Towards Speculative Services for an inclusive society:

Understanding the relationships between Systemic-, Service- and Speculative Design

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Social exclusion needs to be studied from a comprehensive and exploratory perspective as a complex and systemic social problem, and there is an urgent need to promote social transformation towards an inclusive society. Over the past decade, Speculative Design has shown great potential as a critical approach to exploring the future and dealing with social issues. Also, there has been growing discussion about the approaches and applications of Service Design and Systemic Design to social issues and complex system problems. Complexity is a keyword in common for coping with social transformation and these three approaches. Further, to reach an inclusive society, designers have to face complex systems and wicked problems at different scales, from government, organizations, communities to final users, even including a non-human perspective. Therefore, the purpose of this paper is to build a more comprehensive understanding of Speculative Design, Service Design, and Systemic Design themselves and the relationships between them by drawing together discussions from existing literature. This paper aims to support the startup of new research exploring whether integrating these three design approaches can support the systemic inclusive social transformation.

Keywords: Systemic social transformation; Systemic Design; Service Design; Speculative Design

Introduction

In Europe and Central Asia, many groups face social exclusion that prevents them from fully participating in political, economic, and social life. Social exclusion is in many aspects, such as poverty, lack of basic capacities, limited employment, educational opportunities, and inadequate access to social and community networks or activities (Andjelkovic et al., 2011).

Moreover, in many cases, development policies tend to focus on developing national and regional governments or the private sector without sufficient attention to the development of communities. Social exclusion not only has negative effects on those who are excluded, but it may also lead to costs to the economy and society (World Bank, n.d.). Therefore, it is necessary and urgent to promote a more inclusive society.

Achieving social inclusion requires systematic coordination of national and local policies. Governments should address the three dimensions of social exclusion - exclusion of economic life, exclusion of social services, and exclusion of civic life and networks - in an integrated manner (Andjelkovic et al., 2011). Multiple interventions that reflect the complexity of the problem need to be implemented in a coordinated way. Above all, a strong public voice and participation are needed in making the right policy choices since different conditions in different regions require thoughtful, comprehensive, and systemic solutions tailored to the specific context.

Transformation to social inclusion involves at least two steps. One is to remove barriers in a broad sense: barriers to participation and access to resources and opportunities. The second is to promote a change in attitudes and mindsets. In favor of generally accepted values, changing mindsets have direct policy implications (Andjelkovic et al., 2011; United Nations Department of Economic and Social Affairs (UNDESA), 2009). This will gradually change social exclusion drivers and start to become drivers of inclusion and increase social tolerance.

RSD9

PROCEEDINGS

Playing with Tensions

Embracing new complexity, collaboration and contexts in systemic design

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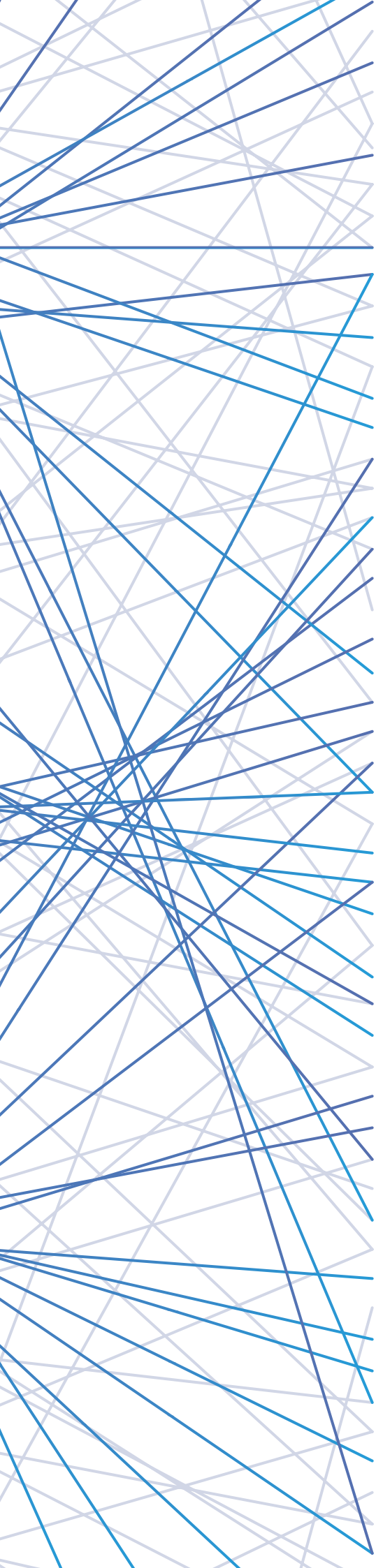

