New Literacies for Unstable Futures. Designing with Systemic Complexity

New Literacies for Unstable Futures
Designing with Systemic Complexity

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Abstract
Contemporary societies are increasingly defined by the conditions of polycrisis, in which uncertainty, instability, and the interconnectedness of the social, the ecological, and the technological dominate. In this sense, linear, product and market-oriented design paradigms fail to provide the required solutions for long-term challenges. This contribution aims to discuss the need for a shift in the understanding of design from a problem-solving activity to a systemic, anticipatory, and transformative practice capable of engaging with complexity and uncertainty, rather than attempting to dominate and control them. In doing so, it explores emerging design literacies such as long-term thinking, empathy, and the capacity to navigate across human and non-human ecosystems. Design will be understood as a means for creating new ways of inquiry and knowledge production, so that the designer can think about and create new futures. Finally, the contribution will aim to discuss the need for a shift from designing 'for' the future, where the future is a determined and singular concept, to designing 'with' the future, where the future is a plural and negotiated concept.

Keywords
Systemic uncertainty
Situated futures
Collective sense-making
Design as inquiry

Introduction

We are currently living through a time characterized by an unprecedented intensity and complexity of uncertainty, instability, and polycrisis conditions (Charbonneau & Giguère, 2025; Richardson, 2025). Climate change, geopolitical upheaval, societal fragmentation, and the pace of technological change are only a few of the issues these days that do not manifest as separate problems but as the symptomatology of a set of deeper issues (Rittel & Webber, 1973; Morin, 2008). Such polycrisis conditions are characterized by complexity, dynamism, and unpredictability, thus requiring a new set of approaches and attitudes, and in this context, the field of design has to rethink its very definition and scope.

Design as practiced in the pragmatics of the world has developed through paradigms that reflect the influence of industrialization, market-oriented logic, and the drive for efficiency, desirability, and scalability. Despite the phenomenal success that these paradigms have achieved in areas such as product design, communication design, and digital design, they sometimes come up short when it comes to situations characterized by high levels of complexity, long-term horizons, and interconnected socio-ecological systems. Despite the presence of systemic problems, the existing modalities of design in terms of tools, practices, and perspectives prove to be deficient. These limitations have been extensively examined within contemporary design scholarship, particularly in relation to complex socio-technical systems (Norman & Stappers, 2015; Da Costa Junior et al., 2019), sustainability transitions and long-term systemic change (Ceschin & Gaziulusoy, 2016), and systemic as well as pluriversal design perspectives that challenge dominant modernist and market-driven paradigms (Jones & Kijima, 2018).

The purpose of this article is to suggest that in order to be relevant and effective in the future, there needs to be a profound shift in the field of design. This article will discuss a series of emerging literacies in the field of design that are more relevant to coping with the complexity of the future. These literacies include being able to sense system patterns, being able to navigate the conditions of uncertainty and emergence, being able to envision alternative futures, and being able to bring about collective transformation and dealing with time horizons. The main thesis of this debate is that design should develop from a problem-solving discipline into a systemic, anticipatory, and transformative discipline, one which, instead of trying to control or solve complexity, operates within and through it. This should imply a shift from designing for users and markets to designing with ecosystems, times, and interdependencies in consideration. Future approaches should surpass the traditional problem-solving approaches, based on their linearity, perhaps specifically critiquing linear and reductionist interpretations, to become iterative, reflexive, and contextual, recognizing the ethical-political nature of designing acts.

