How the Design Processes Add Innovative Capacity in Startup Companies

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Abstract. In recent years, innovation has been an important word in the business world, but in the universe of companies known as startups, innovation is a primary condition. Young entrepreneurs want their small businesses to win scale and agility in the consumer market with its creative and disruptive ideas. However, because they are different companies than traditional business, these small company need management models that understand their singularities and allow the establishment of a reality consistent with their limited resources, to continue innovative and competitive in Brazil, whose mortality rate is still high. From these reasons, this paper analyzed the four stages of the Porto Digital incubation process to explore the methodologies used by the cluster about design management, whose processes stimulate the development of innovative capacity of these youth organizations to implement an approach the strategy management of design, as a project and collaboratively as part of the identification of innovation opportunities in the current environment where startups are work in. Therefore, through a literature review using the latest lines of research that address design management, strategic design and innovation, as well as documentary research about the Porto Digital incubation process, the results show that design management area yet it is little explored, even in an environment conducive to fostering innovation and the efforts has a concentration on the stages of incubation processes aimed at product development, to the detriment to other business functions.

Keywords: Management of design · Strategy design · Innovation · Startups

1 Introduction

Innovation. Nowadays, in the current business discourse, this word represents no more a differentiating feature in organizations, but a condition of existence. However, in the universe of small businesses known as startups, innovating is a preexisting condition. They are small organizations that emerge from the perspective of extreme uncertainty and go far beyond "promoting something new".

In recent years, solutions of young entrepreneurs have charmed the market with disruptive and impactful products and services, which have justified the importance to foment these organizations in a country's economy. This is the case of the American

companies Facebook, Uber, AirBnb and the Brazilian companies Easytáxi and Sambatech, which represent a paradigm shift in consumer society.

In Brazil, the scenario is still nascent and need studies that point out the current reality of these companies in the country. It is estimated that the mortality of these organizations is high, about 50% of them do not survive the first four years of operation. There are about 10 thousand startups that in 2012 amounted to about R $ 2 billion, which represents 0.4% of the Brazilian GDP (DOM CABRAL, 2016).

Although a startup has a revolutionary idea, it is no guarantee of sustainable success. As they are companies that take the risk of innovating from the conception of the business, they face very particular challenges. Ries [10] argues that traditional methods of administration do not apply to Startups, since these methods are based on predictions that work best in static environments, to the detriment of the dynamic environments in which these companies are inserted, with frequent changes and risks.

In this context, incubation programs help startup entrepreneurs through training, mentoring and consulting activities to develop a business plan, as well as to seek conditions to achieve success in the market. This is the case of the "Porto Digital" - Incubation Programs in the city of Recife, Brazil. For 18 months, these companies participate in a program structured in four stages (Business Modeling, Product Launching, Business Maturation and Growth Strategies), based on methodologies considered appropriate for the development of innovative businesses, such as: Business Model Canvas and Minimum Viable Product (MPV).

Based on these motivations, the present article analyzed the four stages of the incubation process of the Porto Digital, in order to relate the methodologies used by the cluster with the design management, whose processes result in the stimulation of the innovative capacity of these young organizations to implement an approach of strategic design management in a design and collaborative way as part of the identification of innovation opportunities in the current environment in which the startups are inserted.

Therefore, through a review of the literature using the latest research lines that address design management, strategic design and innovation, in addition to field research, the article contributes to the construction and strengthening of values related to design and innovation in the organizational environment of these young companies, where the effective use of these design methods/tools always lead to increased and increased brand/product interaction with the end user.

2   Theoric Referencial: Startups and the Competitive Market

Blank and Dorf [1] argue that a startup company, connected to any type of business that is not focused on the innovation of products or services and therefore exempt to the risks of uncertainties, is not a startup. This dilemma represents a critical path for business management in these organizations. There is no long and stable operating history, since they do not have statistics or experience, which makes them companies with high mortality risk in the first years of activity [10].

The great challenge of these companies is to remain essentially creative not only in innovation in products or services, but also in the company's management mechanisms,

so that they evolve to a more mature business logic in order to achieve adherence, relevance and impact on their proposals.

