

# Service Design towards Transitions: Embracing Paradigm Shifts in Practice

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## ABSTRACT

Service design faces increasingly complex challenges, linked to the growing complexity and uncertainty that characterize contemporary socio-technical systems. This article examines how service design practice is adopting systemic and long-term approaches to support complex system-level transformations. It describes the results of the research ‘*UnSee – Uncertainty in Services*’ conducted from a 24-month period from January 2024 to December 2025. Based on interviews with experts and international case studies, this article proposes four paradigm shifts – beyond linearity, beyond solutionism, beyond reductionism and beyond short-termism – that outline disciplinary development paths to overcome the limits of current dominant service design models. These shifts highlight how designers are restructuring processes, products and design goals, enabling long-term reflexivity and redefining services towards transformative goals. The results are analysed concerning consolidated theories on socio-technical transitions, Service Ecosystem Design and Transition Design, highlighting the growing role of service design as a transformative practice. Finally, the article highlights emerging implications for service design practice. Ultimately reinforcing service design as a socio-technical change agent, capable of co-creating multiple visions of the future and following co-evolutionary processes between actors, systems and projects.

**Keywords:** Service Design, Paradigm Shifts, Systemic Perspectives, Futures Perspectives, Socio-technical Transitions.

## INTRODUCTION

The polycrisis, understood as the causal entanglement of crises in multiple planetary systems (Lawrence et al., 2024), has underscored the need for long-term and large-scale changes. Addressing these crises requires profound shifts in systems, often referred to as socio-technical transitions (Loorbach, 2007). These transitions are characterized by long-term, multi-dimensional, and transformative processes that direct systems toward more sustainable, just, and resilient ones (Loorbach, 2022). In this landscape, designers are progressively playing a central role in enabling transitions and driving system-level change (Norman & Stappers, 2015) connecting systems and futures thinking.

Additionally, the discipline of service design also expanded to address more complex and systemic challenges (Hay & Vink, 2023; Sangiorgi, 2011) examining how systems thinking and futures thinking contribute to redefining the disciplinary boundaries, informing processes, tools, and evolving roles (Løgager et al., 2022; Suoheimo et al., 2025). While this theoretical convergence has been explored within academia, its translation into professional practice

remains relatively under-investigated, resulting in two streams that are progressing at different paces.

This article recognizes the importance of learning from current design practices at the niche level, where new experimentations occur, and the disciplinary boundaries are blurred. Therefore, it aims to examine how service design-related practitioners are engaging with long-term transformative issues, exploring how systems and futures thinking are being formally integrated into their work. The study identifies four paradigmatic shifts that illustrate emerging ways in which service design responds to rising complexity.

## 1. BACKGROUND

The challenge of guiding socio-technical transitions has been explored in scientific research and has subsequently acquired popularity in design studies (Loorbach, 2022). Socio-technical transitions are described as a non-linear shift of one established system into an alternative one; while each transition is context-specific, the general dynamic pattern described is characterized by the interaction between processes and actors at different levels, unfolding over long time horizons (Geels & Schot, 2010). This field of study emphasises systemic approaches, while recognizing the ongoing process to foster long-term change. Building on the work of transitions scholars, two key features stand out: transitions are inevitable and inherently uncertain (Loorbach, 2022); any system already embed emerging directions rooted in experimental activities that operate under alternative values and logics (Geels & Schot, 2010).

### 1.1. Designing for transitions

In these processes of change, design increasingly assumes a strategic and transformative role. The transformative potential of design to enable new worldbuilding practices (Tonkinwise, 2015) can be catalysed to achieve radical societal changes and support transition processes (Ceschin & Gaziulusoy, 2016).

The convergence between design and transitions developed organically encompassing different streams such as Designing for Sustainability Transitions (Coops et al., 2024; Gaziulusoy & Öztekin, 2019) and Transition Design (Irwin, 2015, 2020), this article adopts a pragmatic position to these terms: they will be used interchangeably to represent the work at the intersection of design research and practice with socio-technical transitions theory. Transition design approaches propose the envisioning of desirable futures to orient systemic change, acknowledging the need to engage with a more granular and future driven perspective (Goss et al., 2025; Irwin, 2020). In this view, speculative and long-term visions inspire and inform the design of short and mid-term interventions (Irwin, 2015, 2020). Gaziulusoy and Öztekin (2019), emphasize that working within transitions requires the integration of three core sets of competencies: systems thinking and systems-related theories, futures thinking, and design knowledge, the latter acting as a catalyst. Designers can therefore act as change agents in the development of alternative systems, balancing long-term future visions with short-term actions (Goss et al., 2025). While different frameworks and theoretical contributions on transition design have been developed over the years, they do not fully explain the practical design capabilities needed to guide socio-technical transitions. This gap underscores the need for further exploration of empirical case studies and experimentations, understanding also how diverse design disciplines can strengthen the approach.

