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STARTUPS PERFORMANCE MANAGEMENT: AN ANALYSIS BASED ON LIFE-CYCLE STAGES

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Resumo/Abstract

We investigate performance management systems components (i.e., value proposition, goal, performance perspective, indicators, action, and evaluation) in Brazilian startups in different stages of development (such as Ideating, Structuring, Management and Scalability). We collect data from multiple interviews with founders and C-level actors of startups through a semi-structured instrument. The interviewees encompass 11 startups over different maturity levels and across eight different market sectors. Our study elucidates the relationship between startup life-cycles and the PMS components of Antunes et al. (2021), such as value proposition, goals, performance perspective, and KPIs. According to our findings, some PMS components and the startup life-cycle are adherent and homogeneously manifested. In contrast, others are present but might be differently practiced by the startups. The study provides evidence that the life-cycle is fundamental in the maturity level of the PMS components. Through the discussion about the manifestation of PMS in different startup stages, we provide practical evidence to startup actors to compare their PMS components and maturity and envision their needs for the upcoming development stages.

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ABSTRACT

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Keywords: Startup; Performance Management; Development stages; Management Control Systems.

1. INTRODUCTION

The management accounting literature has been discussing several issues that are sensible for contemporary organizations, including corporate ventures (Kiss et al., 2012; Kohler, 2016; Zahra & Garvis, 2000), high-tech firms (Samagaio et al., 2018), and startups (i.e., Crespo et al., 2019; Davila et al., 2015; Davila & Foster, 2007). We can attribute this growing interest to the social importance of those firms by providing disruptive solutions for problems faced by society and their impact in terms of employment, economic growth, and promotion of an entrepreneurial ecosystem (Srinivasan et al., 2014). According to Startup Genome (2019), startups worldwide have a market value of 2.8 trillion dollars and constitute a particular context for investigating management topics (ABStartup, 2017).

Hence, several studies have been investigating the antecedents that drive the adoption of management practices (i.e., Davila & Foster, 2007; Davila et al., 2015) as well as applying the Management Control Systems (MCS) package (Samagaio, 2018; Crespo et al., 2019) in startups. These studies have provided evidence that management practices can support startups to enhance decision-making quality, act flexibly and innovate (Santos et al., 2022), communicate vision and goals, monitor progress (Davila et al., 2015), and be sustainable in a highly competitive market (Crespo et al., 2019; Pavlatos, 2021). In general, these investigations suggest that management practices are helpful to support startup growth and foment its performance. Among the management control practices investigated in this context, the ones that stand out are adopting budgets, nonfinancial indicators, and informal controls (Santos et al., 2022). However, Akroyd, Kober, and Li (2019) punctuate that it remains unclear how management controls emerge in startups even after recent literature development around the management control package adoption (Crespo et al., 2019).



The Life-cycle theory is one of the main theoretical lenses used to discuss and interpret the adoption of management practices in the startup environment. Traditional scholars suggest that early-stage firms are usually small firms managed by the owner and use simple and informal control mechanisms (Miller and Friesen, 1984). This view has been predominantly applied to startups until more recent studies questioned the transference of this rationale for those organizations (Crespo et al., 2019; Davila et al., 2009; Gomez-Conde et al., 2021). Besides, most of the evidence has been grounded on quantitative data, with few exceptions that used a qualitative approach to explore this phenomenon (Llorach & Ottosson, 2016; Taylor et al., 2019). Therefore, the study's primary interest is the investigation of performance management systems characteristics (i.e., value proposition, goal, performance perspective, indicators, action, and evaluation).

Performance Measurement Systems (PMS) have been discussed as a part of the MCS package (Samagaio, 2017; Crespo et al., 2019) that are focused on analyzing the environment, developing a vision and strategic positioning, establishing targets, measuring, and evaluating performance (Ferreira & Otley, 2009). In addition, we observe some recent studies focusing on PMS adoption in startups, such as the concept of a comprehensive PMS focused on financial and nonfinancial performance metrics (Frare & Beuren, 2021; Nguyen et al., 2017) as well as on the adaptation of a Balanced Scorecard to the stages of development of startups (Llorach & Ottosson, 2016). However, the design of a PMS (i.e., Ferreira & Otley, 2009) might vary according to the startup's stages of development, ranging in its formal and informal controls, the use of financial and nonfinancial metrics as well as the process itself.

In these circumstances, Antunes et al. (2021) developed a performance evaluation framework, especially for the startup's environment. The authors present a cyclic format in which, through time, the startup endures different stages that encompasses its strategy, goals, modules, indicators, actions, and the evaluation of the performance assessment method. Those elements are reshaped across the startup's evolution and maturity.

Based on these discussions, we propose the following research question: **How do performance management systems manifest in the life-cycle stages of startups?** Therefore, this paper aims to investigate performance management systems components (value proposition, goal, performance perspective, indicators, action, and evaluation) in Brazilian startups in different stages of development (Ideating, Structuring, Management and Scalability).

This study brings some contributions to the academic literature and practitioners. First, it contributes to the literature by empirically approaching the characteristics of the performance management system proposed by Antunes et al. (2021), considering the startup's development process in its life-cycle stages. In those conditions, we describe how PMS emerges from reality and how it develops in different Brazilian startups. This evidence is relevant for practitioners to depict the emergence of a PMS in startups and its characteristics in a given development stage. Second, we argue that although recent development can be observed, the literature investigating the management practices in startups is still incipient in Brazil (Frare & Beuren, 2021). Third, most of the studies on the topics of MCS and PMS in startups focused on quantitative evidence discussing relationships (antecedents and consequences) along with a configurational perspective, while only a few studies have looked at this phenomenon from a qualitative perspective (i.e., Taylor et al., 2019; Llorach & Ottosson, 2016).



