URBAN AGRICULTURE STARTUP CASE STUDY FOR SERVICE DESIGN IN BRAZIL

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ABSTRACT

The startup Favo Tecnologia was founded in Curitiba (Brazil) with the mission to enable the practice of urban agriculture. Although the main focus of the company is the artefacts, their selling number is limited. Service design is a interdisciplinary field that involve strategies that creates and improves services for the company and their clients. This paper uses the case study as a method for the holistic comprehension of the company's context and the connection of the users with the urban farming culture. Besides, it utilizes service design tools with the main goal of solving the problem detected. The satisfaction unit that guided the strategy of the PSS focused on the preventive health and care of people between 35 to 80 years old and the valorization of the knowledge exchange between the stakeholders in the support to healthier and more sustainable eating habits.

Keywords: urban agriculture, case study, startup, service design.

1. INTRODUCTION

This article presents a service project carried out during the Sustainable Service Design class, which is part of the Design graduate program at UFPR (PPGDesign), in partnership with the startup Favo Tecnologia founded in 2016 in Curitiba (BR). Therefore, the proposal here described is hypothetical. As a result, a concept of service oriented for use is presented and focused on the final consumer.

According to the corporate website and interview carried out with the CEO Marcelo Pinhel (2018), the company has as its mission to make urban agriculture feasible for sustainable development. The products offered by Favo meet the needs of young adults and the elderly, living in urban centers. At the moment, Favo markets two products: (i) Regaê, consisting of a water tank and hoses with automated tips, which, when connected to the company's app, controls the amount and frequency of irrigation; (ii) Hortinha, a wooden stand for plant pots, held up by two easels and three shelves, with a linked irrigation system, enabling its monitoring through a mobile app. According to the interview with Pinhel (2018), some challenges have to be considered. One of which is the ability to deliver a scalable solution so the company is able to broaden its activities, conquering new markets. Another challenge is to aggregate value to the business in a way to increase the chances of Favo becoming one of the main global urban agriculture technology companies.

Thus, this article narrates the development of an eco efficient PSS (product-service system) proposal, demonstrating the diagnostic, definition and development phases. The challenge of this process is to keep the company's values directed to the sustainable development through urban agriculture, while broadening the reach of its actions.

This article adopts the concept definition of PSS according to the LeNS (Learning Network on Sustainability) global network:

"A model of supply which provides an integrated mix of products and services, which in conjunction are able to satisfy a particular demand from the consumer (allowing for the delivery of a 'fulfilment unit') based on innovative interactions between the performers (stakeholders) in the value production system (fulfilment system), where the economical and competitive interest of suppliers continuously looks for new environmentally beneficial solutions. " (Vezzoli et al., 2018, p. 65)

The Vezzoli et al. (2018) study indicates that innovation applied to the PSS has in its origin the concern about business, being seen as a way to aggregate value without increasing the consumption of resources. This characteristic meets the objectives of this article, since the company in focus seeks to contribute to environmental sustainability.

To better comprehend this interaction between a PSS and the final user, three main approaches must be considered: (a) product-oriented PSS; (b) use-oriented PSS and (c) result-oriented PSS. In the three PSS orientations, the designers' creative focus change, such as the role of all involved stakeholders, including the consumers. This interaction comes to through the convergence of interests, and will be considered in this article.

2. URBAN AGRICULTURE

It is defined as the agricultural or livestock activity done inside or around urban centres. It includes the duties of cultivation, production, processing and distribution of a variety of food products. Simultaneously employs and offers human and physical resources, also employing products and services amongst the same urban area (Mougeot, 2000), in other words, it is highly integrated to a city's ecosystem.

According to Arruda & Arraes (2005 apud Duque Júnior, 2014) an important differentiation parameter to distinguish urban agriculture from rural agriculture is the space said activities are conducted at. Urban agriculture happens inside a perimeter defined by municipal laws (even if inside metropolitan or peripheral areas) and the rural activity is performed in areas external to the urban perimeter. Other differentiation points are presented in chart 1:

	Rural Agriculture	Urban Agriculture
Farmer's occupation	Main activity with exclusive commitment	Often it is a secondary activity / with partial involvement
Area usage	Specific and distinctive area	Area is disputed between agricultural and non-agricultural use
Public policies	High priority in political agendas	Often presents vague or inexistent policies
Logistics	Usually happens away from consumers	Happens close to consumers, which favours the cultivation of perishable products

[Chart 1] Differentiation points between rural and urban agriculture (Source: Adapted from Campilan et al. 2002)

The promotion of this practice contributes to making cities more productive and self-sufficient, since it has the potential to reduce the need to transport food from other regions and encourages the occupation of unused areas such as unproductive land, sidewalks and backyards (Madaleno, 2002 apud Aquino And Assis, 2007). Particularly in Curitiba, the Urban Agriculture Law was approved in September 2018, which aims to "regulate and encourage the production of healthy food in the city, in urban gardens, squares and sidewalks" (Caldas, 2018, web).

