

Adopting a diffractive approach to journey mapping in the exploration of scaling citizen assemblies in Sweden

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Abstract

Scaling citizen assemblies to increase their impact on sustainable transitions requires *situated knowledges*. Whilst service design methods can support local governments in working with *situated knowledges*, there has been a call for more reflection on their application. In contrast to reflection, the feminist metaphor of *diffraction* enables greater relationality, complexity, and impact within research; yet it remains a novel approach. This paper presents an experiment with participants of a city-level citizen assembly in Sweden. During the experiment, journey mapping was used within a *diffraction apparatus*, and *diffractive reading* enabled the collective exploration of barriers to and opportunities for scaling citizen assemblies. This *diffractive* approach enabled plurality to be explored, complexity to be visualised, and shifted the researcher's position, increasing participants' power over their voice. Further research is recommended to explore how *diffraction* and service design can mutually benefit each other to facilitate sustainable transitions.

Keywords: diffraction, journey mapping, citizen assembly, scaling

1. Introduction

Public participation practices enabling dialogue between citizens and local governments need to adopt scaling strategies beyond replication to increase their impact. Huybrechts et al. (2024) claim that “a meaningful shift toward making public

participation a common practice has yet to be achieved” (p. 89). Scaling public Participation activities typically occur through the replication of principles or methods. (e.g. OECD, 2022). Botero et al. (2020) argue that, from a participatory design perspective, this focus on methods disregards the surrounding activities required to integrate public participation within public organisations, building upon the concepts of *infrastructuring* (Hillgren et al., 2011) and *institutioning* (Huybrechts et al., 2017). This strategic shift from scaling public participation through replication to integration can be identified in Moore et al.’s (2015) research, which outlines three scaling strategies for social innovations: *scaling out* – impacting larger numbers, *scaling up* – impacting infrastructure such as rules and policy, and *scaling deep* – impacting mindset and cultural roots, the latter of which lacks empirical evidence. Public participation could benefit from expanding its scaling strategy beyond *scaling out*, to build upon the discourse around *scaling up*, and exploring the uncharted territory of *scaling deep*. An exploration into how public participation could benefit from expanding its scaling strategies requires a collaborative and contextual approach, focusing on *situated knowledges*.

While service design methods are increasingly used within local government to engage with *situated knowledges*, there is a need for reflection on their application. Donna Haraway (1988) states that *situated knowledges* are pluralistic, locatable, and accountable. Additionally, Alander and Mörtberg (2003) explain that, “different people possess and shape knowledge situated and located in geographical, physical, social, and cultural experiences over time” (p. 5). Working with *situated knowledges* requires researchers to collaborate closely with affected actors. Pahl et al. (2023) describe this as a shift from *researching for* to *researching with*. Whilst service design traditionally uses a variety of qualitative methods to understand the experiences of affected actors and co-create alternatives (Parker & Heapy, 2006), a lack of resources can limit the participants’ involvement (Kensing & Blomberg, 1998), positioning the researcher as an interpreter (Haraway, 1988). Additionally, design researchers are calling for more reflection on the application of service design methods to increase capacity for change (Mortati et al., 2018), foster co-learning (Seravalli et al., 2022), address power dynamics (Corubolo et al., 2018), strengthen designers’ ethical perspectives (Sangiorgi, 2010), and enable the reflective attributes of service design methods to uncover hidden contextual knowledge, catalysing transformation (Vink & Koskela-Huotari, 2022). Service design methods can facilitate engagement with situated knowledges when their application is considered.

Building on this call for reflection, this paper examines how the feminist metaphor of *diffraction* can support the application of service design methods. In feminist theory, Donna Haraway’s (1992) optical metaphor of *diffraction* is presented as an

alternative to reflection. *Diffraction* “is a practice of attending to relationality, process and messiness” (Dawney, 2018, p. 110) and is described by Alander and Mörtberg (2003) as a way to explore *situated knowledges*. Consequently, this paper presents an experiment that applies *diffraction* to investigate how a *diffractive* approach can enhance service design methods, specifically journey mapping, in the exploration of scaling citizen assemblies.

2. Theoretical background

2.1 Service design methods within public organisations

Local governments are increasingly adopting service design methods, often to support existing paradigms rather than question them. Cottam (2018) argues that service design predominantly supports the prevailing neoliberal agenda by increasing the efficiency of public services. This stands in contrast to developing public services as a common interest (Kim, 2018). As Kim (2018) elaborates,

“service, which used to mean a long-term evolving relationship, has now become an ephemeral commodity. Employers are detached from the consequences of their activities, and customers have lost their sense of affiliation with the systems and other participants who serve them” (p. 46).

Raworth (2017) highlights that this lack of relationship reduces citizens to consumers, forming an oppositional stance between local governments and their citizens. This opposition is illustrated in the *triangle of inaction* (Peyretou, 2020), where collaboration between citizens and local governments seems impossible. Such prevailing narratives need to be challenged through service design methods, necessitating a more relational and intentional approach to service design.

The relational turn within service design emphasises increased collaboration and embraces resulting tensions, highlighting a need to reconsider its application. For Boztepe et al. (2024), relationality in service design is where “the human (both designer and user) is de-centred, and agency is distributed” (p. 5), with inherent tensions being embraced. Additionally, Goodwill et al. (2021) believe that “to engage with complexity and better represent the perspectives of affected publics, it is imperative that more actors are included throughout the design process” (p. 45). This increased collaboration and distribution of power requires designers to engage in what Huybrechts et al. (2024) refer to as *socio-material brokering*, with each encounter being uniquely configured to the needs of the participants. Thus, highlighting the need for service design methods to be applied in a contextually

relevant manner. Furthermore, Boztepe et al. (2024) highlight the current “risk of oversimplifying design into a mere toolkit, trivializing the craft of making, and underestimating the effort required to build meaningful empathy with stakeholders” (p. 2). Additionally, Vink & Koskela-Huotari (2022) argue that adopting methods without knowledge of the underpinning principles will reduce the intended impact. In extension, Goodwill et al. (2021) argue that increased power literacy is necessary to recognise how power and privilege manifest when interacting with these stakeholders. Addressing the potential misuse of methods requires what Huybrechts et al. (2017) refer to as the agonistic re-engagement of designers with institutions. In this case, to ensure that the application of service design methods creates meaningful transformations.

Whilst there is a strong argument for using reflection to support the application of service design, this paper explores the impact of applying the alternative feminist metaphor of *diffraction*. Sangiorgi (2010) suggests that reflection could enable designers to acknowledge their roles within transformation and assume these roles more responsibly. Additionally, Mortati et al. (2018) hope that reflection can promote a shift from useless replication within design to one that increases change capacity. Furthermore, Vink & Koskela-Huotari (2022) believe,

“without reflexivity, invisible aspects of the service context remain hidden. Thus service design efforts risk reproducing the status quo or pushing for changes that are incongruent with, and unsupported by, the context” (p.384).