For instance, in the context of service research and service design, system-level changes are interpreted as service systems transformations – complex and multi-layered processes of change (Patrício et al., 2020; Sangiorgi et al., 2017), operating across material, organizational, and symbolic levels, and contributing to the co-creation of sustainable changes. Recognizing socio-technical transitions as a critical domain for service design enables engagement of the discipline with long-term shifts besides a systemic view on transformations. The following section explores how principles of transition design can be reconciled within the theoretical frameworks of service design.

## 1.2. Exploring transitions in service design

Recent critiques on service design highlighted the insufficiency of its dominant approaches (Akama et al., 2023). Their inadequacy is exemplified by the linearity of processes often focused on the creation of short-term, solution-oriented outcomes, that overlook relational perspectives at the system level, and long-term implications (Akama et al., 2019).

Concurrently, the transformative role of services has been widely discussed in academic literature (Patrício et al., 2018; Sangiorgi, 2011) highlighting the connection between design approaches and societal changes through collaborative value co-creation (Wetter-Edman et al., 2014). The expanded view on service design prompted a reflection on the complex, dynamic and multi-actor nature of value co-creation in systems, introducing a wider lens encompassing service (eco)systems (Koskela-Huotari et al., 2021; Vink et al., 2021).

Therefore, recent studies on the evolution of service design as a systemic approach are grounded in the integration of Service-Dominant Logic (Vargo et al., 2020; Vargo & Lusch, 2008), systems theory, and institutional theory. Vink et al. (2021) introduced the concept of Service Ecosystem Design (SED), describing the process of “intentional shaping institutional arrangements and their physical enactments by actor collectives through reflexivity and reformation to facilitate the emergence of desired value co-creation forms” (169). SED fosters a critical reflection on the design ability to intentionally shape social structures, guiding interactions and actions among diverse actors. Service Ecosystem Design aims to facilitate the emergence of novel value co-creation forms with the actors of a service ecosystem, while recognizing that the dynamic and interconnected nature of these arrangements is inherently uncertain and impossible to control (Vink et al., 2021).

SED thoroughly describes the relationship between social structures and their material manifestations to transform complex systems. However, SED has paid limited attention to its contribution to long-term processes in which transformations unfold. Addressing this gap, and drawing on insights from emergent design practices, this article examines the role of SED (referred to as service design throughout the text for clarity) in advancing socio-technical transitions. Specifically, it aims to understand how practitioners are developing new approaches to service design that respond to the growing demand for systemic and future-oriented forms of practice. The research starts from the integration of systemic and futures-oriented perspectives in service design; identified as the two key dimensions in designing for transitions. This study acknowledges that other design traditions (e.g., participatory design and strategic design) also address multi-actor collaboration and future-oriented work, nevertheless these will not be treated comparatively to maintain a focused investigation on service design’s evolving contribution to transitions.

## 2. METHODOLOGY

The research was funded by the Department of Design of Politecnico di Milano and lasted for twenty-four months adopting a phenomenological approach (Wilson, 2015) to allow insights to emerge from practice while preserving contextual integrity. The research unfolded through two macro phases: (i) empirical fieldwork based on the interconnection between semi-structured interviews and case study analysis; and (ii) a validation phase combining additional workshop-based interviews. All activities from both phases were held online between February 2024 and December 2024, with each session lasting approximately one hour.

Participants were identified through purposive sampling aimed at capturing diverse experiences at the intersection of service design, systems thinking, and futures-oriented practice. Participants included practitioners from independent design consultancies, design labs, public institutions and governmental agencies, freelancers, and academic researchers. The interview protocol was iteratively refined across the study. The first phase supported the inductive identification of recurring themes and the first formulation of four paradigmatic shifts. While the second phase focused on clarifying, challenging, and refining the paradigmatic framing. This iterative strategy strengthened internal coherence across data sources and enabled the progressive consolidation of the four shifts with a higher-level synthesis rather than a reflection on single cases.

Initial data collection aimed to identify on general terms emerging application of service design with transition-oriented perspectives. Data collection was performed online by collecting academic and professional practices, these had to mention frameworks or experiences where service, systemic, and futures design coexisted, particularly concerning systems change and transition processes. This process pooled a total of 56 resources together across diverse contexts and domains, offering macro-insights into how (service) design practitioners and scholars engage with transition-oriented work. Each entry was then reviewed and brought forward in the analysis according to the following criteria: (1) description of practical design work at the intersection of service design and long-term transition processes; (2) international recognizability of organizations or professionals involved ensuring geographical and disciplinary diversity; (3) availability of publicly accessible documentation and for the practitioners involved to be interviewed. Following this process eight practices were selected as case studies. Each case was examined through publicly available documentation and complemented with 11 case-study-based interviews involving project representatives (Table 1).

