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STRATEGIC DESIGN AS A BOUNDARY OBJECT FOR [TRANSFORMATIVE] SOCIAL INNOVATION: a potential approach to participatory projects

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ABSTRACT

The capabilities of Design encompass, among others, the ability to organize, identify and solve problems, and the creative capacity to conceive and try new ideas for building more efficient future scenarios. Design for Sustainability has been discussed as a pathway to guide the societal transformations, while Design for Social Innovation includes the communities in the center of the process. As these expanded perspectives create systemic contexts of intervention, design engages in complex scenarios collaborating in the co-design of a range of services. Such contexts pose Strategic Design as a key element to support connections with multiple actors which operate across collective solutions, sustained by operational methods and value co-production. The aim of this work is to present an approach to strategic design for transformative social innovation initiatives. As an exploratory and qualitative research, it combines systematic and non-systematic literature review to interconnect the discussed topics. The main findings comprise the statement about the capacity of strategic design to operate as a boundary object, the role of research in relation to design and the potential of university as an open system.

Keywords: Boundary Objects, Strategic Design, Participatory Projects, Transformative Social Innovation, Interdisciplinary Third Mission of University.

INTRODUCTION

The capabilities of Design have been discussed by various authors and consist on the ability to organize, identify and solve problems (Best, 2006; Zurlo, 1999); to build more efficient future scenarios, motivating visions through practices and design tools (Zurlo, 1999; Meroni, 2008; Rossi Filho et al., 2009; Zurlo, 1999); and to make information tangible by using sketches and prototypes (Best, 2006; Mozota, 2003). They also include the creative capacity to conceive and experiment new ideas, choosing the best direction forward (Brown, 2009). Still, some authors argue that the adoption of strategic guidelines, which promote the formal planning of actions, contribute to reaching immediate and long-term goals (Best, 2012; Martins & Merino, 2008; Mozota et al., 2011).

Specifically, Design for Sustainability (DfS) has been debated for decades, aiming to guide the societal transformations towards sustainability at different levels, from materials to systems (Ceschin & Gaziulusoy, 2020). Likewise, much of the research on Design for Social Innovation (DfSI) includes the communities in the center of the design process which means designing alongside the community or co-designing solutions (Manzini, 2007; 2014; 2015). In tune with

this approach, we also recognize related terms such as Design for Social Change (Noel, 2023), Life-centered Design (Borthwick, Tomitsch, Gaughwin, 2022), Post Anthropocentric Design (Quadflieg, 2021), among others.

Hence, as design increases its field of action, it engages in complex scenarios collaborating to co-designing services such as education, mobility, housing, care, and others, thereby moving beyond the materiality of solutions. As literature points, Strategic Design is oriented toward collective solutions, supported by operational methods and the co-production of value. For that reason, it emerges as a key element to support connections, to guide design practices across different levels and with multiple stakeholders.

The paper is organized in six sections, starting from a brief introduction about the capabilities of design and the evolution of the field of its action along the years. The methodological notes explain the literature review process and present the terms discussed and their relationships, as well as the question guiding the research and the main evidence. The subsequent sections discuss the three main arguments of the research, referred to as key points. The first point reflects on the approach of strategic design as a boundary object, which is as an element to dialogue between multiple actors that also assumes a political role as a mediator. The second articulates design and research and their relevance to social innovation. The third key point argues about the functioning of the university as an open system, connected in networks and oriented towards social transformation, whose new practices will be made possible through the collective construction of new capabilities and open knowledge, in line with the strategic design approach and the participatory principles of social innovation. The last section is dedicated to some final considerations of the research and possible further investigations.