Exemplifying this, Seravalli et al. (2022) suggest that reflection facilitates the co-learning needed to support “problem framing rather than problem solving” (p. 240). Building upon Barad’s (2014) suggestion that “reflection and diffraction are not opposites, not mutually exclusive, but rather different optical intra-actions highlighting different patterns, optics, geometries that often overlap in practice” (p. 184), suggesting that both reflection and diffraction have something to offer service design.

2.2 Journey mapping

Journey mapping is an inherently participatory method for exploring *situated knowledges*; however, its potentially extractive and interpretive qualities require attention. Journey mapping can be defined as a sketch used to support a “dialogue between the designer and her design challenge or acts as boundary objects for the designer and stakeholders in a design process” (Krogh et al., 2015, p. 5). It supports the materialisation of the immaterial (Blomkvist et al., 2016) and involves researchers’ engaging with *users* (e.g. consumers or citizens). Through qualitative methods, researchers try to understand and map the *user’s* experience (Parker & Heapy, 2006). Often conducted as part of service blueprinting, the primary aim is to

help service managers analyse and improve services (Følstad et al., 2014; Kim, 2018). However, journey maps are rarely developed or reflected upon together with the *user* whose journey they depict. Pahl et al. (2023) highlight that such restricted participation increases the *extractive* nature of the research. Furthermore, this positions the researcher as an interpreter (Haraway, 1988), impacting both the weight given to participants' voices and the validity of the data. To fully embrace *situated knowledges*, journey mapping needs to be applied in a more participatory manner.

Whilst the visualisation of journey mapping enables reflection, its simplification needs to be addressed. Vink & Koskela-Huotari (2022) illustrate how various service design methods, such as the popularised journey map, have affordances that enable reflexivity. Kim (2018) further explains that, “when designers reveal something in the world by giving it a form, they are creating a tool, providing a space, or raising a value question so that the system becomes more accessible to people” (p. 47). However, reflection that diverges from the intended focus can generate tension, and consequently, complexities can be omitted from the process (Boztepe et al., 2023). Additionally, journey maps focus on the customer (Kim, 2018), a label and perspective problematised in the sustainability discourse (Raworth, 2017), as they reduce citizen engagement with local governments. This is strengthened through the differentiation between frontstage and backstage, which visually depicts service as objectified labour, fragmenting the relationships between actors (Kim, 2018). These simplifications reduce the relationality and complexity within the depictions of participants' experiences.

2.3 Diffraction apparatus

Although originating in physics, *diffraction* has become a metaphor within feminist theory for creating an impact in the world through considered knowledge production. Udén (2018) highlights that this “novel conceptualization of *diffraction* is yet another instance, where Haraway has brought a term from science and technology to feminist and gender studies” (p. 1). For Donna Haraway (1992), a feminist theorist and biologist, reflection is about a fixed position perpetuating current paradigms, whilst *diffraction* “trains us to more subtle vision” (p. 300) and can be used as “an optical metaphor for the effort to make a difference in the world” (Haraway, 1997, p. 16). Karen Barad (2007), a feminist theorist and physicist, builds upon Haraway's metaphor and explores *diffraction* within research, drawing inspiration from its origins as a phenomenon in physics that describes the behaviour of waves. Taking the example of light waves, Alander and Mörtberg (2003) explain that *diffraction* “appears when light passes through a narrow slit and spreads. The light beams and their history of passage through the slit can be registered on a screen” (p. 5). Sefyrin's



(2012) interpretation of Barad’s work provides a concrete example of how researchers can begin to build a methodology utilising this metaphor:

“If diffraction is understood as a metaphor for research, the empirical material is the light, and the slits in a screen are research practices, such as the practice of formulating the purpose and research questions of an article, practices for gathering empirical material, the situatedness of the researcher, the choice of theories and the methods, and the format of the text. Hence if these are changed, so does the interference pattern that is the result of the diffraction”. (ibid. 2012, p. 715)

Barad (2007) describes the obstructions and recording devices outlined in a researcher’s methodology as a *diffraction apparatus*, insinuating that it can be designed to alter the way knowledge is produced. Dawney (2018) further describes how a *diffraction apparatus* “plays each aspect against each other, encouraging the visibilities produced through their entanglements to question their integrity and highlight their messiness” (p. 109). This intra-action between data during accumulation and between the data and its reader is fundamental to *diffraction* (Ávila, 2019; Barad, 2007; Taguchi, 2012). Barad (2007) describes intra-action as an act of recognising “that distinct agencies do not precede, but rather emerge through, their intra-action” (p. 33). Researchers are therefore encouraged to consider the impact of their methodology on knowledge production and, in turn, their impact on the world.

Diverse disciplines, including design, are testing *diffraction* through various applications to alter knowledge production, enabling key principles to emerge. Based on their review of fifty-one papers testing *diffraction*, Udén (2018) believes that the diversity of its applications makes it challenging to create a general representation; however, key principles can be evaluated within each discipline. Leila Dawney (2018), a social theorist and cultural geographer, has outlined three principles which have been summarised to produce a conceptual framework. This framework has supported an initial literature review of empirical studies within design that explicitly adopt diffraction, identified through a combination of citation searching and reference checking (see Figure 1), and will be used to analyse the results of the experiment described in this paper.



