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CASULO VERDE PROJECT: A SYSTEMIC APPROACH TO DESIGN MANAGEMENT.

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ABSTRACT

In the last centuries, we have been presenting modification and destruction of natural resources. The establishments of Conservation Units (CU's) have been approached as a way to minimize biodiversity losses. Recently, the relation between Conservation Units and human population that live in them is one of the biggest challenges in the CU's management, as the imposing of new controlling mechanisms for their use. In this context, this article has as objective to present the Casulo Verde's pilot project, having as its object of study the Serra do Tabuleiro's State Park, located in Santa Catarina State, Brazil. Through a systemic approach of design management, the project aims to improve the community's relationship surrounding the CU's and the visiting experience for tourists. From design management techniques, it has been possible to understand the main problems of the Visitors Center of the Serra do Tabuleiro State Park, as well as identifying viable opportunities.

Key Words: Systemic Approach. Design Management. Social Innovation. Conservation Units.

1. INTRODUCTION

The release of “Growing Limits” report by The Club of Rome in 1972 had a huge impact on the society by making the environmental and social issue public. It has provoked a discussion on the need of new and more sustainable lifestyles. Ever since, sustainable development started being approached in an international level.

The evolution of design culture has promoted the idea that design can develop not only products but also alternative answers to the most significant problems of today’s society. Design management by its own transdisciplinary nature tends to adopt an holistic approach aiming to facilitate and foster the best solution possible for all parts involved. The adoption of a managed-by-design approach broadens possibilities for project creation and execution, contributing for the future and bringing as many benefits as possible (without any negative impacts, such as environmental damage or community separation) (BEST, 2012).

The adoption of a broader and more dynamic view of a project, according to the systemic perspective, enhances Design Management (Krucken, 2009) In Big Complexity Problems Involving Several Characters. A Systemic Approach develops collaborative and transdisciplinary projects, widening relationships between characters, abilities and knowledge itself (Krucken, 2009), as well as considering all the possible implications, impacts and solutions that designing can provide (Mozota, 2011).

The establishment of CU’s has been a political practice adopted internationally, as a way to minimize biodiversity loss. However, many of these CU’s were set where there had been human settlements beforehand, who didn’t have the opportunity to participate when new mechanisms of use control have been imposed to these protection areas. In Brazil, the CU’s have been established from 1937 on, by government initiative and it corresponds approximately to 18% of the Brazilian territory (Embrapa, 2018). According to NUPAUB researches, about 88% of the selected CU’s surroundings have traditional population (49%) and non-traditional (88%) that, somehow, relate to these Units.

Currently, the social interaction between management and human population that live over there is one of the biggest management difficulties. With an eye to a sustainable development, the importance and efficacy of the CU’s surpasses the need for biodiversity protection alone. It is more and more necessary a deeper understanding of the population who relates to those CU’s, looking for solutions regarding the conflicting dichotomy between nature and human being.

In this context, this article aims to present the pilot study of Casulo Verde Project, with Serra do Tabuleiro State Park as its object of study in Santa Catarina State, Brazil. Through a systemic approach of design management, Casulo Verde Project aims the relationship of CU’s surrounding communities’ improvement, as well as the visiting experience in the Visitors Center improvement.

2. METHODOLOGY

From the point of view of its nature, this scientific research classifies itself as applied, since its objective is to create knowledge for practical use of solving specific problems (Silva; Menezes, 2005).

As for the aims it characterizes as an exploratory research, it aims to provide wider acquaintance about the problems and to make it explicit or building new hypothesis (GIL, 1991).

As for its approach method, it is a qualitative research, because it aims to analyze and interpret deeper aspects, describing human behavior complexity. It justifies in this research, for being adequate to understanding the nature of a social phenomenon (Richardson, 2008).

As for its technical and applied procedures it is an applied research, having as a study object the Serra do Tabuleiro State Park in Santa Catarina State, Brazil.

3. A SYSTEMIC APPROACH TO DESIGN MANAGEMENT

A systemic thinking is the comprehension of a phenomena inside a bigger context, establishing the nature of its relation (CAPRA, 1998). A systemic approach allows one to notice the interrelation of the whole and not only isolated events coming from “organization relationships” from parts of the whole - which means, from a configuration of ordained relationships. Systemic thinking refers to dynamic interaction patterns, as well as presumes procedural requirements, matter, energy and information flows, which perform or generate the interactions that wire the existence of the whole. Systemic thinking is always a procedural thinking (Andrade et al., 2006, CAPRA, 1998).