Table 1: List of case studies analysed and practitioners interviewed.

| ID Number | Organization                                          | Interviewee Role                                | Case Study Brief                                                                                                                     |
|-----------|-------------------------------------------------------|-------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|
| 1         | Smithery, Design Consultancy (UK)                     | Design Lead                                     | Support a social housing cooperative in restructuring their service delivery to be more user-centred and break organizational silos. |
| 2         |                                                       | Executive Director (social housing cooperative) |                                                                                                                                      |
| 3         | Sketchin, Design Consultancy (CH)                     | Design Director                                 | Enable an international investment organisation to develop innovative mobility scenarios.                                            |
| 4         | MaRS Solutions Lab, Social Innovation Design Lab (CA) | Program Director                                | Creating a portfolio of city-scale interventions for the underserved population in Edmonton's municipality.                          |

|    |                                                  |                          |                                                                                                                                                                                                  |
|----|--------------------------------------------------|--------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 5  | IFRC Solferino Academy, International Think Tank | Strategic Foresight Lead | Prototype and generate a portfolio of future-ready, system-level actions to fuel innovation within the food security and livelihoods (FSL) programs of three Red Cross' National Societies (NS). |
| 6  | Experio Lab, Healthcare Innovation Lab (SE)      | Design Director          | Co-creation of a new national value system for elderly care connecting patients, caregivers and policymakers.                                                                                    |
| 7  |                                                  | Policy Designer          |                                                                                                                                                                                                  |
| 8  | Falay Transition Design, Design Collective (FI)  | Design Director          | Support an NGO consortium in starting the decolonization and redistribution of power within their international development work.                                                                |
| 9  |                                                  | Regenerative Designer    |                                                                                                                                                                                                  |
| 10 | Relative Creative, Design Consultancy (AU)       | Design Lead              | Support the Government of Tonga in developing a sustainable vision within the national Low Emission Development Strategy 2021 – 2050 (LT-LEDS).                                                  |
| 11 | BIG Mind Design, Design Consultancy (CN)         | Design Director          | Support a home appliance company in developing future scenarios for the digitalization of their services in the home environment.                                                                |

To bridge theory and practice, the case-study analysis was supplemented by an additional subset of interviews with experts drawn from the initial pool of 56 resources. Selection of participants was based on a minimum of five years of expertise in a field related to the domains of the research as well as their availability to be interviewed. Interviews in this second subset focused on theoretical inputs based on participants' field of expertise, building on the early insights from case studies. This resulted in 13 additional semi-structured interviews with practitioners and academic experts (Table 2). Case studies and theory-driven interviews reciprocally informed one another across this phase contributing to build an initial level of interpretation.

**Table 2: List of additional practitioners and academic experts interviewed.**

| ID Number | Interviewee Role                    | Type of Organization          | Field of Expertise                               |
|-----------|-------------------------------------|-------------------------------|--------------------------------------------------|
| 12        | Strategic Advisor                   | Public Ministry (UAE)         | Systemic Transformation and Portfolio Management |
| 13        | Head of Strategic Foresight         | Design Consultancy (IT)       | Design Innovation                                |
| 14        | Head of Innovation                  | Design Consultancy (IT)       | Design Innovation                                |
| 15        | Futurist                            | Anticipation Consultancy (IT) | Futures Studies                                  |
| 16        | Design Director                     | Futures Lab (IT)              | Design Futures                                   |
| 17        | Strategic Design Futurist           | Financial Services Firm (US)  | Strategic Design and Foresight                   |
| 18        | Service Designer                    | Public University (SG)        | Service Design                                   |
| 19        | Design Researcher                   | Design Research Lab (IN)      | Service Design and Systemic Transformation       |
| 20        | Service & Design Futures Consultant | Freelance (IT)                | Strategic Design and Foresight                   |
| 21        | Design Lead                         | Design Consultancy (IT)       | Service Design                                   |
| 22        | Speculative & Service Designer      | Design Consultancy (UK)       | Design Futures and Service Design                |
| 23        | Service Designer                    | Design Consultancy (NO)       | Design Futures and Service Design                |

|    |                  |                         |                                   |
|----|------------------|-------------------------|-----------------------------------|
| 24 | Service Designer | Design Consultancy (BR) | Design Futures and Service Design |
|----|------------------|-------------------------|-----------------------------------|

Given the phenomenological nature of the research, data interpretation followed an iterative process between empirical insights and existing theoretical frameworks. Transcriptions were coded inductively to identify recurring themes related to the service design process (e.g. Needs, Framework, Tools, Outcomes, and Final outputs). Through refinements, these codes were grouped according to transformation goals (e.g. values, future visions, long-term mission), and interconnections between service, systemic, and future-oriented logics (e.g. tools, critical issues, and the designers' role). The triangulation of interview data with existing literature helped identify recurring patterns. The underlying rationales of these patterns led to the definition of four paradigmatic shifts, which describe the transformative dynamics of service design, emphasizing changes at the level of processes, outcomes, and project framing.