Diffraction in Research	Examples
<p>1 Diffracting troubles the case and messes the categories: Diffracting involves getting rid of the assumption that there is an unproblematic 'object': it is a practice of attending to relationality, process and messiness in the always-incomplete object...troubling the research case as a bounded, isolated unit.</p>	<p>Alander & Mörtberg use diffraction to highlight the relationality of sustainable technologies within a socio-technical network (see Alander, 2007; Alander & Mörtberg 2003).</p> <p>Ávila (2019) uses diffractive reading to explore the intra-relatedness of ecologies.</p> <p>Wilde (2020) suggests cross-disciplinary educational programmes to enable the diffracting of cases from various perspectives.</p> <p>Vega et al. (2023) acknowledge the entanglement of researcher-practitioners in the knowledge-creation dynamic suggesting agential cuts as a support mechanism.</p>
<p>2 Diffracting lets the world be messy and complex: It allows histories of objects to participate in their making; it makes visible the complexity, messiness and instability of research objects, and their excess to knowing. It lets data non-cohere and disintegrate: composing and recomposing objects, cases and phenomena.</p>	<p>Alander & Mörtberg create a diffraction apparatus allowing various research activities exploring sustainable technologies to develop diffraction patterns which incorporate the histories, the stories and can be used to discuss the present and conceptual worlds (see Alander, 2007; Alander & Mörtberg 2003).</p> <p>Sefyrin & Mörtberg uses diffraction to explore counter-stories to the dominant discourse around the absence of women in IT design (see Sefyrin, 2012; Sefyrin & Mörtberg, 2010).</p> <p>Vega et al. (2023) diffract the data from the diaries to understand the interference patterns being created.</p> <p>Lilja (2024) explores spacetime-mattering through the intra-action of theory and activities, to develop potential designer-material relations which contrast the existing extractivist narrative.</p>
<p>3 Diffracting acknowledges how researchers participate in world- and knowledge-making – as composers of data and as diffraction apparatuses: It refuses representationalism and operates in a performative mode...When we approach problems, we bring some aspects of them to visibility, and in doing so alter their histories and contribute to their making.</p>	<p>Alander & Mörtberg express the need for a closer relationship between the designer/researcher and the users to build upon situated knowledges (see Alander, 2007; Alander & Mörtberg 2003).</p> <p>Sefyrin & Mörtberg explore how the interpretation of data impacts design practice (see Sefyrin, 2012; Sefyrin & Mörtberg, 2010).</p> <p>Smitheram & Joseph (2020) explore the intra-action between human and non-human in the creation of artefacts.</p> <p>Vega et al. (2023) acknowledge the power of the researcher to design the diffraction apparatus and decide what resulting data matters however they also acknowledge the agency of the participants in determining the outcome of the diffraction apparatus given the socio-material interaction.</p> <p>Wilde (2020) acknowledges the role of design in making-worlds and therefore the crucial role in design education to equip designers with the tools to do so in a responsible manner using diffraction as a core concept interpreted as collaboration across disciplines.</p> <p>Lilja (2024) explores how diffraction can be applied to walking and in the development of design matterings to engage with, rather than just observe, mineral matterings whilst reconfiguring the current anthropocentric understanding of agency.</p>

Figure 1. *Diffraction* in research, adapted from Dawney (2018): Author.



2.4 Diffractive reading

Within the literature on experimenting with *diffraction*, methodological choices are crucial, with *diffractive reading* being a favoured approach. Vega et al. (2023) suggest that research methods “do not merely serve to apprehend the phenomenon under investigation; they become constitutively entangled with it” (p. 4). In their literature review, Udén (2018) identifies *diffractive reading* as a common approach, often used in conjunction with research methods traditionally used in each discipline. For example, ethnographic field notes (Mellander & Wiszmeg, 2016), participant diaries (Vega et al., 2023) and walking (Lilja, 2024). Whilst this approach is also referred to as *diffractive analysis*, (e.g. Dawney, 2018; Taguchi, 2012) the term *diffractive reading* will be used within this paper. *Diffractive reading* responds to Barad’s (2007) claim that *diffraction* is about studying the creation of differences and their impact. Dawney (2018) illustrates that *diffractive reading* considers “where data rubs up against data and what that exposes about how subjects and objects of research are made through the research” (p. 110). This supports the parallels Alander (2007) draws between *diffraction* and *reflexive interpretation* (Alvesson & Skoldberg, 2009). Such weaving of knowledge illustrates the researcher's role as an “active participant in the making of worlds and objects” (Dawney, 2018, p. 108). *Diffractive reading sensitises* researchers to the relationality in data and encourages them to engage with methodological choices during knowledge production, highlighting the differences that will make an impact.

The application of *diffractive reading* can impact the power dynamics between researcher and participants. *Diffractive reading* can be interpreted as a task for the researcher alone, reading concepts through each other (e.g. Ávila, 2019) or embodying the perspectives of those depicted by the data (e.g. Sefyrin, 2012; Taguchi, 2012). However, this perpetuates the notion of the researcher as an interpreter, occupying a position of power. In contrast, *diffractive reading* can become a collaborative activity, repositioning the research and thus addressing power dynamics. Mellander & Wiszmeg (2016) describe how ethnographic researchers are experimenting with *diffraction* to minimise the distance between researcher and participants. For example, *diffractive reading* is conducted in collaboration with participants, enabling the co-creation of research outputs (Hansson et al., 2020; Mellander & Wiszmeg, 2016) to minimise the “visions and visionary voices that characterize the knowledges of the subjugate” (Haraway, 1988, p. 590). This requires shifting the researcher's position to acknowledge and respond to the idea that “knowledge no longer needs to be understood as a result of reflection or as something stemming from straight lines of sight, but rather as something emerging through disruptive processes” (Mellander & Wiszmeg, 2016, p. 103). This builds upon

Haraway's (1988) suggestion that "actors come in many and wonderful forms. Accounts of a 'real' world do not, then depend on a logic of 'discovery', but on a power-charged social relation of 'conversation'" (p. 593). The application of *diffractive reading* determines to what extent participants' voices are given weight through the repositioning of the researcher.

3. Experiment

This section will outline the research context, the research participants, and the application of *diffraction* within the design research methodology.

3.1 Research context

The Swedish city's environmental department is testing new methods of public participation to address climate transitions. In conjunction, the city decided to support a national project aimed at developing a cost-effective method for climate assemblies, thereby enabling more climate assemblies to occur. The project was organised by a national association that ensures that the climate crisis plays a central role in the election campaign and debate. The project involved recruiting forty citizens through targeted outreach activities and a wide-communication campaign, four of whom were selected members of the city's environmental political committee. An open-source software was used to select participants who would best represent the city's population.

The climate assembly began with a physical meeting to develop a vision for the city in 2050 and establish a set of participation rules. Following this, three digital meetings were conducted, during which educational presentations were given and themes for further discussion were selected. The main event was a two-day physical workshop held over a weekend, during which participants generated six recommendations and twenty-six associated proposals. The output was handed over to a representative from the city, who then delegated it to the environmental political committee, which assigned the task of developing a response to the environmental department. The environmental department shared the output within the city for input before developing their response to the environmental political committee. This will later be shared with climate assembly participants.

3.2 Research participants

Research participants collectively represented the identified roles of citizens, politicians, civil servants and members of the national association. During the group



work, each of the two groups had a varied representation. Whilst best efforts were made to address positionalities by recruiting a representative group of participants (Cornish et al., 2023) to enable a more just visioning (Haraway, 1988) of the citizen assembly experience, this was limited as the sample was selected from a small subset of those who attended the citizen assembly and were willing to take part in the research. Therefore, although the knowledge produced is locatable, it is acknowledged as partial (Haraway, 1988).

