

How the design of Complete Streets affects mode choice: Understanding the behavioral responses to the level of traffic stress

Original

How the design of Complete Streets affects mode choice: Understanding the behavioral responses to the level of traffic stress / Bas, J.; Al-Khasawneh, M. B.; Erdogan, S.; Cirillo, C.. - In: TRANSPORTATION RESEARCH. PART A, POLICY AND PRACTICE. - ISSN 0965-8564. - 173:(2023). [10.1016/j.tra.2023.103698]

Availability:

This version is available at: 11583/2994696 since: 2024-11-22T04:02:43Z

Publisher:

Elsevier Ltd

Published

DOI:10.1016/j.tra.2023.103698

Terms of use:

This article is made available under terms and conditions as specified in the corresponding bibliographic description in the repository

Publisher copyright

(Article begins on next page)

Complex organizations, an exploration between design practices and management - new perspectives to Systemic Design application in Social Enterprise

Caterina Rosini  ^a * | Silvia Barbero  ^a

^a Politecnico di Torino, Department of Architecture and Design: Torino, Italy

* Corresponding author: caterina.rosini@polito.it

ABSTRACT

Organizational change has become an increasingly influential process in enterprise evolution because it is a fundamental step in enabling the corporate to adapt and follow the changes occurring in its environment. This paper will focus on organizational change for social enterprises (SEs). In SEs, organizational issues are complex and entail satisfying economic and social mission needs while avoiding isomorphism with for-profit companies. On these considerations, this article aims to provide insight into the role that design can play in processes that facilitate organizational change. Moreover, the paper investigates three design processes that deal with organizational issues, identifies the main constraints on organizational action and strategy; and further delineates how Systemic Design (SD) could meet the organizational issues of SE. The article synthesizes and discusses literature from three areas of reference: design in the organizational field, organizational evolution of SEs, and organizations as complex systems. This literature review aims to understand how design can support the development path of SE in its organizational change. Specifically for the SE category, it emerges how Systemic Design could play a more significant role in designing and implementing organizational development that can guarantee resilience and social sustainability, valorizing the specific context where they are based.

Keywords: Systemic Design, organizational process, social enterprise.

INTRODUCTION

In the twenty-first century, management and innovation experts universally agree that enterprises will have to face a dynamic and turbulent business environment as well as the increasing need to foster sustainable development able to stay the balance on the Planet, People, Profit (Lemus-Aguilar, Morales-Alonso, Ramirez-Portilla, & Hidalgo, 2019). The uncertain business environment and the request for innovation to create social values press enterprises to search for experts able to change management strategies and the organizational structure. In the past, management was the primary discipline that dealt with organizational aspects. In the academic field, the term “management” was coined by Frederick Winslow Taylor (1903), who proposed an award-detention system for which if workers had good performances, they received awards in their salary (Ferraro, 2016). From this moment, management becomes one of the prime themes both in academics and the company's world. However, managers started working in overspecialized contexts when enterprise conception passed from a unitary body to an organ characterized by specific functions (i.e., marketing,

finance, HR, R&S, logistics, and customers). Following that path, managers worked to organize enterprise activities to develop the best market strategies for business success (Cautela, 2019). On the other side, designers are seen as profiles able to design artifacts in line with the enterprise market and client needs. These two disciplines remained separated for a long time even if they applied for the same scope: enterprise success. In the last decades, management and design have followed their overspecialized tendencies to allow more contaminations and possibilities to develop contributions beyond single disciplines' borders (Cautela, 2019). In this switchover, a mutual influence has been verified.

This article investigates how design has been integrated into the enterprise organization process and how it can deal with it. Moreover, it delves into the application of design in the organizational process of SE to understand what kind of design approach could be better applied in this specific kind of organization. This article will consider organizations as a set of individual processes (Weick, 1993). These processes form an entity made up of decisions, activities and relationships directly related to the creation of outputs demanded by customers and stakeholders. Within an organization, the nature of the processes concerns different areas of activity, such as production, marketing, human resources and finance. Thus, organizational processes enable all components and people to work together to achieve objectives. The focus on SE was chosen because they are now considered an innovative business model capable of generating positive impacts on society and the environment. Therefore, they align with the requirements of sustainable development that the global community has long been calling for.

To satisfy the above requests, we analyzed three main design approaches used in the enterprise environment and tried to understand their contribution to the organizational field, specifically in SE. The analyzed approaches are i) Strategic Design, ii) Organizational Design, and iii) Design Thinking; we investigate them through a qualitative analysis explained in the following section. These three approaches were compared to understand the aspects considered during the organizational change process. Comparing the three design approaches highlights how the current context makes it essential for firms to have and use strategic tools to survive. These tools have often been identified in design declinations applied in the business environment and explained later. Moreover, the comparison shows a clear necessity to integrate enterprise needs with people's needs.

The paper begins with a perspective on the organizational evolution of SE, focusing on the need to align with a social mission and sustainable development. Then, the methodological part explains how the literature review process was carried out and the main evidence. Thus, it presents the qualitative analysis of the three design approaches linked to the organizational field. Finally, the discussion on organizational complexity in the SE model and how a systemic approach can combine business and social aspects to promote SE resilience.

1. BACKGROUND: ORGANISATIONAL EVOLUTION OF COOPERATIVE SOCIAL ENTERPRISES

The SE model has acquired greater importance in recent decades and has drawn international researchers' attention. Many scientific contributions have delved into the study of SE, especially in the management field (Smith, Gonin, & Besharov, 2013; Wry & York, 2017). According to Dafourny and Nyssens, 2019, the SE is a third-sector organization that pursues social aims with no profit makings through economic action.