This practice is beneficial from the point of view of environmental sustainability, for regaining the communion of the human being with the earth, with the natural biodiversity and with farming, even if it is a secondary, or of partial involvement, activity. It also contributes to a more complete and healthy diet, since it enables the production and stimulates the consumption of quality food, natural and organic (Aquino and Assis, 2007).

3. METHOD

This article presents a case study carried out with the startup Favo Tecnologia as a research strategy. The case study is used to explore situations where elaborate interference does not have a single set of results, given the complexity of the sources of the case analysed (YIN, 2010). To understand the company's objectives, or, the elicitation of its strategy, a desktop research was carried out amongst its online communication channels. In order to obtain data not explicit to the public, an open interview was conducted with the company's CEO, in the space where the startup is located.

Other devices for understanding the data are brought to the project in order to make offering solutions possible. For this article, it was utilized such tools:

a). The persona refers to the creation of an archetype through the observation of the target audience. The tool seeks to represent the characteristics of a specific social group, incorporating characteristics such as habits, wishes and culture (Service Design Tools, 2018).

b). The application of card sorting can be done while in conversation with the consumer, using pictures cards as help. During the conversation, the participant is asked to arrange the cards in a way they think makes sense semantically (Padovani & Ribeiro, 2013). The individual invited for the application of the card sorting should represent the service's target audience, an important step in the planning phase of the technique.

c). The act of storytelling can be used to plan out a service, being used as a Design technique, it allows to connect the various details of the environment in which the consumer's experience happens; helping to create specific scenarios and contexts for the service. This tool can be used to implement services and touchpoints focusing on customer problems (Kankainen et al., 2012). Storytelling focuses on the consumer journey, enabling the discovery of the multiple paths they can take while interacting with the service.

d). Lego Serious Play is an experimental resource designed to aid rapid prototyping of innovative alternatives. This tool is based on the use of Lego pieces for shaping the service's settings and stages (Service Design Tools, 2018).

e). The service blueprint tool functions as a map for the service project, from the point of view of the company and also from the point of view of the consumer, enabling the visualisation of the necessary partnerships and links for the thorough operation of the service in all its layers. (Bitner; Ostrom; Morgan, 2007).

f). The system map is a tool that allows the holistic understanding of flow paths through the entire service system and how the different parts involved influence each other. It is based on representations and infographics, which should allow the participants to understand the service design process (Service Design Tools, 2018; Lens, 2018).

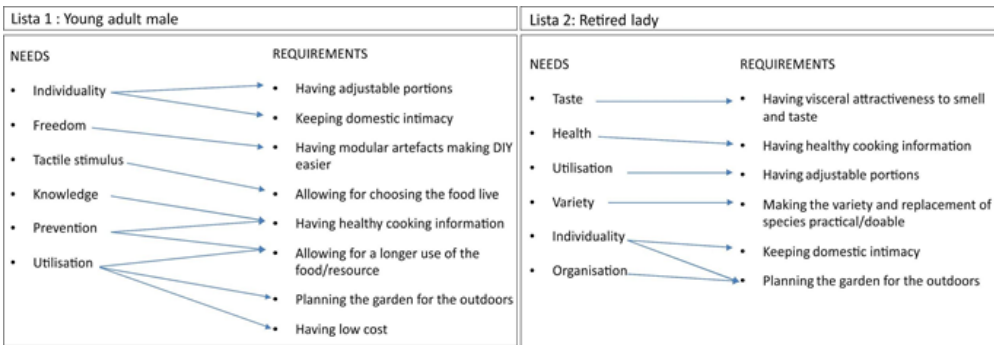
4. RESULTS

With the tools' application it was possible to understand both the consumer's needs and wishes, as well as the opportunities to add value to the startup through new services. The results obtained from the service design tools are described below.