3.3 Methodology

This research aims to contribute to the scientific discussion on scaling public participation whilst supporting a Swedish city in amplifying its public participation. This study adopts a research-*through*-design (Frayling, 1993) approach, which involves developing theory-grounded tools, as well as combining and sequencing them to advance research activities. In this paper, the empirical data from activities 3-6 will be presented (see Figure 2). In line with an expansive experiment (Krogh et al., 2015), this research has tested applying a *diffractive* approach to service design methods by using journey mapping within a *diffractive apparatus* and adopting *diffractive reading*.



	Method	Aim of Study	Participants	Activities	Data type	Knowledge Outcome
Activity 1	Observation of citizen assembly	To understand how a citizen assembly is conducted	36 citizens, 4 politicians, 3 civil servants, 6 organising association, 6 facilitators	Observation of the 2-day in-person event	Fieldnotes Photos	Knowledge of the process, outcomes and outputs of a citizen assembly and the roles of those involved
Activity 2	Workshop participation	To understand how different municipalities perceive the barriers to and opportunities for scaling public participation	Approximately 40 participants representing civil servants and academics involved in public participation across Sweden	Participation in a half-day workshop alongside participants	Fieldnotes Photos	Insights into the common barriers to and opportunities for scaling different public participation activities in Swedish municipalities
Activity 3	Diffraction journey mapping	To understand participants experiences of the citizen assembly	3 citizens, 1 politician, 2 civil servants, 2 organising association	8 Semi-structured interviews Data recorded in a journey map Participants reviewed and updated their journey map during a follow-up interview	8 Interview Transcriptions* Co-created journey maps	Insights into the experience of different participants of the citizen assembly and the emerging barriers and opportunities to scaling such public participation activities. A revised journey map which more accurately represents the participant's experience
Activity 4	Evaluation survey	To evaluate diffraction journey mapping with participants	3 citizens, 1 politician, 2 civil servants, 2 organising association	Online survey	8 Survey results	Insight into the impact of diffraction journey mapping on giving weight to situated knowledges and voice to participants
Activity 5	Participatory workshop on scalability	To understand participants perspectives on barriers to and opportunities for scaling citizen assemblies	2 citizens (1 new), 1 politician (new), 3 civil servants (1 new), 3 organising, association (1 new)	Half-day workshop including diffraction reading of an amalgamated journey map Group exercise recording perspectives on a scalability canvas	2 Group-work transcriptions* Empirical material from group exercise	Insights into participants perspectives on barriers and opportunities to scaling citizen assemblies and their priority
Activity 6	Evaluation Survey	To evaluate participatory workshop with participants	2 citizens (1 new), 1 politician (new), 3 civil servants (1 new), 3 organising, association (1 new)	Online survey	9 Survey results	Insight into the impact of a diffraction participatory workshop on giving weight to situated knowledges and voice to participants

*AI Usage: Transcriber (Release: 1.6, Type: Bath, Access: Open, Extension: Open MPI 4.1.6) was used to support the creation of transcriptions and translation of these from Swedish to English. Transcriber uses the [Whisper](#) large language model from [OpenAI](#). On top of this Transcriber uses [WhisperX](#) to add speaker diarization. All outputs were manually reviewed and edited by the researcher.

Figure 2. Outline of the research activities of the entire research project: Author.

3.3.1 Diffraction apparatus

Within this research, journey maps were used within a *diffraction apparatus* (see Figure 3) to create and capture the empirical data shared by participants about their experience. Each participant's experience can be interpreted as a wave (W), which passes through an obstacle (O). In this experiment, O represents both the questions proposed during the semi-structured interview, underpinned by the journey map format of before/during/after, and how each participant interpreted and chose to answer these questions. Finally, the *diffraction* initiated by the obstacle creates a *diffraction pattern*, which was recorded on a journey map sketched by the researcher during the interview (see Figure 4) and through an audio recording, reflected in a transcription. The captured data was visualised on the journey map template (D), outlining the before/during/after stages of the participant's experience alongside swimlanes depicting sub-stages, experience, emotions, quotes, and initial insights related to scalability (see Figure 5). By combining individual journey maps, the complexity, entanglements, and differences in experiences became visible, allowing participants to explore and discuss them (see Figure 6).

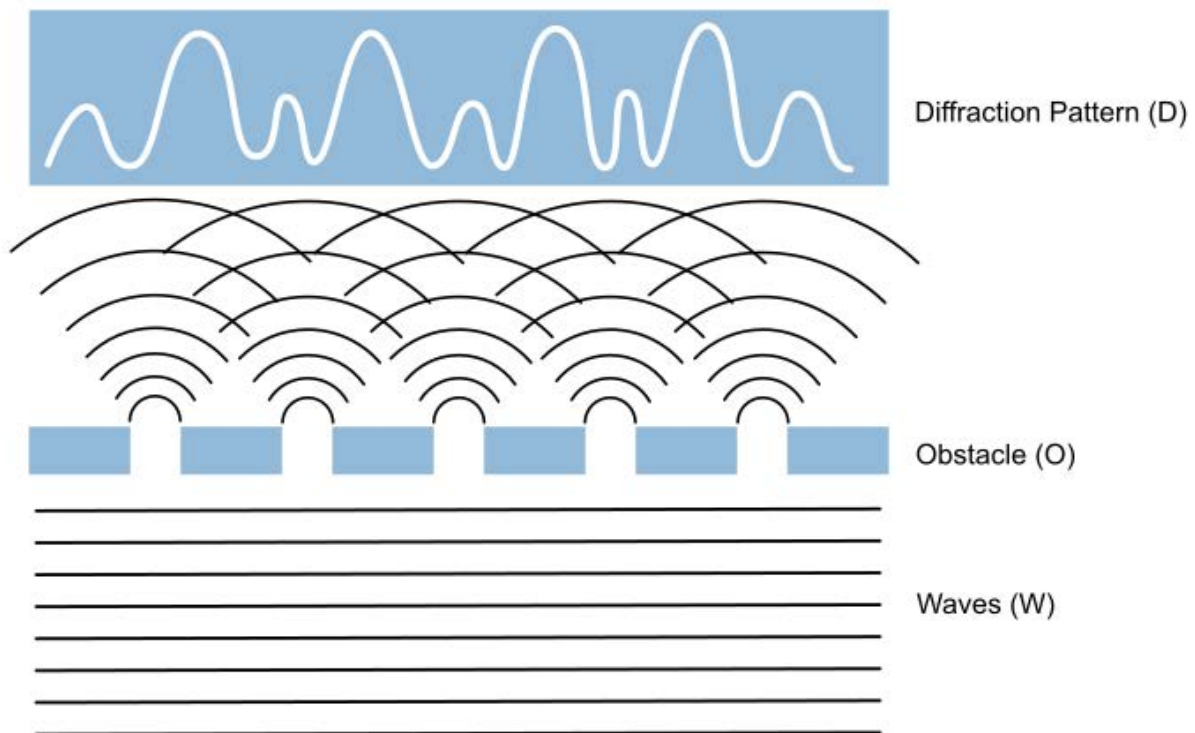


Figure 3. Illustration of a *diffraction apparatus* adapted from Alander (2007): Author.