The first draft of the four paradigmatic shifts was validated with a mixed sample of new and previously interviewed participants, selected based on their academic relevance to the paradigmatic shifts or direct engagement with systemic and futures-oriented work. Validation involved 13 interactive workshops (Table 3). During these conversations, participants were invited to interact with a Miro board describing the paradigmatic changes and provide direct feedback or leave comments and suggestions.

**Table 3: List of academics and practitioners engaged for the validation round, \* these were contacted from the previous phases.**

| ID Number (*) | Interviewee Role                     | Type of Organization                   | Field of Expertise                               |
|---------------|--------------------------------------|----------------------------------------|--------------------------------------------------|
| 25            | Systemic Design Professor            | Public University (NL)                 | Systemic Design                                  |
| 26            | Management Engineering Professor     | Public University (IT)                 | Design Futures and Organizational Change         |
| 27            | Strategic & Service Design Professor | Public University (DK)                 | Service Design and Design Futures                |
| 28            | Strategic Designer                   | International Development Program (TR) | Service Design and Systemic Transformation       |
| 29            | Strategic Design Professor           | Public University (US)                 | Service Design                                   |
| 30            | Systemic Design Professor            | Public University (IT)                 | Systemic Design                                  |
| 31            | Transition Design Professor          | Public University (US)                 | Design Futures                                   |
| 32            | Systemic Designer                    | Freelancer (US)                        | Service Design and Systemic Design               |
| 33            | Foresight Lead                       | Design Consortium (FR)                 | Design Futures                                   |
| 1*            | Design Lead                          | Design Consultancy (UK)                | Systemic Design                                  |
| 9*            | Regenerative Designer                | Design Consultancy (FI)                | Service Design and Design Futures                |
| 12*           | Strategic Advisor                    | Public Ministry (UAE)                  | Systemic Transformation and Portfolio Management |
| 20*           | Service & Design Futures Consultant  | Freelance (IT)                         | Strategic Design and Foresight                   |

This validation process enabled the refinement of the paradigmatic shifts, it surfaced key challenges, tensions, and critical issues associated with expanding service design towards

socio-technical transitions integrating systemic and long-term perspectives. The paradigmatic shifts were redefined in terms of language and clarity, as well as highlighting connections with relevant literature. These macro shifts point toward the construction of possible futures in the disciplinary and practical expansion of service design.

### 3. FINDINGS

The research revealed a dynamic picture of (service) design practices dealing with systems change and transition processes. It identified recurring patterns and shared developments across different levels of practice. Specifically, four paradigmatic shifts have been identified as (i) beyond linearity, (ii) beyond solutionism, (iii) beyond reductionism, and (iv) beyond short-termism. While diverse scholars advocated for such paradigmatic changes within the broader design discourse in the past, this article focuses on exploring the practicalities from a service design perspective, outlining trajectories of change that move “beyond” dominant design paradigms.

#### 3.1. Beyond linearity

Empirical data show practitioners move away from linear processes in favour of open and adaptive ones. As Interviewee 33 reflects in their work “[...] we tried to set up a process for our projects, but over time, we had to adapt to what was emerging. A linear process was not feasible at all”. Within this framing, projects unfold in response to emerging insights, relationships, and feedback. As the relationships among actors constantly evolve, designers are prompted to explore relational evolutions through an adaptive perspective.

An example of this mechanism is the work of Smithery (Interviewees 1-2), and their project with RHP Social Housing, a social housing cooperative. Smithery mapped connections between actors and housing infrastructures across scales, using these two categories as axes for the matrix of their tool; the Zenko Map (Willshire, 2020). They mapped, in this way, relationships at the micro level (e.g. what happens between a tenant and the house that they’re occupying) all towards the macro level (e.g. what happens between neighbours and all housing infrastructures in the neighbourhood), plus the interconnections between the different levels (Fig. 1). Smithery initiated an iterative mapping process of the multi-level relationships formed by connecting the actors of the system with the housing infrastructures. Although the project initially aimed to help RHP restructure their service delivery, the mapping process generated new emergent learnings. It revealed which connections RHP was actively mediating, highlighting what (previously overlooked) capabilities needed to be reinforced and by which actors. Thus, the map did not only visualize the system as it was but also created reflexive knowledge capable of orienting organizational transformation. RHP progressively adopted the map as an internal operative tool. This helped them understanding their actors-resource allocation, and consequently, restructuring teams’ formation and competencies to respond systemically to the challenges of their work.