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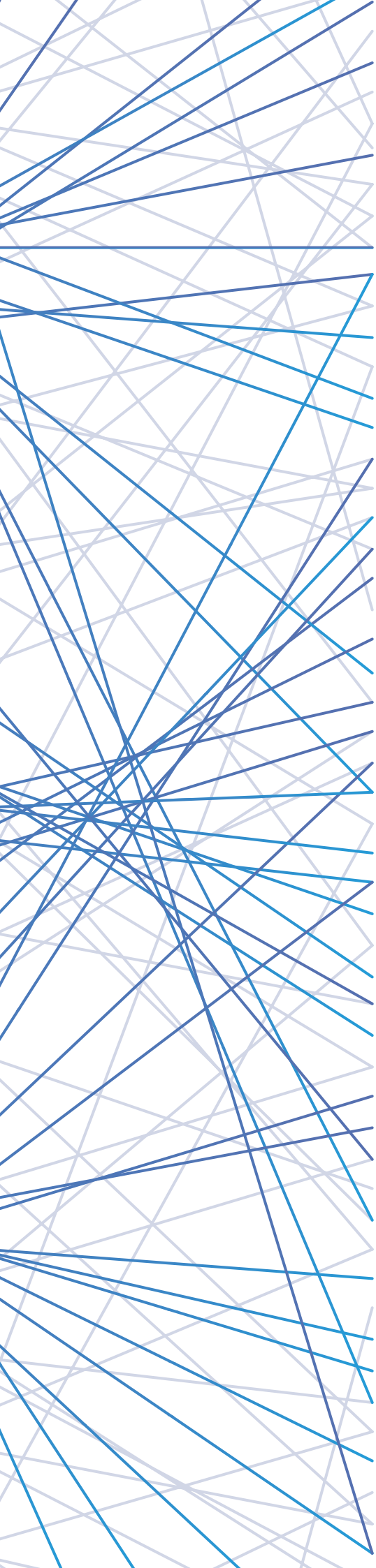

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Editorial

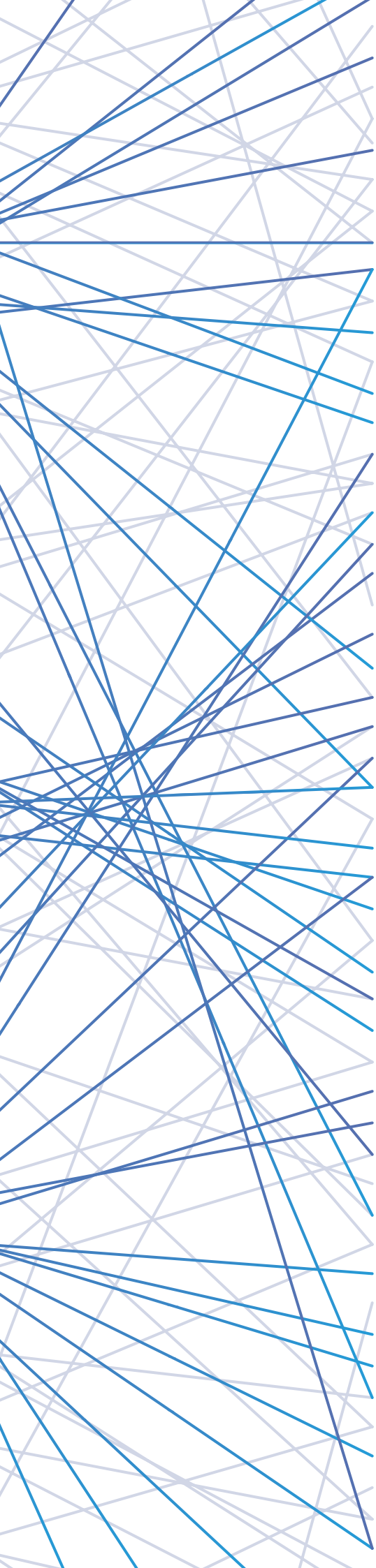
The RSD10 symposium was held at the faculty of Industrial Design Engineering, Delft University of Technology, 2nd-6th November 2021. After a successful (yet unforeseen) online version of the RSD 9 symposium, RSD10 was designed as a hybrid conference.