In Europe, different forms of SE change in respect of country and legislation; among SE categories are no-for-profit organizations, hybrid organizations, for-profit enterprises engaged in beneficial actions for social aims, philanthropic organizations, and organizations that promote CSR actions. It shall be agreed that SE promotes commercial activities to produce profit properly to pursue social scopes. (Laville & Nyssens, 2001). Despite differences among countries on SE categorization, the research intends to investigate what design approach can better address organizational issues without disrupting the identity of social mission. During the last few years, studies and projects have dealt with forms of SE at the international level. The ICMES project and the EMES network are testimonials of this interest (Poledrini, 2018).

Nevertheless, the area of literature that analyses the organization of SEs still needs to be explored. Often SEs are analyzed in terms of their ability to thrive in a market context led by a for-profit corporation with strong economic drivers. Following this principle, the literature on the degeneration and regeneration branch delves into a more in-depth examination of the SE model. In line with the literature on degeneration, Bretos et al. (2020) analyze the life cycle of a cooperative enterprise. Their assumptions emerge that conquest, economic stabilization, coexistence, and administrative power are the four main steps describing the evolution. Nevertheless, according to the steps, a cooperative enterprise could go forward to the dissolution or homogenization of a traditional for-profit enterprise form. In the former case, the SE breaks up because it cannot satisfy the aims and social mission pursued by its members. In the latter, the SE becomes an organizational form that embraces the market value and managers' interests. This kind of evolution could be defined as isomorphism. The tendency to isomorphism materializes through management technocratisation, the abandonment of organizations democratically managed for applying organizational forms in which employees are less involved in decision-making processes. However, a different field of research sustains the regeneration thesis (Cornforth, 1995; Narvaiza, Aragon-Amonarriz, Iturrioz-Landart, Bayle-Cordier & Stervinou, 2017). The regeneration thesis sustains that the life cycle of a SE does not finish with the four stages, but the step of "regeneration" can be the fifth. In the fifth stage, the enterprise commits to rebuilding the democratic roots of its origin. The two different research fields represent a dichotomy to which SE has been submitted for many years. Although there is evidence of how design can positively address social issues, there needs to be more research on how can apply the design approach to the SE model to fill organizational gaps and support the social mission.

2. METHODOLOGY

Our research is based on a qualitative literature review to understand the design role within the enterprise environment and, specifically, the organizational process of SE. To ensure scientific relevance, we collected relevant publications from multiple disciplinary and interdisciplinary fields using Web of Science (WoS) and Scopus databases. The main question which leads this literature review is "How has design been integrated into enterprises' organization process?" following two sub-questions:

- "Can Systemic Design deal with the organizational process?"
- "What kind of design approach could better respond to the organizational necessities of social enterprises?"

The scope of this research is twofold; on one side, it examines how design has been integrated into the organizational process by examining the main design approaches which address such

field; on the other side, it wants to understand if Systemic Design as an approach to complexity, can deal with the organizational process in the specific field of SE. First, the search strategy was conducted by defining the keywords based on research questions. Then, a preliminary and broad literature review was performed using a combination of relevant search terms such as *design organization *social enterprise and *organizational change. The period of publications was considered from 2013 to nowadays. In 2013 there was a series of international initiatives to sustain and implement a SE model. For instance, England tested financial tools to support social entrepreneurship in the same year, such as the Social Impact Bonds. Meanwhile, the USA introduced the Pay for Success Bond, a financial instrument to gather private loans to support public utility projects undertaken by non-profit organizations. Furthermore, the European Parliament and the European Council adopted the rule on using the European Social Entrepreneurship Fund (EU Regulation 346/2013). Moreover, 2013 was the first year SE evidenced its resilience after the economic crisis of 2008 with an increasing number of employees and new enterprises. So, the literature review considers 2013 as the starting point for innovation in the SE environment and is relevant for this research.

After initial framework research on the topic of SEs and related organizational processes, the research field was narrowed down to three specific design approaches:

- Strategic Design is the first point of contact between design and management.
- Organisational Design is taught in numerous university courses related to business and economics.
- Given its growing presence in business contexts, Design Thinking has been chosen as a promoter of new problem-solving approaches and a driving force in the conception and discovery of innovations.

The keywords "strategic design," "organizational design," and "design thinking" were therefore integrated jointly with "social enterprise" and "organizational process" into the selected search engines (Tab.1).

Table 1 - Literature review process to define keywords

Filter Levels	Filtering process (Keywords)	Refinements
Topic	Social Enterprise Organizational process	Organizational change
Approaches	Design in organization Strategic Design Design Thinking	Organizational Design

2.1. Findings in the Literature review

The preliminary search selected 185 articles published in English related to understanding how design has been integrated into the organizational process. The literature review then aimed to understand if and how design is applied to the SE model and what kind of organizational process is involved; with this view author's choice concern three main design approaches explained in the methodology section. After setting the keywords and funded articles process continued reviewing the title, keywords, and abstract of the papers, the list of selected articles has been reduced to 23 publications. Finally, the relevant publications were identified and read in full of particular attention to their bibliographies to identify additional relevant research. This process brings to light new publications to integrate with the literature review. From the observation of figure 2, we can see that organizational design is the most

Rosini, C.; Barbero, C. (2023). Complex organizations, an exploration between design practices and management - new perspectives to Systemic Design application in Social Enterprise. Strategic Design Research Journal. Volume 15, number 02, April-June 2022. 107-120. DOI: 10.4013/sdrj.2022.152.03.

treated with 34 results on WoS and 19 on Scopus, followed by strategic design with 43 articles on WoS and 5 on Scopus. Finally, design thinking produced 1 result on WoS and 3 on Scopus. These results suggest that organizational change through design approaches needs to be more researched concerning SEs.