1. METHODOLOGICAL NOTES

We start from the understanding that Social Innovation projects are meant to respond to societal needs and demand a long-term process to consolidate and endure. The possibilities proposed by Ceschin and Gaziluzoy (2020) regarding future research on social innovation, through the lenses of design, were also taken into consideration when carrying out this research. In short, these include: the evaluation of and reflection on the involvement of design in social innovation projects; the learning processes and how disciplines such as participatory design and service design, which focuses on collaborative working, can be used to support DfSI; and the understanding of how designers can trigger, support and contribute to scaling up social innovations.

As an exploratory and qualitative research, the study adopted systematic and non-systematic literature reviews to interconnect themes and to support the arguments presented. The aim of the non-systematic literature review was to seek adequate awareness of the problem, as well as to verify the state-of-the-art of the subjects to be studied. The systematic literature review aimed to survey Participatory Design and Co-design approaches in connection with third mission projects in universities and the role of Strategic Design for Social Innovation, and included publications from 2012 to 2022. For this phase, the following question was defined: “what is the role of Strategic Design in Social Innovation projects in order to trigger, support and/or scale up transformative experiences that favor Circular Economy?”

To ensure scientific relevance, we collected multiple publications from diverse disciplinary and interdisciplinary fields using Web of Science (WoS) and Scopus databases. The selected keywords were searched individually and combined by using the logical operator ‘AND’. In

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total, 325 articles were obtained, as follows: 1) WoS - Participatory Design and University and Community (50 results; 10 selected); Third Mission and University and Sustainability (15 results; three selected); 2) Scopus - Transformative Social Innovation (21 results, 11 selected); Participatory Design and Third Mission Projects and University (94 results, 10 selected); Third Mission and University and Social Innovation (38 results, eight selected); Boundary Objects (86 results; three selected); Strategic Design and Boundary Objects (three results, three selected); Strategic design and tools (18 results, three selected). After reading their titles, abstracts and keywords, a screening process was conducted to identify publications effectively related to the study's objective. As a result, 51 articles were considered relevant, selected and fully analyzed, as indicated.

The theoretical literature review confirmed the hypotheses proposed by the research that Strategic Design can function as a boundary object, especially in social innovation projects. It is not, however, able to singlehandedly guarantee the perpetuity of the experience, due to higher systemic complexity and variable externalities, which can jeopardize the project results (Nunes, 2023). Therefore, transformative impacts demand a long-term plan that allows feedback loops, reorientation e adjustments, which can occur through a third mission program, as proposed by the Nunes and Zurlo (2024).

Overall, the research results included: 1. the contribution to knowledge regarding the capacity of Strategic Design to operate as a boundary object; 2. the role of research in relation to Design and the role of Strategic Design in relation to social innovation research; 3. the role of the university as an open system that favors social impact, and 4. a conceptual Interdisciplinary Third Mission Program oriented towards Social Innovation Projects (Nunes & Zurlo, 2024). The present work focuses on the first three results, which are discussed in the following sections.

2. STRATEGIC DESIGN APPROACH AS A BOUNDARY OBJECT

The first key point: This was built on many authors from design and other fields who discuss the subjects - boundary objects and strategic design, articulated or separately, mainly: Star (1990), Mauri (1996), Hertenstein and Platt (1997), Wenger (2000), Carlile (2002; 2004), Mozota (2003), Best (2006), Castro and Carraro (2008), Ehn (2008), Brown (2009), Spee and Jarzabkowski (2009), Trompette and Vinck (2009), Carlopio (2010), Stone (2010), Zurlo (2010; 2012), Chick and Micklethwaite (2011), Chick (2012), Cautela et al. (2012), Kimbell and Julier (2012), Nunes (2013), Piredda et al. (2013), Zurlo and Nunes (2016) and Nieuwsma and Mulder (2017).

From all of them, and by also connecting other authors such as Puig de la Bellacasa (2011), Escobar (2018), Sharma (2015), it is possible to state that the Strategic Design approach operates as a Boundary Object to support the collective dialogue and the building of scenarios and connections among multiple actors involved in [Transformative] Social Innovation projects.