How can we facilitate the physical encounters that inspire our work, yet ensure a global easy access for joining the conference, while dealing well with the ongoing uncertainties of the global COVID pandemic at the same time? In hindsight, the theme of RSD10 could not have been a better fit with the conditions in which it had to be organized: *"Playing with Tensions: Embracing new complexity, collaboration and contexts in systemic design".*

Playing with Tensions

Complex systems do not lend themselves for simplification. Systemic designers have no choice but to embrace complexity, and in doing so, embrace opposing concepts and the resulting paradoxes. It is at the interplay of these ideas that they find the most fruitful regions of exploration. The main conference theme explored design and systems thinking practices as mediators to deal fruitfully with tensions. Our human tendency is to relieve the tensions, and in design, to resolve the so-called "pain points." But tensions reveal paradoxes, the sites of connection, breaks in scale, emergence of complexity. Can we embrace the tension and paradoxes as valuable social feedback in our path to just and sustainable futures?

The symposium took off with two days of well-attended workshops on campus and online. One could sense tensions through embodied experiences in one of the workshops, while reframing systemic paradoxes as fruitful design starting points in another. In the tradition of RSD, a Gigamap Exhibition was organized. The exhibition showcased mind-blowing visuals that reveal the tension between our own desire for order and structure and our desire to capture real-life dynamics and contradicting perspectives. Many of us enjoyed the high quality and diversity in the keynotes throughout the symposium. As chair of the SDA, Dr. Silvia Barbero opened in her keynote with a reflection on the start and impressive evolution of the Relating Systems thinking and Design symposia. Prof.Dr. Derk Loorbach showed us how transition research conceptualizes shifts in societal systems and gave us a glimpse into their efforts to foster desired ones. Prof. Dr. Elisa Giaccardi took us along a journey of technologically mediated agency. She advocated for a radical shift in design to deal with this complex web of relationships between things



and humans. Indy Johar talked about the need to reimagine our relationship with the world as one based on fundamental interdependence. And finally, Prof.Dr. Klaus Krippendorf systematically unpacked the systemic consequences of design decisions. Together these keynote speakers provided important insights into the role of design in embracing systemic complexity, from the micro-scale of our material contexts to the macro-scale of globally connected societies. And of course, RSD10 would not be an RSD symposium if it did not offer a place to connect around practical case examples and discuss how knowledge could improve practice and how practice could inform and guide research.

Proceedings

RSD10 has been the first symposium in which contributors were asked to submit a full paper: either a short one that presented work-in-progress, or a long one presenting finished work. With the help of an excellent list of reviewers, this set-up allowed us to shape a symposium that offered stage for high-quality research, providing a platform for critical and fruitful conversations. Short papers were combined around a research approach or methodology, aiming for peer-learning on how to increase the rigour and relevance of our studies. Long papers were combined around commonalities in the phenomena under study, offering state-of-the-art research. The moderation of engaged and knowledgeable chairs and audience lifted the quality of our discussions.

In total, these proceedings cover 33 short papers and 19 long papers from all over the world. From India to the United States, and Australia to Italy. In the table of contents, each paper is represented under its RSD 10 symposium track as well as a list of authors ordered alphabetically. The RSD10 proceedings capture the great variety of high-quality papers yet is limited to only textual contributions. We invite any reader to visit the rsdsymposium.org website to browse through slide-decks, video recordings, drawing notes and the exhibition to get the full experience of RSD10 and witness how great minds and insights have been beautifully captured!

Word of thanks

Let us close off with a word of thanks to our dean and colleagues for supporting us in hosting this conference, the SDA for their trust and guidance, Dr. Peter Jones and Dr. Silvia Barbero for being part of the RSD10 scientific committee, but especially everyone who contributed to the content of the symposium: workshop moderators, presenters, and anyone who participated in the RSD 10 conversation. It is only in this complex web of (friction-full) relationships that we can further our knowledge on systemic design: thanks for being part of it!