The nature of the article is primarily theoretical and reflective. Rather than presenting empirical findings, it adopts a conceptual and interpretive approach aimed at exploring the evolving relationship between design and the future under conditions of systemic uncertainty, and engaging in a high-level discussion on how

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design thinking may evolve in response to emerging interconnected challenges. This paper develops a conceptual framework through an integrative synthesis of the literature on design, complexity, and anticipatory approaches, from which the proposed set of design literacies is derived. Within this perspective, the article develops an open-ended conceptual discussion that synthesizes and reinterprets existing theoretical contributions in design studies and related fields. Through this process of conceptual integration, a set of emerging design literacies is identified as a way to articulate the capabilities and sensitivities required for the design practice to operate within complex, socio-technical and future-oriented contexts. This contribution adopts the following structure: it begins by investigating the limitations of more traditional design thinking within the systemic complexity based on examples within scenarios that are unfolding in the current era. It then moves on to investigate the core principles that underpin systemic and anticipatory design, from which the proposed literacies are conceptually derived. Finally, it concludes by reflecting upon the implications within education arising from these new perspectives within design.

By charting the parameters of a systemic and future-driven design practice, the intention of this article is to advance the growing discourse on the methods by which design might meet the complexities of the day through ethical, creative, and courageous means.

Rethinking Design: From Products to Systems

The past decades have witnessed a great paradigm shift in design. Design has traditionally been focused on the production of distinct objects. However, this change is not just a shift from making products to making systems; it is also a shift in mindset from linear and standardized processes to relational, context-sensitive, and place-based approaches. Design is increasingly acknowledged to be a systemic endeavor — one that engages with and impacts complex systems and networks of social, technological, and ecological relations. This perspective emphasizes that designers are not only creators of artefacts but mediators and facilitators in multi-agent systems, where humans, non-humans, materials, and algorithms interact dynamically, and that this shift represents a radical transformation in the purpose, agency, and responsibility of design, emphasizing responsiveness to interdependence, vulnerability, and uncertainty.

Design has a history that dates back to the logics of industrial production. Its focus has traditionally been centered on optimizing designed artefacts with respect to their function, aesthetics, usability, and reproducibility. Additionally, design processes have traditionally been conceived in a linear and goal-oriented way-identification of the problem statement, analysis of the user's need, and a solution delivery. Though highly successful in a stable and predictable world, such a model is grossly inadequate in the face of systemic problems such as climate change, resource degradation, infrastructural failure, and social inequalities. These challenges cannot and should not be considered distinct artefacts because they are embedded in radically interconnected and changing systems.

In response, the increasingly object-centered design practice is being replaced by a more relation- and possibility-centered design practice. The focus of design practices is no longer on objects and artefacts but is now centered more on services, infrastructure, policy, and assemblage; it is more focused on systems rather than things. Design is a practice that is closer to world-building, a proactive rather than reactive participant in shaping futures through behaviours, norms, and material arrangements. In line with Fry's notion (2009) of design as a "futuring" and reorienting practice, this perspective calls for moving beyond market-led logics toward engagement with ecosystems, temporalities, and interdependencies while critically accounting for how such shifts can be enacted across diverse socio-political and economic contexts, expanding the scope of design to include the systemic and long-term consequences of design decisions and decentering markets so that they become one of many forces shaping design outcomes alongside ecological constraints, social relations, and temporal dynamics.

These perspectives involve rethinking what design produces as a result and require clear definitions of core concepts (complexity, uncertainty and interdependence): 'complexity' refers to the inherently interconnected, dynamic, and contextual nature of socio-ecological and technological systems, characterized by multiple elements interacting through feedback loops, emergence, and non-linear relations. Complexity is understood as a fundamental characteristic of wicked problems in systemic design, that requires approaches to understand systems as wholes and interactions among many actors, as opposed to looking at components in isolation (Jones, 2014; Escobar, 2018); 'uncertainty' refers to the impossibility of predicting the outcome of a process or system due to the lack of knowledge, unpredictable interactions, or the dynamic nature of the system. In the case of design research, the role of uncertainty is not to be eliminated but rather engaged with reflexively (Epp et al., 2024); 'interdependence' refers to the mutual influence of actors and elements, including humans, non-humans, technology, and environment, wherein the influence of one actor or element has a cascading effect on other actors or elements (Midgley & Lindhult, 2021). In summary, in this manuscript, systemic complexity refers to the dynamic and interconnected nature of socio-technical systems, as distinguished from uncertainty, which highlights the unpredictability of system outcomes due to these interactions (Jones, 2014; Epp et al., 2024). Interdependence captures the relational influence among actors, both human and non-human (Midgley & Lindhult, 2021). With these definitions, the product of design may be more closely associated with the generation of frameworks, scenarios, platforms, and processes that enables adaptation and learning. The role of the designer shifts from producing finished forms to one of transformation, of being adept at dealing with complex systems in order to mediate among diverse actors. This includes recognizing that user-centered design is limited in value, since humans are just one actor among many, and other actors such as non-humans, ecosystems, materials, and algorithmic systems are all active (Chester et al., 2023; Rakova & Dobbe, 2023).