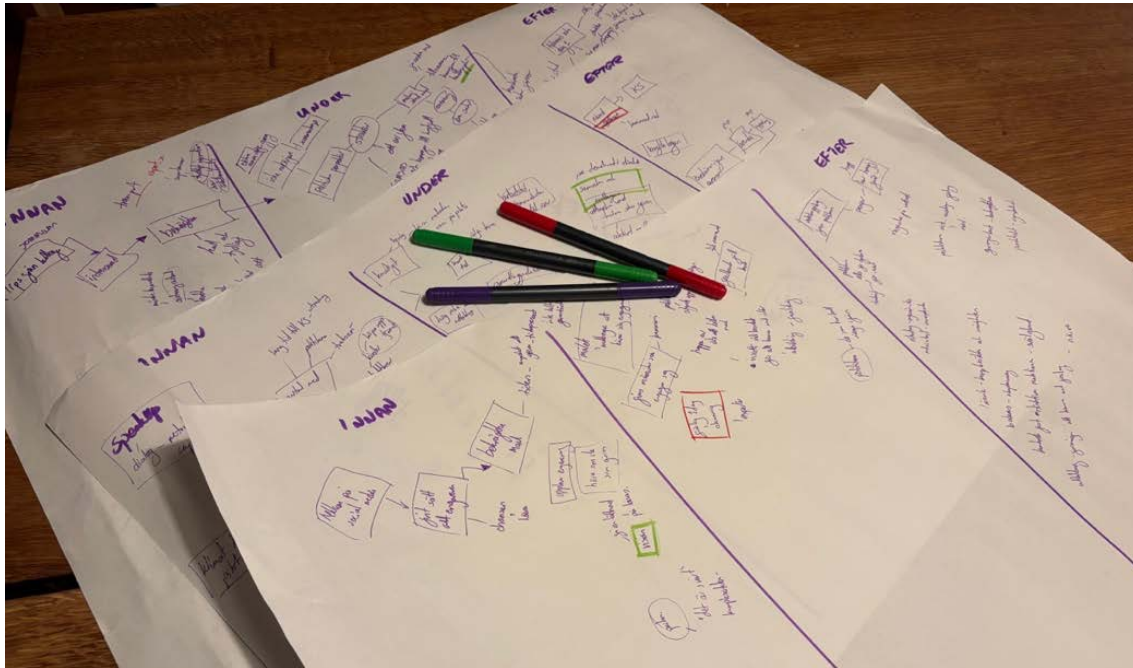


Figure 4. Photo depicting examples of journey maps sketched during interviews: Author.

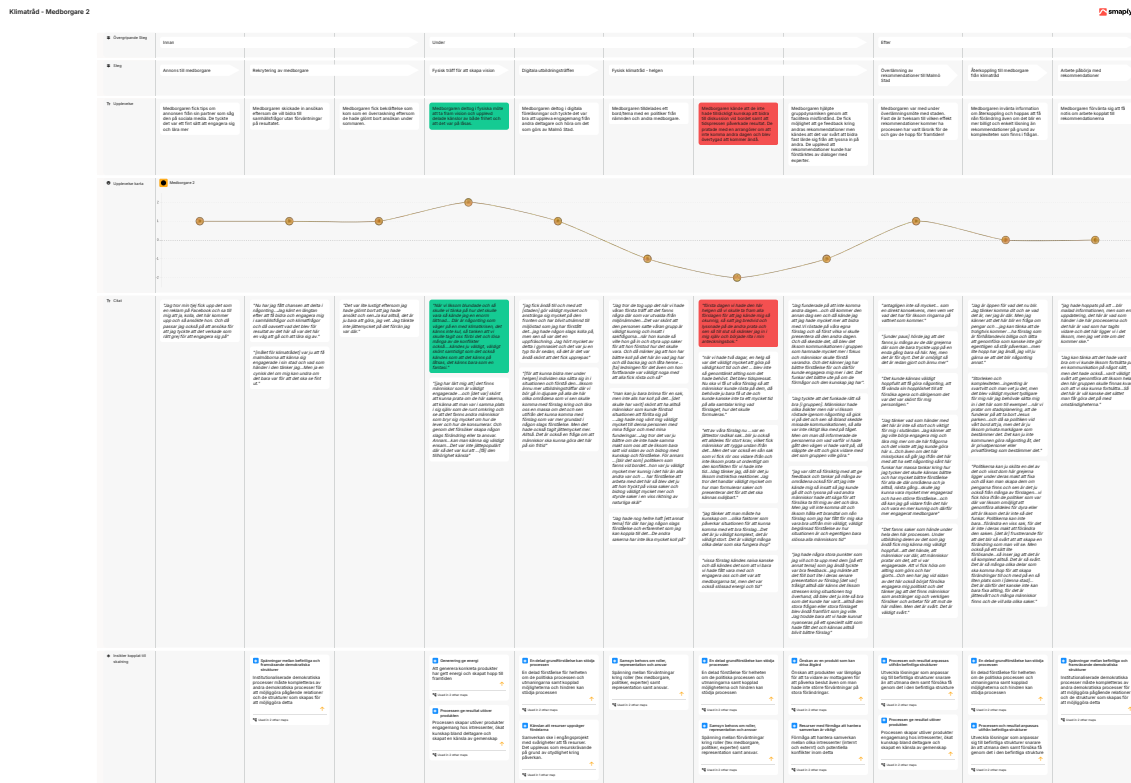


Figure 5. Example of a journey map created and sent to participants for review: Author.

