

Stakeholders' Perception to Characterize the Start-ups Success

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Abstract: Startups are innovative companies that live in uncertain environments. This research aims to characterize the conditions and variables that influence the startups' development according to Brazilian stakeholders' perception, understanding that is reached approaching its business characteristics and how the environment acts on it. An evaluation instrument is developed to assist the validation of critical factors, as well as the KPIs necessary for the execution of the instrument. The study presents, through bibliographic research, a theoretical proposal of critical success factors that receive the assessment of stakeholders. The results demonstrate the impact of critical success factors on the startups' development, according to the stakeholders' perception.

Keywords: *Startups; emerging economies; critical factors success.*

Submitted: March 15th, 2021 / Approved: April 25th, 2021

1. Introduction

Entrepreneurs in developed and emerging economies operate in an increasingly competitive global marketplace and must know the characteristics of companies and what aspects can benefit growth. They face a poor situation in terms of different contextual factors such as corruption, infrastructure, institutional and political instability, and lack of access to financing [Tipu (2019)]. In the competitive and difficult environment of emerging economies, companies called "startups" face great challenges.

As an emerging economy, Brazil presents startups ecosystem growth. By contrast, the country holds the 109th position in the Ease of Doing Business global ranking. Also, around 67% of business are closed in five years due to factors like lack of clients, lack of capital, knowledge, taxes, default, competition, bureaucracy, flawed marketing, crisis and lack of credit, and the closing costs can be 44 percent higher than opening [McKinsey & Company (2019)]. Also, disharmony among team/investors is some of the top reasons startups fail – in addition to no financing/investor interest, pricing/cost issues, legal changes, no market need, products without a business model, do not use a network, among others reasons [CB Insights (2019)].

It is possible observe the importance, primarily in the economic aspect, of knowledge about the main fail's reasons inserted in the context of a new business as startups. In this way, this present study promotes different stakeholders' perceptions analysis under some relevant issues relating to startups development. Also, for a startup company to become successful by jumping across the 'Death Valley', many conditions will be necessary including creative technology, financing, marketing, and business management [Yoon and Sung (2019)]. Therefore, understand the interests of each component in the business environment is essential for the startup's lifetime increase and, consequently, helps in the economic growth where it is inserted.

This research aims to characterize the conditions and variables that influence the development of startups according to the opinion of a group of stakeholders from Brazil for startups managers understand the aspects that impact development from the point of view of 20 stakeholders that interact with companies. The stakeholders that collaborated to create the results of survey are entrepreneurs and investors of startups and representatives of support associations. They have extensive knowledge in the universe of startups, in addition to collaborating with these companies, the development of these organizations has a great influence on professional activities. These perceptions should help managers to understand how startups can grow in the current market and beat the statistic that indicates high mortality of companies.

On the other side of the value chain, stakeholders will understand deeply how the companies operate, considering that they have a direct relationship with local opportunities and constraints, and actions will affect the whole system [Woerkom and Rozema (2017)]. The research results will indicate which factors most generate influence in the startups developing process in the opinion of 20 stakeholders, and thus, allows other stakeholders to take into account these attributes at the time they need to decide which startups to bond and support. At some point, it will be relevant to analyze the stakeholders' opinions, in case of disagreement, understand why this happens and how it affects the environment.

The public administration can use this information to create actions and plans to help the business environment, for example, checking which characteristics they can change in the city or state, creating innovation hubs and helping companies to incubate. Also, analyze where the money is going is and where would be the best way to invest must be considered for the startup management.

The article is divided into five sections. Section two includes the theoretical background on startups scenario and emerging countries, highlighting the main characteristics. Section three explains the approach and how the study was conducted. Followed by section four, results and section five, conclusion, main contributions, and future research.

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2. Theoretical Background

The main attribute for the development of a startup project and business is the fact that they have technology as the base. The disruptive technological innovation helps the competitive strategies to enable the high potential for accelerated growth on startups. The technology gave alternative paths for start-up companies so that digital technology helped to improve the companies' internal business, such as human resources and purchasing systems, factors that can generate

competitive advantages for startups (Van der Westhuizen and Goyayi, 2019) calling for entrepreneurial self-confidence among young entrepreneurs. As there is a presumption that technology can alleviate these challenges, this study assessed transformation in entrepreneurial self-efficacy (ESE).

Among several characteristics, based on the assumptions highlighted in the universe of startups, Table 1 presents the main characteristics present in startups, as well as the authors' reference.

Table 1. Main characteristics for startups and authors.

Characteristics	Authors
Lean Initial Structure	Suominen <i>et al.</i> (2018).
Scalability	Oliva and Kotabe (2019).
Replicability	Balka <i>et al.</i> (2014); Urban and George (2018).
Innovation	De la Hoz-Rosales <i>et al.</i> (2019); Rosa <i>et al.</i> (2020); Stephan <i>et al.</i> (2019).
Uncertainty environment	Oliva and Kotabe (2019); Villa Todeschini <i>et al.</i> (2017).
Relation with enabling environment	David-West, Umukoro and Onuoha (2018) and the effectiveness of business incubators across Sub-Saharan Africa (SSA); Salamzadeh and Kawamorita Kesim (2017).
Industry 4.0 technologies	Hofmann and Rüsich (2017); De Sousa Jabbour <i>et al.</i> (2018)..
Communication technology	Eryilmaz (2019); Park, El Sawy, and Fiss (2017); Saura <i>et al.</i> (2017) Web Analytics (WA).
Risk Capital	Dietz <i>et al.</i> (2016); Florida and Mellander (2016); Villa Todeschini <i>et al.</i> (2017).