In this manner, design can then serve as a process of medi-

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ation between humans, non-humans, and planetary systems. It can become a process of scale-making, ranging from the local to the global scale. In this regard, the design of an energy system, for example, cannot cater only to the user-friendliness of the system; in this case, the system must also consider the environmental effects, geographical dependencies, and future of the workers in the energy field. Within this principle of design, the process itself can become more complex in its nature and entail greater responsibility. A systemic approach reveals the flaws of traditional design practice. Linear models of problem-solving work well in a world of certainty and well-defined borders, and are inadequate in a world defined by uncertainty, feedback loops, and self-organization. Market-based models emphasizing efficiency, scalability and profit, risk overlooking externalities if these metrics dominate evaluation. In such a case, design will often be a tool for optimization rather than transformation if its success is evaluated using market parameters alone.

While user-centered approaches also offer value and require critical examination, they carry the risk, when designing systems, of limiting consideration to the needs and preferences of users alone and overlooking the broader implications for the larger system. System design, on the other hand, requires a wider area of consideration that accounts not only for direct elements but also for non-human and uncertain ones. Future-driven design practices, including anticipatory and foresight approaches (Ollenburg, 2019), are employed to explore possible socio-technical futures and inform systemic interventions without prescribing fixed solutions.

In reaction to these limitations, several new design approaches have been developed, which include systemic design, speculative and critical design, transition design, and design for sustainability. Notwithstanding methodological and other differences, these proposals tend to share an orientation in addressing complexity, in contrast to the conventional approach: they emphasize a long-term perspective, reflexivity, and thinking about different futures than those encapsulated in current paradigmatic arcs. More importantly, they recognize that design should not address only issues concerning its strictly technological aspects — which the conventional approach does — but should rather address the values in which design participates. Within these paradigm shifts, the role of design has become less about finding the definitive answers to these questions and more about searching for opportunities and facilitating collective sense-making. Design prototypes, scenarios, and speculations become not definitions of solutions, but rather operative tools to be used within the process of inquiry, as means rather than ends, in order to facilitate the understanding of complex issues across both disciplines and communities.

Ultimately, moving from designing products to systems involves a paradigm shift in mindset and thinking. It requires moving away from mastery and efficiency thinking towards care, responsibility, and co-habitation with complex practices. By embracing complexity, acknowledging interdependence, and engaging with ethical and planetary concerns, design may well emerge as a discipline that can make a much greater contribution to present-day challenges and future uncertainties.

New Literacies for Uncertainty and Complexity

This section examines the potential of contemporary design to cultivate the skills and practices necessary to navigate uncertainty and complexity. It argues that conceptual tools such as systemic empathy, futures literacy, pluralistic design, and deep creativity are not merely desirable but critical for rethinking design practice in a transformative, ethical, and sustainable way. Nevertheless, while these literacies offer promising frameworks, their practical implementation is challenging, requiring careful consideration of context, power dynamics, and the capacity of communities and designers to internalize and act upon them. Thus, we ask: how can these new literacies inform design practices and effectively guide designers and communities in shaping interventions that account for interdependencies, plurality, and long-term impacts while remaining actionable and context-sensitive?

