

There's No Plan(et) B. Sustainable Transitions to Systemic Planet-Centric Design

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Abstract

The current environmental, social, and economic crises have laid bare the profound instability plaguing the planet and brought to light many complex situations that require urgent action. Design is called once again to reconsider, as a discipline and as a practice, its role towards society and the environment, and to redefine methods, tools, and processes to offer solutions that not only do not harm the surrounding environment, but also help heal the conflicts that affect human beings and all other beings inhabiting the planet as one living system. The goal is to promote transitions to more sustainable and circular production and consumption patterns by taking a systemic, planet-centered approach, strengthening the ethical responsibilities of design, and reaffirming its mediating role in solving the wicked problems that characterize the contemporary world. Within this framework, reflections, and experiences from the field of design research were gathered to highlight disruptions with traditional practices and possible paths of transition to alternative forms of thought and action, with the aim of addressing current crises and laying the groundwork for a more sustainable future.

Keywords

Sustainability
Ethics
Transitions
Systemic Approach
Planet-Centricity

A Mutable and Unstable Scenario: The Emergence of Polycrisis

Whether it is the effects of climate change, pollution or loss of biodiversity, the planet is facing some of the greatest challenges it has ever known. This triple planetary crisis of an environmental nature (UN Climate Change, 2022), together with the multiple social, political, and economic issues that are affecting the entire world (Bauman & Bordoni, 2014), are questioning current paradigms, existing production, and consumption models and, in general, people's current lifestyles (Lefebvre, 2014). On the other hand, equity and social inclusion, political freedom, and economic equality, are some of the main demands, often unfortunately unheeded, which activists and protesters address to governments asking them to take concrete actions and activate processes of change to tackle a scenario that is increasingly VUCA (Bennis, Bennis & Nanus, 1986), an acronym for Volatility, Uncertainty, Complexity and Ambiguity.

Looking at the different crises, it can be observed that they are synchronized with deeply interconnected impacts. According to WWF (World Wildlife Fund, n.d.), for example, Covid-19 is “the indirect consequence of our impact on natural ecosystems”, and deforestation is paving the way for species jumping, the so-called “spillover” phenomenon (Pratesi, Galaveri & Antonelli, 2020). Indeed, virologist Ilaria Capua (2020), by coining the concept of “Circular Health”, proposes an integrated approach that aims to sustainably balance the health of people, animals, and ecosystems (One Health Center of Excellence-UF/IFAS, n.d.).

From the devastating effects of deforestation to the exponential increase in waste and ocean pollution, from the social protests that have erupted in recent years to the health emergency caused by the Covid-19 pandemic, to the more recent invasion of Ukraine by Russia, which has put international diplomatic relations in check, global crises are constantly intensifying, causing global instability, increasing inequalities between rich and poor, and exacerbating the so-called “North-South divide” (Glenn, 2007). We are living in a state of “permacrisis” (Turnbull, 2022), that is, “an extended period of instability and insecurity, especially one resulting from a series of catastrophic events” (Collins English Dictionary, n.d.), also known as “polycrisis” (Lawrence, Janzwood & Homer-Dixon, 2022), defined as “an array of grave, long-term challenges, now often labelled *global systemic risks*” (Cascade Institute, 2022).

The term “crisis” comes from the Greek word *krisis*, meaning “decision”, and the verb *krino*, which refers to the action of discerning, judging, and deciding; it designates the moment when there is a rupture or a very marked change in a given situation, such as an illness or a significant modification in nature, in the life of a person or a community (Fernández López, n.d.). The term has an agrarian origin, linked to the harvesting of wheat: for an ancient Greek, “crisis” is the process that occurs when the grain is separated from the chaff, an analytical division that allows only the good or usable part of the harvest to be kept, an operation that requires judgment (Alcoberro, n.d.). Therefore, being in crisis implies facing a conflictual or unbalanced situation, which involves a choice; it is an opportunity to generate significant transformation, since it

implies making a decision, opting for one path, and renouncing another. Such choice, however, must be made wisely and considering the consequences of each alternative: it is, thus, necessary to choose “critically” (from the word *kritikós*, related to the “ability to discern”) and judiciously, that is, with “criterion” (another word derived from the Greek and meaning “court of justice”).