As Zurlo (2010) argues, Strategic Design is characterized by an open system formed by diverse disciplinary perspectives and articulated interpretive models which enable the definition and the visualization of future scenarios. Its object of interest is a coherent set of products, services, and communication, which expresses the strategy of a company and its positioning in the market and in society (Cautela et al., 2012). For the author, the adjective 'strategic' also manifests itself under other expressions such as design leadership, design management,

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business design, and design thinking, which reveal themselves (partial or totally) to be intertwined with the operations and principles of strategic design.

Due to its creative capacity at the service of the project, which includes abilities such as storytelling and sensemaking, design is at the center of design management. Thus, strategic design thinking is part of the organization's training in innovation, as a potential resource which is not only fit for product-service innovation, but mainly for the reconfiguration of organizational models (Cautela et al., 2012).

Such approach is a combination of diverse characteristics that contribute to generating better (and multiple) answers to questions (Carlopio, 2010; Stone, 2010), such as:

- The ability of collaborating with others with different and complementary skills to build agreement through a qualified communication.
- The abductive reasoning which seeks to amplify the possibilities to better solve complex problems.
- The capacity of experimenting, through hypotheses or tangible objects and testing them through an iterative process.
- The sensitive awareness to perceive, visualize and interpret contexts within a whole system and, together, the ability to frame an issue and then analyze the possible solutions to solve it.

For us, if the way of thinking adopted and applied by designers (i.e., project-oriented) is a strategic way of thinking [for designers], then it can be understood as design thinking. The multidimensional approach to design - holistic or integrative - is what characterizes this strategic thinking in design. Indeed, its competences to visualize and represent scenarios, capture trends, solve problems, and combine different forms of knowledge, support the reflection and formulation of the strategic path (Cautela et al., 2012). Thus, despite few distinctiveness, we assume both expressions – strategic design and design thinking – in its essence, as possible synonyms (Nunes, 2023).

Strategic Design has a capacity for collective dialogue and communication established through a common language and [a way of] thinking by using the design capabilities among a multiplicity of actors. Its set of social and collaborative processes opens paths to innovation (Graúdo & Trez, 2013), enables the sensemaking and the value co-production. All of this contributes to consensus thus favoring the building of a community. The literature, for instance, highlights that the insertion of design strategies within organizations is subordinated to the development of a broader strategic thinking within them (Best, 2006; Castro & Carraro, 2008; Mozota, 2003; Nunes, 2013, p. 23).

Additionally, the advancement of the design thinking approach and its connection with management amplify the capacity for the interventions of designers. This allows their interaction with a broad range of organizations and integration in multidisciplinary teams of skilled designers (Brown, 2009). Strategic design thinking not only enables skilled designers but also academics and other practitioners to work in more inter- transdisciplinary teams - therefore, in inter- transdisciplinary paths - which emphasize problem-setting, problem-solving and systemic change through collaborative action (Chick, 2012).

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Reinforcing this synergy, Hertenstein and Platt (1997) state that linking strategy and design has two consequences: Firstly, Strategy drives design: as connections are built to facilitate the flow of information, the strategic planning outputs become the design process inputs, which guide multiple design choices (whether broad or detailed). In this case, design is critical to strategy implementation and transforms concepts into concrete solutions; Secondly, Design influences strategy: as design creates awareness of opportunities or key inputs to the strategic planning process, it opens new directions not previously envisioned. Here, design becomes critical to strategy formation. Visualizing such opportunities allows the design of a complex system that involves a multiplicity of elements (the environmental context, the company, the market, culture, behaviors and many others), a plurality of actors and points of view that are mutually interrelated, without reductionist intentions (Mauri, 1996).

Strategy formation is also perceived in the process of discovering opportunities, which can draw attention and engage everyone, both within and outside an institution or a community. As such, strategies are a product of a worldview and depend on our way of connecting with things and experiences. In other words, they are abstract concepts, based on the perception of permanent change that can only be apprehended along the way. The relationship between design and strategy is, thereby, an organizational connection between the unity of the strategy and the multiple stimuli that compete to form it throughout the process (Mauri, 1996).

