to the acceleration model, making the acceleration processes attractive for different types of entrepreneurs. Thus, the steps mentioned by the interviewees contemplate the basic requirements seen in Bliemel, Flores, Klerk, & Miles, (2019) and also the search for an organizational environment for the development of works in co-creation mentioned by Cohen (2013). The MVVcombined with the strategic differential are drivers for adapting the acceleration steps and can be verified through the startup managers' search for specific acceleration models. In this sense, the E5 and D4 ratify propositions P1.a and P1.c since the basic elements of acceleration are paramount, but the aspects of internal organization are also drivers for each acceleration format existing on the market.

> *When dealing with startup more early stage (in early stage) it takes a long time for it to reach that point of maturity, which is the point that we need to do projects. We follow other stages, but we only work with the more mature ones. In this one week of immersion, the company knows EDP, understands what the business challenges are, taking the value chain, we show all the main challenges and matchmaking with the mentors, who are the sponsors by theme (E5).*

Based on the differential of each accelerator, there was a certain impact of other organizations in adapting the acceleration steps. These impacts are linked to three main points that emerged in the reports: (i) Format of the accelerating organization or company; (ii) The Business Environment that is inserted; and (iii) Innovation provided by the accelerator. The (i) format of the accelerated organization or company concerns the governance and organization of internal processes of the organization that accelerates the company. The (ii) business environment that is inserted, deals with the strategic sectorial and industrial focus considering hubs, companies, universities and physical spaces in the formation of the acceleration stages. And (iii) the innovation provided by the accelerator is directly linked to what the accelerator can offer differently so that the entrepreneur can refine his model differently from the companies in the market.

Documents D3 and D4 together with the interviewee E10 evidence the pressure from business ecosystems, digital, institutional and incubation innovation on the creation and modification of the acceleration steps to create a strategic differential in each accelerator. This aligns with Oh, Phillips, Park, & Lee, (2016) findings but now exercising market dynamics among the accelerator and showing that within the incubation and acceleration ecosystem there is another micro-ecosystem of accelerators competing to accelerate and refine companies with potential in their respective areas of activity. Thus, the proposition that the business and innovation ecosystem induces the creation of specific stages of business acceleration can be supported (P2).

> *Companies have been very anxious about the future of their business lately, and most of them are looking for innovation and looking for some that are references, so people come to Oxigênio a lot, as well as to CUBO too [...], there are a lot of networking and this networking also helps these startups, most of the startups that are in our space have already done projects or are doing projects with companies that have already been there and this helps them to accelerate regardless of the business (E10).*

Still upholding the proposition P2, interviewees 2 and 8 reported a series of types of accelerators that unfold from technological hubs, coworking spaces, large companies, incubators, and even institutional and governmental environments. The different types of accelerator mapped in this research are an emerging category in data analysis and contribute to support the claims of Xiaoren, Ling, & Xiangdong (2014) that present universities and technological incubators as vectors of business acceleration.

> *Accelerators can be independently founded, created from university, corporate environments, by government initiatives and also by public-private initiatives with the purpose of developing a region. ACE is an independent accelerator that maintains relationships with other innovation ecosystems (E8).*

Evidence from E2 demonstrates that external institutions and organizations develop cooperative work for the refinement and development of startups businesses, forming an influence among innovation ecosystems.

> *We are recognized by Anprotec with a CERNE qualification model, an agency of the Ministry of Science and Technology. We are the authors of the Technological Park project, which helped with the agreements with Bandes, State Secretaries and the City Hall of Vitória. (E2)*

The governmental ecosystem and the public-private ecosystem also corroborate to improve the strategic differential of the accelerating organization. In the case of interviewee E3, in addition to public sector institutions, there is also a parallel with

companies. The interviewee also points out that the accelerator connects among the other ecosystems mentioned by Oh et al (2016).