Figure 1. Zenko Map as used within the project (Willshire, 2020).

As transitions unfold as complex entangled phenomena, they render linear, cause-and-effect planning insufficient. Smithery's approach recognized the impossibility of linear planning in complex systems, a proposition aligned with a service ecosystem design perspective (Vink et al., 2021). Learning and adaptation forward an understanding of service design as a co-evolutionary practice, where activities are shaped through mutual adjustments among designers, systems and actors. In this light, service design can cultivate iterative knowledge from the exploration of socio-material relationships and broader social structures.

### 3.2. Beyond solutionism

Interviewees revealed how the non-linearity of processes also led to a reflection on their final aim, highlighting how designers can rethink the objective of their work within socio-technical transitions. The second paradigmatic shift concerns the reframing of single solutions without reducing systemic complexity. As such, Interviewee 22 mentioned forms of service design that embed a future directionality and expand the "space of possibilities". Opening possibilities fuels a generative dynamic, as Interviewee 12 explains *"We need to accept emergence and the experimental nature of our work. Now, what we can do is create probes and see what happens to the system, then we adapt to the results which can be serendipitous and unexpected"*. To open such spaces of possibilities, interviewees highlighted the need to intervene on the underlying settings through which actors co-create value, recognizing that actors operate in dynamic environments that demand consideration of what emerges from their interactions, as well as external conditions. Here, possibilities emerge through the interplay of different relationships over long periods of time. In analysing case-based and expert interviews, this research identified different strategies that exemplify this orientation which mainly fell in two categories: Portfolios and Arenas. These concepts are not new outside the design field (Loorbach, 2022; UNDP, 2022) but have been employed in multiple forms by the practices analysed.

Recent works by UNDP and Dark Matters Lab (Höher et al., 2024; UNDP, 2022), testify to the increasing use of portfolios to manage large-scale systemic interventions. Portfolios can be generally defined as a set of multiple actions distributed and managed through a common

long-term objective (Goss et al., 2025). To apply this, service design practitioners are moving from framing single to multiple interventions, developing portfolios to explore, test, and learn from multiple experiences simultaneously. Examples of this practice are the work on service delivery to the homeless population in Edmonton, Canada by MaRS Solutions Lab or the provision of food security and livelihood aid by the IFRC Solferino Academy. Both projects approached systemic issues with a portfolio logic, managing multiple interventions at scale towards a common future vision. Solferino Academy organized the management of their portfolios through stories. The design team gathered compelling narratives of systemic change and visions of futures told by diverse actors, which were shared cyclically across the system to inform and build coherence at scale. Interviewee 5 affirmed: *"[...] people created these stories about what their preferred future might look like. But because we've done the systems mapping, because we'd explored different possible scenarios and looked at lots of different possible actions (in the portfolio), those stories were really rich. Because people had thought about how the different learnings from the previous phases integrated into a bigger picture."*

The underlying aim for both projects is coherence: portfolios are a way to help designers and organizations engage with systems in a recursive reflection on how their different activities align to an overarching intent.

On the other hand, arenas can be seen as the setting up of dialogical spaces for actors to discuss, test, and refine new approaches (Loorbach, 2022). The use of arenas has been developed within transition management (Beekman et al., 2025) and lately employed by design-driven organizations like Experio Lab and SITRA within public and energy systems (Harrington et al., 2025; Hyysalo et al., 2019). Designers shape arenas to allow stakeholders with different roles and powers — from those experiencing the system firsthand to decision-makers — to collectively explore challenges and opportunities. Arenas connect actors to reimagine what their future system might be. A similar approach was followed by Experio Lab with their work on the Swedish healthcare sector and the regional commission of a law of elderly care (Fig. 2). The project aimed at co-creating, with multiple stakeholders, new value systems that, in turn, provided background information for the policy work of the commission. Experio Lab soon recognized that this work had to be done by involving actors with diverse decision-making power for the process to be successful. In this way, decision-makers gained direct experience by hearing the stories of patients, doctors, nurses and caregivers, acquiring experiential learning that could not happen through a written report. Interviewee 6 recalled: *"[The commission] was a lot more involved in the work. That also created a lot of engagement among people, both professionals but also managers, to already start changing in a preferred direction. So, we could see that this kind of working on the micro, meso or macro level together with the regions, municipalities and the government was quite a strong movement for change."*