2. LITERATURE REVIEW

2.1. Stages of Development in Startups

Startups can be defined theoretically as a *"human institution designed to create a new product or service in conditions of extreme uncertainty"* (Ries, 2011, p. 17). Furthermore, the Startups Regulation in Brazil (approved by Federal Complementary Law 146 of 2021) defines a startup as a *"business or corporate organizations, nascent or in a recent operation, whose performance is characterized by innovation applied to business models or products or services offered with gross revenue of up to sixteen million BRL in the year and with up to 10 years of enrollment in the National Registry of Legal Entities"* (BRASIL, 2021). Both definitions have been used to characterize startups; however, for this study, we consider startups as those firms that share the following set of attributes: innovation, scalability, repeatability, flexibility, and speed (Santisteban & Mauricio, 2017) which is a broader concept, once it envisages both a startup firm that is being born alongside with a large startup well-established in the market (i.e., Brazilian unicorns such as Nubank, Pag Seguro, and Ifood).

The concept of startup applies to organizations inserted in uncertain and risky scenarios that usually engage with innovative products or services with the potential to change how people act (Santisteban & Mauricio, 2017). The startups frequently pass through rapid and abrupt transformations that demand inherently dynamic organizational structures (Spiegel et al., 2016). At the same time, the company has very little architecture of any kind and is typically informal, loosely structured, and fluid in its first stages (Davila George Foster et al., 2005; Picken, 2017).

The organizational life-cycle theory has been one of the primary lenses used to conceptualize firms' development change over time (Greiner, 1997; Lester et al., 2003; Miller & Friesen, 1984). For instance, Lester et al. (2003) suggest the stages of birth, growth, maturity, rejuvenation, and decline, while Greiner (1997) develops the development stages of creativity, direction, delegation, coordination, and collaboration, being the latter who also defined revolution stages (crisis).

In the traditional view, startup firms have been conceptualized as those in the first stages named as conception and birth, with some authors arguing that startups might also be in growth and maturity stages (i.e., Gomez-Conde et al., 2021; Mueller et al., 2012). What is framed as a startup is a large and heterogeneous group of ventures in its early stage of life that sometimes can be very different organizations moving from nascent business ideas to scalable enterprises. The literature has proposed several life-cycle models for arranging those businesses into categories that are mostly alike. (Antunes et al., 2021; Marcon & Ribeiro, 2021; Passaro et al., 2016; Picken, 2017).

Some discussions in both the academic and professional literature apply the life-cycle perspective, particularly to startups. Moores & Mula (1993) suggests a model applied to technology-based firms composed of four stages (conception and development, commercialization, growth, and maturity). The startups associated with the first two are the ones in the (1) conception and development stage, in which startups focus on research & development and prototype development initiatives, and (2) commercialization stage, in which startups launch their product in the market to a set of potential customers. Mueller, Volery, and Von Siemens (2012) bring focus on the entrepreneur and characterize the: first stage of the startup as which firms develop activities related to identifying the business opportunity, business plan, and prototype development, structuring the team; and the second stage as growth



where the entrepreneur center on sales expansion, investments and using more formal management practices.

The Brazilian Association of Startups (2017) also proposes a model composed of four stages: ideation, operation, traction, and scaleup, although the boundaries of each stage are not precise. In the ideation stage, startups are driven by a purpose to solve real problems of society; however, this "desire" is not yet translated into concrete activities or performances that can be reaped. In the operation stage, the startups' ideas are more consolidated, and they are able to develop and validate a product to address a real problem and start to foresee expansion opportunities. Finally, in the traction and scaleup stages, startups put their expansion plans (new customers, new solutions, new monetization vehicles) into action and prepare their operations internally to attract new investors and to scale up (increase their growth rate exponentially).

There are some similarities between those models that will be explored. However, we adopt an adapted version of the framework designed by Antunes et al. (2021) that identifies four moments in the startup life-cycle: ideating, structuring, management and scalability, and establishment. This paper targets the three first moments of the startup life-cycle, and as a result, the Establishment Stage is not addressed. Due to the high maturity level of companies in the Establishment Stage, it may extrapolate the frontiers of the definition of startups, and because of that, this stage was not considered in our scope.

In the practical realm, the boundaries between each stage are fuzzy and overlapping (Picken, 2017). As a result, the instance a startup passes from one stage to another is not clear or definitive. In fact, a single startup can experience a phase more than once, so its life-cycle may not be linear but cyclical (Peralta et al., 2020). After all, the life-cycle model does not function as a precise classification system but provides a roadmap of the startup's path while growing up and what lies ahead (Marcon & Ribeiro, 2021).

2.2. Performance Management Systems for Startups

According to Anthony (1965), Management Control System (MCS) is situated in the realms of strategic planning, management control, and operational control. As a result, management control is "*the process by which managers assure that resources are obtained and used effectively and efficiently in the accomplishment of the organization's objectives*" (p. 17). Prior literature shows that the adoption of management controls is beneficial for startups since they assist the decision-making process, support the coordination process, promote flexibility, enhance the external investment attractiveness, and promote accountability (i.e., Crespo et al., 2019; Davila et al., 2009; Santos, 2022; Samagaio, 2018). Under the concept of MCS, we can depict the instruments used to quantify action and assess business performance, which is the Performance Management Systems (PMS). Ferreira and Otley (2009, p. 264) define a PMS as:

[...] the evolving formal and informal mechanisms, processes, systems, and networks used by organizations for conveying the key objectives and goals elicited by management, for assisting the strategic process and ongoing management through analysis, planning, measurement, control, rewarding, and broadly managing performance, and for supporting and facilitating organizational learning and change. (Ferreira & Otley, 2009, p. 264)

We can look at a PMS based on the steps of its design (i.e., planning, target setting, measurement, and rewarding), which can often be developed with different outlooks, depending on the organization (Otley, 1999). A comprehensive PMS encompasses performance measures (both financial and nonfinancial) that are used to support organizational alignment and strategy implementation (Frare & Beuren, 2021; Malina & Selto, 2001). For instance, the use of

nonfinancial metrics (e.g., internal process innovation) tend to support decision-making quality (Ahn & Kim, 2019; Nguyen et al., 2017). Kremer (2013) shows that the use of financial measures does not differ between high-tech and low-tech firms, although this happens when using nonfinancial performance measures and suggests that high-tech firms use more nonfinancial indicators that mirror new products and new market penetration and access to funding.