Furthermore, it is clear from the selection of articles that there need to be more design considerations in SE organizations. This is due to a few factors: firstly, these types of enterprises often must balance the interests of their social mission with economic interests and the demands of the labor market, which makes it challenging to invest additional resources in aspects that are often considered secondary, such as design. Social businesses are also characterized by democratic governance and a social mandate. In line with this principle, analyzing different design approaches to organizational issues highlights the tendency to support top-down actions rather than bottom-up ones. Thus, academic contributions indicate a need for more participatory actions to promote organizational implementation in SEs.

Secondly, when the design is integrated into the business model, it is often reduced to limited applications for specific activities or tasks. An example is Design Thinking, which, if searched for in the general business context, many articles talk about its application, primarily related to project management activities. If, on the other hand, we focus the same research on SEs, the results decrease drastically because only some SEs adopt DT for project management. This happens because few SEs have the resources to deal with projects in a specific sector of activity. What we deduce from the literature analysis is a mix of drivers that hinder the application of design in SEs. However, if a new awareness could be stimulated, these enterprises could benefit from the application of design and reap many social and economic benefits. The literature review also suggests the need for a paradigm shift in organizational studies. In general, organizations need to be studied and implemented with a holistic approach that can consider both business performance and its impact on people's lives at work and in society. Thus, the article supports the potential of systemic design to highlight organizational processes by involving people at different levels in implementing change and business effectiveness. As shown in Figure 1, the countries where the study topics are dealt with are in descending order United Kingdom, United States, Australia, Italy, and Germany, followed by India, China, Canada, and Spain.

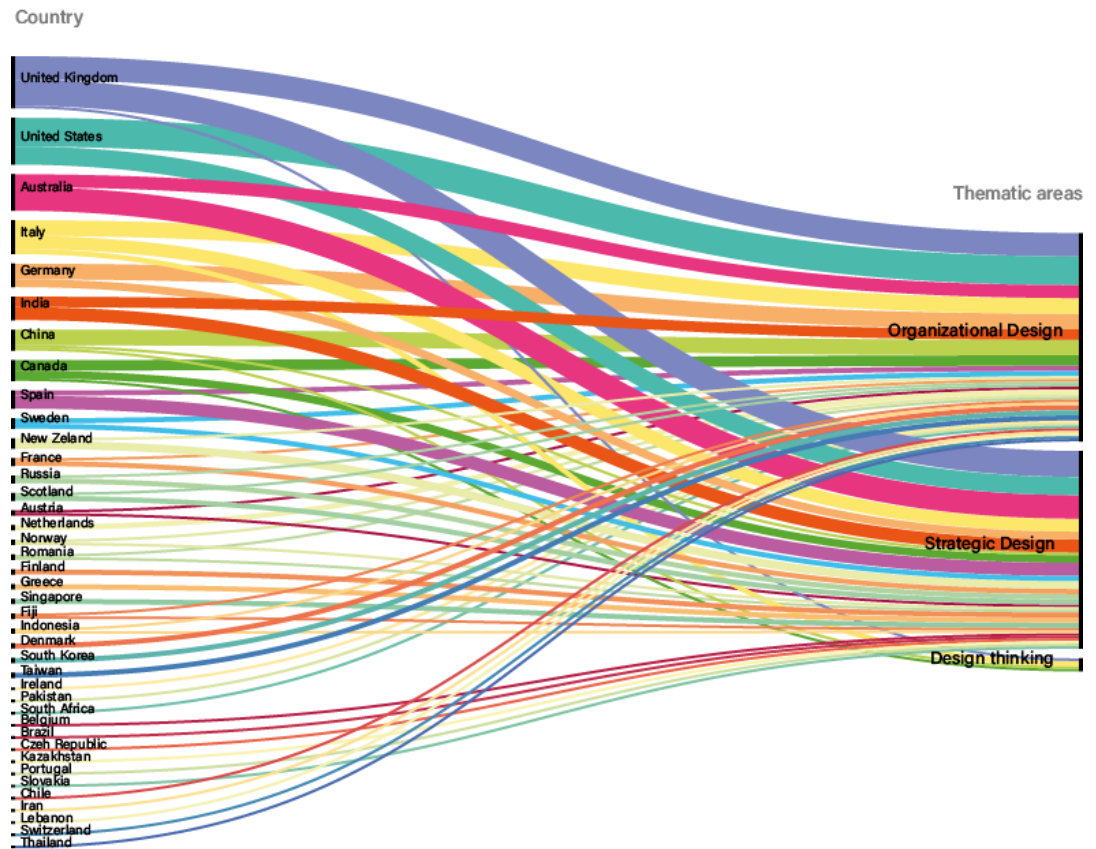


Figure 1. Thematic areas of the literature review per country

2.2. Design approaches in the organizational field

Various scientific contributions have expressed design relevance in providing and creating a competitive advantage (Kimberly, 2018; Hrivnak, 2019). Nevertheless, today's enterprises require intense organizational change that encompasses various spheres as strategic management challenges, digital transformation, technology, and sustainability management (Buehring & Bishop, 2020). These demands in the enterprise world invite a rethinking of the longstanding issue of organizational change. These business needs invite rethinking the longstanding issue of organizational change. From this perspective, the design discipline could have an unexpected role in evolving organizational processes and structures. In this perspective, design has often championed the importance of human-centered practices, in line with the aim of enterprises to promote value and innovation through human-centered approaches. Indeed, today we are witnessing a new evolution of design discipline in an organization's context. Design is not a mere discipline to design products; instead, it shifts its application from an individual and tangible sphere to a more collective and complex sphere (Jones, 2014). Hence, this evolution also changes the designer figure, shifting from an artefact designer to a creator and moderator figure of new services, policies, and systems (Buchanan, 2001). The increasing complexity of socio-technical systems and operational environments in which organized realities and their members operate forced design discipline to integrate the traditional practices to address systemic challenges in emerging contexts. Against this backdrop, the organizations changed the design practices from planning or project activities to methods of developing innovation in the strategy, management, and leadership sphere. For the application of design in that field, the purpose of organizations is to create a competitive advantage for a long time to guarantee resilience to external environment changes. Strategic Design is one of the first links between management and design. Strategic Design