That said, strategy aims to bring clarity of direction to guide actions, and design aims to bring clarity of vision, which means to create tangible images that illustrate a defined strategy (Brown, 2005). Whether in an organization, institution or community, we can say that this connection nurtures a strategic design thinking culture as it depends on a continuous dialogue among the actors (Nunes, 2023).

Moreover, Strategic Design supports innovation by means of two processes. One is traditionally known as design (i.e., the product/service development process). The second is known as metadesign (i.e., aimed at planning the design process) (De Moraes, 2010; Graúdo & Trez, 2013; Vassão, 2017). Systemic in nature, metadesign focuses on relationships, checking their intensity, direction, organization and seeking new forms of recomposing, rearticulating, and connecting the elements involved (Cautela et al., 2012).

Bas and Guillo (2015, p. 276) correlate strategic thinking to proactivity, while differentiating foresight from forecasting. According to them, foresight is "a tool to identify future options available to an organization or community" related to endogenous factors (nature and characteristics) and exogenous factors (external elements which may affect the future). It implies understanding a range of issues, signals, trends and exploring a variety of plausible futures that may emerge, as a multiple and constructible space. In any case, the analysis of both factors (i.e., the diagnosis) combined with the forecast analysis (i.e., the estimation of a future condition) "allows foresight to define options, to manage change through the design of strategic action lines which permit reaching a desired future insofar as possible."

In this way, strategic design thinking acts in the analysis and proposition of innovative responses for complex situations through a series of systematic actions based on strategic data gatherings and guided by specific and new methods and tools. However, some authors (Chick & Micklethwaite, 2011, pp. 166-167; Chick, 2012, p.60) reinforce that the only way for developing full-bodied proposals and processes, and for learning the application in real contexts, is to work in immersive projects and action-based research experiences.

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It is worth noting that strategic designers need to rethink their roles: this includes providing scenarios that consider neglected things, platforms, and approaches to empower and engage creative communities, especially in contexts where social innovation takes place (Chick, 2012, p. 60; Graúdo & Trez, 2013). This demands a focus on how all the parties involved (themselves and others) build and interpret social problems and contexts. Such a focus requires a critical perspective on using design thinking and giving support to existing resources, which interact in different dimensions and levels, and with specific groups of individuals.

In *Designs for the Pluriverse*, for instance, Arturo Escobar (2018) sheds light on what he refers to as "radical interdependence and a pluriversal imagination" (p.31) and the role of design as an ethical praxis of world-making. By citing Sharma (2015), Escobar says that this interdependence needs to evolve in two steps: first, by moving from seeing things in isolation to considering things in interaction; and second, from this point on, by beginning to view things as "mutually constituted", which means things exist because they are dependent on each other. "In emphasizing the interdependence of all beings, transition visions bring to the fore one of the crucial imperatives of our time: the need to reconnect with each other and with the nonhuman world" (Escobar, 2018, p. 151).

In similar direction, a recent study that investigated the future of design and its education identified three emerging categories for design (Other Tomorrows & Swissnex, 2023, p. 3):

- Design as an act of responsibility: design is responsible not only for dreaming up novel ideas but also for creating safe, inclusive, and equitable outcomes.
- Design as a shared language for collaboration: design has evolved into a shared language and process for cross-disciplinary collaboration.
- Design as a movement for societal change: design has transcended its role of creating products and evolved into a collective movement to anticipate and shape better futures.

From our perspective, the role of strategic design thinking is, therefore, to build awareness of this radical interdependence with communities by giving a voice to everyone, while including the attention to nature and the environment, with a post-anthropocentric or life-centered approach. This means using design capabilities to make situations more fluid, to translate contexts, to visualize alternatives and to help others see and co-design the possible future scenarios, which should be interconnected, interdependent, inclusive, and mutually understood.

