

# PARADIGMS TRANSITION IN DESIGN

## WHAT IS ITS POTENTIAL TO SUSTAINABILITY AND INNOVATION RESIGNIFICATION?

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Historically, what makes knowledge advance are the movements of critical reflection, point and counterpoint, which put on screen theories and methodologies that intend to guide the production of knowledge by man. These movements move through the community of knowledge in the form of art or science and present themselves in the form of different narratives that seek to mean the practices of life lived.

When asked about the potential of paradigms in transition to design, one is already stating that it exists for all fields of knowledge, but that it is particularly interesting to ask design how it is affected by the pragmatic and post-structuralist movements dominant in the twentieth century and systemic by the theory of complexity, gaining increasing relevance in this century. To talk about this set of doing, strategic design organizes this reflection on ecosystems, innovation and sustainability, taken as part of the argument that considers that the understanding of life by ecosystems extends to all human knowledge, that innovation in them finds inspiration to re-signify itself and that sustainability is the ethos capable of ensuring human life on the planet.

In this sense, the changes that design has undergone since its origins, systematized by industrial design to design that recognizes the influence of theories

from other areas of knowledge on propositions about design, extends the sphere of doing to those of thinking and feeling. In this sense, by presenting the six axes for the philosophy of design, Beccari et al. (2017) organized philosophical reflections on design, expressing the perception of design as a field of research and the consequent expansion of the theories that appear in it. Thus, design and language, design and sensitivities, design and values, design and knowledge, design and reality and design and culture are presented as reflective parameters for design.

One of the main incentives for changing comes from the systemic theories and complexity theories which, in thesis, intend to oppose the reductionist Cartesian thought. This kind of thinking comes under various names when dealing with natural, artificial or social systems. Social innovation, sustainability and collaboration can thus be resigned.

## PARADIGM IN MOVEMENT: THEMES ON THE TABLE

Innovation has appeared more and more frequently on the design researchers' agendas and has received different approaches. Two points in particular deserve attention: the polysemy of the term which requires its meaning to be precise; and the widespread use of the term which weakens its relevance. It is insufficient to treat innovation only as a result of creativity or as changes capable of transforming one's vision of reality and generating or adding value, whether financial or symbolic.

Due to the society's appreciation of stability and value of permanence, it is not surprising that experimental or innovative projects find space in the laboratories or research institutes that test artifacts and evaluate them, especially in the preservation of systems, before offering them to the market, understood here as a space for the exchange of goods and services. In terms of strategic design, the indication of understanding reality as ecosystems gives scope and dynamics to this cut-out in which creative project processes operate in the production of devices capable of transforming the world (FRANZATO et al., 2015).

Considering the binomial problem/solution, always mentioned by the design as project parameters to meet the user's needs, these terms need to be critically retaken. To the needs, add desires; replace user by actor, or actor of the action/interaction processes; and understand the need to 'problematize' the problem, otherwise to recognize new problems resulting from sociotechnological changes either simply created by mankind, or imagined by it, which ask for concerning

solutions. Thus, to paraphrase Manzini (2008), there would be a shift from the idea of projecting to something broader and more enabling, which is to project to empower people to achieve the ideal of a society of well-being and sustainability. Within the framework of these changes produced naturally or culturally, there is a certain social inertia that is only impacted when major problems arise or worsen, in such a way that there is an imposition of more expressive or differentiated innovative solutions. In this sense, Manzini's formulations are directed towards behavioral changes in particular or changes in the market and technology, not necessarily outside the framework of social innovation. It is possible that migration between market and society is easy to occur, although it is preferable that, when appropriated by the market, a certain innovation does not lose its perspective of maintaining sustainability and promoting social welfare. Understanding this well-being from social, environmental and economic perspectives, the most relevant is that it is based on the ecologies of Guattari (2011) thus formulated: the environment, social relations and human subjectivity, all of them in permanent interaction. These ecologies broaden the perspectives of social welfare, since they require an ethical-political articulation without which the way of living on the planet is in danger.