It is with this thought that other business functions also become as important as the development of new products or technologies. A startup should not focus on the product only, but on its market, competitors, users, suppliers to identify real opportunities for innovation. To this end, it is important to have a long-term strategic vision, with objectives and goals set so that the young entrepreneurs have an instrument guiding their activities.

2.1   Strategic Management in Startups

The strategy of a startup is an important driver of their actions. The idea is to avoid projecting complex, intangible plans without considering the uncertainties and their high risk, but include in the business model a product plan that is faithfully fulfilled and that each setback is not viewed as a failure but as an opportunity to learn to reach the established vision.

It is an arduous path to success, but in the current market situation, failures are extremely important to greatness, so innovation encompasses not only the end product, but also how to achieve those goals through experiences and learning [10].

In this context, the area of design management encourages an inclusive approach, ie it involves the people of the company in search of creating a truly considerable value offer, since it helps the company to structure and design its environment to make it understandable. The idea about creativity is gaining new horizons through different cognitive modes that apply in different contexts. They are relevant positions when thinking about a need for a new approach, design becomes important, as it involves putting tools and processes in the hands of managers to promote innovation and growth.

When it comes to an environment completely surrounded by uncertainty such as a startup, this view that design allows these small businesses to shape their environment, contributing to building a reality, and helping strategic management results in a collaboration for a better understanding of their complex environment [9].

2.2   Design Management and Innovation in Startups

Remaining essentially innovative to compete is a strategic attitude and innovation should be seen by young entrepreneurs not as an eventual activity but as a continuous process in the long run. Mozota [9] states that design relates to key issues for innovation success such as understanding user needs, competitive advantage, and synergy among the company's strengths. The strategic approach to design management involves understanding design as a new paradigm for arriving at ideas and methods that can be used to increase the efficiency of management as a whole.

Mozota [9] emphasizes that design creates value in a company's innovation management, as it participates in improving the quality of the new product development process, product strategy definition, and the skills of a project team, whether A large company, but also a small one.

The dynamics of the market demand constant changes, the competitive advantage of a startup will be determined by the strategy adopted to conceive its success in the future, as well as by the principles and practices that will build and strengthen a culture of design-based innovation [6]. In this context, it is important to understand the singularities of managing a startup and establish a method focused on the business model of these companies, so that they can devise strategies that allow them to generate a continuous cycle of innovation.

3   The Design Processes for Innovation

Launching a product or service requires a set of activities that involve people, skills, competencies and knowledge. And the way they interact in convergence with the goals of an organization, beyond the external context of a business environment, is a major concern of design management studies.

In the universe of startups, where human and financial resources are scarce, an integrative and holistic approach becomes important, since due to the limitations of these companies it is essential to use all resources optimally and optimally.

The design besides being present in its tangible form, be it in the projects of product and service, also contributes with its intangibility, with regard to the work processes and in the interdisciplinary relations that make of the integrative nature of its practice collaborative processes, as well as products or services that are coherent, financially viable and consistent with the reality of an organization.

According to Scherfig, "It is particularly important that companies that can not compete on production costs should realize the enormous potential of operating strategically with design." Such a statement strengthens design in limited environments such as startups because of its well-used practices, a company can realize its functional, social and economic potential to generate value and innovation in a fierce consumer market.

Managing design activity so that it has a positive impact and acts holistically in relation to an entire internal and external context, discipline and functions, relationships and connections is one of the main operational challenges of design management. In this sense, the present article lists five fundamental processes to stimulate and elevate the innovative capacity of organizations such as startups. Are they:

The first, denominated as **design for innovation strategies**, is seen as a creative management process and aligns with innovation, since it participates in the improvement of the process of developing new products, defining the product strategy and the qualities of the teams of job. It adopts a user-centered perspective that encompasses both a market-oriented view as well as a process of internalizing information that is collected both from the customer and from the consumer market to analyze potential opportunities [9].