4.1 Card sorting with the assistance of personas and storytelling

To select the consumer fulfilment unit, the information about the company's target audience was cross-referenced with the profiles on the Serasa Experian website (Serasa Experian, 2018), in order to foster the characterisation of personas and the application of card sorting. Therefore, two real people with the same characteristics as the personas created, were selected to be interviewed through card sorting.

For the application of this tool, pictures consisting of various different vegetables were selected, simulating a few consumption categories idealised by the authors such as: home gardens, retail, presentation/packaging, workshop, app, food preparation, residue handling and access to nutritional information. During an unrestricted conversation at separate dates and locations, each participant was led to choose, in order of preference, which situations they identified with. After selecting the cards, the interviewed subjects were directed to create a story about how they would handle the presented situations. Thus, the answers generated keywords: possible situations that could be provided by a PSS and relevant touchpoints. Thereby, tangible and intangible needs were identified, generating a list of requirements that could aggregate value to the PSS to be proposed, according to the problem identified above. The chart below shows the results:

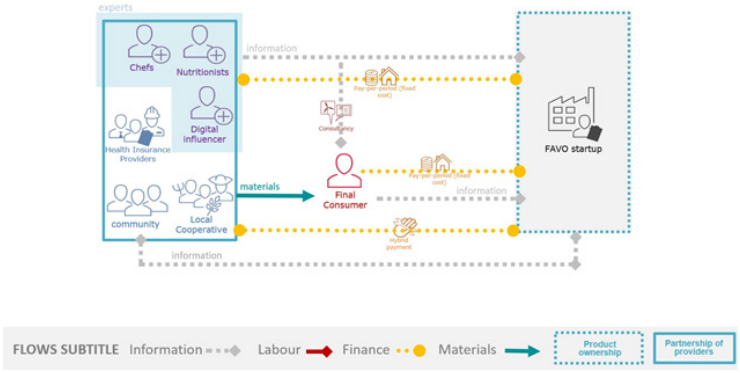


[Chart 2] List of the consumer's needs, after the application of card sorting (Source: Authors, 2018)

Needs related to prevention/health, individuality/freedom, achievement/organisation and to touch and taste were highlighted. Therefore, the requirements of being customisable, being modular and containing nutritional information became relevant. Being aware of Favo's business strategy and its know-how on digital technology for garden maintenance and the gathered needs and requirements, it was decided to focus on an eco-efficient PSS oriented for use and the fulfilment unit was defined: "decision support for sustainable and healthy eating".

4.2 System Map and Lego Serious Play

Based on the requirements survey carried out with the user, the system map was elaborated with the understanding of the other parts necessary for the delivery of the conceived service. The need to create an ecosystem for the interaction between local parts was noticed. The possible partnerships identified happen between Favo and professionals in the area of health or gastronomy. In this ecosystem Favo would play a bridge role, managing the platform that allows the flows' interaction and exchanges between stakeholders, the graphic representation of the flows is in figure 1 below:



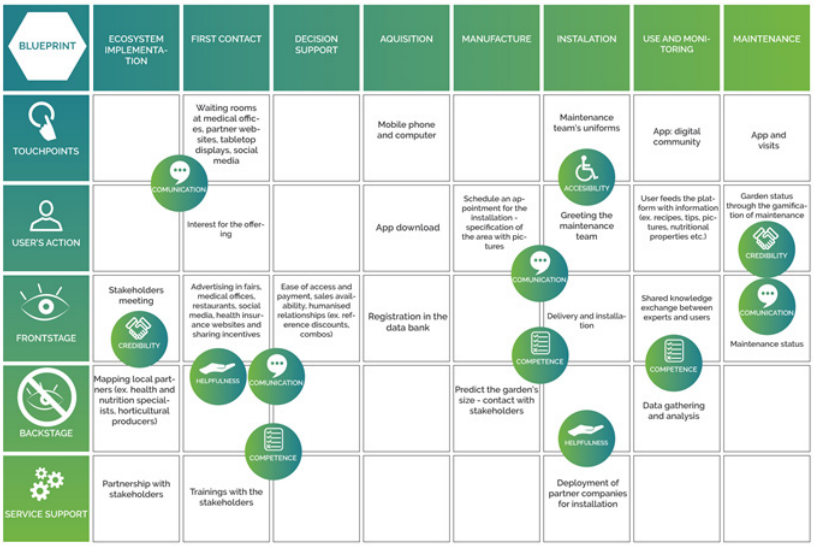
[Figure 1] System map - supporting the decision of a sustainable healthy diet (Source: Authors, 2018)

In the system, Favo becomes the receiver and manager of the information, with its know-how in digital technology. Partnering with experts may result in a fixed income source for Favo in exchange for the advertising and publishing of work directly or indirectly, according to pre-established contracts. The advantages for professionals who access the platform would be obtaining data from their customers and further earnings. Producers/cooperatives have the advantage of enhancing their earnings from the partnership, providing at home support and maintenance. The platform also provides a marketing opportunity for products and surplus production from user's gardens or community cooperatives.