Strategic design (ZURLO, 2010; CELASCHI; DESERTI, 2007; MERONI, 2008; VERGANTI, 2009), a design methodology always under construction, proposes an effective and collaborative organizational model, cooperative creation of a common knowledge base that includes the proposition of organizational strategies. It is the recognition of new forms of networking organization in which a large number of people come together to build a common vision. This understanding combined with the recognition that people, and not just designers, can favor design for innovation. Thus, the number of project actors is increased and, consequently, the possibility of differentiated creative propositions. Thus, the design of services cannot only consider some actors as relevant to the project, but all of them. There is a process of indissociability between who projects/produces and who consumes, in the same way that occurs with the distinction between sender and receiver (source and recipient) in communication processes, indissociability understood as a recurring and complementary movement. As a result, the chances of producing significant innovations for society are high.

Anyway, practicing processes in this direction imposes a series of qualities that would be behaved in learning by behavior change, based on reliability, responsibility and exchange, and that enable people to seek their own solutions. According to Manzini (2008), in the field of organizations, people participate in

collaborative processes not only through face-to-face forms, but also through internet applications used by everyone, which favors real world organization. All participate significantly in the formulation and support of collaborative actions, in the context of productive economy, by reducing time and erasing distances. Finally, a favorable context is created for the increase of project production by methodologies, techniques and tools compatible with these processes thus defined.

Zurlo (2010) highlights that the strategic design approach promotes innovation, based on continuous strategic thinking, signaling paths for possible futures, interpreting the signals that society issues, building meaning and giving identity to organizations, products and services. For such prognoses to be confirmed, it is important to emphasize that the organizations must incorporate the design culture, in such a way that it starts to guide the totality of their actions, which will favor the development of innovation. The incorporation of innovative design processes in organizations should be a regular activity, so that it would be incorporated into their DNA (CELASCHI; DESERTI, 2007), an action that would ensure the permanent updating of processes and strategies and not only sporadic or urgent to cope with difficulties or disasters.

What has been said so far corresponds to reflections arising from the paradigmatic basis of the dominant strategic design to a given point in its development. Inspired by the complex thinking proposed by Morin (2005), design can be resumed from the understanding of ecosystems as a vector to work on topics such as sustainability and social innovation. This shift is expressed in the 'moving paradigm metaphor'.

The knowledge production that contemplates the notion of system is not new in science. To bring it here, revised, is imperative the conviction that the term usage has entered the process of naturalization and that complex thinking reinvigorates it through studies derived from sciences, such as biology and physics. It is in the agenda of open systems that ecosystems find expression. In order to make them a subject of interest in design, it was necessary to recognize that design has been shifting its interest from products to processes and that the design processes recognized by the field (linear, coevolutive, etc.) are well described and refer to recognized practices and methodologies. However, the same does not happen with the autopoietic processes that present possibilities to respond, in an unusual way, to the challenges of the field in terms of creativity and foresight. They can, therefore, reinvigorate a set of established knowledge, including the notions of system-product-services for generating social innova-

tion. Marked the prominence for autopoietic processes, in the sequence, when talking about complex thinking, they will be resumed.

Ecosystems are understood as sets of material species, natural or social, whose organization patterns are complex and dynamic in nature, and whose elements are in constant interaction (connection). These relational systems have the capacity to adapt and assume an important role in building and maintaining natural and social sustainability. In a previous reference, it was considered relevant to add to ecosystems the adjective ‘creative’, to mean that innovation would be leveraged by creative processes whose flow would generate transformative actions, by creating devices that would lead to an inclusive, shared and articulating design practice.

However, considering the ecosystem principles, this adjectivization is redundant, since ecosystems would be creative by their own dynamics and by the surprise resulting from the relationships that ecosystem elements establish or will establish in open systems. Ecosystem processes would be autopoietic and therefore creative.