The adoption of a wider and more dynamic project perspective comes to strengthen design management, according to the systemic perspective. A systemic approach develops collaborative and transdisciplinary projects, widening relationships among characters, abilities and knowledge itself (Krucken, 2009).

4. APPLIED RESEARCH

4.1. Casulo Verde Project

Casulo Verde Project aims to understand CU’s from the systemic approach of design management, using research, analysis and diagnostic tools which can contribute to social interaction between CU’s and surrounding community

relationship improvement. The project intends to improve the CU visiting experience aiming to provide sustainable maintenance and, consequently, preserve the species present in the CU; raise awareness about these ecological interest areas importance; integrate the community from new local producing arrangements that could raise the CU marginal families' income as well as raise visitor's number in the place. In figure 1 it's shown the visual identity developed for the project:



[Figure 1] Casulo Verde Project's identity.

4.2. Serra do Tabuleiro State Park

The object of the pilot study of Casulo Verde Project was the Serra do Tabuleiro Park, located in Santa Catarina state, Brazil. The Park was created in November of 1975, mainly for protecting the region's wide biodiversity and hydric sources which supplies the region of Grande Florianópolis and the south of Santa Catarina, by its role as climate regulator, and its touristic, educational and scientific potential. Nowadays, the Serra do Tabuleiro State Park is the biggest conservation unit of the state, occupying approximately 1% of the state's territory.

From 2004 on, conflicts have arisen between the surrounding community, environmentalists and private sector interests. Its insurgence is due to, mainly, fund installments of Maciambu (localized in the surroundings), the lack of park boundaries and lack of an operating plan.

The Park has a visitors center, located in the city of Palhoça, rich in fauna, flora and educational hiking. The administration of the park happens via co-management. Currently, the Çarakura Institute is the co-manager of the park, establishing a partnership in management and implementing projects aiming environmental education and social inclusion.

4.3. Design Management Tools

For better understanding of specific needs of the case presented three different tools have been used: SWOT analysis, stakeholders map and brainstorming.

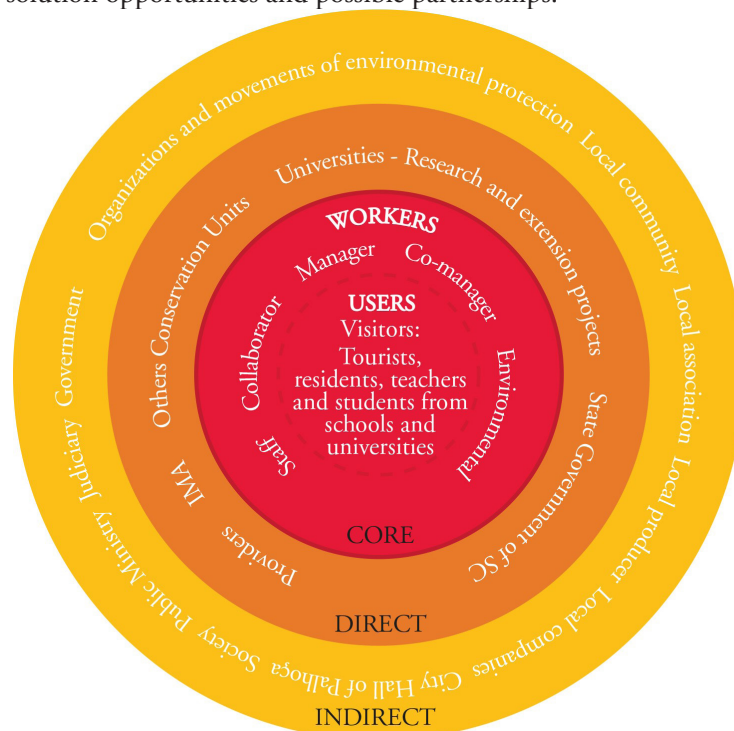
The SWOT analysis aims mapping the internal strengths and weaknesses as well as the external opportunities and threats (Kotler; Keller, 2006). The analysis (Table 1) happened for the Visitors Center of the park and it has occurred from bibliographic and documental research about the object of study, from information collected in the technical visits and non structured collective interviews with the strategic leaderships of IMA (Institute of Environment) and with staff and collaborators of the park's Visitors Center.