Systemic Empathy

Empathy has been a central notion of design practices and studies. The ability to incorporate human conditions into innovation has become a fundamental paradigm internalized within the design discipline, largely from the perspective of the seminal notion of User-Centered System Design (Norman & Draper, 1986). As previously mentioned, this focus on 'the user' makes the systemic nature of our existence invisible. According to Wahl (2016) paying attention to this invisible territory, means introducing interdependence as a concept into design practices, that is the foundation of regenerative design practices; being aware of interdependencies is a systemic approach that changes the traditional notion of empathy into extended practices, some kind of radical empathy.

Various scholars have described the transition from empathy to systemic empathy, recently Norman (2024), refers to it as the shift from User-Centered Design to Humanity-Centered Design, arguing that the new notion of "humanity" is no longer anthropocentric but includes us as one species among many others in the vast system of life. For other authors, such as Wahl (2016), the transition should be a shift towards Eco-Centricity, and for the recently released Cumulus Design Declaration 2025 (Cumulus Association, 2025) this is a shift that requires a planetary consciousness mentioned as "Planet-Centered Design". These different notions share the same underlying principle: a change in centrality, a profound transformation in design methodologies and approaches, a change that, according to Wahl (2016), involves abandoning certainty, the certainty that we possess all the knowledge about those for whom we design. Designing from systemic empathy means making visible and accounting for the chain of events that any intervention or artifice we launch into the world brings to the life system; this applies for the now, but also for future generations of species; it is an act of intergenerational justice.

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Futures Literacy

"This is the age of the tyranny of the now", Krznaric (2020) states, emphasizing that short-termism is one of the major problems of our civilization. The dominant paradigm in innovation is solving today's problems as quickly as possible, and design, immersed in a consumer society, has been tremendously successful in developing methodologies and approaches for creating successful products at an ever-increasing pace. The future dimension has always been included in design practices, but not as a widespread practice; it has traditionally been a short-term horizon: the next season or the renewal of the product portfolio to replace the previous one. This focus on solving short-term problems forces designers to operate within a narrow frame of reference, hiding not only the most transformative opportunities but also the long-term externalities. There is a renewed engagement between design and futures studies, where design adds to anticipatory processes its capacity to multiply possibilities, give sense, and materialize realities (Iñiguez-Flores et al., 2020). Futures design practices have become increasingly mainstream, shifting the mindset from problem-solving to opportunity-finding, thus enabling a true paradigm shift. Through diverse practices, such as design scenarios, speculative design, design fiction, design utopias, design narratives, and even transition design, a portfolio of approaches has been built that allows the discipline to move beyond the 'now' to definitively incorporate the long term; in this way, future generations are considered, the More-than-Human perspective, and the long-term sustainable change into design praxis.

Designing in the Plural

Universalism has been deeply ingrained in the discipline of design, both in practice and in scholarship. One of the pillars of Modernity (primarily constructed by the Western world) was the idea that we all live in the same world. This idea has been challenged by the notion of pluriverses, an ontological transformation in favor of a multiplicity of possible worlds (Kothari et al., 2019), or the ability to build "a world where many worlds fit," as the Mexican Zapatistas refer to it.

From discourses to practices, multiplicity has been rendered invisible. In design literature, Fry (1995) already warned of differences between "central" discourses and others, a phenomenon he called "marginality in design." In regions like Latin America, Bonsiepe (1985) referred to design practices and thinking as "peripheral", for example, and in Africa, there has been advocacy for the inclusion of indigenous perspectives in design practices. Introducing a pluralistic perspective requires addressing the diversity and multiplicity of aspirations present in human cultures. According to Escobar (2018), Design should then shift from an approach focused on resolving needs to one focused on resolving aspirations, since these are directly related to the local context; or as the traditional African concept explains it, the *UBUNTU*, which refers to the interconnectedness of individuals with their surrounding social and physical worlds.