## COMPLEX PARADIGM: STRATEGIC ADVANCE

This so-called ‘strategic advance’ points to the introduction in design studies of a type of thinking that can bring theoretical-methodological challenges that stimulate innovative design practices. A first reference is the replacement of disciplinary knowledge, dominant in scientific society, by transdisciplinary knowledge. This is what Morin (2001) calls the “reconnection of knowledge”. This perspective seems to mimic nature in its intrinsically collaborative practice, in the sense that research problems can receive contributions from all sciences to the solution of the issues that guide man’s necessities, desires and curiosities.

The theory of complexity represents a universe to be explored by design. Stimulated by what it can represent for innovation in the current paradigms, the notion of system is taken as a starting point. Capra (2005), Morin (2005) and Luhmann (2010) were revisited in what is proposed for systems and ecosystems in living organisms and social organisms. According to Capra, the new perception of the world is based on the awareness about a state of interrelation and interdependence inherent to physical, psychological, biological, social and cultural phenomena. It understands systems as totalities integrated with properties that cannot be reduced to smaller units, because once the system is fragmented into isolated elements, the systemic properties disappear. For Capra, most

living systems are organized in many and varied levels, carrying out journeys in different directions, without the dominion of any, “being that all levels interact in harmony, interdependent, to sustain the functioning of the whole” (CAPRA, 2005, p. 274).

Complex thinking (MORIN, 2005) indicates two principles that command complex thinking, therefore, that structure concepts and have repercussions on practices: that of the emergency, according to which the whole is superior to the sum of the parts. This capacity of generation makes it possible that isolated components are not summed up in themselves and that from this ‘dialogue’ new ideas or new properties may emerge; and that of imposition, also important, according to which the qualities or properties of the parts, when seen separately from the system, are dispersed, that is, become virtual. It is to say that there are systemic restrictions without which the totality is not evident. The hierarchy and the virtuality are conditions of guarantee of the relationship between parts and the whole, always in benefit of the latter. Still considering that complex thinking takes into account harmony and disharmony, conflict or adherence, regular and chance, but contrary to the duality that the terms suggest, it is both at the same time. These principles, among others, directly impact the understanding of project processes.

Considering these principles (MORIN, 2005), ecosystems are creative by their own dynamics in which order and disorder, multiplicity and transformation are constant and simultaneous. These systems contain in themselves the unforeseen and the uncertainty, that is, one cannot ignore the possibility that some unforeseen (friction in the ecosystem) requires the adhesion of systems so far external to the designed ecosystem. In the complex system, therefore, new states may emerge, which determine a different level of organization from the previous one due to the dynamics of systemic properties. Among the qualities of a system in the paradigm of complexity (MORIN, 2003), the principles of integrative, recursive, dialogic, polyscopic, autonomous processes and reintroduction of knowledge are highlighted. In terms of principles, the physical, biological, spiritual, cultural and historical dimensions of what is human communicate through polyocular or polyscopic processes that respond to the principle of interconnections (of networks). On the other hand, the adaptability that guarantees the maintenance and adjustment to changes in the same temporality corresponds to the principle of autonomy (of self-regulation, dependence, adaptation and evolution) in the dynamics of the system. The principle of reintroduction of knowledge recognizes that all knowledge is reconstruction/translation of the mind and suffers the interference of the subject (without the dissociation of subject/object) and the

principle of recursion corresponds to the perception that causes act on effects and vice-versa, resulting in a dynamic balance made of continuities and ruptures.

Once the ecosystem concept and the principles and processes proposed by the complexity theory to think about design are taken up, the autopoietic process stands out as more relevant in its essential condition of creating self-generated ecosystem relationships in the spectrum of fractals and disruptions. Recursiveness and network connections operate in the process. And the main reason to bring these fundamentals to discussion is to identify the potential of this type of episteme to the methodology of research and practice of design in relation to the totality of creative project processes. Thus, the problem-solution chain would be affected, that is, resignified in the light of the principles and propositions derived from complexity. From this perspective, these principles should be maintained when being technical proposals or design tools so that the theoretical-methodological design is harmonious, which constitutes a design challenge.