creates collaborations through disciplines to lead the organization toward strategic aims (Cautela, 2019). According to with scientific contribution by Meroni (2008), Strategic Design concerns a system of rules, beliefs, values, and tools to tackle the external environment and guarantee the enterprise's survival by defining a strategy and a strong identity. Strategic Design primary purposes must deal with–problem-solving, and problem sets. The designer must interpret and figure out the interactions with different players in an ongoing situation. Those strategies could result in solutions where the individual interests, such as company, person, or enterprise, can merge with those of the collectivity (Zurlo, 1999); if strategic choice results in a breakthrough that allows a system to evolve, it is possible to talk of Strategic Design. Moreover, the concept of social innovation is closely linked to strategic design. According to Manzini & Meroni (2012), social innovation is a driver that determines the transformation of human behavior and organizational constructs. From this point of view, social innovation needs to be driven by bottom-up insights rather than top-down decisions that aim to follow changes in technology and the market. More precisely, Strategic Design defines enterprise identity and identifies innovative business opportunities; afterwards, the designer is involved in other decisions, such as the organizational process, which allows for pursuing the defined strategy and objectives. Nevertheless, organizational changes often are designed with top managers, excluding the operative unit. In many cases, the top managers define the best organizational choice as the enterprise's primary interest and leave back the interests of the people who work in it. So, even if the Strategic Design adopts a broad approach and can interpret the interactions within the reference environment in the practical application, it leans toward the enterprise's interests more than its employee's benefit. (Jevnaker, 2010). In this sense, the present research defines Strategic Design as not being able to keep people and the social mission at the center of the enterprise because it prioritizes economic needs, so it does not correspond to the characteristics of SEs. With the view to undertaking new strategies, adopting new organizational forms is necessary to respond to increasing complexity in the business environment and align the enterprise with the need to develop more inclusive and flexible working practices. (Schilling & Steensma, 2001). Therefore, the organization of new structures should complement organizational chart changes and work routines modifications, as well as peoples' aspirations and capabilities. A key aspect to consider is that enterprise first consists of people who work cooperatively. Hence, the organization should adapt to the energy and special attributes of the people of which it is made up. In line with this principle, the second design approach is under consideration. Organizational Design (hereafter OD) promotes collaboration and co-design within the organization. In this sense, it can be said that OD represents an improvement concerning the enterprise reorganization discipline because it considers deeper the enterprise structure going beyond the organizational charts and the job descriptions. Nevertheless, every organization must be designed based on context to thrive in the business environment. Further, that context's description must comprehend both structural and human components. The OD includes goals, structure, and strategy as structural components; otherwise, as human components, OD concerns work processes, coordination and control, and incentive mechanisms (Burton, DeSanctis, & Obel, 2012). Building on J.K. Galbraith, who is considered an expert in the organizational field, the OD consists of creating and maintaining an alignment between the design and identity of the organization (1984). Generally, the OD process is led from a top-down perspective, first considering the strategy, goals, and structure and then controlling and coordinating people. Inversely if the process starts using a reverse bottom-up approach, it could conflict between tasks, goals, and strategy (DeSanctis & Obel,

2012). In an OD process, the primary steps concern information gathering and the definition of the unit of analysis. For example, as a unit is possible to consider the organization and the team project or units of production, departments, or a set of companies. However, the primary problems OD must face are partitioning big tasks into more minor subunits and, second, defining how to coordinate the smaller subunits' tasks to reach efficiency and effectiveness. Practitioners must consider a broad range of organizational dimensions and pay attention to their internal coherence and external fit. However, an organization is also composed of sub-systems, not always explicit, in dynamic relation to each other (Schein & Bennis, 1965). These sub-systems could give unsatisfying results for the enterprise if they are not comprised or altered by a non-studied organizational intervention (Balogun, 2007). The consequences could be working deficiencies and establishing dynamics that sail against the fulfillment of enterprise requests. Furthermore, some literature contributions assume that such a model for designing an organization is too simplistic and does not allow one to thoroughly understand the complexity of modern organizations (Meyer et al., 1993). Following this evidence, the research determines OD as incomplete in dealing with SEs environment. The third approach we would like to describe in this article is Design Thinking (hereinafter DT). Today, DT refers to studying and solving wicked problems linked to innovation development. The DT offers for-profit and not-for-profit organizations chances to develop innovative products or services, and as a discipline, it is considered a source of competitive advantage (Dunne, 2018). In the past, the application of DT in the enterprise environment was strictly focused on product innovation. Nevertheless, in 2000 the idea that DT could also be applied to intangible aspects such as services, processes, and complex problems started to spread (Mulgan, 2007). This change of perspective constitutes an evolution in DT's concept and application fields. Nowadays, the field in which DT finds it best fitting proves to be social innovation and participatory processes (Rizzo, Deserti & Cobanli, 2017). From an enterprise point of view, the DT is not involved in organizational processes but rather in organizational culture. Organizational culture is understood as the intended norms, values, and assumptions organizations want to promote as their identity (Schein, 2010). The main characteristic of the organizational culture designed by DT concern user-centered aim, collaboration, and risk-taking. However, the application of DT within organizations to accomplish organizations' goals depends on its purpose, which can range from disruptive innovation, new organizational culture, improvement of products and services, and identification of new user-centered needs (Dunne, 2018). Figure 2 shows the relations between the three design approaches and the elements of the company with which they relate.