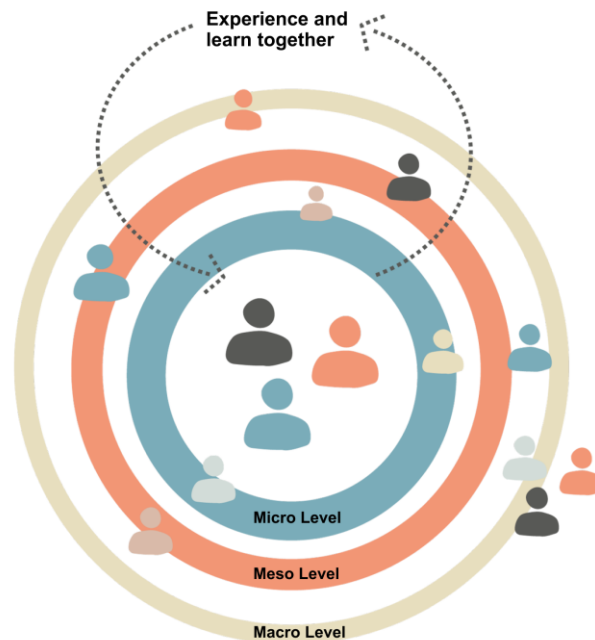


Figure 2. Experio Lab's co-creative process with the system, adapted from Westling et al. (2023). The process developed through recursive engagements using system mapping, co-creation, and policy prototyping bringing to the development of a new value system that was translated into a proposal for Sweden's National Plan for Elderly Care.

Strategies to move beyond solutionism illustrate the potential of service design in creating new conditions through which actors and interventions interact and create value. By setting up novel interconnections in the system, these forms of infrastructural work signal the possibility of alternative arrangements.

### 3.3. Beyond reductionism

The next paradigmatic change concerns the tendency to overlook broader systemic and temporal implications of designing. Reductionist thinking disassembles complex challenges in isolated components and assumes that improving a single part will produce an overall positive transformation in the wider system (van Amstel, 2015). This view ultimately fails to account for the radical interdependencies between systems and actors (Escobar et al., 2024). Furthermore, it neglects the historical reproduction of phenomena and their temporal entanglements at scale.

What emerged from the data is the recognition of systemic and temporal interdependency, prompting an exploration of systemic relationalities rooted in the past. An example is the work of Falay Transition Design, a collective of designers based in Finland, together with Fingo, a consortium of NGOs. The project began by inquiring about the historical harm and colonial oppression that has been reproduced in the humanitarian sector. Using tools such as the iceberg framework, actors mapped social structures and reflected on the historical mental models guiding the humanitarian field. Crucially, the process created space for emotional expression, inviting actors to have *"difficult conversations"* (Interviewee 8) and using them as a point of departure for imagining future systems free from colonial oppression. Emotions played an important role in this process; actors were encouraged to *"sense their way forward"* (Interviewee 9) relying on embodied intuition rather than purely rational thinking. This approach informed the co-creation of future visions, which were then back cast to outline actionable transition pathways for Fingo's strategic development.

Another way in which reductionism manifests is through the systematic exclusion of actors (van Amstel, 2015). This process renders parts of the system invisible, creating boundaries that reproduce epistemic oppression and marginalize both human and non-human actors, who are often left out of systems they actively contribute to creating. Strategies that counteract this process were employed by Relative Creative and their work with the Tongan government. They aimed to support the local government in developing a sustainable vision within the national Low Emission Development Strategy for 2050. Through three dialogue workshops, Relative Creative and local actors explored the sustainability legacy in the country, reflecting on the questions: “How did we get here?” and “Where do we want to go?”. These conversations prompted critical discussions on who should be involved when creating future scenarios, reflecting on the stake that natural and indigenous actors have in the transformation of these systems. Relative Creative placed effort into ensuring that processes and tools resonated with cultural references and indigenous epistemologies. This sensitivity to context grounded strategic visions in local knowledge and values. Interviewee 10 affirmed: *“[Participants] were focusing for example on amending policy regarding mangrove management and that’s a government level thing and it is policy level change. We gave people the structures to think through those actions: What change is occurring? What sectors (and actors) are involved and how much change is necessary to achieve this, and at what scale?”*.

These examples surface the proposition that service design can overcome reductionist paradigms by fostering a deeper and more situated engagement with systems’ relational entanglements, embracing multiple perspectives while enabling plural understandings of how transitions might unfold in their specific context.