A crisis, as such, is not necessarily negative and, if approached appropriately, can become an important opportunity for positive change, even when addressed by Design (Scherling & DeRosa, 2020). Modern philosopher Reinhart Koselleck (Koselleck & Richter, 2006) sees a semantic shift in the notion of crisis today, speaking of a contradiction between opposing forces that accelerates the transition from the past to the future (Turnbull, 2022).

In that sense, it is necessary to bring back to the center of reflection the notion of “ethical responsibility” or “ethics of responsibility”, an expression introduced by the political scientist Max Weber (1919) and later adopted by Hans Jonas (1979) as the basis for defining so-called “Sustainable Development” (The World Commission on Environment and Development, 1987). “Ethics” derives etymologically from the Greek *ethos*, meaning “behavior”, while the word “responsibility” derives from the Latin *respondeo*, which has the same origin as “to respond”. The “ethics of responsibility” could hence be defined as “behavior capable of responding to someone or something”. In other words, acting with ethical responsibility implies considering the effects and consequences of one’s actions, and it is by anticipating these effects and consequences, and making oneself accountable for them, that decisions are made.

The Evolution of Design Coping with Contemporary Crises

Although many authors locate Design at the center of the contemporary crises (Fry & Nocek 2021) a more critical approach to “problem solving”, which has distinguished the discipline so far, can in fact contribute to creatively reformulating possible solutions and imagining new ways of dealing with complex issues and so-called “wicked problems” (Rittel & Webber, 1973; Sweeting, 2018), which are characterized, among their main features, by a strong social impact, the involvement of multiple actors in the decision-making process and the presence of confusing information, which makes their resolution even more complicated. Wicked problems are often classified as difficult or even impossible to solve: consequently, tackling them requires divergent thinking and creativity, with a direct impact on design methods and practices.

In recent decades, in response to increasing uncertainty and complexity, the discipline of Design has adapted to new challenges through profound structural changes that have redefined its approaches and objectives, by becoming more advanced in its methods (de Bont et al., 2013) and more strategic in its perspectives (Zurlo et al., 2002; Zurlo, 2004; Verganti, 2009); also, by applying a systemic vision and environmental responsibility to design processes (Bistagnino, 2011; Battistoni et al., 2019; Barbero & Pereno, 2020).

Designers have become facilitators and mediators (Celaschi, 2008a; 2008b) of complex systems, that is, where individual factors intertwine with technological, economic-productive, socio-cultural,

and environmental factors, and have acquired a greater awareness of how to react, anticipate and “pro-act” to crises, in an attempt to transform critical situations into opportunities to generate positive impacts on people and the planet.

In addition to playing a relevant role as a creative activity that determines the technical, functional, and formal qualities of objects produced by industry, Design has thus evolved into a process that drives innovation and leads to a better quality of life through meaningful products, services, and experiences (Heskett, 2005; World Design Organization, n.d.).

Over time, Design has also embraced the criteria of Responsible Innovation (Owen et al., 2012; Stilgoe, Owen & Macnaghten, 2013; Blok & Lemmens, 2015; Gianni, Pearson & Reber, 2019; Jakobsen, Fløysand & Overton, 2019), thus taking on its own impacts and liabilities towards people, communities, and society (Succini & Ciravegna, 2022). As for environmental impacts, European Commission (2020) clearly states that up to 80 per cent of them are determined in the design phase of products; on its side, the Ellen MacArthur Foundation (2023) emphasizes the crucial role of multi-level design in the transition from our extractive to circular economy, proposing an adaptive and holistic design strategy.

The last decade has, indeed, seen the emergence of a wide variety of approaches to thinking rigorously and creatively about the long-term future. Among them, Advanced Design is an articulated system of design practices used to conceive and develop processes, products, or services for complex scenarios, seeking to produce continuous innovation and a long-term vision for society and organizations (Celaschi, 2015; Celaschi et al., 2019; Celi, 2015; Iñiguez Flores et al., 2014).