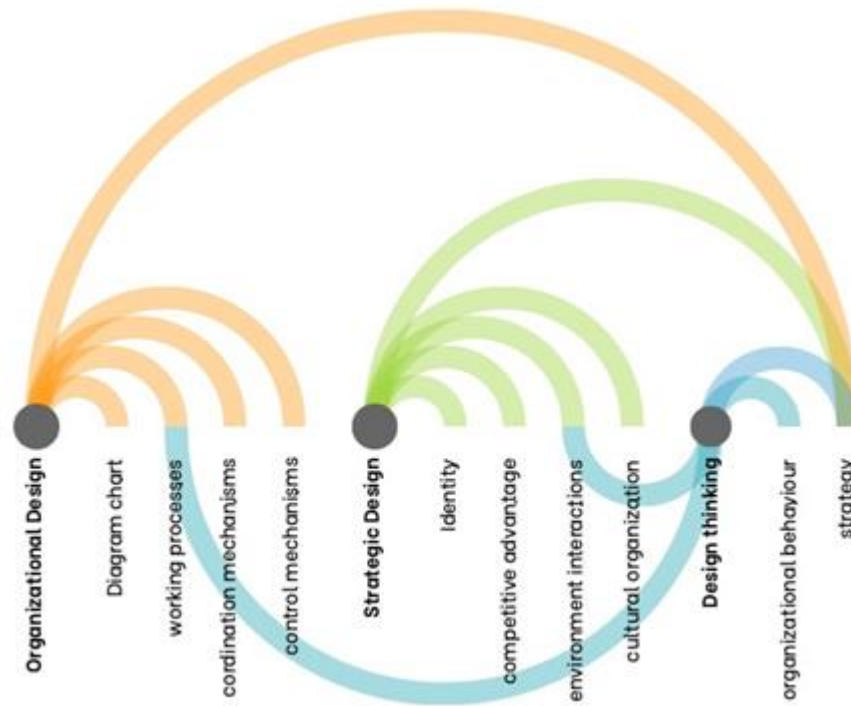


Figure 2 – Design approaches and enterprise elements

3. ORGANIZATIONS AS COMPLEX SYSTEMS

Admittedly, in the framework of design and SE, literature shows a specific reference, the "design for SE" intended as a multidisciplinary approach capable of combining methods and tools to support the innovation in SE. The necessity to identify and apply a specific design to foster SE innovation strengthens the concept that traditional management or design methods are insufficient to satisfy actual SE needs. The academics who studied complexity in various fields have made a paradigm shift and started to use a transdisciplinary research approach to tackle the "wicked problems" of the complex world (Cabrera, Cabrera, Powers, Solin & Kushner, 2018). From the point of view of system theory (Bertalanffy, 1969), an organization is a human system, a network of social actors that interact through relations. Hence, an organization can define itself as complex when evolving and adapting to the reference context (Schneider & Somers, 2006). The influence degree that characterizes relations describes the consequences' impact that may be on the whole system. Thus, we can affirm that time and relations are the main factors influencing complex systems and our study of organizations.

Adopting this point of view is evident in how numerous relations characterize a social organization. Therefore, it can be said that their efficiency is based on relations; without them, they cannot supply services and build connections. Another aspect is that relations happen among people who autonomously think and make consequent choices. Hence, time, relations, and people continuously modify the system and make it unpredictable. In that vision of organizations as Complex Adaptive Systems (Schneider et al., 2006), an approach to design relations between components that generate the system is mandatory. Therefore, this approach should enhance identity and local resources, producing development and welfare for individuals and the community. The approach we have identified is the Systemic Design (hereinafter SD). The "SD has emerged as an approach to provide systemic and interconnected solutions to the complexity of the current situation, encompassing economic, environmental and social contexts." (Battistoni et al., 2019).

Rosini, C.; Barbero, C. (2023). Complex organizations, an exploration between design practices and management - new perspectives to Systemic Design application in Social Enterprise. Strategic Design Research Journal. Volume 15, number 02, April-June 2022. 107-120. DOI: 10.4013/sdrj.2022.152.03.

The SD has its primary tool in the Holistic Diagnosis (HD), which is applied in the enterprise context to return a framework of the actual situation in terms of energy and matters and the surrounding context; it is possible to identify challenges and change levers on which to design the new systemic project and proceed with the following steps of the methodology. What could be interesting is the application of SD to the organizational model of an enterprise, specifically the SE. The SD approach can help to understand work relations and job roles for the degree of mutual influence. Such interpretation can allow better comprehension of tacit problems, such as difficulty accomplishing specific tasks or reiterating an organizational problem. The same analysis can be carried out on the people in an organization to understand their propensity to perform a task or build relationships.

Moreover, given the assumption that "the quality of a system lies in the system itself" (Bistagnino, 2009), SD can become a tool for redesigning organizations to promote the democratic participation of workers and stimulate bottom-up practices of change. This perspective would align with the internal characteristics of SEs and promote democratic participation in defining the enterprise system and its dynamics. In applying Holistic Diagnosis (HD) in a corporate organizational context, the first step implies analyzing the corporate organizational chart and all the relationships behind the corporate structure's graphic representation. Specifically, the official and informal roles, the degree of competence of each person concerning their function, how information is exchanged between colleagues, and the means and equipment used to carry out company activities. The second step of the HD is to analyze the relationships that the system under investigation generates in the environment in which it operates. Therefore, direct and indirect connections are considered, and the environment and stakeholders are deeply analyzed. The environment is examined from multiple points of view, such as morphological conformation, demographic and industrial aspects, and cultural factors. This information collection is then rendered through graphical representations (i.e., gigamaps, infographics maps) that include quantitative and qualitative data collection. Data visualization helps the designer interface with stakeholders to obtain feedback on the information and data collected.