There are advantages for the consumer in purchasing a service plan, which provides, besides information and maintenance, access to all the data shared in the platform. The flow of information happens from both the single consumer and from the experts and community to feed information on the platform. According to the flows established between the stakeholders, three scenarios were elaborated with the help of the Lego Serious Play tool, which represent the service stages and their prototyping. The first scenario created for the service takes into consideration the user's actions, such as interest in the platform and account creation on the system. In the second one, the actions are perceived from Favo's point of view, presenting the startup interaction as a bridge between the parts and as a manager of the ecosystem. And in the third stage, the delivery of the service to the consumer is represented.

4.3 Service Blueprint

The relations between frontstage and backstage actions, support services, points of contact and user actions involving the different phases (or acts) of the service journey were repeatedly made explicit, to envision its complete functioning in its different layers. The completed tool is shown in figure 4 below:



[Figure 2] Service Blueprint (Source: Authors, 2018)

The service blueprint was essential to map, among other interactions, the actions of the user throughout the service's use journey, describing (i) first contact through one of Favo's advertising points; (ii) app download; (iii) actions to schedule and set up the home garden; (iv) actions to input tips and interactions with other users on the platform, and to check recipes and advice from specialists (nutritionists, chefs, etc); (v) access the garden's status and requesting maintenance if necessary.

Once the user journey was clear, the team sought to review the fulfilment unit's relevant touchpoints. For this PSS, the following stand out: (a) The app, which already exists, but also requires adaptations to allow for more care regarding content and information support, creating value in interactions with experiences relating to gamification. (b) The website, which also requires adaptations in order to make it more attractive, in the sense of being less corporate-like, with videos that make use of storytelling to explain how the service works and with an easy access to app download and to request the service; (c) The maintenance of team's uniforms and equipment, artefacts to be developed since there are no such stakeholders at the moment, it's relevant for them to demonstrate cleanliness; here the redesign of the plant pots and vegetable gardens calls for considerable attention to maintain modularity and other practical functional characteristics coupled with the most significant symbolic aspects to the public and the brand; (d) The tabletop, wall or totem displays for partnering stakeholders: health and nutrition specialists' offices, restaurants and organic vegetable producers, which require easy to understand information, highlighting the advantages of accessing the service.

4.4 Use-Oriented Service

Based on the Favo startup case study and the process of collecting data from the target audience, the use oriented service option was considered more appropriate, because it employs a product already marketed by Favo, allowing delivery of more value to the consumer. Value is added through the services of rent and maintenance of the necessary infrastructure for the home gardens, managed by digital technology, which allows remote control of the environment conditions. In addition, the creation of the ecosystem supported by the digital platform stimulates the exchange information about health and sustainable diets between users and specialists. The service aims to provide a more complete experience for the user who's looking for a healthy and sustainable diet.

5. FINAL CONSIDERATIONS

The case study method took part in this research, in the understanding of existing problems in a business, as well as in relevant subproblems, such as the know-how and visualisation of the organisation, target audience and the context. It was also possible to experiment in a more credible way, with the application of the tools and the conceptualisation of a PSS. The card sorting, system map and blueprint tools were quite adequate for the purposes they were used for in this project, respectively: disclosing the needs of the consumers to find the fulfilment unit to be delivered by the service; understanding the stakeholders and system flow to identify the type of PSS orientation (product, use or outcome) and understanding the user's journey and key touchpoints to mark the action of designers and other parts as well as interactions. Other tools such as persona creation, storytelling and Lego Serious Play were used in conjunction with the above mentioned ones, as described in the results. The main tools used and concepts generated for the service were presented to Favo Tecnologia in a meeting between the class, teacher and members of the startup. These have recognized the value of the project with enthusiasm. Therefore, it is considered that it was possible to transmit to them some knowledge and inspiration about PSS creation based on the company case study.

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