Prior studies provide evidence about the PMS in startups, for instance, discussing the antecedents of the use of performance metrics in the healthcare sector (Reis, 2017) and the importance of performance measures in more broad segments (Croll & Yoskovitz, 2013; Rompho, 2018). We can also highlight some recent studies developed in the Brazilian startup context that used the lens of PMS. First, Costa, Guerino, Leal, Balancieri & Galdamez (2022) discussed the impact of perceived environmental uncertainty and the use of financial and nonfinancial indicators on the performance of startups. Second, Frare and Beuren (2021) investigated the association between comprehensive PMS (focusing on financial and nonfinancial metrics), role clarity, and strategic flexibility in the individual creativity of founders/managers of Brazilian startups. Third, Santos et al. (2022) addressed the impact of different financial (i.e., cost and budget) and nonfinancial information as well as informal controls on product innovation of Brazilian startups.

Lastly, Antunes et al. (2021) applied a theoretical research design (Delphi method with experts). They developed a performance evaluation framework to look at startups' reality, considering the limitations observed in traditional PMS Frameworks such as the Balanced Scorecard. The framework developed by Antunes et al. (2021) is structured in a cyclic format to take into account a time perspective (life cycle) and also the parts of a PMS such as the strategy or value proposition, goal, modules, indicators, actions and evaluation of the performance assessment method. According to Antunes et al. (2021), some models of PMS have emerged in the literature to propose widely applicable patterns in different business contexts. However, when trying to cover all companies, these models focused their applications to a greater degree in large organizations. The literature on small business performance management models is minimal (Cengiz Toklu & Taşkin, 2017) and is based on adaptations of traditional models. Therefore, it is observed that the discussion about models and performance management mechanisms for startups is still relatively scarce (Antunes et al., 2021).

2.3. Development Stages and Startups PMS

There are different explanations for the adoption of PMS by startups (Davila et al., 2009; 2010; Costa et al., 2022). One of the central claims is that when firms grow, their complexity (i.e., business models, communication channels, structure, specializations) and the need to adopt more formal and comprehensive PMS (mission, vision and value statements, deliberate strategies, multidimensional goals and metrics, monitoring rituals, reward schemes) increase as well. Taylor, King, and Smith (2019) provided evidence that formal controls might be introduced while startups experience a crisis in which informal controls and processes fail (or are insufficient) to coordinate actions and measure performance. They also punctuated that the introduction of formal controls is a consequence of size and complexity increase (e.g., Davila & Foster, 2007; Davila et al., 2009; Taylor et al., 2019).

In addition, prior studies suggest differences in the design of a PMS in different startups' development stages. It arises due to changes over time in their Critical Success Factors (CSF) depending on the firm strategic orientation (De Boer et al., 2010), which also influence the design of performance measures used in these different stages (Tan & Smyrniotis, 2011).

In Figure 1, we present the theoretical model of this study (based on Antunes et al., 2021), considering the design issues of the PMS (value proposition, goals, modules, indicators, action, and evaluation) in three different stages of development being Ideating, Structuring and Management and Scalability.

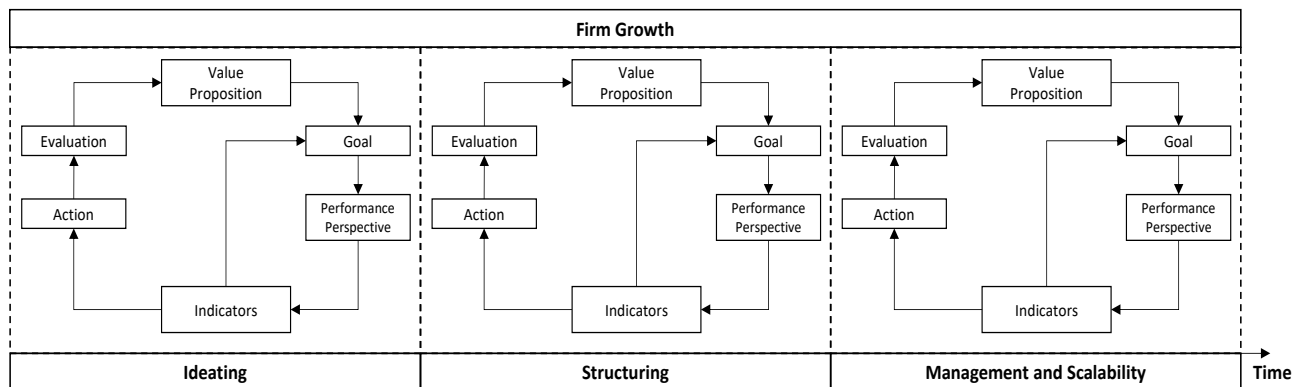


Figure 1. Theoretical Model. Adapted from Antunes et al. (2021)