### 3.4. Beyond short-termism

The last paradigmatic shift explores the connection between design and time horizons, where short-termism risks flattening the temporal unfolding of design interventions, supported by service design’s narrowness of spatio-temporal action (Irwin, 2020). As Interviewee 15 underlines, *“services [seen in their temporal manifestation] have the power of opening or closing futures”* underlining the potential defuturing effect that services can have (Fry, 2020). Therefore, it becomes important to recognize the mediation of services in the creation of futures (Oomen et al., 2022).

The practitioners interviewed are increasingly embedding a temporal reflection in their projects, aiming to investigate the plurality of futures embedded in their works. Expanding the time horizon of the project requires also an open-ended inquiry into futures, this is evident in practices that draw from speculative design and futures thinking which involve the exploration of alternative scenarios. An example of this practice can be seen in the case study of BIG Mind Design, a consultancy based in China and their work with Midea. The project aimed at creating new services and a value system capable of directing the digitalization of Midea’s appliances in the home environment. BIG Mind approached with a futures-driven perspective focusing on developing four different future scenarios. These stemmed from four core lifestyles developed in their research on Chinese family and home environment: Sustainability, Growth, Health and Intimacy. These became the drivers for rethinking the home environment and the digital appliances that could be developed for each scenario. BIG Mind explored each future by integrating touchpoints and cross-integrations between already existing services. This point marked the shift from a focus on single service delivery to the

envisioning, mediated by future scenarios, of possible service ecosystems and their integration at multiple levels.

Services design, by embedding future-driven practices, can reorient itself beyond short-termism. This integration can materialize experiences of plural futures and prompt actors to reflect on tensions, values and social structures embedded in each vision of the future.

## 4. Discussion and implications for service design

This article discusses how diverse instances of service design are increasingly tied to transition processes which require a stronger focus on their systemic and long-term framing. In this view, service design, as an ongoing, situated process enacted by actors shaping their service (eco)systems, can contribute to socio-technical transitions with future-oriented reflexivity and greater sensitivity to the systemic context. Additional implications emerged from the four paradigmatic changes impacting the service design discipline (Table 4) and related practice, as described in the following sections.

**Table 4: Implications for service design and connections with the research.**

| Paradigmatic Change  | Supporting Interviews (ID Numbers)        | Design Practices (from Case Studies)                                                                                                                                                                                                             | Implications for Service Design                                                                                                                                  |
|----------------------|-------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Beyond Linearity     | 1, 2, 13, 14, 17, 23, 25, 26, 29, 33      | Smithery's co-evolutionary process exploring the relationship between social and technical structures. (Interviewees 1-2)                                                                                                                        | Service design can structure learning and adaptive processes based on the ongoing emergent relationships between actors, designers and the project.              |
| Beyond Solutionism   | 3, 4, 5, 6, 7, 12, 18, 22, 25, 27, 28, 30 | MaRS Solutions Lab and Solferino Academy's creation of portfolios to manage system-level change. (Interviewees 4-5)<br><br>Experio Lab's set up of arenas to confront multiple experiences of systemic change. (Interviewees 6-7)                | Service design can create conditions for opening possibilities by facilitating new relationships among actors and the emergence of a long-term directionality.   |
| Beyond Reductionism  | 8, 9, 10, 19, 21, 24, 27, 31, 32          | Falay Transition Design's creation of emotion-led processes allowing actors to tap into their intuitions. (Interviewees 8-9)<br><br>Relative Creative's exploration of plural epistemological nuances in long-term transitions. (Interviewee 10) | Service design can support reflexivity on the historical manifestations and actors' epistemologies in systems guiding a more situated exploration of complexity. |
| Beyond Short-termism | 3, 11, 13, 15, 16, 17, 20, 31, 32, 33     | BIG Mind's exploration of multiple future scenarios for the creation of integrated services. (Interviewee 11)                                                                                                                                    | Service design can use future-oriented approaches to open multiple visions of futures.                                                                           |

### 4.1. Service design beyond linearity

Smithery's iterative mapping of socio-material relationships proposes a new way of interpreting service design processes. Understanding how projects unfold in an emergent way through the mutual adjustments of actors, designers and the systems they inhabit reinforces service design's co-evolutionary and ontological aspects. Here, learning and adaptation become the two main mechanisms to guide long-term transitions. Learning fosters reflexivity by drawing attention to the emergent relational outcomes in a system, while adaptation enables designers to reform their processes and understand how to shift them according to the new learnings acquired. Service design practitioners can therefore view emergence as a resource to be used in a dynamic way. Effecting this view will require the ability of service designers to understand when emergence must be disciplined in the process, converging on a

set of practical actions, and when further space can be given to its generative potential, opening the space of possibility. Finding ways of alternating between these two approaches will be an important challenge to attend for the contribution of service design in socio-technical transitions.