Another important factor in the management of innovation by design is the conscious and prospective research of the opportunities of the environment. The realization of an environment mapping, whose research encompasses countless variables, such as cultural values, trend studies, evolutionary patterns contribute to the understanding of the problem and the search for solutions. Due to their observer profile and their questioning skills, through inquiries it is possible to generate ideas that can be integrated with the

strategy and later become concrete. This process to innovate whose goal is the management of ideas is called **design and management of ideas** [9].

The third process, **design for concept creation**, establishes the development of new concepts of products or services adapted to changing needs, as a consequence of transformations of ideas possible innovations or unique experiences for the user. It is the stage of formulating unique values of the product or service that will be delivered to the customer [9]. In this process, codesign and co-creation practices are fundamental, since through this practice it uses a global network of resources to create unique experiences together with the clients, since they are integrated in the process and are key pieces for the generation of value and innovation.

Another challenge for design management to foster innovation is the issue of **design and company representation**, since every product is a portrait of a company and the development process that created it. The way that work teams act, how decisions are made must all be coherent and related to their strategy. An organization that innovates through design must work with focus on the customer experience after consumption of the product/ service. This process collects the market information to serve as input to the product life cycle improvements in an agile way [9].

Finally, the **design as an integrator,** contemplates the activities that relate to the identification and consideration of the requirements of the client in all the functions of the company. In other words, it is the adaptation of the product to its environment to provoke a "customer enthusiasm" by perceiving the quality of the product and the company through its innovation [9]. The success of innovation depends on the integration of many tools, this process aims to keep everything and everyone integrated, with the aim of maintaining a cohesive corporate image.

4   Case Study: The Porto Digital

Porto Digital is defined as the productive arrangement of Information and Communication Technology and Creative Economy of the state of Pernambuco and thanks to this pole, the state stands out in the world scenario for its human capital, entrepreneurship and innovation. Today it has a very relevant participation in GDP (Gross Domestic Product) of Pernambuco, moving annually R$ 1 billion through the 200 companies located in the pole. These companies employ about 6500 people and the main business segments are: information technology, software, games, multimedia, cinema and animation, music, design, photography, as well as advertising and advertising (PORTO DIGITAL, 2016).

The center is part of the Pernambuco state government's innovation promotion strategies. The reason for the existence of such a cluster is to make the region attractive to innovation for institutions, companies, universities and governments, in order to foster economic and social changes for the generation of jobs and income.

The Porto Digital became recognized in the country for cases of successful innovation, even was compared to the American model, the well-known Silicon Valley. Developing an environment favorable to the creation of new innovative businesses is the main objective of Porto Digital. For this, the park has two business incubators: the C.A.I.S.

of Porto, focused on Information and Communication Technology (ICT), and the Porto-mídia incubator, directed to enterprises in Creative Economy.

4.1 Incubation Program

The incubation process takes an average of eighteen months and the young entrepreneurs are supported by the PDMC - Porto Digital Management Center - as mentors for their activities. During this incubation period, startups build their Business Development Plan through orientation, mentoring and coaching, with the purpose of preparing and entering the venture in the market and seek its development and sustainability after the incubation program.

Through the analysis of documents and surveys in websites, it was possible to understand how the process in which startups are submitted after due process selective happens. In order to meet the objectives of this article, a comparison will be made between the steps of the incubation process and the theoretical reference, to relate how the processes of design management to increase the innovative capacity of such companies are presented in the incubation program of the Porto Digital.

4.2 The Four Steps of the Incubation Process

The first step is called Business Modeling. It is four months in which the young entrepreneurs define a plan for their enterprise using the Business Model Canvas methodologies and the Minimum Viable Product (MVP).

The first method was proposed by Alexander Osterwalder as a tool to describe a business model in a diagram of easy understanding that contemplates nine areas to facilitate the understanding of the environment of the desired business opportunities. Value Propositions, Customer Segments, Channels, Customer Relationship, Sources of Revenue, Key Resources, Key Activities, Key Partners and Cost Structure are the dimensions of reflection, which encourages the entrepreneur to think about some issues such as: Who are our most important customers? What value do we deliver to the customer? Which of the problems of our clients are we helping solve?