In the ideating stage, startups build their initial conception of a product or service, have a low complex structure, and are small in size. This low complexity structure is usually manifested by informal controls that eventually can result in cultural issues driven by the founder and face-to-face communication (Davila et al., 2009; Greiner, 1972; Moores & Yuen, 2001). Cash inflows are extremely rare at the ideation stages, so financial performance is not considered a priority at this point. Startups in the ideating stage focus on innovation performance metrics, particularly to what extent their products meet the customer demands. This might occur in a more qualitative, intuitive, and subjective manner (Llorach & Ottosson, 2016) since the PMS aims to measure how the startup value proposition is being developed and its potential to satisfy potential customers' needs. Akroyd, Kober, and Li (2019) support this by reasoning that startups in the birth stage design reinforce cultural controls to sustain and clarify the vision statement/purpose of the business. At the Ideating stage, the entrepreneur's innovative idea is still being developed and transformed into a business model. Most of the effort is spent on product design, in which creativity, intuition, and previous experience are most important. According to Picken (2017), the main challenge of the first stage of a startup is to validate the business concept by defining market opportunities, the offering of value proposition, and generic strategy. At this point, there are limited resources, and the organization structure is mainly informal.

In the Structuring Stage, the startup's purpose is consolidated. In order to foresee opportunities for market entrance, it should lay the foundations for a scalable business (Picken, 2017) and validate a product through its minimum viable product (MVP), a version of the company's product that demonstrates the value it can bring to the users (Moogk, 2012). At this stage, startups pass from being a research organization to start operating in the market with early customers. However, product innovations continuously occur (for instance, pivoting can be considered a strategic alternative). Due to the increase in size and complexity, these startups can start using more formal controls and expanding the modules of a PMS from product development to customer satisfaction modules. At this stage, it is not clear, yet the use of financial performance indicators to monitor performance since the orientation is mainly on the product and customers (Llorach & Ottosson, 2016). This phase requires focusing on three issues



(i) development of a product prototype aligned with technical and commercial feasibility; (ii) structure of the product marketing; and (iii) seek of financial support (Antunes et al., 2021).

Management and Scalability is the moment after the completion of tests involving marketing, production, and sales and when the startup has become profitable and started its transitions into expansion. Paschen (2017) argues that, at this stage (the growth stage, according to this author), the startup has become efficient, profitable, and achieved market validation as a healthy entity. In this stage (growth/mature stages), startups are expected to have a more complex structure and operations (medium-large size, potentially geographic expansion, technology evolution). This is reflected in their need to adopt formal mechanisms (Greiner, 1972; Akroyd et al., 2019; Santos et al., 2022) and balance them with flexible mechanisms to pursue a fast-growing and sustainable strategy orientation. Akroyd et al. (2019) claim that startup at the growth stage adopts more formal systems such as administrative procedures, results control, and cultural controls. Hence, we expect that startups in this stage tend to monitor and control financial performance and the other nonfinancial performance dimensions used in the prior stages. Antunes et al. (2021) highlight two crucial issues: maximizing profit above the market average and professionalizing the company's management practices. For instance, Llorach & Ottosson (2016) demonstrated that learning and growth perspectives from the Balanced Scorecard (intangibles, technology, culture) become more noticeable to long-term value creation.

At last, the Establishment stage represents the company's stability and maturity. During this stage, the entrepreneur seeks to diversify its product portfolio and control and consolidate the financial return achieved until now (Antunes et al., 2021). As a result, the startup has become a profitable entity, reaching financial health, sufficient market penetration, and validation (Paschen, 2017), which in a certain way pushes the boundaries of the definition of startups. Moreover, because of that, this stage was not considered in our scope of debate.

3. RESEARCH DESIGN

In order to collect in-depth observations regarding the reality of startups, the present study adopts a qualitative approach to research through interviews developed with startup managers and founders. This methodology allows a deeper understanding of characteristics in a specific organization context (i.e., Ahrens & Chapman, 2006) and can be adequate for research involving management accounting practices, such as the investigation of performance measurement systems by startups. Furthermore, Hoque et al. (2017) recognize that interviews are an appropriate data collection technique for clarifying the relationship between accounting practices and practitioners based on their perceptions, attitudes, and experiences.

3.1. Data Collection

The study uses data from multiple interviews with C-level actors (e.g., CEO or CFO), such as top managers, founders, and co-founders of startups. The interviews were realized with the support of a virtual platform, allowing the recording of both visual and audio data. All the interviewees were invited via LinkedIn and signed the ethics protocol, agreeing with the stipulated data treatment and confidentiality policies. The sample consisted of 11 startups across eight market sectors: AdTech, EdTech, FashionTech, FinTech, FoodTech, HealthTech, HRTech, and PropTech. Those startups are spread over the maturity stages of Ideating, Structuring, Management and Scalability. The interviews were conducted between March and

May 2021, ranging from 16 to 47 minutes and comprehend approximately 7 hours of collected data. The interviews were realized with the founder and current CEO of the startups, except for startups 7 and 10, in which interviewees were the COO and CFO, respectively. The overview of the interviews is presented in Table 1.

Startup	Interviewee	Sector	Stage	Foundation	Number of Employees	Current Revenue
1	Founder/CEO	FashionTech	Ideating	2020	2	No
2	Founder/CEO	HRTech	Ideating	2020	3	No
3	Founder/CEO	EdTech	Ideating	2020	5	No
4	Founder/CEO	EdTech	Structuring	2017	2	No
5	Founder/CEO	HealthTech	Structuring	2016	3	Yes
6	Founder/CEO	HealthTech	Structuring	2020	3	Yes
7	Founder/COO	HRTech	Management and Scalability	2019	20	Yes
8	Founder/CEO	FoodTech	Management and Scalability	2016	23	Yes
9	Founder/CEO	FinTech	Management and Scalability	2013	32	Yes
10	CFO	PropTech	Management and Scalability	2012	64	Yes
11	Founder/CEO	AdTech	Management and Scalability	2014	70	Yes

Table 1. General information about the interviewees

The interview script comprehended three main subjects: (i) description and trajectory of the startup: the interviewee was asked about the main aspects of the startup, its history, and proposed solution; (ii) startup's life cycle stages: the participant exposed his/her familiarity with the startup's life circle stages and argued about how it is applied in the startup; (iii) design of performance management system: the last section of the interview focus on the notion of performance and the success as well as the methods used for measuring it such as KPI (Key Performance Indicators).