Dr. JC Diehl, Dr. Nynke Tromp, and Dr. Mieke van der Bijl-Brouwer
Editors RSD10

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The transformation of society is also the transformation of a large participatory system. The various parts of the system are interconnected and have intersystem impacts. Social transformation is a complex process to design for complex social situations, social systems, policymaking, and community design, and it needs to be worked on by multiple stakeholders (Jones, 2014). In the field of design, Speculative Design, Service Design, and Systemic Design are considered with the potentiality to address and improve complex social problems (Auger, 2013; Jones, 2014; Mitrovic, 2015; Yang & Sung, 2016). Therefore, this paper aims to review these three main design approaches and their relationships to see if they can be integrated and support the systemic inclusive social transformation.

Literature Review

Theoretical foundation

To achieve an inclusive society, designers must face complex systems and wicked problems at different levels, from the individual, community, organization to society level (Waddock et al., 2015). Therefore, facilitating the transformation of a system, or designing a new system, requires a participatory, systemic, comprehensive, and creative approach that addresses a multitude of interconnected and complex issues.

Speculative Design (SPD) strives to foster social dreaming and discuss what the future should be (Mitrovic, 2015). SPD relies on imagination and aims to open a new perspective for the Wicked Problem, using design to create future innovation as a social dreaming approach. The SPD approach brings narrative and fictional qualities into the design and 'expresses the unthinkable' through the language of design. By encouraging public debate about the social issues, this approach with an implicit "call to action" stimulates practical imagination and action by people to imagine and perform the change (Dunne & Raby, 2013; Hanna, 2019).

SPD emphasizes ethical and societal features of design practice with broader social implications. As mentioned in the former section, promoting a change in attitudes and mindsets contributes to become drivers of inclusion and increase social tolerance. Therefore, when exploring the issue of social transformation, SPD has a strong potential for contributing to this change from the level of inclusive perception and consciousness of individuals, communities, and even society.

Service Design (SD) is a design-based multidisciplinary approach that brings a human-centered, holistic perspective and methods with service systems thinking to design complex service systems (Yu, 2020). By integrating tangible and intangible touchpoints, SD provides systemic design activities and useful tools to facilitate interdisciplinary co-creation, communication, and participation between designers, users, and other stakeholders and actors at different levels and ranges to effectively achieve value co-creation in dealing with social issues (Yang & Sung, 2016). It also greatly increases the ways in which people can explore, express, and evaluate their current experiences and future lifestyles (Sanders & Stappers, 2014).

In recent years, the importance of service systems and service ecosystems in SD is attracting more attention (Sangiorgi et al., 2018; Vink et al., 2017). Service ecosystem design is an ongoing and collective process. In this process, the actors can achieve the desired futures by making, breaking and maintaining institutional arrangements, thus shaping value-in-context. This process also features reflexivity that can help actors overcome the constraints of the existing institutional arrangements (Vink et al., 2017).

Design thinking is viewed as a human-centered or bottom-up approach. In contrast, systems thinking is considered as a top-down approach that provides a panoramic view of the ecosystem (Tjendra, 2018). **Systemic Design (SYD)** integrates systems thinking and human-centered design to help designers to shift their focus from single elements to the whole picture while considering actors within the system. SYD approach is then appropriate to face complex social transformation processes (Jones, 2018).

The complexity of society requires specialized design and system facilitators, as well as the necessary stakeholders (Jones, 2018). When designing for complex systems, the understanding of the systems by the designer or co-designers would influence the systems of inquiry through design interventions. This design process requires a switch between an overall understanding of the system and the needs of stakeholders and users. Therefore, when working in increasingly complex fields, such as the systemic social transformation discussed in this study, adopting a systemic, visual, participatory and critical thinking process is necessary.

- **Systems Oriented Design (SOD)** is considered to help designers better understand, analyze and deal with very complex problems. In an era of environmental crisis, Actor-network theory holds that non-human stakeholders are important factors, which are as important as humans, in creating social situations (Latour, 2005). SOD entails such complexity, considering non-human stakeholders in addition to the human-centered approach, to generating holistic and synergistic solutions/interventions for complex challenges in a systemic perspective (Sevaldson, 2009). The theory of **Social Systems Design** states that when designing for social systems and communities, all those who influence and are influenced by the design outcomes should be part of the design community (Banathy, 1996). Therefore, when dealing with systemic problems with multi-level actors, SOD can promote the boundary-crossing between different levels and different fields visually and practically and support the sense-sharing of different perspectives.