The Minimum Viable Product (MPV) developed by Eric Ries, aimed mainly at startups, corresponds to a simpler version of a product that can be launched with a minimum amount of effort and development time, so that, at the end of the third month, It is already possible to make such a product available to a small group of users for testing [10].

From the above description and making a comparison with the theoretical referential, we perceive the presence, not in its totality, but in a partial way the design processes for innovation. Through the development of Canvas, it is possible to perceive the Design process for innovation strategies, since it is focused on the value proposition map, as well as to solve the clients problems, guarantee satisfaction and results, through strategic partnerships that Will drive the viability of the business. It is guiding, since it is a plan shaped, from the users oriented to the market to find opportunities for action. In relation to MVP, it is an indication of design to create concepts, since the idea of the business materialized in a minimum product, whose values established in the proposal are

implemented in a product or service. MVP also establishes a prototyping condition for the service or product, convergent with Mozota's [9, p. 151] view that "design generates an interaction between the subject and the object", so that the concept shows a notion of product experience, which will be aligned as the consumption simulation generates a continuous flow of fundamental information to evaluate the innovation of the idea.

The second stage of the incubation process consists of the Product Launch efforts. Over the next three months, the project team focuses on training and mentoring for the development of the solution to then enter the market. The remaining thirty days of this stage are fundamental for monitoring the performance of the product or service. The results obtained through the qualitative and quantitative analysis of the product on the market suggest the focus of this stage in the incubation process in evaluating the post consumer consumption experience, being part of the process for design innovation and company representation, fundamental to guarantee the Product integrity, which according to Mozota [9], the product becomes the company's extract, in the way it presents itself in the market, in the focus between the combination of the product and user, as well as customer and organization, requiring an exchange of Intense information for the continuous response to problems related to consumption.

The penultimate stage of incubating startups is Business Maturation. Trainings and training are conducted focusing on the maturity of the product or service, as well as on organizational processes. With the product already launched in the market, the main input for this phase are the feedbacks obtained with the users and the product. It is also perceived a focus on a continuous cycle of improvement of the product, based on the opinions after the consumption of the customers. In this phase, efforts are also focused on quantitative product evaluations, with reports being presented with results, in order to be compared with the goals established in the first stage of incubation.

Finally, the strategy and growth stage, whose focus is the structuring of the company's trajectory outside the incubation program, including plans for the expansion of its portfolio of products or services. At the end of the period, the entrepreneurs present the results obtained and compared to the development plan and receive the latest training and mentoring to assist the entrepreneurs in conducting their business after incubation.

5   Final Considerations

The objective of this article was to analyze the stages of the incubation process of the startups of Porto Digital to relate the methodology used with the processes of innovation of the design management in the development of the innovative capacity of these companies.

The results obtained also reflect that the area of design management is still little explored, even in an environment conducive to fostering innovation. Through the bibliographic research it was possible to establish five fundamental processes to increase the innovative capacity of these companies and, consequently, to reduce the mortality rates of these young organizations.

Studies on innovation and design management in the business environment, specifically in startups, evolve slowly. Thus, the present article contributed to the approach of

the processes based on design to foment innovation in these organizations. In addition, the article provides a review of the most recent literature on the phenomenon, which is essential for the investigations that are beginning to investigate the occurrence.

Thus, it is necessary to go beyond the practices outlined in the article, to find new ways in which to broaden the universe of conceptualization of the phenomenon, besides the practical application of the proposed processes. A first step along this path is to guide small business owners to understand design management processes to innovate, to better meet customer needs, and to make design a real competitive advantage.

The practical application of the present process is a real opportunity for the maturing of design management as a fundamental element for innovation in startups in Brazil, since there is already an understanding of the importance of these companies to the economy of a country.

From this perspective, it becomes important to obtain qualitative data, as the next stage of the research, so that it can discover how the proposed processes can be generalized to the operational management of the startups so that the correct and effective use of these methods/ tools take Always to a growth and increased interaction of the company's product and service with the end user in an innovative way.

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