The awareness of this sense of interconnectedness among all living beings (both human and non-human), that is, of everyone with everything and with nature, requires an orientation towards "care", thus nourishing the community. A lack of this consciousness can lead to polarization and, consequently, to conflict, which can also make dialogue and common language difficult.

In this regard, Puig de la Bellacasa (2011, p. 89) builds the notion of "matter of care" upon Latour's concept of "matter of concern". She argues that concern and care, even with similar meanings, express different levels of engagement with a situation. For her, while ***concern*** "denotes worry and thoughtfulness about an issue as well as the fact of belonging to those 'affected' by it", ***care*** "adds a strong sense of commitment to something". Therefore, care has a gathering purpose with ethical and political consequences. In this context, we understand that *care* is substantially related to *community building*, and that it supports the creation and the strengthening of a *common language* which enables *continuous communication* among all parties engaged in any experience.

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Indeed, the words *Community*, *Common* [language, in this case] and *Communication* are all derived from the root *'Communis'* which means to make common or to share. Thus, we are also talking about how strategic design enables shared understanding and the work that happens *in-between* and *at the boundaries,* to make collective sense for a group of individuals, while *zooming into* and *zooming out of* the context. This means that strategies created through design thinking may be flexible enough to adapt to changing circumstances and feedback from the group (Nunes, 2023).

Concerning this, the flexibility of boundary objects to adapt to local needs at the same time they maintain their identity across different interpretations (Carlile, 2002; 2004; Nunes, 2013; Star & Griesemer, 1989; Zurlo & Nunes, 2016) makes them efficient elements to build a common understanding, to stimulate synergy and to encourage commitment as well (Nunes, 2013; Zurlo & Nunes, 2016). Over the years, the notion of boundary objects has been reinterpreted by many authors from different fields. Trompette and Vinck (2009) carried out a very detailed study on the topic and the different views on it. For them, Carlile is one of the authors who revisits the notion of the boundary object in further depth, within the framework of organization theory, promoting a pragmatic approach, particularly in new product development processes. Indeed, Carlile (2002; 2004) suggests the use of prototypes and other boundary objects to transform knowledge collectively. This approach is further explored by other authors in the design field (Ehn, 2008; Kimbell & Julier, 2012; Nieuwsma & Mulder, 2017; Nunes, 2013; Piredda et al. 2013; Zurlo & Nunes, 2016).

Due to their capacity to act in the boundaries of knowledge fields and of transforming knowledge collectively, boundary objects can be understood as a tool, a method, or an object that support the problem-solving at a boundary (Carlile, 2004). At this point, the author states three boundaries for objects and actions: at the syntactic level, associated to transferring knowledge (i.e., a common language to represent their knowledge); at the semantic boundary, associated to translating knowledge (i.e., a concrete method to learn about differences and dependencies); and at the pragmatic boundary, associated with transforming knowledge (i.e., through a simplified process) (Carlile, 2002; Nunes, 2013).

With this, and from the previous analysis of literature, we consider strategic design to be a boundary object that operates at the three levels proposed by Carlile. This is recognizable in the capacity of strategic design to communicate through a common language, its ability to create meaning and sense through dialogue that is well informed by data and its capacity to apply such a meaning to a correct and situated context. Given its way of devising, communicating, and exploring multidimensional scenarios throughout a design project, strategic design operates within a dialogical space, with a multiplicity of actors who generate new knowledge through a pragmatic learning process.

This condition contributes to also raise "awareness in individuals of the importance of knowledge itself and the need to assume new paths towards more efficient and sustainable scenarios" (Zurlo & Nunes, 2016, pp. 30-31). When individuals are committed to modifying, negotiating, or shifting the object when negative results are identified, they are able to transform the existing knowledge into a new one to impact positively on their progress (Nunes, 2013, p. 10). Thus, if the strategic design has the necessary communication, integrative and interpretative competences to build a common language, operating, therefore,

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as a boundary object, the feeling of care for the group of participants and the actions related to it are a decisive component for the consolidation of the community involved.