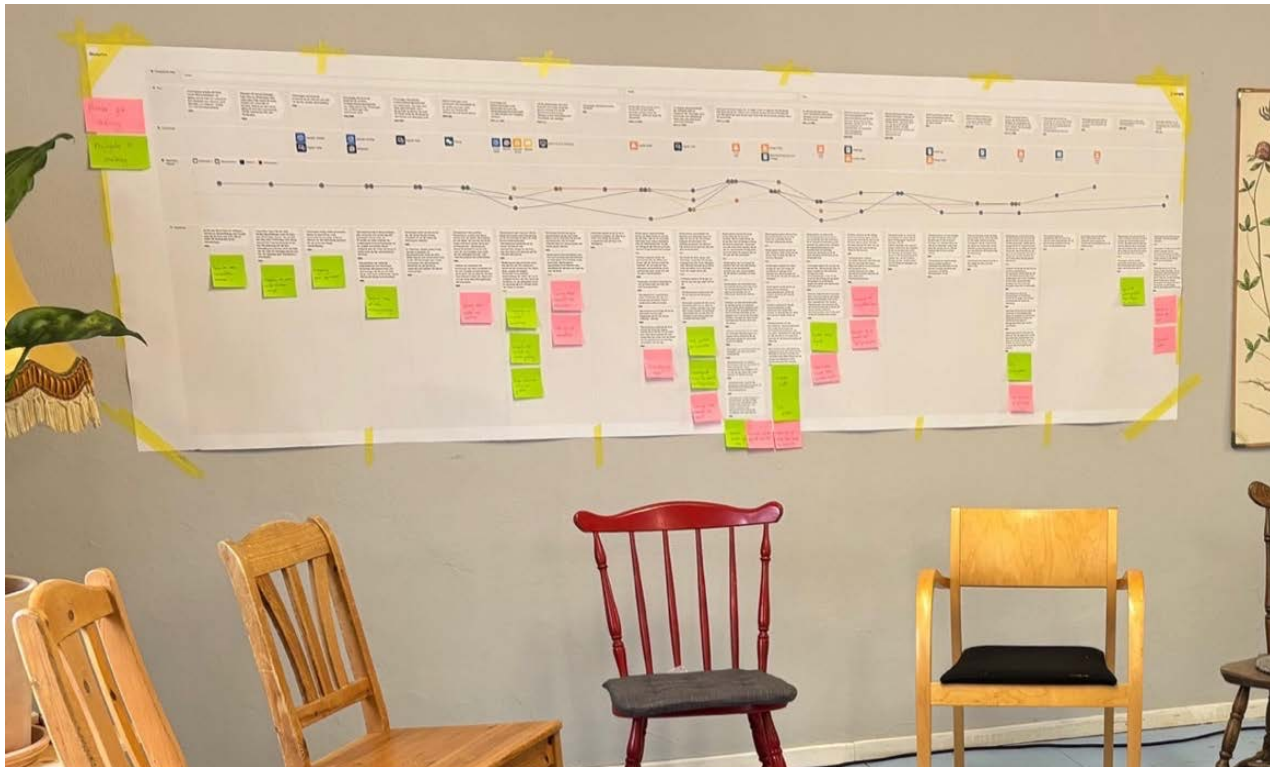


Figure 6. Photo depicting amalgamated journey map with insights related to scaling written on post-its: Author.

3.3.2 Diffractive reading

Initial journey maps were created using digital software and shared with the participants whose experiences they depicted as a draft for review. During a brief digital follow-up interview, the researcher invited participants to co-produce the final journey map through collaborative *diffractive reading*. Following this, the journey maps were consolidated into a single journey map, which depicted the collective experience and initial insights into scaling. This was shared during a follow-up workshop and *diffractive reading* was conducted by asking participants to capture their insights into scaling based on what they saw and heard during a walk-through of the journey map. In smaller groups, participants discussed their insights and mapped these against the scaling strategies of scaling out, up and deep before prioritising what should be explored further (see Figure 7).

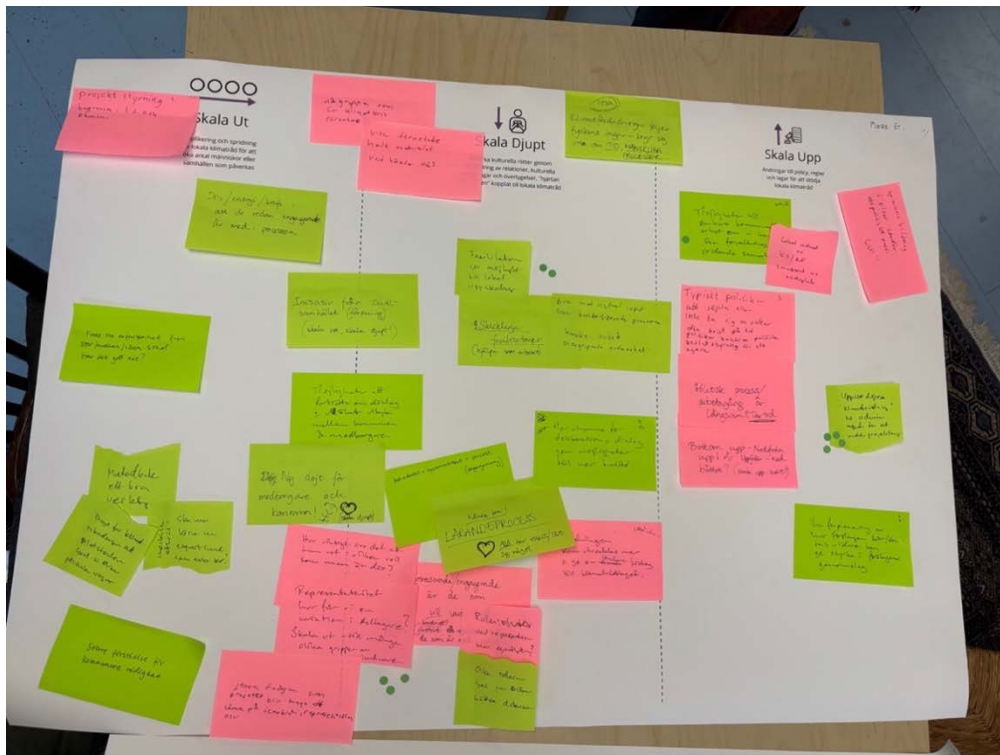


Figure 7. Photo depicting scalability canvas: Author.

A grounded-analysis approach enabled the development of first-level codes and then secondary themes through an iterative dance between theory and data (Gioia et al., 2013; Glaser & Strauss, 1967). Additionally, a *diffractive reading* approach (Barad, 2007; Sefyrin, 2012; Taguchi, 2012) was consciously adopted to acknowledge the *differences* (Barad, 2007) that occur when stories are recorded from multiple perspectives. More specifically, counter-narratives to the prevailing polarisation between citizens and public organisations were sought after. Thus, the following questions were asked of the data to understand how participants discussed identity, roles and responsibility: Which formal roles existed in the citizen assembly? What was the impact of these roles? How did participants interpret their role?

4. Findings

In this section, empirical data from research activities 3-6 (see Figure 2) will be presented in two sections to highlight the results of each *diffractive* approach. All raw data has been anonymised and translated into English.