- **Critical Systems Heuristic (CSH)** (Ulrich, 1983) is considered a theoretical framework that can deal with the issues of participation and power structures. CSH is a framework for reflective practice that focuses on the systemic examination and discussion of contextual assumptions and multiple perspectives about the relevant issues. CSH aims to support reflective practice through critical systems thinking (CST) to design and improve systems. CSH is also considered to provide a new civic capability for citizens to participate in social issues (Ulrich, 2005), to contribute at the level of civic and social participation when dealing with this topic.

- **Soft systems methodology (SSM)** (Checkland, 2000) is an action-oriented approach for tackling perceived problematical (social) situations. When coping with "soft problems", such as the context in this study, reducing social exclusion, and fostering social inclusion, actors within the system can learn their situations through social learning to take action to improve it.

- The complex systems are constantly changing and evolving. Therefore, when dealing with complex systemic problems, designers should not focus on one "solution". Only continuous design and redesign in the system, known as **"Dancing with systems"** (Meadows, n.d.), provides interventions that are likely to impact the system.

Relationships between Speculative Design (SPD), Systemic Design (SYD) and Service Design (SD)

In this section, we will briefly discuss the relationship between the three main approaches. The overlaps are that they are participatory and suitable for dealing with social issues.

Participatory: Value co-creation and participation have become prominent features of these three approaches. SD and SYD both involve multiple actors in the design process. SD stresses the importance of actors co-creating value, and some methods and tools have been adapted to the SD process with many benefits (Akoglu, 2014; Steen et al., 2011). In recent years, participation and value co-creation have also gained prominence in systemic design approaches, especially when dealing with issues related to services and complex systems (Jones, 2018). In SPD, interdisciplinary co-creation is a distinct feature, embedded in various actors co-speculating critically but rationally about the technological future (Dunne & Raby, 2013).

Dealing with social issues: From designing products and services to designing complex service systems, organizations, policies, and strategies, designers increasingly need to deeply understand the complexities and wicked problems of the social systems and develop new design practices for these systems (Bijl-Brouwer & Malcolm, 2020). Over the past decade, there has been an increasing number of studies on systems thinking and design practices applied to complex social problems, such as Transition Design (Irwin et al., 2015) and Design 4.0 (Jones, 2014). SD has also been increasingly applied to cope with social problems and challenges over the past two decades (Yang & Sung, 2016). The speculative approach moves away from the constraints of the commercial practice and allows designers to rethink future products, services, systems, and the world through speculation and initiate debate among the audience, helping to discuss social issues and foster social dreaming (Auger, 2013).

In addition, there are some other overlaps and differences between the three approaches:

Focus: SD is a human-centered approach, and it attaches importance to the advantages of user and stakeholder participation. SPD focuses on technology and future development, which does not emphasize consumer needs but focuses on rethinking the technological future or societal problems that reflect the current situation (Mitrovic, 2015). SYD emphasizes interrelationships (context and connections), focusing on the complexity of the systems

and how multiple actors interact and influence each other. Systems Oriented Design also helps to think in a multi-centric way that concerns different perspectives (Sevaldson, 2009).

Systemic: Systemic here refers to systemic thinking and practice embed in the design process. In SD, there are growing acknowledgments and discussions of its systemic nature since different stakeholders, actors, and their relationships are considered when designing the service (eco-)systems (Vink & Rodrigues, 2016). However, few discussions about systemic in SPD and SPD practice are more focusing on technology or emerging phenomena. Although SPD has the potentiality and ability to deal with the complex social issues related to systems, the systems thinking in this process is still underexplored.

Critical: SPD is developed from Critical Design (Dunne & Raby, 2013), the critical thinking is transmitted by speculation so that the audience can think and reflect on it. Critical thinking can also be found in SYD, such as CSH (Ulrich, 2005). However, in SD, which is practical, critical is a concept less mentioned and discussed in the literature.