Yet, Strategic design also assumes a political role from the moment it collaborates in transforming the knowledge of individuals in society through the participatory sharing of skills. The collective creation of contextualized meaning by all helps define the most viable strategies and paths for the realization of projects driven by concrete demands. Such strategies built by means of design thinking and elaborated from the conscious and reflective conjunction of the participants and the university, thus constitute an instrument of social change in the long term. This is the understanding we adopt when we refer to "strategic design as a boundary object for transformative social innovation".

3. DESIGN, RESEARCH AND SOCIAL INNOVATION

The second key point concerns the relevance of research for design and of strategic design thinking for research on social innovation. The first frame is related to the quality of design outcomes when informed by research. Here, research supports designers with qualified data that enables insights into the human, cultural, technical, and cognitive aspects of the social, political, economic context in which they are working on/with. Indeed, as context is critical to design, it is also crucial to research that supports design. Hence, choosing the most appropriate research methods represents a central phase of the design process.

Comprehending the complexity of design research relies on many factors such as the environment, the problem focus, the individuals involved, institutions, segments, intentions, and others. This helps decide when to choose a qualitative or a quantitative approach and when and how to combine them, as they provide different data to be analyzed, interpreted, and transformed into valuable information throughout a project.

Qualitative research focuses on subjective data to describe people's behavior, thoughts, feelings, motivations, preferences, and reactions, which provide in-depth knowledge about the group. Thus, research within the design process is used to gather information that helps designers visualize distinctive perspectives, to generate concepts and explore different options through prototyping ideas (Carlopio, 2010; Stone, 2010). This exploratory approach enables designers to identify challenges and opportunities and find creative solutions to problems they are working on.

Quantitative research, in contrast, focuses on fact-based data, with a measurable objective. Numerical data is typically collected (and analyzed) to define the 'right' answer. Here, research is usually used to confirm a hypothesis or to justify decisions (Carlopio, 2010). However, quantitative research alone is not able to provide data that allows a broad understanding of individuals, as statistical analysis alone cannot predict it.

Research is also either primary when information is directly collected from the source/environment; or secondary, when it is obtained indirectly, from several sources. Both can be applied to qualitative or quantitative research, depending on the depth of data and quality of information needed. Especially for qualitative research, the more primary research there is, the deeper the information obtained.

From the perspective of strategic design, Zurlo (in Cautela et al., 2012) indicates some instruments and techniques within an interpretative model which comprises four stages: 1.

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Research: ethnographic research (which includes participant observation, interviews, cultural probes), blue sky research, trend research; 2. Analysis: knowledge repository, benchmarking, lead user analysis (and also storyboard, storytelling, customer journey); 3. Synthesis: scenario building (using cards to aid visualization, for example), system map; and 4. Development (of the concept): design workshop, design competition (including [rapid] prototyping in the execution stage). The depth of each step depends on the intent of design and the instruments can be used alone or in a complementary way to produce the required knowledge for the project.

Thus, just as interdisciplinary teams are critical to the design process, so is the diversity of sources of information, instruments and techniques involved in collecting, analyzing, and generating solutions. Moreover, throughout participatory projects, combining more traditional research tools, qualitative methods from social sciences and design instruments and techniques, including those to co-design solutions, is crucial.

Yet, as data visualization in design research provides a large framework built from graphs, diagrams, comparison tables, it facilitates understanding and assigning meaning to complex information. Hence, the better the quality of the data collected and its systematization, the better the strategic thinking that emerges. To minimize failure, planning and executing a research study is decisive in accessing data that matters and that will support decision-making during the process and for long-term goals. Likewise, when operating at the boundaries within interdisciplinary or transdisciplinary domains, particularly when working with social innovation, the design research process (as a metadesign plan) will also function as a boundary object, since it should establish a dialogical relationship with all the participants involved in the project.