> *We have a high capacity and connection power. We have 80 thousand industries and 60 unions affiliated in the State. We also give our startups access to corporations such as Shell and Unimed, putting our entrepreneurs in contact with industries. (E3)*

These countless forms of acceleration through different organizations provide an exclusive market dynamic in the generation of technological, digital innovation and refinement of business models. This is because each of the acceleration organizations has a purpose. According to interviewee 8, the types of accelerating organizations are: (i) independent; (ii) corporate; (iii) university, (iv) government, (v) public-private, (vi) innovation and technology hubs, (vii) institutions promoting social entrepreneurship, (viii) collaborative / coworking spaces.

> *ACE has institutional partnerships and indirectly with universities, such as the Escola Superior de Propaganda e Marketing, technology companies such as Google Launchpad, and other types of companies and associations with the purpose of developing new talents for the innovation ecosystem (E8).*

Interviewee E8 statements can be validated from documents D4 and D8 and will be further elaborated in the results and discussions section. These acceleration format designations also support the main objective of the work, showing the difference between each of the existing accelerators in the innovation and business acceleration ecosystem.

Interviewees E4 and E5 show that contact with branches, partnerships and international events leverage knowledge in entrepreneurs and managers, preparing companies for international challenges and giving the accelerator the possibility to leverage new procurement and production contracts.

> *(...) we have a thesis, which is with the skills that we have within the AVISTA group and with our internal and external relationship network. We managed to help the entrepreneur who is at the stage of the idea, a small company that is able to scale (...) (E4).*

Thus, the construction of global partnerships and the formation of knowledge show that the innovation and business ecosystem drive diversified dynamics so that entrepreneurs can evolve with their startup projects and adapt to the different stages practiced in each accelerator. Two propositions were simultaneously supported here, P2 and P2.a.

Some of the accelerators show competitive acceleration differentials aimed at the corporate market. In E9's, it appears that the acceleration process is focused on the health market, demonstrating specific expertise to refine sector startups. The E9 accelerator drives the adaptation of processes and steps to accelerate companies in the sector that the organization aims to work on. The interviewee also confirms that other markets and business ecosystems influence his business acceleration process, as shown by research by Oh, Phillips, Park, & Lee, (2016).

> *The main differential is the possibility of relationship with the Hospital, generating opportunities to accelerate, develop, validate and market the products of startups (...) we are one of the main players in entrepreneurship and innovation in the market, focusing on health. We are open to working with other players, as we already do on time. (...) (R9)*

RESULTS AND DISCUSSIONS

In the first place, it is important to highlight the resulting categories object of the study and their inference thorough it. The categories that emerged in the research field were (i) Impacts of Organizations on the Acceleration Model, (ii) Different Types of Accelerator and (iii) Acceleration Methodologies. This contributed to show that accelerators are workspaces arising from organizations and institutions that pursue business development. It also indicated that the values, mission and vision of an accelerator are linked to the methodologies that distinguish the service offered by each accelerator in the market.

The five categories that stood out the most during scientific surveys are: (1) Adaptation of Stages, (2) Capacity Development Program and (3) Corporate Innovation, (4) Organic and Relationship between Ecosystems and (5) Digitization of Services. The highlights of these categories include the acceleration business, corroborating for external institutions to influence the creation of distinct acceleration stages, processes and mechanisms in national and global markets. The relevance of these categories also reinforces the research by Oh, Phillips, Park, & Lee (2016) that show the innovation ecosystem acting in an integrated way to generate business innovation. Below is a table listing the categories according to their relevance in Table 1:

Table 1. Relevance by numerical scale of inductive categories and subcategories.

Category Importance	Inductive and Deductive Work Category
1	Adaptation of Stages
2	Capacity Development Program
3	Corporate Innovation
4	Organic and Relationship between Ecosystems
5	Digitization of Services
6	Different types of accelerators
7	Small and Medium Business
8	Mentoring
9	Impacts of Organizations on the Acceleration Model
10	Criterion and Selection
11	Universities and Scientific Research
12	Investment Capture
13	Incubation Spaces and Cooperative Work
14	Innovation Nationalization and Regionalization
15	Acceleration Methodologies
16	Location and Spaces
17	Cities and Districts and their Implications

Source: Authors (2020).