Application of methods and tools: SD is an approach with a very clear framework, and its process emphasizes practical methods and tools (Sangiorgi, 2009). On the other side, there is no fixed framework, methods, techniques, and tools for SPD, but a variety of methods and techniques are being adjusted and adapted according to different contexts, technologies, perspectives, and audiences (Auger, 2013). SYD is more valued for its systematic thinking, that is, the ability to deal with complexity, than for methods and tools. However, it is worth noting that in SOD, many designerly methods are applied in the design process (Sevaldson, 2013).

Communication: In practice, SYD is sometimes challenging to be understood by actors due to its complexity. The cost and threshold for understanding and participating are high, but once the complexity is understood, it is an advantage to deal with wicked problems and have a sustainable and long-term perspective. For example, methods in SOD, such as Gigamapping (Sevaldson, 2011), can visualize the complexity of the system and reduce the communication threshold. Besides, one of the overlaps between SD and SPD is that both have the advantage of communicating through storytelling, scenarios, prototypes, or fiction in a visual or experiential manner, giving actors the advantage of communicating and understanding the value of the design in question.

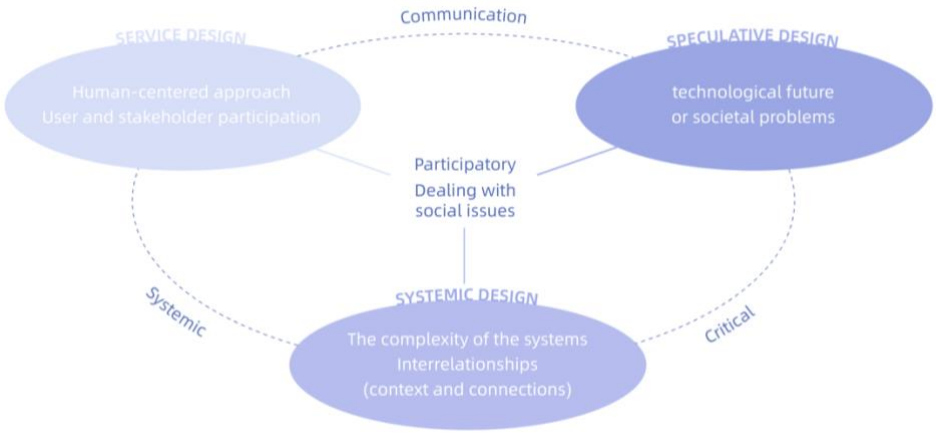

Figure 1. Relationships between SPD, SYD and SD. Illustrated by author.

Towards Speculative Services for an inclusive society

Although there has been more and more integration and practice between Systemic Design and Service Design in recent years, the discussion between these two design approaches and Speculative Design remains underexplored. The context of this study will fall on the complex social issue of an inclusive society. As we mentioned in the previous sections, the characteristics of each of the approaches can add value to this context and further the design process in their own way. Therefore, this study will explore the theoretical framework and practical methods of "Speculative Services", integrating these three main approaches for an inclusive society.