Startups have a lean initial structure, as they have small and qualified teams with high technological and management knowledge. Studies show that many important innovations in recent decades have been introduced not by existing companies but by new small firms [Ojaghi *et al.* (2019)]. An organization that has a smaller structure offers advantages over the speed of information flow [Martin and Guimarães (2018)].

The energetic and innovative behavior and learning-by-doing approach to problem solving that the enterprising competency implies enables startups to pivot and adapt business in searching for a scalable and repeatable business model [Müller *et al.* (2019)]. Startups are characterized by transforming solution of a problem, and by the scalability that is configured in the broad offer for society [Oliva and Kotabe (2019)]. Meanwhile replicability consists of standardized and automated processes that require availability of individual components, information about the project and absence of legal barriers, that may prejudice the business replication [Balka *et al.* (2014)].

The innovation is directly associated with internal knowledge creation, external information sourcing and external collaboration [Stephan *et al.* (2019)] and within the business universe, innovation is fundamental to the economic development of companies [Calik *et al.* (2020)]. In terms of innovation metrics, some studies emphasize aspects such as culture, knowledge, organizational success, strategies, collaboration and the organization itself [Rosa *et al.* (2020)], that constitute the process of developing new products or services for future commercial and social benefits (Ahworegba *et al.*, 2020).

An environment of uncertainty is characterized by dynamic and fast pace circumstances. In this situation is possible to find companies that adapt to the necessity of the new demands, for example, startups and technology-based companies. Startups are innovative by nature and, it is recognized by the characteristic of being companies that deal with high levels of uncertainty and dynamicity, exposed to countless risks. [Villa Todeschini *et al.* (2017)].

The relation with the enabling environment is the connections that the startup has with innovation environments, a place to develop ideas and grow before going to the market. For example, hubs, accelerators, technology park and universities. Technology hubs are the most contemporary startup launching mechanism, they incorporate physical spaces that enable platform startups with business support services and resources until they gain maturity [David-West *et al.* (2018)]. Accelerators are located in universities to be closer to startup and enterprising communities, they provided friendly and open co-working spaces, and debate rooms to let young talents present ideas [Salamzadeh and Kawamorita Kesim (2017)]. Also, the influence of the university environment stands out as a catalyst for entrepreneurial activity in small companies [Wynn and Jones (2019)].

The use of technology solutions by startups is fundamental to business model, so it is important to consider the most recurring types of technologies today. Industry 4.0 is constantly changing, and in recent years, indicates the main changes expected in the industry, even though this concept still needs further study of its methods [Hofmann and Rüsich (2017)]. Among the technologies of industry 4.0, the use of artificial intelligence, big data, blockchain, cloud

computing, internet of things and simulation stands out [Bai and Sarkis (2017); Dalenogare et al. (2018)]. Given the relevance and evolution of industry 4.0, which coincides with the flexible business model and willingness to improve further in favor of technologies that facilitate startups' growth, it is understood that they should take advantage of techniques and knowledge approached by industry 4.0. These characteristics, when combined, improve the factories' production system in several ways, either by the speed of decision-making, better imperfections understanding, and precision in the improvement development.

Communication technology has transformed political, social, legal and other elements within society, and for this reason, it has become an indispensable factor in the contemporary world. Thus, the influence of this type of technology within the entrepreneurial context is normal [Eryilmaz (2019)]. In a time of agile information transfer, the economy is increasingly connected to a network, and in this way, electronic commerce (e-Commerce) is perceived as an important tool to enable business growth [Saura et al. (2017)].

Risk capital is the money used to start the operations in the business and can be divided into many items, for example, angel investment, seed money, venture capital, bridge financing, equity crowdfunding, mezzanine capital and private equity [Salamzadeh and Kawamorita Kesim (2017)]. Startups which are entering the market need adapted risk management methods to be able to execute activities. Also, the adaptations in these methods can be useful for startups to create value and not only to be a bureaucratic process [Villa Todeschini et al. (2017)].

To analyze the startups' characteristics, the Performance Measurement System (PMS), based on the concept of Key Performance Indicators (KPI) was used, which was built based on the Critical Success Factors (CSF). In this study, the CSF was oriented according to the bibliography and then, was possible to achieve the KPIs.

Table 2. List of the main KPIs for each CFS.