<p>STRENGTHS</p> <ul style="list-style-type: none"> Human resources Large Physical Space Important geological patrimony Group of children involved in the park Free visitation Diversity of public 	<p>WEAKNESSES</p> <ul style="list-style-type: none"> Little contact with local community Unattractive to the public Reduction in visitor numbers Few projects running Reduction of local fauna Communication Lack of income generation Lack of convenience space Idle space Ecological corridors Lack of unified management of visitor centers
<p>OPPORTUNITIES</p> <ul style="list-style-type: none"> Itinerant visitors center Innovation center Partnerships with local public and private institutions Space for workshops, lectures, cinema, scientific and cultural events Experience Design at the Visitors Center, especially on the trail Donation requirements list IMA - UFSC partnership Surrounding community Thematic Subzoneamento Service Design Monitoring by VANT'S and drones 	<p>THREATS</p> <ul style="list-style-type: none"> Growth of the urban area near the park Domestic animals threatening protected species Anthropic actions Lack of partnership with the local community Difficulty of school visits Constant change of park management

[Table 1] SWOT analysis of Serra do Tabuleiro State Park Visitors Center.

A stakeholders map visually represents the involved ones in the system and clarify the complex environment visualization that surround most of the services, allowing to understand the way groups relate and interact to each other revealing motivations and interests of each group (Stickdorn; Schneider, 2010). From the information collected in the exploratory phase and from non structured collective interviews with the leaderships of IMA and staff/collabora-

tors of the Visitors Center, it has been elaborated the stakeholders Serra do Tabuleiro State Park map of the Visitors Center, as seen in Figure 2. This map presents user and worker's core, as well as characters who impact directly and indirectly in this service. From its interest's analysis and the way that these groups relate to each other it was possible to identify latent needs, solution opportunities and possible partnerships.



[Figure 2] Stakeholders map of Serra do Tabuleiro State Park Visitors Center.

After the analysis completion described above a session of brainstorming was made. This technique is widely used in design processes. It consists of an exercise that aims to stimulate group discussion and inspire many ideas generation (Stickdorn; Schneider, 2010). The objective of this brainstorm session was to generate solutions based in the problematic. As a result, it has been established the main areas of work: design acting as user experience inside the Visitors Center and the development of a new social interaction with the Visitors Center surrounding community through the creation of an open innovation environment in the Serra do Tabuleiro State Park Visitors Center.

4.3. Open innovation environment in Serra do Tabuleiro State Park Visitors Center.

After the analysis, a solution was suggested: the creation of an open innovation environment developed through design (Figure 3). Projecting products, services and technologies that improve the visitors' experience and collaborators of the CU, and promote the local environmental and cultural patrimony conservation generating income and awareness, fostering local and sustainable development. The creation of this innovation environment aims to empower new social entrepreneurs in the local community from:

- Identification of new services and products to be developed and cocriated by local community;
- Empowering of the local community via workshops that aim cocriating new environment education products/services and products for a future thematic store at the Park;
- A support skilled employee available and all the equipment needed for the development of these new products and/or services;
- Public and private sector partnerships;
- Empowerment of sustainable companies for local development.
- Broadening knowledge, with the availability of an event location for social, artistic, cultural and scientific education events.