## 4.2. Service design beyond solutionism

Reconfiguring the relational disposition of actors and interventions such as shaping portfolios and arenas propose new ways for service design to effect change and reconceptualize solutions for socio-technical transitions. The practices analysed encourage diverse actors to be in open and unstructured communication, allowing the emergence of multiple directionalities. In this view, service design can guide collective explorations of directionality, empowering stakeholders to talk about alternative futures without immediate pressure for implementation, as in the work of Experio Lab. The setting up of sub-spaces within the Swedish healthcare system prompted actors to prototype and discuss new possible arrangements in a future-oriented perspective. Exploring possible directionalities in a collective way can also align actors and maintain coherence when coordinating multiple interventions, ensuring that portfolios of actions are aligned with future transformative goals. Solferino Academy's work illustrates this function using stories, where multiple design trajectories are continuously readjusted to maintain a coherent change narrative.

Service designers can build spaces that hold multi-perspective narratives of change, fostering safe environments that encourages participants to speculate outside of their usual systems and enact long-term transitions in their everyday practice. The challenges of these meta-design spaces revolve around ensuring a constant reflection between what happens within their experimental boundaries and what could be the consequences for a wider uptake outside of them.

## 4.3. Service design beyond reductionism

This research highlighted exemplary practices that depart from reductionist approaches, exploring instead designers' appreciation for relational entanglements. Of particular importance is the practitioners' recognition of interdependence among actors not just at the systemic level, but also in the historical reproduction of phenomena. This awareness positions designers as embedded actors within the systems they aim to transform, thereby enhancing their ability to support other actors in navigating systems' entanglements. The case of Falay Transition Design shows this ability being used through emotional literacy, and how this approach can generate reflexivity that becomes an important resource to imagine alternative futures. For service design, such a challenge goes beyond the critical visualization of a preferable future but entails passing on the capacity to the actors to see themselves enacting future transitions.

In this light, service designers are called to mediate between collective visions of futures and situated actions for transitions to take hold. This practice will require creating safe spaces in which multiple learnings and ways of producing knowledge can flourish. Concurrently, such pluralism will also ask a reflection on epistemic justice, addressing power disparities and centre marginalized voices excluded from dominant narratives.

#### 4.4. Service design beyond short-termism

This research foregrounds growing awareness among practitioners of the role of services in either constraining or enabling potential futures. The case of BIG Mind incorporates longer temporal horizons through the envisioning of multiple scenarios. By engaging in an open-ended exploration of alternative scenarios, service design can acquire further futural sensibility revealing how values, narratives, and ultimately services themselves, always embed specific concepts of the future.

To effectively achieve this proposition service design practitioners can strengthen futures literacy (Mangnus et al., 2021; Poli, 2021). It will be important for service designers to engage with how social structures shape collective imagination while avoiding the risk of reproducing dominant systems when imagining futures for transitions. This complements design futures approaches that interrogate how worldviews are embedded in imagined futures, reinforcing the need for a critical perspective in service design. This shift calls for service designers to take further responsibility for the consequences of designing services, including the task of determining which futures to transition towards, and which parts of systems to transition away from, and to continuously evaluate this in relation to the unfolding of design projects.

#### 5. CONCLUSIONS

This article is positioned in a field of disciplinary inquiry that links service (ecosystem) design and socio-technical transitions. The research suggested a series of implications that extend beyond dominant service design and integrate recent advancements of the discipline. However, adopting in practice these paradigms require the recognition of a vaster array of theoretical perspectives that engage with the topic. This diversity enriches the field of service design and creates different research streams, but it also signifies the absence of a deeply rooted theoretical correspondence. Further research needs to explore what this could entail for both theory and advanced practice, as well as posing additional effort in securing theoretical foundations, charting the horizons of established approaches, and detailing structured forms of service design agency in change processes.

A limitation of this study concerns participants' geographical distribution, which predominantly reflects perspectives from countries in the Global North. Future research should extend this inquiry to practices emerging in the Global South, where different epistemologies, resource constraints, and socio-political dynamics may challenge or reconfigure the paradigmatic shifts identified in this study, supporting a more granular understanding of service design within these new paradigms. While participants' sample included academic scholars, the primary focus remained on practitioners across diverse professional fields. This plurality was intentionally sought to draw high-level insights; however, the study acknowledges how micro-level implications within the specific professional contexts of the individual participants could have provided additional reading on the results.

The study demonstrates that practice can provide significant insights into the theoretical development and consolidation of service design incorporating intentionally systemic, and future-oriented aspects. The potential of this emerging area is relevant to design research, education, and practice. Service design can be a transformative force as an outstanding agent for socio-technical change, capable of co-creating multiple visions of the future and following co-evolutionary processes among actors, systems, and projects.

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