CSF	KPI
Lean initial structure	Have a lean initial structure.
Scalability	Define target audience, a product that meets repressed or unsatisfied demand, focus on a single product/service, a product with a differentiated proposal from market competitors, a product that meets a specific need, provide easy-to-learn activities for employees, create franchises, provision of trademark/intellectual property in return for remuneration, invest in promotion, possess a dynamic sales process capable of reflecting market changes, investing in product/process technology
Replicability	To get high-profit margin, to have a good return on investment in a short time, to be able to pay all costs of the stipulated period, to have a standardized product with a set of indispensable characteristics, to have a growing line-up of costumers, to be able to replicate the product/service with the same quality in any environment.
Innovation	To get patents of offered products, to develop products and process innovation, have a rapid time to market of products and services, even if the demand is not met efficiently, ideal percentage of revenues of a startup to invest in R&D.
Environment of uncertainty	Have a well-defined market niche, to develop product and process innovations, to supply new demands, to understand demand variations, competitors' impact, external factors impact the business, clarity about necessary resources to boost the business.
Relation with enabling environment	Accelerator, innovations agents, business center, innovation hub, incubator, living lab, technology park, venture builder.
Industry 4.0 technologies	Asynchronous manufacturing, big data, cloud computing, internet of things, smart products, cyber-physical systems, smart services, data security.
Communication technology	Generation information about leads importance, ideal percentage of revenues from a startup to invest in digital marketing, ideal investment grade in campaigns to gain new costumers, the business impact of the information communication technology use, ideal percentage of revenues from a startup to invest in technology.
Risk capital	Business angel, seed money, venture capital, bridge financing, equity crowdfunding, mezzanine capital, private equity.

Startups have several attributes that set them apart from traditional model organizations. The particularities of these innovative companies drive them towards rapid growth or even early mortality, which is common in uncertain environment. Given the characteristics, it is important to understand which of these aspects most influence the progress or decline of these organizations, to recognize which factors should be directed the efforts of agents acting in favor of these companies.

Method

This section covers the main steps to achieve the final objective of the work. The study consists of the steps that comprise the bibliographic review, the identification of critical success factors (CSF), the development and application of the assessment instrument, the development of the mathematical method and the evaluation of results and practical application.

The first stage of the study was based on researching the main elements that influence startups' development. For this, a bibliographic search was conducted in the main bases of journals (Scopus and Web of Science), with the keywords: 'startups', 'indicators' and 'factors'. In this way, different critical success factors (CSF) were identified that generate impact and are present in the startups' life cycle. Therefore, only the critical factors that were found most frequently in the verified articles were selected, totaling nine main ones. After this survey, again through bibliographic research, different key success indicators were identified that characterize such critical factors, understanding and also the construction of the assessment instrument.

Based on the characteristics identified by the bibliographic research, in stage 2, the critical success factors and its greatest influence in the startups' universe were validated by a series of stakeholder groups. These agents were defined as startups stakeholders in all scenarios of the innovation environment. Stakeholders were classified into clusters in that responders have similarities in the roles they play. The first group of interested parties classified as investors provides financial support to companies, enabling them to keep businesses going. The second group deals with innovation support agencies and associations and helps and disseminates the entrepreneurial culture in partnership with universities and academic centers. The third group is made up of entrepreneurs and business owners in general, people who have experience in governing and developing ventures.

The construction of the assessment instrument is step three. The research presented as a collection instrument a survey addressed quantitative and qualitative topics, to collect information and testimonials, in addition to information and numerical data. The information collection instrument was developed based on the 54 critical factors identified in the bibliographic research, to generate an understanding of the impact generated by these in the reality of startups, focusing on an emerging country like Brazil.

The assessment instrument addressed nine critical success factors, and within these, 54 different KPIs were found, so that each represents

a questioning directed to stakeholders. The number of KPIs per critical factor varied between two and eight, and the objective is that these questions complement each other and reveal the influence of each critical factor in the development of startups. Contact with stakeholders was made through email, LinkedIn, Facebook and WhatsApp.

The Likert scale makes up the format of the answer options presented by the questions. The scale uses five points as answer options, in which they vary between the points with the lowest score to the one with the highest score. The choice for the Likert scale was because it represents an intuitive and easy-to-view scale for the judgment of stakeholders. The response scale used was five levels together with a qualitative description of the intensity of each value on the Likert scale.

Four research questions were built from percentages, as shown in Fig. 1. It appears that using percentages in the questions that refer to the number of investments or revenues facilitates the understanding of the stakeholders' perception regarding the KPIs addressed.

Fig. 1. Example of an alternative question model.

Ideal percentage of revenues of a startup for investment in R&D *

0 to 10%

10 to 20%

20 a 30%

30 to 40%

More than 40%

Besides, in the final part of the survey, it is possible to find an open-ended answer, Fig. 2, in which the responder can suggest new indicators or suggestions. These qualitative responses are used as support in the results section to understand the interviewees' perspectives on the subject.

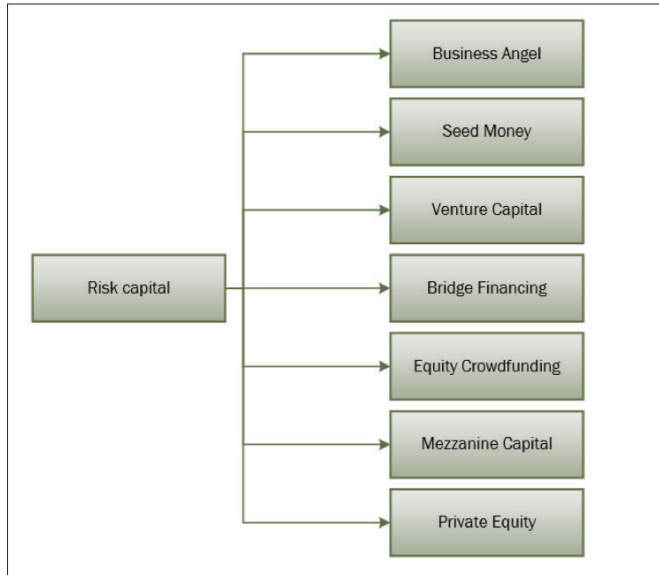
Fig. 2. Example of an open question.