4.1 Diffraction apparatus

Using journey mapping in a one-to-one setting supported participants' orientation, sparked curiosity and built trust; however, the amalgamated journey map overwhelmed participants, potentially limiting their interaction with the data. One participant highlighted how "I thought it was an interesting, different and rewarding approach, I became curious" whilst another remarked that "it was clear and good to be able to follow that [the researcher] understood what I said and that we had a shared picture". Participants appreciated the amalgamated overview, stating that the walk-through of the journey map was "a little long but necessary to see what we did and to get everyone's perspective". At the same time, participants expressed that "It was a lot in a short time. I would have needed a little more time to be able to comment". Journey mapping supported the creation and capturing of a diffraction pattern; however, time must be given to allow participants to engage more deeply.

Visually accumulating experiences on a journey map revealed complexity and tensions. The visualisation revealed the complexity of the process beyond individuals' involvement, highlighted by a participant who shared that they found it "interesting that before and after were more comprehensive than the [citizen assembly] itself". Additionally, the accumulation of journey maps revealed tensions around scalability, which could be presented to research participants for further exploration and analysis. For example, a tension between existing and emerging democratic processes was revealed; one participant shared that "we have to try a few different ways to strengthen democracy, not just that we vote every four years, but that we actually participate and influence the decision-making processes that exist during these four years", whilst another argued that "we already have a representative democracy. What do these processes do and what weight should they have?". Another example is the interplay between hope and low expectations, highlighted by a participant who mentioned "all the suggestions we came up with, we would like to start implementing the next day, but that does not happen...It still gives you faith that you are doing something like this and that the city has been involved". Journey mapping enabled the tensions and complexities in the diffraction pattern to be revealed and collectively explored.

4.2 Diffractive reading

Inviting research participants into the creation of journey maps and insights around scaling repositioned the researcher and gave weight to *situated knowledges*. Overall, the individual journey maps remained unaltered, with participants stating, "it felt like [the researcher] had gotten everything I wanted to convey". In the cases where the



researcher's interpretation did not resonate with participants, a sense of gratitude for the opportunity to alter the journey map was expressed. Participants commented, "I was a little surprised by the summary, but since there were many opportunities to give feedback on this, I think it worked great". Whilst *diffractive reading* was able to decrease the interpretative nature of the research outputs, there were mixed results in increasing the ownership of the outputs. When asked how they experienced the opportunity to influence the research, a third of participants expressed unawareness of their impact, answering, "have I done it?" and "I do not know how it will affect and be taken forward". Whilst *diffractive reading* supported the repositioning of the researcher regarding knowledge creation, the extent to which it increased participants' feelings of agency was mixed.

Occasionally, during the follow-up interviews, the dialogue deepened into the intended co-creation activity and further *situated knowledges* were created. In one dialogue, the tension between hope and low expectations suggested by the researcher was collaboratively explored, leading to further *situated knowledges* about the purpose and importance of the follow-up process, exemplified in this shortened excerpt:

Participant: "What you say here is really exciting because I can just hear the reasoning...You have hopes for things to change, but you have lower expectations. That is also a bit interesting because...we want to change the world, we want to...make a difference...but then somewhere you are also realistic...so you are a bit cautious in expecting too much...What if the expectations and hopes were at the same level and that we could achieve it?...And I realise now too when we talk that the follow-up work after the climate assembly, like how do we continue to push this? It is really important, to continue to drive this and you cannot perhaps completely leave that to the participants to push themselves".

Additionally, further *situated knowledges* were created in the workshop, where insights on scaling were presented as suggestions during the combined journey map walkthrough for participants to reinterpret, build upon, or ignore. Whilst some of the researcher's initial insights can be seen in participants' contributions, these have been reinterpreted and prioritised by participants who expressed both appreciation and a request for more time during this activity.

A *diffractive* approach to analysis enabled participants to emerge as pluralistic beings seeking collaboration to address the climate crisis. Upon seeing the tensions around representation, this was discussed at length. Participants expressed concerns for missing parties, highlighting that "*climate deniers that exist in many places, both as politicians and citizens, they do not apply to such a thing. And it would have been*

interesting to have a dialogue with even that kind of citizen". Furthermore, participants highlighted that there are groups that the municipality continually struggles to reach. In contrast to this void in representation, it was revealed that each participant embodied several representations, depicted in the following dialogue:

Participant 1: "You need to take the decision before...we are in this project, we do it in this way, this is representation for us, this is democracy for us."

Participant 2: "We took that decision before but then when you come, you are part of an age category, you are a man, you are an artist, and so on. And who are you when you answer this question? It is quite difficult, because we are not just one person, really".

Participant 3: "I do not think it was completely clear for politicians who were sitting there. What do I represent now? Do I represent the party? Or the political environmental committee? Maybe it is an association that I am part of? Who do I represent exactly?"

Discussions around representation highlighted a lack of collaboration. A civil servant expressed frustration that "there were a lot of things that came up as proposals. And we are already doing that", whilst a citizen expressed, "I think it is interesting, really. To know what is happening in the municipality. And what you deal with. But how do I find out?" Additionally, this hindered further action as the citizen explained that "as long as there is no reconnection from what we have done, how far we have come, [we do not know] what else we can do". This reveals an underlying need for a stronger relationship between citizens and local government.

5. Discussion

In this section, the empirical data will be discussed through the framework outlined by Dawney (2018) to understand how *diffraction* could enhance journey mapping to support the exploration of scaling climate assemblies. The discussion is summarised in Figure 8.

5.1 Diffracting troubles the case and messes the categories

Diffraction aims not to hold anything still and trouble "the research case as a bounded, isolated unit" (Dawney, 2018, p. 110), which journey mapping can support in theory but can struggle with in practice. Service design is often hailed for its ability to reframe a problem (Seravalli et al., 2022); however, within public organisations,

where boundaries are a core part of the socio-material structures, this becomes hard to realise (Boztepe et al., 2023, 2024). In this experiment, using journey maps to record a *diffraction pattern*, which amalgamated participants' experiences, revealed that the citizen assembly was situated within a wider local government decision-making process, which in turn was part of a broader democratic process containing related parallel processes, for example, an ongoing city-wide climate change project. This awareness led to *relational reflection* (Vink & Koskela-Huotari, 2022) amongst participants and the collective prioritisation of addressing barriers to embedding the citizen assembly within the local government's existing infrastructure, building upon the call for *institutioning* to make transformational change (Botero et al., 2020; Huybrechts et al., 2017, 2024) and supporting the discussion around scaling up.