Decolonizing design discourses and practices requires opening the possibility to multiple ways of knowing (Bennet & Menzel, 2025), and in doing so, restoring the long-excluded cultures of Indigenous, Black, and People of Color communities, as a practice of cultural justice (Tunstall, 2023). Designing in the plural, or designing for the pluriverses requires a profound transformation of the design discipline, rethinking how literacies change in diverse socio-cultural contexts. Restoring exclusion is not only a matter of giving visibility and meaning, but also of enabling the self-determination of communities, a central tenet of Manzini's (2015) discourse when he speaks of design for social innovation.

Deep Creativity

The word creativity has accompanied the discipline of design throughout its evolution. Some historical authors of design even emphasize that design is a creativity-based discipline, meaning that it is fundamentally oriented towards novelty and the benefits it brings. Recent studies suggest that the focus on creativity must shift from the mere fact of novelty towards being "transformational": according to Sternberg & Karami (2025), transformational creativity is the human capacity to create, thereby making a potentially positive, meaningful, and even lasting difference to the world at some level. This definition clearly incorporates political and ethical dimensions. Being transformational challenges the discipline of design to not only create goods but also, in the act of doing so, to strive for positive and sustained change, to incorporate a deeper creativity above and beyond mere novelty. This depth should be considered taking into account the inclusion of the human condition itself and its agency to generate systemic change; as early as the 1990s, in speaking of complexity, Prigogine (1997) warned of the need to build a new science that includes our human condition as part of the phenomenon.

Introducing complexity into the creative act makes it transformational, and according to Scharmer (2016), this is the deep creativity that is necessary for a true systemic perspective; for him, depth is preceded by the capacity for sensing, understood as experiencing, perceiving, and understanding the surrounding reality from a holistic, open-hearted, and open-minded perspective. Sensing is bringing a systemic perspective to the creative act, allowing both the inclusion of variables typically hidden within systems, and the perception of emerging possibilities that are still faint, or, in the words of Scharmer "the future that looks at us because it depends on us to manifest"; deep creativity, then, is the human capability that causes the emergence.

Emerging Methodologies and Alternative Approaches

As anticipated in the previous section, the role of the design discipline becomes increasingly intertwined with complex social, ecological, and technological systems. Conventional linear and outcome-based approaches are proving to be insufficient to address the emerging, multi-layered, and changing nature of these systems.

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Various new approaches to design methodology have thus been developed, which position design as a method of inquiry, exploration, and transformation. This allows designers to manage uncertainty, to predict the future, and transform systems. The fundamental element of the new approaches to design methodology is the need to transcend conventional solution-based design and focus on the importance of reflection, collaboration, and awareness of social and ecological issues.

Systemic Design, for instance, employs methodologies that make it possible to comprehend the interconnectedness of the systems. The ability to comprehend this interconnectedness makes it possible to understand how the actions of the system affect the social, ecological, and technological landscape (Smith & Kalantidou, 2023; van der Bijl-Brouwer et al., 2024). Rather than identifying isolated problems and solving them in linear sequences, Systemic Design treats challenges as situated within evolving contexts in which multiple forces co-shape outcomes.

Critical Design, on the other hand, helps in this process through the use of speculative scenarios, provocation, and narrative artefacts as tools for understanding challenges and finding solutions, where the present and the future become blurred, inviting stakeholders to interrogate prevailing norms and imagine as yet unrealised futures (Dunne & Raby, 2013; Maciejko & Lecuna, 2025).

Transformative Design practices further develop this critical and systemic approach by making cultural, social, and structural change central goals rather than collateral effects. Transformative Design is more focused on ethical responsibility, power relations, and the broader social implications of the design practice (Peeters et al., 2025). Transformative Design is more explicit in seeking to change the behaviors, norms, and conditions that perpetuate systemic inequalities. It draws on the perspectives of transitions toward sustainability, social innovation, and participatory governance. Transformative Design also fundamentally reconceptualizes the practice of design as co-creative intervention in complex adaptive systems, where the outcomes are determined through a form of dialogic engagement rather than unidirectional decision-making. This is more in line with the transition design orientations of cultural transformation and systemic resilience over time.