3.2. Data Analysis

Considering the importance of mapping keywords such as management practices and concepts of the startups, this study focuses on verbal data collected as an extended discourse, which is a passage of spoken words (Saunders et al., 2019). We used the Discourse Analysis technique, which according to Howarth (2005), can be understood as a set of techniques that make possible the understanding and explanation of the phenomena. In this paper, they are represented by the discourses collected in the interviews. The interview records were revisited multiple times for transcription and analysis. Each interview was classified by the startup sector, maturity stage, and size, and its answers were cataloged in a standard template to build all the evidence for analysis.



4. ANALYSIS OF RESULTS

4.1. Startups in Ideating Stage

The first stage could be interpreted as the adolescence of the startup: there is a lot of creativity and desires; however, not necessarily followed by realization (ABStartup, 2017). At the Ideating stage, the potential idea of the entrepreneur is still being developed into a business model, and most of the effort is spent on product design in which creativity, intuition, and previous experience are of most importance. There is a lot of research and brainstorming to determine what kind of business the original idea can become. According to Picken (2017), this stage's challenge is validating the business concept by envisioning market opportunities and defining value proposition and strategy. Startups 1, 2, and 3 are grouped in this stage mainly because the business model is not yet transparent for the entrepreneurs or needs adaptations. The value proposition of startups in the Ideating Stage may not be adequately adapted to the market's needs because those startups are still managing to turn them into a business.

At this stage, the first ideas are put into practice, and the startup begins to wonder about the customers and how to reach them with a product that solves their problems. The structure of startups in ideation is highly lean, without precise segmentation of positions, among other complexities. This is corroborated by the speech of the CEO of Startup 3: *"We do not have a very well-developed management yet. I would say that we are still in this process of ideation of our own management"*. Moreover, complemented by the CEO of Startup 1: *"I and the other CEO do everything. We do not split positions or do what everyone should do today. [...] Basically, the company is a PowerPoint, but the development of our Minimum Viable Product (MVP) only started after the investment"*.

According to Peralta et al. (2020), a startup's life-cycle is not linear but cyclical, as one can experience a phase more than once. This claim becomes apparent as the entrepreneurs of Startup 1 were recommended to rebuild their market research and Value Proposition in a mentoring section. After several encounters with potential clients and an initial idea that secured an investment, one mentoring process exposed weaknesses that demanded the founders review the whole process:

The original idea encompasses a platform that could transform the fashion industry by connecting different value chain actors, such as idle labor hands (dressmakers), fashion companies, and suppliers. However, a mentoring process with a former startup entrepreneur suggested that we should go back and interview many more players in the fashion industry in order to map the main difficulties of the sector and confirm that the problem we are trying to solve is, in fact, the one we should be aiming at. (Startup 1)

At the same time, Startup 2 shows more maturity and has a clear direction that yield three running pilot projects in the test phase. Startup 2 may be marching to the Structuring Stage; however, the lack of a validated solution prevents the company from formally presenting this solution to the market. The company does not yet possess a commercially finished product once the proposed solutions are still being tested.

The PMS of startups in Ideating Stage are unstructured and rudimentary. At this early stage, the main idea of the startup is still taking shape, and it isn't easy to define or measure performance at this point. Startups 1, 2, and 3 comply partially with the first two components of the adapted performance evaluation framework of Antunes (2021): Value Proposition and



Goals. The startups in Ideating Stage own their Value Proposition that may or may not be validated. Establishing goals depends on whether the Value Proposition is robust or still subjected to changes. All three startups in the Ideating Stage mentioned the MPV as an essential milestone before developing performance indicators or goals. In Ideating Stage, startups have a Value Proposition that is being validated by the market but is still figuring out how to turn it into a business.

Startup 1 did not establish an objective definition for success once its current goal was to become a "*scalable and profitable business model*". Therefore, the startup goals can only be defined appropriately after the final version of the Value Proposition. Startup 1 cannot set specific goals once its original idea is still validated.

For Startup 2, the Value Proposition is definitive and already being tested in the form of prototype projects. However, goals and KPIs are still provisory until the MVP's final definition is set. The main goals of Startup 2 are promoting the startup brand by establishing mensal objectives via social media (publishing content on LinkedIn and Instagram and deploying free e-books).

At last, Startup 3 has not yet managed to build a prototype, and in terms of the business model, the entrepreneur expects to launch a free solution offered via partnership. Until then, the focus is to elaborate on a proper MVP. The current management tools are provisory, as the CEO (interviewee) has notions of performance measurement systems and plans to implement them in future stages:

Today there is no formal use of KPIs because we are not yet running our product. So, we don't have KPIs made, but we've come to make projected KPIs in the past. There are a lot of prospects of using all the STARTUP-facing KPIs that will handle digital platforms, so for example, CAC, LTV, and Churn, because we will be a subscription service, so it's important to evaluate how many schools will cancel our subscription, we thought we'd use CAC Payback, and MRR. (Startup 3).