Moulaert et al. (2017, pp. 34-35) affirm that research on social innovation should strive to be innovative through three key characteristics:

- *Interdisciplinarity* – relationships should enable the critical logic(s) of social science disciplines to interact with other fields (e.g., humanities, business, health, natural and physical science). Rather than limited contributions by "experts", the communication established among researchers, professors, graduate students, and practitioners, generate "new forms of empirical investigation, analysis and meta-theoretical development".

- *Trans-disciplinarity* – external participants are directly committed, rather than simply being informants, users, or beneficiaries. Through a continued reflexive process, they should actively participate "in deep, critically informed, analytical dialogue" to identify the problems, to define the research questions and address all the issues involved.

- *Fluid communication* - communication platforms (closed and open networking) should facilitate the exchange of knowledge, perceptions, ideas, through different languages, formats, and modes of communication.

From the perspective of Design, Bonsiepe (2012) states the need to create knowledge, especially when dealing with complex problems, such as in sustainable design. This requires interdisciplinary research by a team with a broad scientific base, not limited to environmental

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aspects, but also including social sustainability. Furthermore, articulating education, research, and integrated praxis through the development of problem-oriented projects favors interaction with other disciplines and the acquisition of know-how.

Indeed, Petersen and Kruss (2021) highlight the different nuances of knowledge and learning that occur at the university and in informal community settings, which combine:

- the *tacit knowledge* developed through doing, using, interacting, imitating, and searching (know-how and know-who).
- the *scientific knowledge* about facts (know-what), and
- the *specialized scientific knowledge* obtained through interaction with universities and other formal institutions of knowledge production (know-why).

These nuances of knowledge and learning can also be connected to the field of design, as proposed by Ceschin and Gaziluzoy (2020) for future research on social innovation, as mentioned: the reflection on and the evaluation of design in social innovation projects; the learning processes and how participatory design and service design can underpin DfSI; and the understanding of how designers can trigger, support and contribute to scaling up social innovation.

Thus, we highlight the essential role of strategic design research and its integration with education and integrated praxis in the university, within inter- and transdisciplinary teams, as a path to expand the impact of Social Innovation initiatives. Such a combination of applying strategic design on different levels also aligns with the four missions of the University (Nunes, 2023; Nunes & Zurlo, 2024), therefore supporting them with qualified knowledge and creating paths toward social change.

4. THE UNIVERSITY AS AN OPEN SYSTEM TO FAVOR SOCIAL IMPACT

The third key point reinforces the power of the University as an open system (Morawska-Jancelewicz, 2021), connected through interdisciplinary teams and networks, which contributes to the enhancement of human and social capital, to the improvement of capacity building and to the development of active citizenship (Cunha & Benneworth, 2019) and aims to create social impact. The role of the university is, therefore, to enable the best possible conditions (physical, human and economic resources, and institutional policies) to uphold Social Innovation initiatives. Although challenging, the combination of these tangible and intangible resources creates a path for its collaboration with non-traditional partners, beyond institutional borders.

The widening of contemporary problems (social inequalities, poverty levels, malnutrition, violence, environmental sustainability impacts, and many others), particularly in developing countries, underscores the necessity of seeing "things" (both human and non-human) as interdependent, as mentioned. This demands a new university approach to acting as a change agent, not only highly aware of its local context but also able to promote systemic change by activating multiple connections, within and outside the institutional space.

It is no longer possible for knowledge produced by the university to continue to be seen as private property and shared only with the intention of obtaining benefits (either financial or

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for research ends via data collection). This also concerns the partnerships with different universities around the world, some with centuries of experience and sufficient resources to conduct high-level and long-term research.