An important element of systemic and transformative approaches is the use of participatory and co-creative methods. These methods highlight the active role of stakeholders, communities and other agents, rather than positioning them as passive recipients of the solutions. For example, participatory design recognizes that knowledge of complex issues comes from many actors. Solutions develop when these actors engage in co-generative practices (Wacnik et al., 2025). Co-creation practices build on this idea. They combine local knowledge, expertise from different fields and experimentation to create shared understanding and decision-making, especially in situations that lack clarity. This collaborative approach becomes evident when addressing more-than-human issues. Here, non-human agents are considered stakeholders in the decision-making regarding design solutions (Romani et al., 2022). While these methods may be inclusive and flexible, they are not without

limitations. For one, participation does not automatically mean equal power. Secondly, the process of co-creation may be resource-intensive and difficult to sustain over time. This consequently begs the question of the scalability and efficacy of the process. Additionally, the integration of non-human actors may be difficult to conceptualize and may be limited to a symbolic level without a clear operational approach. By working with communities and environments instead of for them, participatory and co-creative methods help ensure that solutions are adaptable, resilient to change, and relevant to the context, while being accepted by society.

Collectively, these new approaches to design share a number of common principles. Firstly, design is conceptualized as an iterative and exploratory process that privileges inquiry over determinate outcomes or products (Norman & Stappers, 2016). This framing recognizes that in complex situations, emergent behavior and unforeseen feedback effects are not exceptional phenomena that need to be managed, but rather characteristics of the system itself. Secondly, uncertainty and ambiguity are seen as useful resources that can lead to insight, creativity, and new ways of organizing knowledge, according to Morin (2008). Thirdly, design practice is ethically and socially responsible. It requires looking at how interventions affect benefits and burdens, and how they might reinforce or challenge existing power dynamics, as suggested by Blomkamp (2022). Finally, these design approaches emphasize the need for temporal reflexivity, underscoring the importance of considering the long-term consequences and changes in socio-ecological systems over time. To implement these considerations effectively, designers can use a variety of tools. For instance, they might employ scenario building, systems mapping, speculative prototyping, and participatory processes to explore multiple potential futures and their impacts (Ceschin & Gaziulusoy, 2016; Ye & Zhang, 2024). Furthermore, tools such as causal loop diagrams, futures wheels and ethnographic immersion can help designers uncover hidden relationships, power structures, and leverage points within these systems. Soft, sustainable and future skills such as facilitation, negotiation, and empathy may also be crucial in working with plural stakeholders. This underscores that the approaches in emerging design methodologies are as much relational and communicative as they are technical.

Critically, the value of these methodologies is assessed not in terms of the outputs they produce, but in relation to the level of reflection, learning, and system awareness they facilitate. This is because the prototypes, scenarios, and co-created artefacts are used as a means of dialogue and sense-making, as opposed to a means to an end, which allows stakeholders to reflect upon the consequences and assumptions made, and co-imagine different potentialities (Cardenas Cordova et al., 2025). In this way, the role of design as a mediating practice is highlighted; it brings together diverse stakeholders, knits together different knowledge bases, and enables adaptive co-evolution within socio-ecological-technological systems.

In summary, systemic and critical design offer means for foresight and critical engagement; transformative design aims for change in cultures and societies with ethical accountability; participatory and co-creative design methods promote inclusive, flexible,

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and contextualized design processes. Collectively, these new design methodologies reconceptualize design as a practice of exploration, mediation, and transformation that can engage complexity in a positive way and create futures that are ethical, social, and ecological. By transcending linear and market-centered paradigms, design can engage complexity not as an obstacle but as a territory for mutual learning, adaptation, and co-creation, and thus position itself as a critical, anticipatory, and transformative practice within contemporary systems.