Do you have any indicator suggestion to startups development?

Step 4 encompasses the mathematical method development. The comparison matrix was the mathematical method used to calculate the influence of each critical success factor from the stakeholders' perspective. The tool presented the Analytic Hierarchy Process (AHP) decision-making method. AHP presents applications in the most varied areas from a pairwise comparison method (Pavlova et al., 2019).

Based on the bibliographic survey carried out previously, nine critical success factors (CFS) were listed for startups in early years. To obtain the CSF substitution rate, 54 KPIs were used as the basis. Fig. 3 below shows an example of CSF risk capital and its KPIs.

Fig. 3. Example of the relationship between a CSF and its KPIs.



As shown in Fig. 3, all CFS present the same construction logic, as they are composed of different KPIs that complement the sense of each critical factor. In the same way, this behavior is reflected for the other CFSs: each question in the survey constitutes a KPI, and a set of KPIs constitutes a CFS. Thus, responders assigned an importance value to each KPI on the Likert scale with five points, from a minimum equivalent to one to a value with a greater intensity equivalent to five points. However, the comparison matrices are calculated using the fundamental scale proposed by Wind and Saaty [1980], which ranges from one to nine, with one being equal importance and nine extreme importance. Through a linear interpolation, the input values on the Likert scale were converted to the fundamental scale of Wind and Saaty, [1980], having as reference the minimum and maximum values of the fundamental scale (one and nine, respectively). After that, the importance y_{rf} of each CSF (f) is determined individually for the stakeholders (r) employing the arithmetic mean of the amounts verified for the n_f KPIs (k) contained in each CSF KPI_{kr} , as shown in Eq. (1)

$$y_{rf} = \frac{\sum_{k=1}^{54} KPI_{kr}}{n_f}; \forall k \subset f; f = \{1,2, \dots, 9\}; k = \{1,2, \dots, 54\}. \quad (1)$$

Then, individual matrices were constructed to compare the importance of the CFS y_{rf} for each stakeholder. The importance of CFS is compared to pairwise, in lines (f) and columns (f'). The term $a_{ff'}$ of the matrices is given by the quotient between the importance attributed to the CFS of the line by the importance attributed to the CFS of the column.

The first step in obtaining individual stakeholder replacement rates is to determine the sum y'_{rf} of the matrix terms $a_{ff'}$, located in a specific line (f), as shown in Eq. (2)

$$y'_{rf} = \sum_{f'=1}^9 a_{ff'}. \quad (2)$$

The second step consists of the quotient between each term y'_{rf} of the matrices by the sum $\sum_{f'=1}^9 y'_{rf}$ of all the sums of the columns of each matrix. Thus, the individual substitution rate RR_{rf} of the stakeholders for each CSF is obtained, according to Eq. (3)

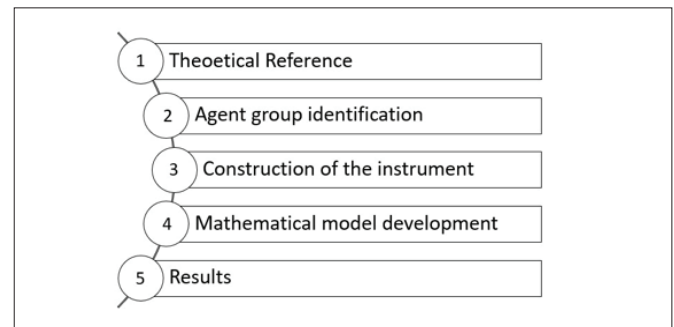
$$RR_{rf} = \frac{y'_{rf}}{\sum_{f'=1}^9 y'_{rf}}. \quad (3)$$

For the construction of the CSF general ranking, the substitution rate values calculated individually for the stakeholders are aggregated in clusters, according to the performance exerted by each one of them in the startups' context. The CSF aggregation by the cluster is given by the arithmetic mean of the substitution rates RR_{rf} , considering only the stakeholders that belong to a given cluster.

The substitution rates can be analyzed in general, adding the results obtained in the individual ranking of each cluster. Also, for the substitution rate calculations, the relevance of the responding stakeholders is considered equal, regardless of the cluster, with no possibility of attributing different relevance according to the size, market segment or any other characteristic intrinsic to the stakeholder.

In step five, the analysis and exploration of the results were developed by the results discussion and conclusion sections, according to the responses of the stakeholders. All stages of this research can be seen in Fig. 4 below.

Fig. 4. Research steps.



According to the Fig. 4, it is possible to visualize all steps from the research. Starting in the theoretical reference to the results, where the factors of greatest influence within startups were highlighted, and in such a way that relationships between the agents' perceptions who are in the same clusters are made, as well as other reflections.