On the other hand, Transition Design (Irwin et al., 2015; Dunne & Raby, 2013) states that organizations, institutions, and communities must intentionally move towards a more sustainable, equitable and desirable long-term future by co-creating visions together with all stakeholders operating in the present, according to a principle of co-responsibility of all actors involved with respect to the impacts of a project. Transition Design is an approach characterized by some specific skills, including, for example,

the ability to devise solutions that integrate social and natural systems and to intervene sensitively in such systems; to devise solutions which take account of short, medium, and long horizons of time and all levels of scale of everyday life, and the ability to identify potentialities for transition in everyday life. (Irwin, 2015)

The Role of Design in Promoting Sustainable Transitions: A Choral Reflection

Within this framework, the challenge is therefore to encourage and facilitate transitions towards more sustainable and circular patterns of production and consumption, adopting a systemic and planet-centric approach, reinforcing the ethical responsibilities of design, and reaffirming its mediating role in the resolution of the wicked problems that characterize the contemporaneity. Researchers, educators, practitioners, and students from all over the world were invited for a choral reflection, to share their thoughts and

experiences on the design processes that lead to the disruption of traditional practices and the transition to alternative forms of thinking and action, with the aim of addressing current crises and laying the groundwork for a more sustainable future.

The results of this choral reflection are the contributions, collected here, which were presented during the 8th International Forum of Design as a Process “Disrupting Geographies in the Design World”, particularly within Track 1 “There’s No Plan(et) B: Sustainable Transitions to Systemic Planet-Centric Design”.¹ The papers can be grouped into four main thematic areas, each of which touches on a topic particularly relevant to the reflections promoted by the track: i) Collaborative Communities for Territorial Development; ii) Towards Planet-Centric Scenarios; iii) Circular Design Methods and Tools; vi) Materials Experiences.

Collaborative Communities for Territorial Development

In this first thematic grouping, the collected articles illustrate investigations and reflections on the role of design in supporting communities in collaborative processes leading to sustainable territorial development.

“Beyond Collaboration: A Network Analysis of Local Stances and Global Frameworks in the Collective Design of the City” is the title of the paper by Francesca Sabatini, Martina Massari, and Saveria Olga Murielle Boulanger, which focuses on collective city-building practices beyond the participatory framework of institutional urban governance, specifically examining how grassroots organizations in Bologna are able to produce a dual movement between local and global, mutually informing global movements and local practices geared toward sustainable city growth.

“Alter_Azioni” is the name of a teaching and research experience at the center of Pietro Costa and Raffaella Fagnoni’s contribution, entitled “Alter_Azioni: Designing between Biological and Artificial. Scenarios for a Short-Term Future”: this experience investigated the lagoon context as a framework for local design experimentation to address the problems of the local territory and the environment through the exploration of the needs of the region and its inhabitants, and in the search for a possible balance between the biological and the artificial approaches.

Finally, the contribution “(Systemic) Design for Sustainable Territorial Transition: A Literature Review of State of the Art” by Asja Aulisio, Silvia Barbero, and Amina Pereno, presents a systematic review of the literature in the field of design, and specifically systemic design, to identify tools and methodologies useful for supporting decision-makers or stakeholders in processes of social, economic, and environmental transition toward sustainable territorial development.

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This thematic area brings together works by diverse authors, united by the intent to reflect on how design is evolving and how this evolution is leading to a paradigm shift and a holistic planet-centric transition.

Sabrina Lucibello and Carmen Rotondi, with their contribution “Dasein ist Design: An Ontological Discussion of Design in the Ecological Crisis Time” propose a reflection on the evolving nature of design and how it can stimulate new dialogic, reflective, and strategic approaches to face contemporary crises.

Annapaola Vacanti, Francesco Burlando, Isabella Nevoso, and Massimo Menichinelli present “The More-Than-Human Trend in Design Research: A Literature Review”, a discussion on design practices and approaches that, over the past decade, have evolved beyond a single-user focus and are thus defined by terms such as More-Than-Human Centered Design, Ecosystemic Design, Posthuman Design, Community-Centered Design, and Multispecies Design; the results of the literature review aim to provide a clearer picture of the phenomenon.

Through a methodology based on a tripartite analysis (literature review, case studies and historical context analysis), the paper “Being and Nature. The Aesthetic Ecocentrism” by Adriano Pinho and Francisco Providência, focuses on understanding how design aesthetics can take an active role in changing toward a more sustainable and resilient society.

Jurji Filieri and Elisabetta Benelli, with their contribution “Forward to the Primitive. New Sustainable Design Processes Characterized by Primitive Aesthetic”, emphasize how the growing integration of ethical and environmental sensibilities leads to an often-primitive approach to design that is capable of catalyzing concrete actions and triggering a new accessible aesthetic for the public.