The university, as an open system that favors social impact, is one that enables the qualified exchange of experiences and knowledge between the internal and external community. Internal community refers to the body of professors, researchers, students, technicians (from different fields of knowledge, from the same institution). External community refers to potential partners/collaborators from different universities (domestic or foreign), and the wider community (i.e., civil society, industry, and government).

The contribution of university-community engagement to social change is highly dependent on the degree to which the contexts of university members and community actors are aligned. As the university often provides frames and narratives of sense-making processes, these must be in tune with the local context (Petersen & Kruss, 2021). Thus, the more participatory the process, the deeper the potential for effective and permanent engagement.

Achieving collective learning within the local innovation systems in which the university is located relies on capabilities that need to be built over time, keeping in mind the "nuances of knowledge", as said. In addition, taking a systemic approach is useful for drawing "attention to the conditions under which social innovation initiatives thrive" (Pel et al., 2019, p.21; Petersen & Kruss, 2021, p.3).

It is worth remembering that collective engagement also depends on the individual profiles and social positions of the participants. In this sense, "actors are both constrained and enabled by the institutional environments" of which they are a part, which can be (dis)empowered (Avelino et al., 2019) and weaken community engagement (Cajaiba-Santana, 2014; Petersen & Kruss, 2021, p. 3). To overcome these barriers, some authors (Brown-Luthango, 2012; Kruss & Gastrow, 2015; Thakrar, 2018 as cited in Petersen & Kruss, 2021) emphasize the need for a strong institutional policy with internal and external interface structures that sustain engagement activities.

Such support structures, added to the openness to share knowledge, carry out research, develop projects aimed at solving problems collectively, given the local context, constitute an expanded institutional structure that will place the university at the service of society as an open system. In addition, openness to the participation of all those involved, in a democratic, ethical, and fair manner, and with balanced power relations, plays a fundamental role in strengthening (local and wide) community engagement and consolidating the university as a socially referenced institution.

5. FINAL CONSIDERATIONS

The competencies of Design have been discussed over the years, gradually expanding their scope to respond to pressing societal needs. These include research on Design for Sustainability, Design for Social Innovation, Design for Social Change, Life-centered Design, and possibly research under other names, with similar intention. These broad scopes have contributed to creating systemic intervention contexts where design plays a crucial role.

As argued, Strategic Design becomes a key element to guide design practices oriented towards collective solutions at different levels, with multiple actors, and supported by operational methods and value co-production. However, these expanded scopes require that strategic

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designers rethink their roles to build future scenarios that include neglected things, platforms, and approaches to empower and engage creative communities, especially in contexts where social innovation takes place.

Moreover, these future scenarios must also consider the interdependence and interconnectedness of all living beings - of everyone with everything and with nature. This requires an orientation towards care, which means nourishing the community towards a sense of belonging. Therefore, this kind of 'design for belonging', in turn, enables a collective and permanent transformation of knowledge driven by social good.

That said, this research aimed to discuss the potential role of designers' strategic thinking when acting in/with/for transformative social innovations, particularly within universities. In this context, strategic design is considered a boundary object given its ability to establish a permanent dialogue with the individuals engaged in the long-term project, through their way of thinking and the design instruments and techniques used. Certainly, its maturity requires time and effort to be absorbed by all involved and shared in immersive projects and action-based research experiences, such as the third mission program planned (see Nunes & Zurlo, 2024). In this path of maturation, potential future research may include the concepts of epistemic objects (Ewestein et al. 2009), enabling a fruitful dialogue with the notion of boundary objects and strategic design.

Finally, the work discussed the role of the public university as a dialogical space between the academy and wider society and as a social change agent, which can be made possible with the opening of its borders and its configuration as an open system (Nunes, 2023). Although challenging, this approach represents not only an opportunity to bring the university closer to society, collectively facing urgent problems, with the effective participation of expanded groups of individuals and entities, but mainly the opportunity to confirm the role of design as an ethical world-making praxis.

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