Sustainability, also a comprehensive and versatile concept in economic, social and environmental terms, is now attributable to ecosystems (such as balance/preservation) that guarantee their duration and mutations by the very principles that organize them and that, for all these conditions, remain sustainable. In more specific terms, sustainability presupposes the satisfaction of the population's essential necessities, without inequalities that exclude people and condemn them to complete deprivation, including access to cultural goods. It is, therefore, an ideal to be achieved by ethical-political actions of promotion or intervention, all the more necessary as they strengthen globalized capitalist practices. Although it is recognized that the utopia of social equality (FOUCAULT, 2011) is impossible to achieve, the commitment must be to build a dystopia marked by sustainability.

In this sense, Manzini (2008) recognizes that the transition to sustainability requires a change in society's way of life and production and points to the need to promote social learning. The necessary changes reach forms of knowledge and organizational capabilities to be developed in a participatory way, in open and flexible spaces of co-creation. For Murray et al. (2010), to achieve a more equitable and sustainable society, in progressive upward growth, a systemic change is needed. It is at this point that the ecosystem vision aligns itself to this concept, because, from the perspective of complexity theory (MATURANA; VARELA, 1984; MORIN, 2005; 2003), the systems are complex, guided by inseparable principles and in permanent interaction and, among other consequences, all the



movements that occur in the ecosystem reach the system as a whole. The reality is understood as ecosystem and there are inherent properties to each level of complexity. The increase of systemic complexity is the element that promotes differentiation and all differentiation implies reduction of complexity. In relation to reality there is a paradox, because man knows reality by being excluded from it and by being inserted in it.

## CONCLUDING REMARKS

Taking back the concept of ecosystem and the principles and processes proposed by the theory of complexity for strategic design, it is possible to say that the most relevant among them is the autopoietic process in its essential condition, not only of self-regulation, but of creating self-generated ecosystem relationships in the spectrum of fractals and disruptions. Recursivity and network connections operate in the process. And the main reason to bring these fundamentals to discussion is to identify the potential of this episteme type to the research methodology and practice of design.

In this perspective, it is necessary to work so that these principles are maintained in the design of services by the strategic design approach. A first step for the practice of design research (as social practices research) is to choose or propose techniques and tools that respond to the principles of complexity, since it was the counterpoint chosen to think design in this text. This care stems from the ease with which the openness proposed by open paradigms, such as, for example, the one pointed out as strategic tactics can be neutralized by techniques or tools that respond to the organization, categorization and exhaustiveness in terms of closed systems and disciplinary practices.

The organization of an ecosystem without pre-defined systemic relationships favors the expression of relationships identified in the systems, but also the recognition of unpredictable and positively destabilizing ecosystem relationships. Perhaps more than favoring product design, this point of view favors service design, due to the characteristics of intangibility, indissociability, complexity and nonapprehensibility that are attributed to it. The experiences in services, “useful, desirable, usable, efficient and effective” (MORITZ, 2005) would be supported by a multidisciplinary platform of skills to respond to the design of this type of procedural experience, interactive and continuous. The multidisciplinary condition would correspond to the transdisciplinarity (reconnecting knowledge) proposed by Morin (2001) which could, in turn, transcend the design of services and achieve the production of any and all design artifacts.



It is considered essential for the continuity of this proposal to examine the relevance and ownership of the parameters of complex thought to resignify the proposals of strategic design in the certainty that not only are they under construction, but they need to be in tune with the design ideals advocated by contemporary design. This is how the challenges would be expressed: (a) art and technique, or inspiration and work; (b) space to create in ontological, aesthetic, cultural and ethical dimensions; and (c) research not as analysis or description, but as an abductive ‘platform’ capable of responding to what one wants to do and has not yet done, or to imagine what one has not even thought possible. If the relevance of the proposed approach is defined, it remains to develop the methodological apparatus with which it can operate.

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