Finally, Guilherme Giantini and Lígia Lopes, with their contribution “How Long Does It Take For a Paradigm Shift. A Design-based Critical Essay on Materials and Fabrication Processes”, offer critical reflection on the transformation processes of matter and energy in the production of human artifacts in design and architecture, with the aim of bringing out sustainable industrial approaches and promoting developments in potentially innovative fields, such as biomaterials and biomanufacturing.

Circular Design Methods and Tools

The contributions grouped in this area explore methods and tools, from both service and product design, to facilitate the transition to circularity in applications in specific fields.

Chiara Olivastri and Giovanna Tagliasco, in their paper “Sustainability Needs Service Efficacy”, focus on the area of service design and its contribution in the implementation process of a project called Efficacy, a platform for optimizing bulky waste collection and recovery of reusable parts through the Surplus reuse and shelter centers.

“Systemic Design Applied to Medtech. Guidelines for Corporate Training on Sustainable Healthcare” by Enrica Ferrero and Giulia Ferrero illustrates how to use the potential of Systemic Methodology to define the contents of a training course on sustainability for the companies in the healthcare system.

Still in healthcare, Gabriele Maria Cito and Angela Giambattista propose the contribution “Reducing Waste in Healthcare: A Systemic Design Approach for Sustainable Disposables Manufacturers”, as a reflection on the application of Systemic Design methods to address the issue of waste management in the healthcare system, which plays a primary role because of its complex composition and risks to workers, patients, and the environment.

A discussion, in a systemic perspective, on how appliances should change to adapt to the current scenario of a compromised environmental situation and the need to transition towards a circular economy, is at the heart of Chiara Battistoni’s paper “A Framework to Design Appliances for the Circular Economy Scenario”.

Finally, “Digital Fashion Technologies & Practices: Design Driven Sustainable Transition in Fashion Industry” is the name of Ludovica Rosato and Alberto Calleo’s contribution, which addresses the environmental sustainability issues related to fast fashion and analyzes how, by exploiting technological innovation and the combination of tangible processes and intangible practices, design can support sustainable transitions in the fashion industry.

Materials Experiences

The papers of this fourth area take a specific look at the topic of materials and current experiments on both the creation of new materials and possible new applications of existing materials in a more sustainable way.

Michele De Chirico, with his contribution “Material Resources as a Contextual Complex System”, shows how the multidimensional interpretation of resources can lead to sustainable design actions; the article presents a mapping of the presence and use of material resources in local supply chains, to rethink their sustainable use through design interventions.

The paper “Diffuse Micro-Factory: Circular Distributed Production System for Microbial Nanocellulose” by Lorena Trebbi, delves into the details of an operational model, based on bottom-up and co-design approaches, for micro-distributed production of biofabricated materials, with the aim of suggesting possible circular alternatives to current linear production-consumption systems based on the take-make-discard paradigm.

“From Sea to Fashion. Seaweeds as Material for a Sustainable Transition” is the title of Paolo Franzo and Clizia Moradei’s essay, which addresses the reasons why fashion design is showing a growing interest in the marine environment as a context in which to identify new sustainable materials for fashion, focusing on the case of algae.

The contribution of Giovanni Inglese, Sabrina Lucibello, and Carmen Rotondi, titled “The Sound of Sustainability. Biomaterials and New Sensory Frontiers”, investigates the possibilities that design

research on biomaterials can offer to the development of musical accessories, in terms of “sensory enhancement” and spreading a new ethical consciousness around sustainability.

Finally, a sustainable application of materials is that proposed by Raquel Gomes and Cláudia Albino in their paper “Unpacking Ceramic History in Asia and Europe: Contribution to New Reusable Packaging Design”, which details the proposal for a non-disposable modular packaging system for ceramic products, which can organize interior spaces, thus reducing waste.

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Clara Giardina

Ph.D. candidate in Design from the University of Bologna. Her main research fields are sustainability and open innovation, especially in the packaging sector. She is coordinator of the Packaging Innovation Observatory (Unibo), an organization acting on the complexity of packaging to trigger transitional innovation. She looks at Responsible Advanced Design as a tool for creating sustainable behaviors.

Davide Pletto

Ph.D. student in Design from the University of Bologna. His doctoral research is centered on circular design in the packaging industry, aiming at finding more recyclable solutions without reducing the barrier properties that ensure product freshness and accessibility. In the area of circularity, he is particularly interested in issues related to materials and their sensory interaction, especially from a point of view of experimentation and prototyping.

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