Designing With the Future: Final Reflections and Perspectives

This article has presented the case that the growth conditions of polycrisis, uncertainty, and systemic interdependence intensify and make longstanding tensions within conventional paradigms of design more visible. By tracing the limitations of product-oriented, linear, and market-driven approaches, it has underlined how these approaches, while historically dominant, have coexisted with alternative traditions in design, and a deep reorientation towards systemic, anticipatory, and transformative modes of practice. Rather than positioning design as a problem-solving discipline oriented toward the creation of optimized solutions, the discussion here has recast design as a sense-making, world-shaping activity whose capacity to configure socio-ecological relations has long been present but is becoming more explicit under current conditions situated within complex socio-ecological systems. There is a need for new design literacies — such as reading systemic patterns, engaging with uncertainty, imagining alternative futures, and facilitating collective transformation to remain relevant and responsible in light of long-term global challenges. For example, in design education, they can guide pedagogical approaches that foster systemic thinking, ethical reflexivity, and futures literacy. In research, they can support methodologies that embrace complexity and plurality, enabling investigations that are anticipatory rather than reductive. In practice, they can inform decision-making and strategy, encouraging designers to act as political agents who engage critically with socio-ecological systems.

One of the most significant nuances of this discussion is not that it is no longer the case that design has become ethical and political, but that its ethical and political dimensions have become more visible, contested, and unavoidable within the current conditions. In systemic terms, design practice and decision-making involve not only concerned with shaping the object of design and its services, but also with its relations and power dynamics within society. Each act of design involves asserting certain values and assumptions, and certain things and individuals that matter. As design continues to extend its interaction and engagement with systemic arrangements such as infrastructure and the environment, the challenge, therefore, is not to ‘add’ ethics and politics to design, but to engage with them in more explicit, situated, and accountable ways. Rather than assuming neutrality and objectivity, design

practice must critically examine the way in which such claims have historically obscured situated values and power relations. Instead, design practice and designers themselves must recognize their active engagement as political agents in shaping alternative futures that are more sustainable.

Designing for the future must therefore proceed through a critical negation of nostalgia as well. In times of crisis, there is always a strong temptation to go back, to try to reboot or reintroduce past structures, past institutions, or past modes of living that had seemed stable or successful. However, such restorative desires often call into question the encoded inequities and ecological failures of such past arrangements. Instead of dismissing these tendencies outright, they can be understood as manifestations of how the past is selectively constructed in the present. In this sense, reflecting on nostalgia serves as a tool to recognize the temptation to return to the past. By contrast, systemic, anticipatory design seeks not to reclaim the past, but to design the future. In doing so, designers must confront the uncertainties not only of the future, but of the present, recognizing that the future is not something to be predicted or controlled, only explored, rehearsed, and negotiated. This approach is consistent with a systemic and anticipatory perspective, without requiring an exhaustive historical account. Rather, prototyping, scenarios, and speculative designs serve not as blueprints or prescriptions, but as modes of investigation to allow societies to consider and test dominant visions in favor of alternatives. In such a manner, design becomes an exercise in futuring.

The forward-thinking attitude that this article recommends requires a new understanding of success in the design practice. This requires new ways of understanding success that move beyond metrics of efficiency, scalability, market adoption, and other common methodologies, toward metrics of resilience, adaptability, care, and viability. Furthermore, it would mean that designers would need to be at ease with ambiguity, temporalities, and outcomes that would need to be spread among different actors. This would require designers to operate with a sense of humility, recognizing themselves to be part of a system, rather than an external expert. Finally, this approach also represents an imperative to act for researchers, educators, and practitioners alike. In terms of design research, this approach calls for research paradigms capable of dealing effectively with complexity, emergence, and plurality, not as problems to be reduced by simplification, but as complexities to be addressed. In terms of design education, this approach calls for pedagogical frameworks that can foster systemic thinking, ethical reflexivity, and futures intelligence among designers, to equip them to work across disciplines and scales. In terms of design practice, this approach demands the audacity to challenge the logics of the market in design and to work with uncertainty as an unexpected resource, not as an obstacle to be reduced or eliminated. Ultimately, addressing complexity is not, therefore, an abdication of responsibility, an escape from responsibility, but an extension of responsibility. Designing with the future, instead of for or against the future, can indeed make an important contribution to dealing effectively with the transformative era we live in.

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