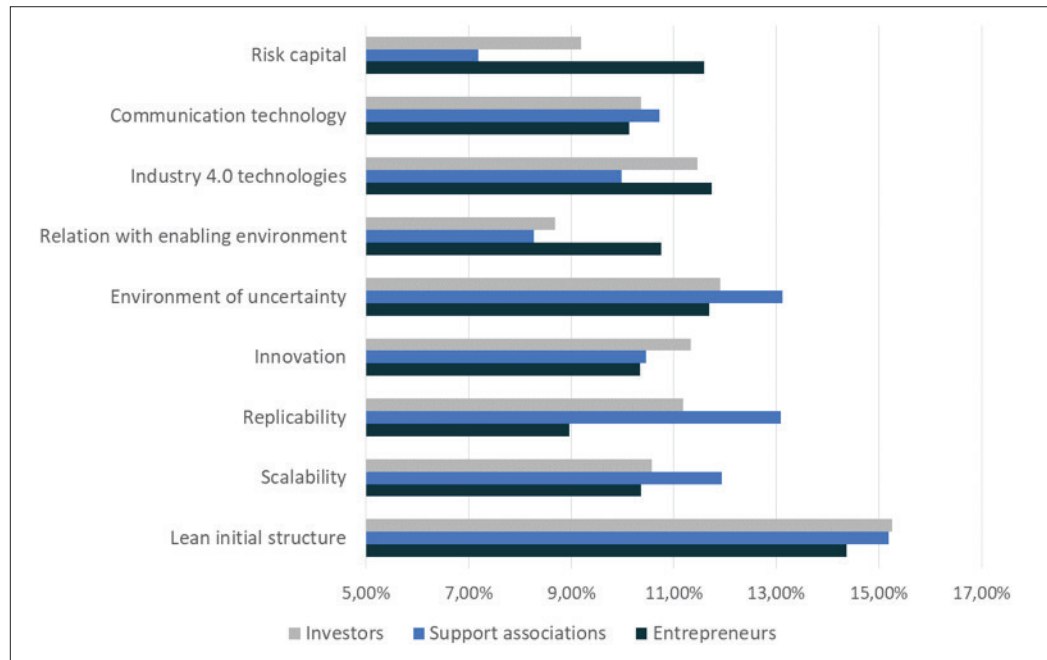
Results

Based on the mathematical method developed to calculate the CSFs influence, 20 stakeholders were consulted, with nine entrepreneurs, four representatives of support associations and seven investors. All of them operate in the Brazilian ecosystem, with either own business or providing subsidies for the development of entrepreneurship in Brazil. Fig. 5 shows the results of the CSF substitution rates obtained for each stakeholder's clusters. The difference in the importance of the substitution rates is incremental, and not representative for the application

developed. The focus of the survey execution is to observe, individually for each cluster and CSF, the importance of the substitution rates re-

gardless of whether a CSF in a given cluster is better ranked compared to the importance of substitution rates obtained in another cluster.

Fig. 5. Relationship between a CSF substitution rates for each stakeholder cluster.



The opinions among the three agent types that contributed to the results of this research (entrepreneurs, support associations and investors) may differ or show similarity according to each indicator. All agents have the ambition to contribute to startups' development.

But within that, particular interests expose the causes of the diversification of responses between them. Fig. 6. Radar shows graphic of the substitution rates attributed to the success factors for each stakeholder cluster.

Fig. 6. Radar graphic of the substitution rates attributed to the success factors for each stakeholder cluster.



Entrepreneurs, support associations and investors understood that the lean initial structure is the most relevant CSF for the success of a startup and reached the overall score of 14,87%. Small companies present characteristics that are favorable to an environment of high innovation and the generation of new knowledge, as they need communication to be immediate and dynamic, evolving in processes [Biff et al. 2019]. In addition, respondents agree that, initially, startups must have a lean structure, since at the beginning of business they do not have large capital returns, and need to grow exponentially so that they can reach higher levels as quickly as possible.

Environment of uncertainty presented the second highest results among all agents interviewed (12.08%). Entrepreneurs, support associations and investors recognize that the uncertain and competitive environment in which startups are inserted is fundamental for growth and differentiation from other companies. According to the interviewees stakeholders, this environment proposes that startups are innovative in products and processes, in addition to the need to understand market variations and to meet new demands. These are aspects that enable startups to stand out according to the characteristics of services in an uncertain environment.

The great difference between the responses of the entrepreneurs (11.70%) and the support associations (7.19%) stands out, which confirms how entrepreneurs and startups owners are more concerned with the investments received to develop businesses. This factor can demonstrate that entrepreneurs, when starting businesses, make available a financial amount dependent on third parties since startups are visionary companies and targets for investors. Supporting associations are organizations that support startups, and in a way, do not manage the finances of these companies, thus, they recognize risk capital as a less important CSF among those presented by the research.