The comparison also helps the designer and the actors involved in the process to understand the complexity of the system being analyzed; this step leads to the third phase, the identification of the main challenges facing the organization; for each challenge identified, one or more opportunities for change are then hypothesized. For example, in the case of a company, the challenges may be related to business growth, but also, as in the case of SEs, the difficulty of reconciling economic necessity and social mission. In other cases, the challenge may be recruiting staff or finding new resources to meet specific needs. Next, the designer carries out a multi-criteria analysis of the opportunities to choose the best solution to the challenges. This step then leads to the definition of the systemic project. In the case of a company, it may be a new organizational model, the creation of new roles or the identification of new competencies, and the expansion of the service/product offering. Finally, the last stage of the methodology involves assessing the impact of a systemic project on the context and the implementation of results. The added value of the SD methodology is that it provides concrete tools for understanding complexity. Furthermore, the process is carried out by the designer, who is in constant contact with all members of the organization who can access the information gathered and integrate their feedback at any time.

Rosini, C.; Barbero, C. (2023). Complex organizations, an exploration between design practices and management - new perspectives to Systemic Design application in Social Enterprise. Strategic Design Research Journal. Volume 15, number 02, April-June 2022. 107-120. DOI: 10.4013/sdrj.2022.152.03.

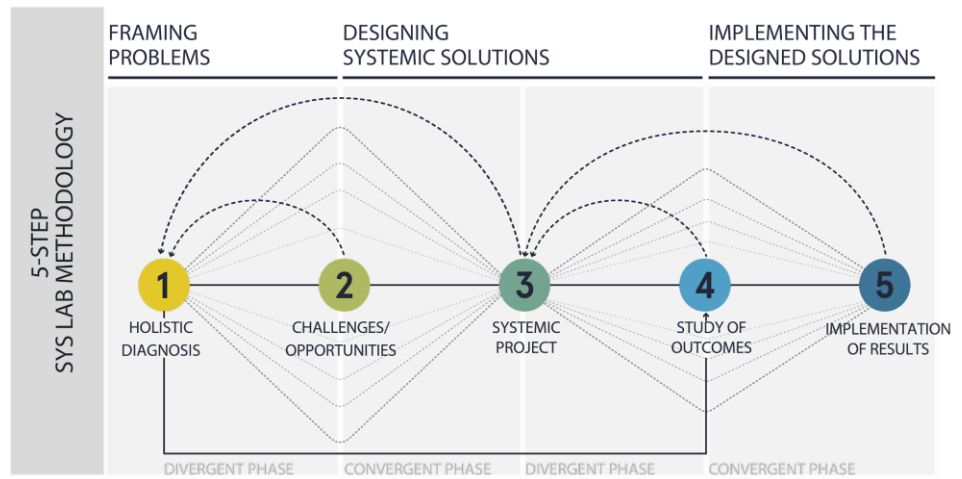


Figure 4. Systemic Design methodology

The SD approach puts humanity at the center of the processes and develops empathy with the reference system, both in the environmental and social environment. These aspects are particularly significant for the SE, considering that they are strongly connected with the territory's community in which they operate.

4. DISCUSSION AND CONCLUSIONS

From the literature review results, the design emerges as an integrated discipline within organizations to meet their different needs. The overture to new fields and the need for more empathic governance in the complex socio-technical system (Villari, 2021) require an adaptation of design practices; we have analyzed three design practices adapted to different business development purposes. Let us consider Strategic Design as the first point of contamination among management and design disciplines. It aims to connect various enterprise aspects to define identity and design a strong strategy. Admittedly Strategic Design proves its capacity to build meaning for enterprise, but there is no evidence of structural, organizational actions and application in the SE field.

Moreover, it often supports top-down actions to implement the organization and its strategy, favoring economic interests rather than adopting inclusive strategies. The second design practice is OD, which is better integrated into the organization's structure and proposed as an approach to consider the organization's and its people's needs. However, although OD conceives the organization as an open system, it needs to sufficiently consider the human dimension in its broadest sense, i.e., both the work and personal dimensions. As a result, OD is perceived as capable of interacting with the aspects that define a company. However, it needs more tools to fully understand the complexity of the dynamics that govern its actions, especially concerning the SE model. The third design practice is DT, which implies specific mentality, experimentation, problem-solving, and prototyping practices (Kremel & Wetter, 2019). DT has also been applied in public organizations and third sectors to promote innovation and creativity and develop co-design processes (Cobanli, 2017). On this information, we can affirm that among the three design practices, the DT is the more contaminated with the management field, and it has become a pivotal practice such that it is integrated into the training path for managers and social entrepreneurship. Although it comes close to the needs of a SE because of its humanity-centered approach ("What is Humanity-

Rosini, C.; Barbero, C. (2023). Complex organizations, an exploration between design practices and management - new perspectives to Systemic Design application in Social Enterprise. Strategic Design Research Journal. Volume 15, number 02, April-June 2022. 107-120. DOI: 10.4013/sdrj.2022.152.03.