Based on this assumption, it is considered that the general objective of the work was met as the interviewees emphasized the different types of accelerator and the adaptation of steps on the relational influence of existing ecosystems.

The definition of these organizations, their work methodologies, examples of institutions in the market and the innovation provided to entrepreneurs can be contemplated in the points below:

***Independent Accelerators*:** These are institutions created with no relation to the public sector and / or associated with companies that have profitable goals from

investments in startups. The methodologies used are based on scientific experimentation, business downsizing, Design Thinking and the agile methodologies of Sprint, Scrum and Kanban. In the market, ACE and Liga Ventures accelerators are considered independent accelerators. In this environment, the innovation provided to entrepreneurs is generated from agile methodologies with the client. Partnership network promotes the dissemination of knowledge and technology for the reconstruction of business models.

***Corporate Accelerators*:** Profit-driven organizations created from business environments, whose purpose is to develop new businesses for the transfer of knowledge, technology and innovation between the accelerated company and the company that owns the accelerator. The methodologies used during the stages are scientific experimentation, business downsizing, Design Thinking, Kanban, different adapted agile methodologies and open innovation. Examples on the market are Oxygen and EDP Ventures. In these accelerators, innovation occurs through the transfer of global and regional knowledge between subsidiaries and headquarters and even specific sectors. Another way to generate innovation is access to international business events for participation in business rounds and product refinement. Entrepreneurs benefit from the exchange of knowledge and resources of human and financial capital.

***University Accelerators*:** Institutions created from university environments that aim to develop talent and create business. They are generally not profit-driven. The operationalized methodology varies according to each university and partner accelerator. In general, the methodology is based on business downsizing, lean start-up operations, strong corporate pivot base and Design Thinking. FGV Ventures, ESPM Digital Business Lab, FEA Social and Habits Incubadora, are examples of university accelerators. Innovation provided through knowledge transfer based on scientific tests and a strong market research base.

***Government Accelerators*:** Originating within the public sector with the purpose of developing businesses, these institutions seek socioeconomic improvements. The methodology used is established by conducting investment capturing cycles and business cohort rounds based on speeches. Use of public agencies to refine the business model. Some government organizations on the market are Pitch.gov.sp and WorkForce Accelerator Fund. The innovation provided is established in the creation of partnerships and access to exclusive business data for the development of products and services that serve social purposes in an innovative way.

***Public-Private Accelerator*:** Institutions that have support from both the public and private sectors, with the purpose of developing technology-based businesses and contributing to the national innovation ecosystem. Unlike governmental ones, Public-Private can be designated for being non-governmental institutions or private providing public service. The technological chain of companies for the generation and transfer of technology and several cascading methodologies in the allocation of financial resources are forms of operational action for this type of organization. Currently, the market includes the organizations: Startup SEBRAE and SENAI. Use of technology and cooperative work to provide innovation in processes, services, and products. This type of organization also focuses on the transfer of technology and technical knowledge.

Institutions Promoting Social Entrepreneurship: Non-profit institutions created with the purpose of developing businesses that defend social causes. As a methodology, the rounds of mentoring on demand and the fundraising cycles with social investment