Replicability also showed a big difference between the opinions of entrepreneurs and supports associations. Replicability shown greater

importance for support associations (13.09%), since they value the act of producing the same standard product and without changes, while entrepreneurs (8.97%) indicate that repeatability it is the least important CSF among those addressed. Results highlight the standardization of products is not a fundamental aspect according to entrepreneurs, and that customization and flexibility can be taken into account. While the support associations prefer startups that prioritize the standardization of products and believe that this factor adds quality to startups.

Relation with enabling environment showed a great disparity between entrepreneurs (11.16%) and support associations (8.28%) and investors (8.69%), with the latter considering the penultimate and last most relevant CSF, respectively. The results demonstrate the need for entrepreneurs to form alliances with other agents. As entrepreneurs are often the owners of startups, it's recognized the importance of support associations more than themselves in the growth process of startups.

Investors, in turn, consider that the relationship with enabling environment is the CSF that should be least prioritized (8.69%). According to the survey, investors believe that CSFs like industry 4.0 technologies (11.47%) and innovation (11.33%) are more important for the growth of startups than relationship with enabling environment and prioritize these indicators more than entrepreneurs and support associations. This result reveals that the investors interviewed believe that internal factors are more important than relationship with the environment of the startups. These aspects reveal the types of characteristics favored by startups investors when allocating capital to such businesses.

The following subsections analyze the opinions of the agents interviewed according to each CSF proposed by the survey according to Fig. 7.

Fig. 7. Substitution rate obtained for each success factor.

Entrepreneurs	Support associations	Investors	General				
Lean initial structure	14.37%	Lean initial structure	15.20%	Lean initial structure	15.26%	Lean initial structure	14.87%
4.0 Technologies	11.74%	Environment of uncertainty	13.13%	Environment of uncertainty	11.91%	Environment of uncertainty	12.08%
Environment of uncertainty	11.70%	Replicability	13.09%	4.0 Technologies	11.47%	4.0 Technologies	11.27%
Risk capital	11.60%	Scalability	11.94%	Innovation	11.33%	Scalability	10.77%
Relation with enabling environment	10.76%	Technology in communication	10.72%	Replicability	11.19%	Innovation	10.73%
Scalability	10.36%	Innovation	10.46%	Scalability	10.57%	Replicability	10.66%
Innovation	10.35%	4.0 Technologies	9.99%	Technology in communication	10.37%	Technology in communication	10.35%
Technology in communication	10.14%	Relation with enabling environment	8.28%	Risk capital	9.20%	Risk capital	9.79%
Replicability	8.97%	Risk capital	7.19%	Relation with enabling environment	8.69%	Relation with enabling environment	9.48%

The bar chart demonstrates the relationship between CSF substitution rates for each stakeholder cluster: risk capital, communication technology, industry 4.0, relation with enabling environment, environment of uncertainty, innovation, replicability, scalability and lean initial structure.

4.1 Lean initial structure

The initial lean structure factor, in general, was considered the most important factor among the factors listed. It was considered more im-

portant for investors (15.26%) than for support associations (15.20%) and entrepreneurs (14.46%). The factor also has the second-lowest standard deviation among agents, which demonstrates homogeneity among stakeholders' opinions. Thus, it is observed that all groups value a company with low costs in its early years.

This data is in line with the thinking of De Massis *et al.* [2016], since, to ensure survival in the market, startups need to have small costs and, in most cases, they are dependent on the financing of

investors, that recognize the importance of companies with little initial expenses. Consequently, to guarantee more security for both investors and support associations as entrepreneurs themselves, the lean initial structure is essential for a startup to be able to maintain itself in its early years and, in the future, to expand its business more easily.

4.2 Scalability

For the scalability indicator, the group that received the most recognition was the support associations (11.94%), followed by the group of investors (10.57%) and finally, entrepreneurs (10.18%). As previously discussed, scalability is one of the essential criteria to be considered a startup to possibility the companies be able to replicate its services and products without increasing costs.

Support associations should be aware of these situations and difficulties faced by companies because the most important subscription for responders in this group was to define the target audience, which is important in small companies. Incubators, for instance, are searching for companies that have an idea with the potential to fulfill the current market needs [Nair and Blomquist (2020)]. In the investor's opinion, they had three sub-criteria with relevant performance: a product that meets repressed or unsatisfied demand, a company that possesses a dynamic sales process capable of reflecting market changes and Investing in product or process technology. The entrepreneurs highlighted that to a company to scale the business is important to invest in technology, so it is possible to create a differentiated proposal from market competitors.

4.3 Replicability

Replicability was the indicator with the second-largest disagreement between groups. Entrepreneurs attributed little importance to replicability (9.04%), while support associations and investors attributed greater importance (13.09% and 11.19%, respectively). Overall, this indicator was considered the sixth most important. By considering different barriers in the expansion of a startup, whether technological, organizational, financial, legal and others, we can see that this indicator is more directly related to the political environment in which startups are inserted. In this sense, Balka *et al.* [2014] list several factors that can hinder the replication of a business, including political issues. With the survey, it was possible to observe that being clear about the resources needed to boost the business and meet new demands are fundamental to the success of a company.