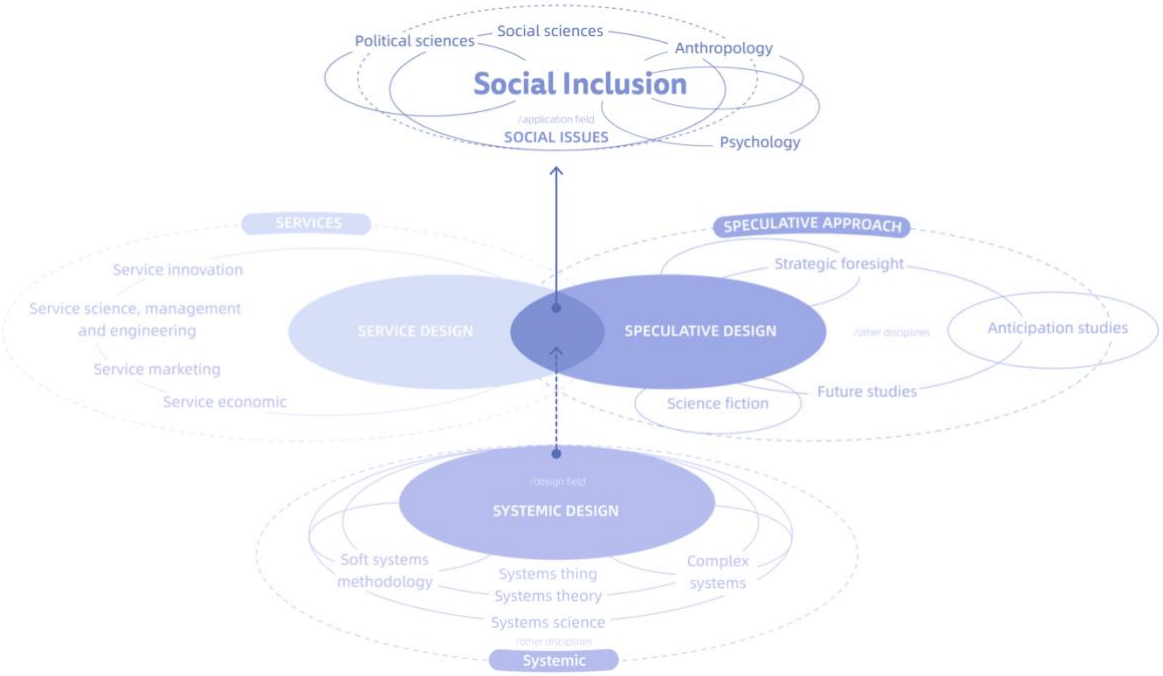

Figure 2. Mapping of Speculative Services. Illustrated by author.

Here are some of our reflections on further exploring the integration of these three approaches for an inclusive social transformation:

We decided to include all three approaches to foster an inclusive society because we have identified the benefits of each approach in dealing with this topic. These three approaches are complementary but also have some conflicts with each other.

In terms of complementarity, SPD's exploratory and critical characteristics can help SD and SYD in the design process to problematize phenomena to raise new questions for future exploration. The systemic and critical thinking of SYD can inject mindsets and competencies in dealing with complexity to SD and SPD. The advantage of SD lies in its value co-creation with multiple actors and its practicality and visualization, making the design process of SPD and SYD more inclusive and bring in user-friendly methods and tools.

In addition, we think it is necessary to redefine the design process, methods, and tools of "Speculative Services". Within the literature on SD and SPD, there has been a strong emphasis on practice (Hanna, 2019; Karpen et al., 2017). In SD, there are practical methods and tools like service blueprint and service roadmap (Almqvist, 2018; Bitner et al., 2007). However, most subjects intend SPD as an exploratory approach, more than a formal methodology, to bring together multiple disciplines, competencies, methods, and cultures, and have flexibility during the practice (Iaconesi, 2019). In addition, in SYD, several systemic approaches for understanding, analysis, participation, and innovation, can bring critical and dynamic systemic thinking and methods to the design process while keeping the design features. Therefore, it can be considered that SYD has great potential to be integrated into the SD and SPD process to bring systemic advantages.

These three approaches have their own advantages. However, it should be noted that in design practice, a seemingly related but conflicting design process can be confusing if there is not a proper positioning and framework to guide designers or co-designers. The methods and tools of these three approaches are also very scattered, and in practice, choosing and deciding the appropriate tools may also become a frustration. Therefore, this study believes that it is necessary to redefine a theoretical framework. Compared with the single approach, the integrated approach is expected to refer to and combine the design process, methods, and tools of the three approaches to providing a clear framework and guidance for the design process.

Based on the understanding of these three approaches, the future study will explore the theoretical framework and practical methods of "Speculative Services", in particular when applied to societal transformation. Banathy

(1996) argues that designing social systems is not to create design communities to learn from users or design from users' perspective, but to make them part of the community itself as user-designers. This ethical stance on social systems design allows us to view co-design from a systemic perspective. In the context of an inclusive society, the Speculative Services approach aims to enable policymakers and civics to understand, explore, discuss and reflect on the topic of social exclusion, to empower them as 'designers' in this social system design, thereby promoting relevant policies, interventions, services, etc., to promote the inclusive development of society.

This study is expected to be conducted under the issue of social exclusion and social inclusion. But apart from social inclusion, what other aspects of social and systems issues might benefit from the Speculative Services approach? Like social exclusion, many social problems are also complex, systemic, and multi-level. Therefore, if the Speculative Services approach can contribute to the issue of social exclusion, it may also be applied to other social problems or other complex and systems-related problems that need to be explored for future possibilities.

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