Centered Design?" Interaction Design Foundation, 2022) and ability to find solutions to people's needs, we do not find evidence of how DT can innovate the organization of a traditional enterprise or a SE, except in certain moments mostly related to specific projects and aimed at satisfying the economic issue. From this collection of information, a design approach is needed to boost innovation development and improve the enterprise's internal organization. In the case of SEs, their strong vocation for the social mission and their roots in the territory to which they belong require a design that can fully understand the complexity of the ecosystem in which they operate without neglecting the needs of the people who make up the enterprise itself.

In this work of awareness, SD is, for now, the approach that could better satisfy the requests for reorganization for a SE. According to the findings of the present study, the main results can be summarized as follows: SD could be a reference approach to strengthen feedback among participants during actions of organizational implementation. The systemic designer gets capacities to collect and frame cross information between the top and bottom levels, creating a broad awareness of the organizational process and internal communication. In addition, the tools of SD analysis promote a tailored design to the enterprise's identity and avoid the tendency towards isomorphism of a profit-oriented business model. Finally, SD allows for an in-depth mapping of the relationships that influence the company's activities and results through the broad involvement of people in their perceptions of internal processes and work management. This involvement strategy promotes democratic participation, which enhances the resilience of ES. So, the tools that this approach can bring to an enterprise lead us to believe that it can consider, to a greater extent than other methods, the numerous aspects that are part of the complexity of an SE. It is right to specify that currently, there is no evidence in the literature of applications of SD in the organizational field for SEs. Still, the assumptions lay the groundwork to start future applied research and test the effectiveness of this approach in the organizational matter. There are opinions in the literature that "the systemic intervention approach, which is already built on systems theory, offers a good heuristic for building on a strategic design planning competency aimed at the organizational transformation." (Hugentobler, 2017). Finally, regarding the research questions, the conclusion is that although the design approaches discussed have yet to be evidence of application in SE organizational structures, there are prerequisites for design practices approaching this area. Concerning the design approach best suited to the specific case of SEs, the result is that SD, with its tools and the holistic vision that distinguishes it, makes it to date the approach that more than others can understand the complexity of this enterprise and able to develop systemic solutions to strengthen their social ties.

REFERENCES

- Balogun, J. (2007). The Practice of Organisational Restructuring: From Design to Reality. *European Management Journal*, 25(2): 81–91. <https://doi.org/10.1016/j.emj.2007.02.001>.
- Battistoni, C., Giraldo Nohra, C., & Barbero, S. (2019). A systemic design method to approach future complex scenarios and research towards sustainability: A holistic diagnoses tool. *Sustainability*, 11(16): 4458. <https://doi.org/10.3390/su11164458>.
- Bertalanffy, L. V., Hofkirchner, W., & Rousseau, D. (1969). *General system theory: Foundations, development, applications* (revised edition.). New York: George Braziller.
- Bistagnino, L., & Petrini, C. (2009). *Design sistemico: progettare la sostenibilit  produttiva e ambientale*. Slow food Ed.

- Bretos, I., Errasti, A., & Marcuello, C. (2020). Is there life after degeneration? The organizational life cycle of cooperatives under a 'grow-or-die' dichotomy. *Annals of Public and Cooperative Economics*, 91(3): 435–458. <https://doi.org/10.1111/apce.12258>.
- Buchanan, R. (2001). Design research and the new learning. *Design issues*, 17(4): 3–23. Retrieved June 5, 2019, from <https://www.jstor.org/stable/1511916>.
- Buehring, J., & Bishop, P. C. (2020). Foresight and Design: New Support for Strategic Decision Making. *She Ji*, 6(3): 408–432. <https://doi.org/10.1016/j.sheji.2020.07.002>.
- Burton, R., DeSanctis, G., & Obel, B. (2006). Index. In *Organisational Design: A Step-by-Step Approach*. Cambridge university press.
- Cabirio, C. (2019). *Design e Management: alla ricerca di un comune indice*. Self published via ISBN 9791220053082.
- Cabrera, D., Cabrera, L., Powers, E., Solin, J., & Kushner, J. (2018). Applying systems thinking models of organizational design and change in community operational research. *European Journal of Operational Research*, 268(3): 932–945. <https://doi.org/10.1016/j.ejor.2017.11.006>.
- Conklin, J. (2005). *Dialogue mapping: Building shared understanding of wicked problems*. John Wiley & Sons, Inc.
- Cornforth, C. (1995). Patterns of cooperative management: Beyond the degeneration thesis. *Economic and Industrial Democracy*, 16(4): 487-523. <https://doi.org/10.1177/0143831X95164002>.
- Defourny, J., Nyssens, M., & Brolis, O. (2019). *Mapping and Testing Social Enterprise Models Across the World: Evidence from the "International Comparative Social Enterprise Models (ICSEM) Project*. ICSEM Working Papers, No. 50, Liege: The International Comparative Social Enterprise Models (ICSEM) Project.
- Dunne, D. (2018). Implementing design thinking in organizations: an exploratory study. *Journal of Organisation Design*, 7(1): 1–16. <https://doi.org/10.1186/s41469-018-0040-7>.
- Elsbach, K. D., & Stigliani, I. (2018). Design thinking and organizational culture: A review and framework for future research. *Journal of Management*, 44(6): 2274-2306. <https://doi.org/10.1177/0149206317744252>.
- Ferraro, S. (2016). Frederick Taylor's other Principles. *International Journal of Business and Social Science*, 7(11): 24–27. Retrieved January 7, 2020, from https://ijbssnet.com/journals/Vol_7_No_11_November_2016/3.pdf.
- Hrivnak, G. A. (2019). The increasing importance of curriculum design and its implications for management educators. *Journal of Management Education*, 43(3), 271-280. <https://doi.org/10.1177/1052562918822068>.
- Hugentobler, H. K. (2017). Hacking the organisation: Organisational Transformation by Design. *The Design Journal*, 20:sup1, S522-S530. <https://doi.org/10.1080/14606925.2017.1353001>.
- Interaction Design Foundation, (2022), "What Is Humanity-Centered Design?" accessed March 31, 2022, retrieved April 19, 2022, from <https://www.interactiondesign.org/literature/topics/humanity-centered-design>.
- Jevnaker, B. H. (2010). How Design Becomes Strategic. *Design Management Journal (Former Series)*, 11(1): 41–47. <https://doi.org/10.1111/j.1948-7169.2000.tb00286.x>.
- Jones, P. H. (2014). *Systemic Design Principles for Complex Social Systems*. In: Metcalf, G. (eds) Social Systems and Design. Translational Systems Sciences, vol 1. Springer, Tokyo. https://doi.org/10.1007/978-4-431-54478-4_4.
- Kremel, A., & Wetter Edman, K. (2019). Implementing design thinking as didactic method in entrepreneurship education. The importance of through. *The Design Journal*, 22(sup1):163-175 <https://doi.org/10.1080/14606925.2019.1595855>.
- Laville, J. L., & Nyssens, M. (2001). The social enterprise: towards a theoretical socioeconomic approach. In *The emergence of social enterprise* (pp. 324-344). Routledge.
- Lemus-Aguilar, I., Morales-Alonso, G., Ramirez-Portilla, A., & Hidalgo, A. (2019). Sustainable business models through the lens of organizational design: A systematic literature review. *Sustainability* 11(19): 5379. <https://doi.org/10.3390/su11195379>.
- Manzini, E., & Meroni, A. (2012). Emerging user demands for sustainable solutions, EMUDE. In: Michel, R. (eds) Design Research Now. *Board of International Research in Design*. Birkhäuser Basel. https://doi.org/10.1007/978-3-7643-8472-2_10.
- Meroni, A. (2008). Strategic design: where are we now? Reflection around the foundations of a recent discipline. *Strategic Design Research Journal*, 1(1): 31–38. <https://doi.org/10.4013/sdrj.20081.05>.
- Meyer, A. D., Tsui, A. S., & Hinings, C. R. (1993). Configurational approaches to organizational analysis. *Academy of Management Journal*, 36(6): 1175–1195. <https://doi.org/10.5465/256809>.
- Mulgan, G., Tucker, S., Ali, R., & Sanders, B. (2007). Social innovation. *Why It Matters and How It Can Be Accelerated*, London: University of Oxford, Young Foundation. Retrieved June 08, 2020 from