4.2. Startups in Structuring Stage

Startups in the Structuring Stage tend to possess a validated Value Proposition and successfully address the Ideation Stage's initial challenges. At this point, the entrepreneur's idea is mature enough to be converted into a business format. The startup passes from being a research organization to operating in the market with early customers. Startups 4, 5, and 6 develop their product and understand the market's needs and how their product can fulfill them, though not necessarily generate revenue. Those startups are structuring the financial and marketing functions and are developing a product with technical and commercial feasibility.

Startup 4 developed an MVP that operates for a long period. The company started in 2017 and, for three years in a row, kept creating content; however, they could not secure investment, and over time, Startup 4 did not manage to grow or gain market share. Startup 5 managed to transform the initial idea into a business model: a marketplace focused on the female public that links clients with well-being stores and services providers. However, for the moment, the entrepreneur could not escalate its operation to the Structuring Stage. Startup 6 has clients and revenue and manages to grow quickly with a validated product and investments in a short period. The founder claims that having a product marketed with less than six months of life is a success, and receiving investment was also a success because it was not expected. Startup 6 is mature, and, although its recent lifetime, the company demonstrated to be between the Structuring and the Scalability Stages.



The PMS of startups in the Structuring Stage is still in its first steps but starting to take more shape. Once the startup's business idea is clearer and more established, the entrepreneurs can decide objectively what kind of goals should be set, what kind of performance is more important for the startup, and how it can be measured according to the available resources. The concepts of Goals, Performance Perspectives, and Indicators are being implemented and are fully developed.

For Startup 4, the founders have a solid value proposition and developed a simple goal described as *"the number of subscribers and views of the video, and with that, inviting these viewers to participate in a study plan offered by the platform"*. Considering the nature of the startup as a vlog, the founders did measure performance, but only via operational indicators, such as numbers of subscribers, view time, and numbers of views. According to the founder of Startup 5, the main goals of the startup are to *"host 20.000 services in the platform, expand and transform the mindset of the public, as well as engage more people with our purpose"*. The founder also summarizes that *"micro-success" is to witness female pioneers selling their services in the platform"*, however, those goals were not linked to a PMS.

On the other hand, Startup 6 has more formal controls and a defined PMS. As highlighted by the interviewee, *"the use of KPIs started together with the strategic planning [...] and this occur at the moment our product was born and ready to be formally presented to the market"*. The founder had worked in a multinational corporation before and was familiar with management tools that were applied by startup 6. In that case, the performance perspective focuses on Market Indicators, where she describes several KPIs referring to the number of clients, revenue, and clients per segment. For the future, Startup 6 plans to explore further the performance perspective of market/client with KPIs like Churn Rate and CAC (Customer Acquisition Cost). According to the founder of Startup 6, *"the focus of performance has always been the customer, and I think that's why we grew up fast and things happened quickly"*. She adds that this customer perspective encompasses attracting, maintaining, retaining, and serving customers well, which is the primary purpose of startup 6.

4.3. Startups in Management and Scalability Stage

At the Management and Scalability stage, the startup completed all its tests involving the prototype and has already passed through the MVP definition. The market validates the product; consequently, the startup focuses on expansion and scalability. This stage demands structured operations with production, sales, and marketing strategies. According to Paschen (2017), at this stage (Growth Stage, according to this author), the startup has become efficient, profitable, and achieved market validation, becoming a positioned and structured firm. Startups 7, 8, 9, 10, and 11 achieve the Management and Scalability Stage due to their maturity, product acceptance, size, and level of organizational complexity. One main factor that distinguishes those startups is the number of investments received and their growth speed. In addition, those startups operate in the competitive market as an established business and successfully transform the original idea into a profitable model. The analyzed startups in this stage employ 20 to 70 professionals, whereas startups in the Ideating and Structuring Stage range between 2 and 5 employees.

Startup 7 focused on a rapid growth strategy without investors or funding aid. The founders made all the initial investments, and there has been no external fundraising until now. Startup 7 triplicates its profit in two years and expects to grow 4 or 5 times. The company is currently looking for external investors for the first time.



In the case of Startup 8, several external supporters helped the entrepreneur to overcome the first life-cycles, such as an incubator at the local University, an accelerator of startups, and then external funding. The interviewee mentions that "*the next step is increasing the scalability of the business*". According to the interviewee of Startup 9, the main factor influencing the startup stage was the amount of investment they receive (i.e., seed investment). For instance, Startup 10, which operates in the real estate industry as a PropTech, demands significant investments from external investors, as highlighted by the founder/manager. He mentioned that in 2018, the figure Startup 10 was born and in January/2020 started to operate as it is now. Startup 10 had a startup acceleration sponsored by a giant accelerator in 2020, but no other kind of support or incubation. The current investors contribute actively to the management. By the time of the interview, Startup 10 was gathering new foreign investors, and the next steps include the willingness of an incubation process, map processes, and expand to other areas. Until 2025, Startup 10 plans to add 15-20 new ventures and hire essential roles (e.g., programmers) that allow the scalability and standardization of processes as well as implementation of informational systems.

Finally, Startup 11 was able to validate its product that achieved a good market fit, but even after this validation, they keep improving in order to maintain their growth strategy:

After the ideation stage, we pivot several times during the validation and market fit phase. In 2016, we started to grow and in 2018, we saw the need to improve our product and for that, another company was bought. From 2019 to 2020, we accelerate our growth and earn an important prize that grants us the title of Scaleup. (Startup 11)

Startups in the Management and Scalability Stage have already validated their Value Proposition with a well-received MVP by the market. They are more formally structured and managed, such as using KPIs and performance systems, even if sometimes simple ones. At this point, the startup has already gathered external financial support. In doing so, developing the performance management systems becomes essential to keep up with the investors' expectations and provide accountability (Davila & Foster, 2007). Most of the Performance Perspectives identified in the startups 7-11 indicate the main concerns of the performance system: the satisfaction of investors and clients.