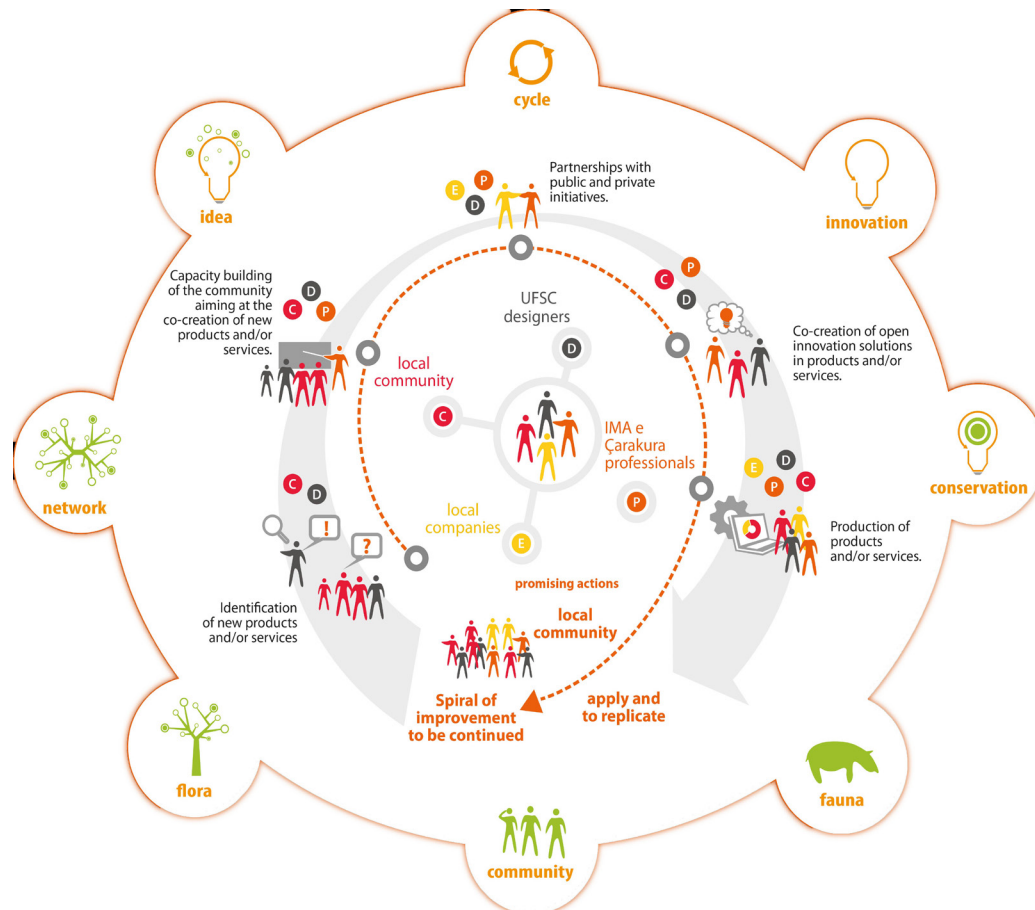
Because of the complexity of the challenges faced in the CU management, it is necessary the construction of a partnership among the society segments, aiming to explore all the social innovation potential (Howaldt et al, 2017). In this case study the segments involved are:

- Public sector: represented by IMA and UFSC (Federal University of Santa Catarina), which promote new ways of organization, coordination and knowledge and establish a network of providing partners of services and resources. The university participates in a strategic and operational way, aiming to tighten the bonds between the community and the Park. The IMA contributes with environmental management knowledge and CU's management. This partnership is fundamental for an adequate and responsible innovation in the CU's.
- Private sector: regional entrepreneurs, providing resources and developing new forms of economic interchange.
- Community sector: local residents of Serra do Tabuleiro State Park Visitors Center region and local com-

munity associations, contributing through their talents and skills in the cocriation and coproducing of new products and/or services (Pradel Miquel et al., 2014), using their skills to promote change through the ability to project what everybody has inwards (Cipolla; Moura, 2012).

- Third sector: Çarakura Institute, an NGO and an OSCIP (Civil Society Public Interest Organization), contributing with their experience in environmental education and CU's management.

This whole process should be conducted in a cocriative way, having the design an important role of connection and viabilization of a new possible scenery, valuing knowledge and stimulating the skills of all stakeholders involved (Manzini, 2017).



[Figure 3] Open innovation environment in the Serra do Tabuleiro State Park Visitors Center.

5. CONCLUSIONS

In this research, the systemic approach has potentialized a broader view of project, considering the wider implications and impacts that its solution might have in the system as a whole. With this in mind, it was necessary to analyze the inter-relations and the interdependencies and to involve employees, collaborators, partners and local community in a collaborative way, widening the skills and knowledge of the characters involved (BEST, 2012; Krucken, 2009). From the inter-relation and interdependency analysis it was possible to potentialize the creation of collaborative local networks.

The contribution of a systemic approach has occurred as means for a better understanding of the context, composed by complex problems that involve multiple variants, such as: environmental, social, cultural and economic factors. It has also promoted the identification of opportunities, found in the interactions and relations among characters involved and in the local resources, as well as in the pursuit for sustainable solutions. The systemic approach is particularly interesting in social innovation, since it can potentialize a collaborative process, the value cocriation, new networks and partnerships, and in new local product production. The possibility of skill utilization, abilities and resources of the own community tends to be a more effective and durable solution in social innovation.

According to Buchanan (2001), the complexity of contemporary challenges such as the CU's problematic has offered designers to work in higher intervention scales in a strategic level. The design management contributes in the identification of opportunities from discovery and interpretation of the involved subjects, and in the formulation of a strategy (Mozota, 2011; BEST, 2012). For this purpose, some strategic tools have been used, such as: stakeholders map, SWOT analysis and solution brainstorm.

With the cocriation of an open innovation environment in the Serra do Tabuleiro State Park Visitors Center it is expected a new relationship between the local community and the Park, oriented by harmony among environmental, social and economic interests.

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