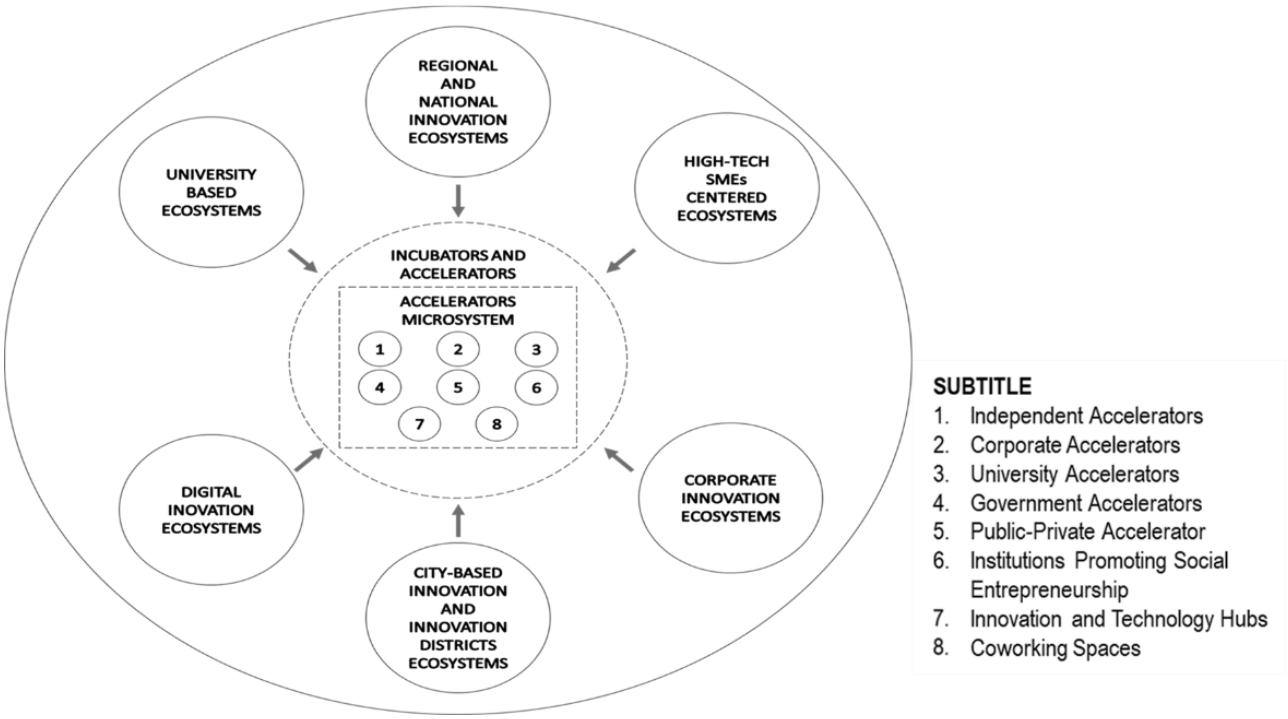
funds differ from those of other organizations. FA.VELA and Endeavor are examples of social accelerators. Insertion of entrepreneurs in an educational and social environment with a focus on the networking supports the creation of innovative solutions within these organizations.

***Innovation and Technology Hubs*:** Spaces that bring together various stakeholders of the innovation ecosystem, such as technology-based companies, investors, incubators, accelerators and research centers with a focus on technology testing. Practiced methodologies are: OKR (Key Objectives and Results) and business downsizing. On the market there are MRG Tecnologia and Google for Startup Campus. Use of accelerator technologies and rounds of business loops are practiced providing disruptive innovation.

***Coworinkg Space*:** Spaces created with the aim of generating exchange of experiences and transfers of innovation based on collaboration between agents. The methodologies employed are business downsizing, Design Thinking, Sprint, Scrum and co-creation. CUBO and Habitat are collaborative workspaces that contribute to business acceleration. The physical space is the main intermediary for the generation of innovation and the transfer of knowledge and technologies from the networking network.

The present work also verifies that market dynamics emerge among the organizations that carry out the acceleration process. This dynamic is mainly due to the interest of entrepreneurs and managers in looking for accelerators according to their differential and proposed acceleration model. In this sense, this work shows that within the accelerators' innovation ecosystem there is a micro-ecosystem that includes organizations influenced by external factors such as social, economic, political and geographical contributing to the work of Oh, Phillips, Park, & Lee, (2016). Below is a figure showing the organic of the acceleration innovation micro-ecosystem (Figure 1).