The PMS in that stage is mature for a startup context without many resources for a sophisticated finance function, but they do not compare with the tools of multinational corporations. Looking at the model of Antunes et al. (2021), startups in the Management and Scalability Stage develop enough maturity to master their Value Proposition, Goals, Performance Perspectives, and Indicators; on the other hand, it was not possible to identify well-established practices to evaluate results and correct the course of action.

Startup 7 uses an inclusive management style; they consider all employees/partners equal for investing time and work in the company, and everybody has direct access to information. They consider transparency and job rotation essential, and this occurs fluidly due to the small size of the team. Since the foundation, the aggregated value perceived by the client has been a fundamental pillar of the company's values. Likewise, the attraction and loyalty of clients are important elements for performance measurement. Once the main product was validated, the startup focused on human and technology resources. Currently, the company uses several KPIs shared with all the employees. The COO (interviewee) is an enthusiast of KPIs and was the one that implemented those that operate in the Financial-Economic Module, Business Module, and Market Module.



Implementing those KPIs in Startup 7 was challenging. Before it, there were more simple performance indicators that did not always have actual effectiveness and had no impact on the decision process. Those circumstances led the company to implement newer KPIs. According to the interviewee, the first KPIs of Startup 7 – in the domain of Human Resources and Recruitment business – focused on performance through speed and volume (i.e., how much hiring did Startup 7 contribute and how long does it take). However, those KPIs did not provide valuable insights and have gradually replaced other KPIs according to the company's needs. The interviewee also recognized that the use of KPIs depends on the current situation of the company:

[...] the use of KPIs is very dynamic and vivid [...] For example, during the pandemic, we had to look at an indicator that we never did before, such as lack of payment, so the use of KPIs can be very circumstantial.

For startup 8, the main goal of the business is represented by the satisfaction of internal and external stakeholders (i.e., clients and employees). Nowadays, success is measured by two main KPIs focused respectively on clients (NPS – Net Promoter Score) and employees (ENPS – Employees Net Promoter Score) in addition to a growth KPI (increase in income). Startup 8 management style has the traditional hierarchy of C-level managers and employees; however, the CEO tries to maintain an open management style with close follow-ups. The management style has been maturing through time and the experience of the partners and management team. As of 2019, consulting groups helped to improve management practices. According to the interviewee, *"looking at the past, it was all very a guesswork, we had nowhere to be based, but today we already have a history, we can make comparisons, and this generates improvement in decision making as well"*.

For Startup 9, two main management tools are used: Scrum and OKRs. There is also formal use of KPIs inside the OKRs perspective, including the Financial-Economic and Market Modules. The KPIs appear after implementing OKRs, a vital milestone chosen to be a definite management method. Then Startup 10 developed the traditional hierarchical management model, divided into departments with well-defined processes and activities. The company does not have many collaborative projects and low interactions between areas. For Startup 10 goals and performance perspectives, the CFO (interviewee) comments on three different areas: financial (for the investor), organizational or cultural (employees), and a rich and agile experience (clients). Financial success is measured through investors' success, employees' success, and clients' success. Since the inauguration of the biggest project in 2020, the focus has been on the investors and financial success. There are future agendas for improving productivity and organizational atmosphere, but still a secondary priority.

The interviewee emphasizes that he, as CFO, has a long-run mentality and believes it is necessary to focus on the future, even if this represents giving up on cash flow and earnings in the short run. Nevertheless, it does not seem like the overall understanding of Startup 10's board.

For measuring the performance in those perspectives, it was implemented the CRM (Customer Relationship Management) and KPIs in 2020. There are currently KPIs being used for clients and financial performance (NPS, quantitative evaluations, surveys for capturing the experience of the user, etc.), but not measurements for employee management. One of the main KPIs is the NPS that over time became more developed. Nowadays, there are different kinds of surveys segmented for different stages of clients' relationships. (Startup 11)

4.4. Discussion of Results

Based on the proposed theoretical model adapted from Antunes et al. (2021), we shed light on different characteristics that together build the concept and mechanisms of a PMS in each stage of startup (ideating, structuring, and management and scalability). Although there might be some differences in the characteristics of the startup grouped in each of the stages as well as in the PMS components (Frare & Beuren, 2021; Samagaio, 2018), we were able to observe some similarities in how the PMS on those firms materializes (i.e., Llorach & Ottosson, 2016). Therefore, we illustrate the main components of each stage in Figure 2.

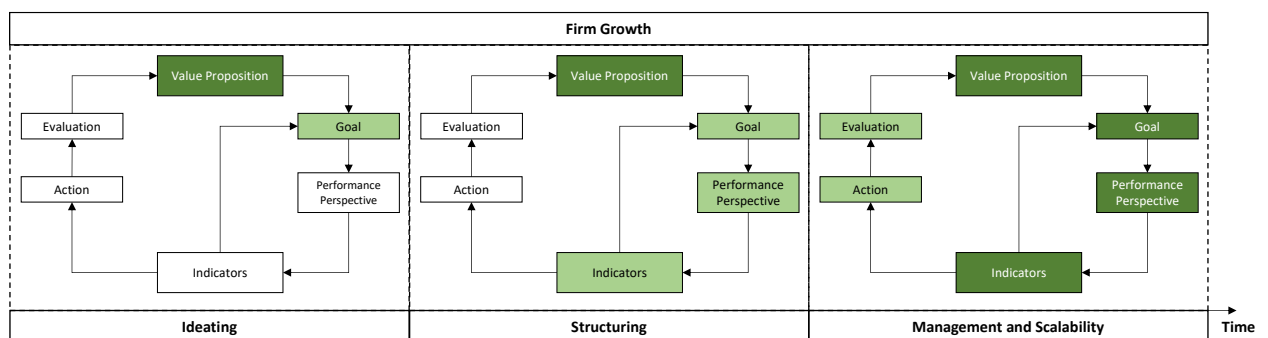


Figure 2. Discussion of the PMS design in each developmental stage. Adapted from Antunes et al. (2021)

Note. Dark green shading indicates high adherence of the PMS component to the stage. The green shading indicates the median and non-converging adherence among the startups in the stage. The components without shading were not observed in the startups classified in the stages.