When we speak in the context of Brazilian startups, this issue is even more relevant due to the existing bureaucracy. In 2017, 73% of entrepreneurs were not satisfied with the regulatory environment to which they were submitted and 57% of them believed that this scenario would improve by 2020. In 2019, a survey by the World Bank pointed out that Brazil went from 109th position in 2018 to 124th position in the ranking that measures the Ease of Doing Business. In this sense, it is possible to observe that this is perhaps an aspect to be further developed to promote a more successful entrepreneurial environment in Brazil.

4.4 Innovation

The innovation factor, in general, was considered the fifth most important factor for stakeholders. Investors are those who consider the most important innovation (11.33%), followed by support associations (10.46%) and entrepreneurs (10.23%). The standard deviation between stakeholders for this indicator was the third lowest. Thus, it is clear that the innovation percentage of importance for all of them is similar, to demonstrate a convergence of opinions.

Besides, it was observed that agents consider innovation as a factor of intermediate importance for startup success, given its position in the overall ranking. In this way, it can be explored as a competitive differential, thus contributing to the strategies adopted by the company in a 'secondary way', since, in most cases, before valuing innovation, stakeholders would give priority to other factors, mainly the group of entrepreneurs, who make the main decisions about the direction of companies.

Although innovation represents one of the basic factors of a startup, this indicator was considered the fifth most important for stakeholders. Obtaining patents and innovation in products and processes are considered basic issues for agents, thus, they do not represent the company's differential, but rather aspects that must naturally be realized. On the other hand, the inclusion of R&D did not obtain strong recognition from the agents.

4.5 Environment of uncertainty

In this survey, it was possible to analyze some factors that were important regarding the uncertainty environment and check, despite the fact all the groups had a good score for this indicator, they have different opinions regarding the sub-criteria. An innovative environment is dynamic and uncertain, facing innumerable risks [Villa Todeschini *et al.* (2017)]. Regarding the uncertainty environment, the biggest value found was by the support associations (12.78%), followed by investors (11.81%) and entrepreneurs (11.86%).

In this environment, groups can take different actions concerning to others. For example, the entrepreneurs could rate less uncertainty because they have more attitude towards risk and they are more comfortable in these situations [Koudstaal *et al.* (2015)]. With further investigation at the sub-criteria and the score, it is possible to analyze that the main factor according to the support associations is the clarity about necessary resources to boost the business. The entrepreneurs think that it is important to supply new demands and came with new ideas to develop and the investors think as a unanimous opinion that the dynamic ecosystem will create a need to develop product and process innovations.

4.6 Relation with enabling environment

The indicator of the support environments had an unusual behavior to the highest score of the clusters. The highest percentage obtained was from entrepreneurs (11.16%), followed by investors (8.69%) and, finally, support associations responding to the survey (8.28%).

Startups could be compared to a baby because at the beginning needs to be guided since any step away could divert from the path [Santisteban and Mauricio (2017)]. The government should have specific education programs for startups at high schools and adjust the education system linking education with practical activities to promote entrepreneurial culture [Trinh Le (2019)] financial capital, cultural factors, social factors, and human capital that influence SMEs business success. Research Design & Methods: By observing many factors that affect businesses, this study applies structural equation modeling using partial least squares (PLS-SEM). In this way, it can be assumed that the very environments that support companies and startups do not recognize the importance of this support, or that there are still better ways to make a more effective contribution, in addition to the importance of these support and instructional environments for assistance during the initial stages, through programs and tools.

The most common environments commented on in the survey were the accelerator, innovation agencies, incubators, and technology parks, affirming the prominence that receives in the literature. Even though other places did not show in the research, these are recognized mainly by entrepreneurs, who understand the need for partners who contribute to startups, whether with the physical structure, knowledge or providing integration with other companies.

4.7 Industry 4.0 technologies

Entrepreneurs were the stakeholders that most recognized the influence of the fundamentals of industry 4.0 technologies for the startups' development (11.56%). As the main responsible for projects, they seek to optimize processes from a financial and time point of view.

Entrepreneurs or owners of startups are the people who, on the strategic side, have a greater knowledge of what is happening within companies. The startups are companies that opt for quick problem solving and technology plays an important role in adding to the speed and dynamism of work activities. The industry 4.0 technologies share in real-time the information of the production line, thus facilitating the maintenance and customization of products, as well as speeding up the decision-making processes [Man and Strandhagen (2017)].

Despite the high cost of the technologies that represent Industries 4.0, investors also identified the importance of such intelligence for the startups' growth (11.47%). This fact shows that stakeholders who collaborate financially with startups recognize that these monetary contributions can be used to implement technological systems in companies and that these should contribute to the startups' development.

4.8 Communication technology

The communication technology indicator proved to have similar importance for the three types of agents. Supporting associations linked a slight advantage to this indicator (10.72%) concerning to investors (10.37%) and entrepreneurs (10.23%). Supporting associations are responsible for assisting startups in terms of resources invested in general, such as infrastructure, finance, and people, as well as seeking to offer support in an innovative way for companies [Kohler (2016)]. In this way, these environments directly influence the way in which

startups will communicate with audience. Thus, they are organizations that seek to be aware of innovative methods for promoting products and services. Communication technology tools are dynamic and widely used methods for business promotion, especially in the business of companies that sell products and services with innovative characteristics [Eryilmaz (2019)] economy, sociology, etc. Thus, several studies in several fields focus on antecedents and consequences of entrepreneurial intentions and activities to get deeper insights about the phenomenon. Furthermore, another rising field of study is Information and Communication Technologies (ICT).