Figure 1. Micro ecosystem and organizations that accelerate early stage companies.



Source: Authors (2020).

On the analysis of content it is possible to assert that there is a strength influence from innovative ecosystems in the incubators and accelerators ecosystem creating an unique market dynamic. In addition, the figure also points out that, within the ecosystem of incubators and accelerators, there are different types of organizations, identified by interviewee 6, which are: (i) independent; (ii) corporate; (iii) university, (iv) governmental, (v) public-private, (vi) innovation and technology hubs, (vii) institutions promoting social entrepreneurship, (viii) collaborative / coworking workspaces.

This micro-ecosystem represents the different types of organizations that, with the purpose of accelerating companies, develop skills in an agile way in companies corroborating for the implementation of innovation and adaptation of companies in the market. Organizations also circulate among the other ecosystems mentioned byOh, Phillips, Park, & Lee, (2016), however the difference pointed out in this work is that these organizations also adopted ways to accelerate companies through contracts with entrepreneurs aiming at the absorption of knowledge and the generation of new revenues for organizations.

At the same time, within these organizations that adopt measures to accelerate companies, innovation happens through the accumulation of specific knowledge derived from the differential that the accelerator can offer. Each type of accelerator provides different forms of innovation and has the potential to transfer specific knowledge related to its operating niche (mentoring and refinement of business models) to its customers (Figure 1).

Presenting the dynamics of Figure 1, the specific objective of identifying the role of accelerators and organizations that accelerate innovation entrepreneurship was conclusively supported.

CONCLUSION

The research met the framework of propositions in full, confirming both general and specific objectives, concluding that the established conceptual model shows two points: (i) the acceleration steps are adapted according to the ideation, prototyping, validation and pivoting processes and (ii) there is a micro-ecosystem that provides accelerated business dynamics, among organizations, to accelerate the company.

The research results also demonstrated that each accelerator has an organizational culture, having some fundamental catalyst factors such as: mission, vision and values. These factors make it possible to establish and practice methods and techniques aimed at reaching a certain type of market for startups. The adaptations of the steps based on the processes established by the market differentials serve as an incremental point for the research by Bliemel, Flores, Klerk, & Miles, (2019) providing for researchers in the field the use of the elements of the authors with adaptation through the accelerator selected as an analysis phenomenon. The elements can adapt according to the purpose of the organization that accelerates companies.

Thus, the specialty of each accelerator, in relation to performance in certain markets, culminates in a competitive dynamic in the search for the development of specific startups, which in addition to bringing returns, enables greater visibility and reference in the market aspect of the accelerators themselves.

The dynamics established among organizations that accelerate companies shows that within each innovation ecosystem there are micro ecosystems and dynamics that need to be investigated by researchers and increases the gaps in the studies by Oh, Phillips, Park, & Lee (2016) on innovation and entrepreneurship ecosystems.

For future studies to investigate the dynamics among the organizations that make up the ecosystems of Oh, Phillips, Park, & Lee, (2016) showing that for each one of them there is a micro-ecosystem with a specific dynamic.

Another suggestion for future studies is to investigate in depth how much each accelerator intensifies in the processes of ideation, prototyping, validation and pivoting. In addition, it opens the way to investigate in depth the countless methodologies and methodological adaptations of each accelerating organization mentioned in Table 4.

The limitations presented in the paper refer to two main points. The first is since the research findings present different types of organization and that despite being portrayed by the interviewees, the researchers were successful in attracting representatives from each organization to conduct more interviews.

The second is in relation to the pandemic moment caused by COVID-19. The interviews of the interviewees 8,9,10 that were scheduled to be carried out in person had to be done over the internet. The face-to-face interview would allow to see the organizational climate of the employees and some of the methodologies put into practice.

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