First, we observe in the startups of the ideating stage the presence and relevance of the first PMS component, which is the value proposition and strategy. In that way, startups in this stage have a more abstract sense of strategy materialized as a vision that founders rely on to deploy the startup business model (Llorach & Ottosson, 2016; Picken, 2017). We observe that in some of the startups, there was a translation of the value proposition in terms of goals in an incipient manner and through informal channels (Akroyd et al., 2019).

Second, startups grouped into the structuring stage have already properly defined the value proposition since those startups were able to develop, test, and come out with an MVP (Moogk, 2012; Picken, 2017). Although we see a medium adherence and non-homogeneity of some of the PMS components (goal, performance perspective, and indicators), they are presented and applied by the three startups at this stage. For instance, startups in this stage practice the concept of different performance perspectives/modules, such as customer and research and development modules (Antunes et al., 2021; Llorach & Ottosson, 2016). Finally, startups at the Structuring stage focus less on the financial indicators' module (commonly used by investors such as revenue growth) but more on the KPIs that relate to the internal operations, such as cash burns and customer acquisition cost, classified as a financial-economic module (Antunes et al., 2021).

Third, Startups in the Management and Scalability stage have a more mature PMS, with high adherence to all the PMS components discussed by Antunes et al. (2021). However, although we observed the presence of all the components, the use of the information in generating actions and the implications for evaluation were not homogeneous in the five startups classified in this group. Startups in the Management and Scalability stage face



challenges related to their complex structure operations (size, geographic focus, technology advancements), similar to medium and large organizations (Paschen, 2017). Our interviews support that those startups adopt more formal mechanisms and, in parallel, need to balance them with flexible mechanisms (i.e., SCRUM and OKRs), intending to pursue a fast-growing strategy (Akroyd et al., 2019; Santos et al., 2022). In terms of the performance modules, firms at this stage present goals and performance metrics to almost (if not all) the areas defined by Antunes et al. (2021), considering research and development, market, financial-economic, risk, financing, and business modules. The evidence also supports a concern in those startups in fostering an internal and external culture that focuses on long-term value creation (e.g., Llorach & Ottosson, 2016).

To sum up, we could observe a common ground in the manifestation of PMS components in startups grouped in each stage and a couple of differences. In the ideating stage, startups are still developing business models, so their strategy is still abstract, and the value proposition and goals are manifested in informal channels. At the structuring stage, the startups can properly define their value proposition and develop an MVP in a competitive form. Finally, in the Management and Scalability stage, startups have a more mature PMS with adherence to the PMS components of Antunes et al. (2021).

5. FINAL REMARKS

This paper investigates Performance Management Systems (PMS) components (i.e., value proposition, goal, performance perspective, indicators, action, and evaluation) in Brazilian startups in different stages of development, such as ideation, Structuring, and Management and Scalability. To achieve this purpose, we develop a research model based on Antunes et al. (2021) and the evidence obtained from interview data with founders and C-level actors of 11 startups over different maturity levels and across eight market sectors. As illustrated in Figure 2, the development stages of startups are also reflected in the maturity of the PMS that is structured and used in those firms, considering the value proposition, goals, performance perspective, KPIs, as well as the use of these mechanisms for influence managers action and monitoring.

The study contributed to both the academic literature and practitioners. First, we rely on qualitative evidence obtained through interviews with startups' founders and top managers, which are scarce (Taylor et al., 2019; Llorach & Ottosson, 2016), and that complement the discussions that used configurational and life-cycle perspectives towards the adoption of MCS and PMS and their characteristics in startups. We also argue that through the discussion about the manifestation of PMS in different startup stages, we provide practical evidence to startup actors to compare their PMS components and maturity and envision their needs for the upcoming development stages.

Although we have observed the contributions of this study to the literature and practice, we also recognize some limitations that can instigate future research in the area. First, we used a convenience sample of eleven startups and one interviewee per startup. However, we argued that the interviewee was a well-known subject as the founder and/or top manager of the startup, considering the saturation observed in terms of the interpretations of the characteristics and PMS components in each stage investigated. Second, due to the breadth of the topic and the semi-structured interview instrument, we were not able to capture in a more detailed manner the evolution of the PMS within the startup, which could be investigated by future studies (i.e., Taylor, King, & Smith, 2019). We were not able to interpret what institutional events influenced

the advancement in the PMS of those startups. Third, our empirical data consists of Brazilian startups and might have a different institutional environment (competition, institutional support, access to financing sources) than startups in other settings.

Despite those limitations, the study presents contributions by providing empirical evidence of how distinct characteristics of a PMS manifest in different stages of a startup's development. Previous studies that focused on the antecedents, characteristics, and consequences of MCS and PMS for startup firms (Crespo et al., 2019; Davila et al., 2009; Samagaio, 2018), including research developed in Brazilian startups (i.e., Costa et al., 2022; Frare & Beuren, 2021; Santos et al., 2022). Although these studies bring interesting contributions to the field, they did not explore the different components of the PMS from a qualitative perspective, considering the characteristics of startups and their different stages of the organizational life cycle. Based on the previous literature, we claim about similarities in the maturity of the MCS and PMS components, considering the life-cycle perspective, in studies developed with American and European Startups.

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