It is understood that the support associations, by offering support to startups, want them to reach consumers in the shortest possible time, and for this reason, they encourage the development of different tools for winning customers. According to Baye *et al.* [2016] 000 search terms and 2 million users to identify drivers of the organic clicks that the top 759 retailers received from search engines in August 2012. Our results are potentially important for search engine optimization (SEO, the creation of the digital economy developed by the rapid dissemination of computing power should accelerate the process of accessing information and exposing companies' businesses. This reality can be attributed to the fact that investors attach importance similar to that of support associations. Likewise, investors are financial supporters of startups and need to understand that they are achieving success in businesses, a result that includes the acquisition of customers.

According to the study, the support associations consider that the ideal investment grade for customer acquisition campaigns must be very high. So that they demonstrate concern with attracting customers and understanding of the digital medium for this purpose. While investors consider that this type of investment should be average when compared to other investments that startups must make in business. On the other hand, investors consider the importance of generating lead information as fundamental for these companies.

4.9 Risk capital

As for risk capital, entrepreneurs were the interviewees who linked the indicator to greater importance (11.30%). As startups are companies that involve technology and need investments for this, according to the entrepreneurs, the granting of resources for working capital or the expansion of the company plays a fundamental role in the startups' growth.

It is understood that entrepreneurs because they are owners of startups, are the stakeholders that most witness the lack of resources for these, and therefore, admit the influence of risk capital for companies. According to Simon [2016], unicorns' startups usually receive venture capital as a form of initial investment. This fact points out that startups that have achieved success have obtained financial assistance from other employees. According to the results of this study, investors, responsible for offering investments to startups, find that venture capital plays an important role in the startups' progress (9.20%), as they recognize the relevance of functions in the trajectory of these companies.

One of the classes that received the most acceptance is angel investment. Usually, angels take a practical approach in the business, to assist entrepreneurs in the direction of the company [Miller *et al.* (2019)] with a range of options depending on the nature and stage of the enterprise. This article compares the motivations of Business Angels with equity-based crowdfunders of a New Zealand start-up biopharma company, XYZ, who were developing a therapy for a specific disease. The study finds that contrary to previous research, non-financial rewards do play a role in crowdfunding investments. Our results are based on a survey, founded on an Investment Motivational Model (4Ps). This class received high recognition from entrepreneurs and investors, and as similar characteristics, they are characterized by providing support in the initial period of the companies' trajectory. This factor proves that startups most need venture capital at the beginning of careers.

Conclusion

Entrepreneurs, investors and support associations provided reliability to the research results, as they demonstrated knowledge about the functioning and context in which the startups are. This study had as proposal to provide feedbacks from 20 agents that interact with startups from Brazil, and then the startups managers understood the aspects that impact development from the point of view. The reality of any company depends on environment, and the country influences the growth of startups. This survey sought answers from stakeholders in Brazil. Therefore, the answers could be more specific for Brazilian startups, since these stakeholders live with the reality imposed in the country.

The research achieved objective, as several important factors were found that impact the startups' development according to the experts' perception. It was also possible to verify analyzes that indicate the similarities and divergences between the perceptions of the agents involved in the research, which demonstrates that despite the mutual interest, these individuals have some different perceptions regarding the influences and characteristics of startups.

The results of the research should help managers to understand the relevance of certain factors for the development of startups. In addition to managers being able to analyze the perception of other entrepreneurs, the view of investors and startups support associations is also highly relevant to business. In addition, support associations and investors can benefit from the results of the research, as together with entrepreneurs, these stakeholders constitute the business environment of startups, so that both exercise functions that interact with each other, and generate influence each business.

The results of this research can also help to make public administration initiatives more assertive regarding the growth of startups. This research presents the perception of stakeholders who act directly in the development of startups and know the characteristics and beneficial variables. The analysis of this article by public institutions that intend to create projects to promote startups is of relevance so that

these institutions know how startups carry out activities, invest in skills and interact with support environments, and in this way, the government obtains information that assists them when allocating capital for startups.

The study demonstrates several characteristics and variables that influenced the development of startups, and among them, some stood out as a most important indicator, demonstrating that startups, in the beginning of business, need to have a small and fast communication team. The environment of uncertainty has also shown relevance over other indicators, and it encourages startups to develop other skills such as innovation and technology, so that can excel over other companies.

This study was limited due to the social distance in the COVID situation. The questionnaire was sent to the companies online and some of them, faced more traffic of e-mails, becoming more difficult to analyze the requests. Thus, a larger interval than that expected by the questionnaire responses was evidenced. Still on the limitations, although this study had the objective of relying on responses from only agents who proved functions close to startups, and thus had practical knowledge regarding characteristics, the authors endeavored to seek a greater number of answers. obtained by the research. We believe that the COVID situation made it impossible to get the most answers.

For future research, it is suggested that, if possible, the assessment instrument should connect with startups in other regions that the south of Brazil, because could offer another view from difficulties and barriers. As well, the development of a larger number of quantitative questions should collaborate with the precision of the research results.

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