<https://youngfoundation.org/wp-content/uploads/2012/10/Social-Innovation-what-it-is-why-it-matters-how-it-can-be-accelerated-March-2007.pdf>

- Narvaiza, L., Aragon-Amonarriz, C., Iturrioz-Landart, C., Bayle-Cordier, J., & Stervinou, S. (2017). Cooperative Dynamics During the Financial Crisis: Evidence From Basque and Breton Case Studies. *Nonprofit and Voluntary Sector Quarterly*, 46(3): 505–524
<https://doi.org/10.1177/0899764016661775>
- Poledrini, S. (2018). *Le Social Enterprise in Italia: modelli a confronto : risultati dal progetto di ricerca internazionale ICSEM*. Milano, Franco Angeli, 2018.
- Rizzo, F., Deserti, A., & Cobanli, O. (2017). Introducing Design Thinking in Social Innovation and in the Public Sector: a design-based learning framework. *European Public & Social Innovation Review*, 2(1): 127-143. ISSN 2529-9824.
- Schein, E. H., & Bennis, W. G. (1965). *Personal and organizational change through group methods: The laboratory approach*. New York: Wiley & Sons .
- Schilling, M. A., & Steensma, H. K. (2001). The use of modular organizational forms: An industry-level analysis. *Academy of management journal*, 44(6): 1149-1168. <https://doi.org/10.5465/3069394>.
- Schneider, M., & Somers, M. (2006). Organizations as complex adaptive systems: Implications of Complexity Theory for leadership research. *Leadership Quarterly*, 17(4): 351–365.
<https://doi.org/10.1016/j.leaqua.2006.04.006>.
- Sevaldson, B. (2014). Holistic and dynamic concepts in design: what design brings to systems thinking. In *Relating Systems Thinking and Design 2014*, pp. 1–16. DOI: 10.13140/RG.2.2.13901.95206
- Shein, E. H. (2010). *Organisational Culture and Leadership*. John Wiley & Sons.
- Smith, W. K., Gonin, M., & Besharov, M. L. (2013). Managing social-business tensions: A review and research agenda for social enterprise. *Business Ethics Quarterly*, 23(3): 407-442.
<https://doi.org/10.5840/beq201323327>.
- Van der Bijl-Brouwer, M., & Malcolm, B. (2020). Systemic Design Principles in Social Innovation: A Study of Expert Practices and Design Rationales. *She Ji: The Journal of Design, Economics, and Innovation*, 6(3): 386-407. <https://doi.org/10.1016/j.sheji.2020.06.001>.
- Villari, B. (2021). The empathic (r)evolution. Lessons learned from Covid-19 to design at the community, organization, and governmental levels. *Strategic Design Research Journal*, 14(1): 187–198. <https://dx.doi.org/10.4013/sdrj.2021.141.16>.
- Weick, K. E. (1993). Sensemaking in Organizations. In K. J. Murnighan (Ed.), *Social Psychology in Organizations advances in Theory and Research* (p. 63). Prentice Hall, Englewood Cliffs.
- Wry, T., & York, J. G. (2017). An identity-based approach to social enterprise. *Academy of Management Review*, 42(3): 437–460. <https://doi.org/10.5465/amr.2013.0506>.