Additionally, Dawney (2018) highlights that "in refusing to tie anything into a single narrative, it allows social entities to exist as multiple, tangled ontologies" (p. 110), which could enhance relationality in journey mapping. Service design uses personas to depict different roles within a journey map; however, in this experiment, the formal roles within the citizen assembly were *diffracted* to acknowledge participants' plurality. This supported a narrative of a desire for ongoing collaboration between unexpected parties, which Haraway refers to as "*oddkin*" (2016), to emerge. Such collaborations are often limited by existing infrastructures and project requirements, contributing to the discussion around scaling up and scaling deep. Additionally, this counter-story challenges the dominant rhetoric around opposing positions as depicted in the *triangle of inaction* (Peyretou, 2020). Cottam (2018) argues that the *servitisation* of public services renders interactions transactional rather than relational, suggesting a need for *social-material brokering* (Huybrechts et al., 2024) to support these relationships. In turn, this could facilitate the scaling deep of public participation.

5.2 Diffracting lets the world be messy and complex

Materialisation is a key component within design research (e.g. Blomkvist et al., 2016; Vink & Koskela-Huotari, 2021), suggesting that design methods, such as journey mapping, can facilitate *diffraction*. According to Barad (2007), it is the intra-action of waves as they accumulate which signifies *diffraction*. This intra-action of data is predominantly explored through text-based activities, and Lilja (2024) argues that spatial-material design methods can "expand diffraction from its current uses as a thinking-tool for analysis and reading, and as a visual metaphor (reflection)" (p. 312). In this experiment, building a *diffraction pattern* by layering the journey maps allowed for their differences to be visually depicted, enabling "new kinds of material-discursive realities that can have transformative and political consequences" (Taguchi, 2012, p. 274). Participants appreciated this visual overview; however,

given its overwhelming nature, more time should have been allocated to enable participants to engage more deeply with the data, thereby supporting the subsequent collaborative co-creation activity.

Diffraction is about "the processing of small but consequential differences" (Haraway, 1992, p. 318), an approach which could help researchers consider the ethical implications of their research more deeply (Lilja, 2024). Journey mapping involves analysing similarities and differences across *user* experiences to produce valuable insights. However, with a *diffractive* approach, more careful consideration is given to what differences are made to matter (Barad, 2007), enabling different meanings to drive design (Lilja, 2024). In this experiment, differences which lead to tensions around 'hope vs low expectations' and 'existing vs required democratic processes', which impacted the existing relationships between participants, were presented, enabling an emotionally charged dialogue to occur. Additionally, design can guide researchers to identify the consequences that matter, which often evoke an emotional response. The emotional visualisations within the individual journey maps sparked the most dialogue during the follow-up interview. Vink & Koskela-Huotari (2022) refer to this as *corporeal reflection*, an affordance within service design that supports participants in reflecting upon and potentially overcoming emotional attachments to institutionalised social structures. According to Taguchi (2012), "it is these aspects of embodied involvement, transformation and the capacity for change that make a *diffractive* methodology both feminist and political" (p. 272). In sum, the materiality of journey mapping can support a *diffractive reading* and highlight the differences that matter, supporting the notion of scaling deep.

5.3 Diffracting acknowledges how researchers participate in world- and knowledge-making – as composers of data and as *diffraction* apparatuses

Diffraction aims to engage critically with the world (Dawney, 2018) by repositioning the researcher to enable the voices of others (Haraway, 1988; Mellander & Wiszmeg, 2016), which could help balance the existing power dynamics within service design methods. Pahl et al. (2023) suggest that collaborative approaches create a *messiness* that enables the scope of the research to shift in meaningful ways. In this experiment, the visualisation of the individual journey map did not facilitate the intended co-creation, resulting in a minor shift of power away from the researcher to the participants. Vink & Koskela-Huotari (2022) explain that "when working to catalyze this material mode of reflexivity, a key constraint relates to the formatting of the physical artefacts in use. Often, these physical artefacts appear as polished deliverables for clients or as highly structured" (p. 377), thus discouraging alteration (Löwgren & Stolterman, 2004). Despite these limitations, the few alterations made to the journey maps gave participants ownership over their voice (Haraway, 1988;



Mellander & Wiszmeg, 2016), increasing the representative nature of the journey maps and building trust between the researcher and participants. During the workshop, power was more evidently shifted to participants who reinterpreted and prioritised barriers to and opportunities for scaling. Developing such shared understandings could enable participants to adapt the outputs, another form of *diffraction* (Mellander & Wiszmeg, 2016), and ultimately drive the research in more meaningful ways. However, not all participants felt that they had the agency to influence or take forward the results, highlighting that while a *diffraction apparatus* can be created, it is the intra-action of participants that enables it to be and determines the result (Vega et al., 2023).

Diffraction in Research	Results from experiment
<p>1 Diffracting troubles the case and messes the categories: Diffracting involves getting rid of the assumption that there is an unproblematic 'object': it is a practice of attending to relationality, process and messiness in the always-incomplete object...troubling the research case as a bounded, isolated unit.</p>	<p>Diffraction challenges journey mapping and its associated methods of personas and service blueprinting to embrace plurality of the actors involved to support collaboration.</p> <p>Diffraction calls for journey mapping to be used to trouble the case and embrace the complexity through expanding the boundaries of the case.</p> <p>Diffraction calls for designers to acknowledge the role of relationships within and between journey maps and suggests expanding the act of journey mapping to become a collaborative endeavour to better understand the situated knowledges related to these relationships and enable the development of relationships between actors during the process.</p>
<p>2 Diffracting lets the world be messy and complex: It allows histories of objects to participate in their making; it makes visible the complexity, messiness and instability of research objects, and their excess to knowing. It lets data non-cohere and disintegrate: composing and recomposing objects, cases and phenomena.</p>	<p>Journey mapping can support diffraction by visualising diffraction patterns. If used to enable collective diffractive reading it is recommended that adequate time is given to enable actors to engage with the data.</p> <p>Journey mapping can support the visualisation of differences however a diffractive approach is what will support the researcher in visualising the differences that matter.</p>
<p>3 Diffracting acknowledges how researchers participate in world- and knowledge-making – as composers of data and as diffraction apparatuses: It refuses representationalism and operates in a performative mode...When we approach problems, we bring some aspects of them to visibility, and in doing so alter their histories and contribute to their making.</p>	<p>Conducting diffractive reading of the journey maps together with participants resulted in co-produced outputs, shifting power away from the researcher and increasing the legitimacy of the outputs.</p> <p>Participants' engagement and perception ultimately determined how participatory the research was. To encourage alteration a rough physical format should be used for journey maps.</p>

Figure 8. The aim of *diffraction* within research, adapted from Dawney (2018): Author.

6. Conclusion

In summary, given the entanglement of theory and practice (Barad, 2007; Haraway, 1988), service design methods can significantly benefit from feminist theory, particularly when addressing sustainable transitions. As public sector organisations

embrace service design to address socially complex issues (Goodwill et al., 2021; van der Bijl-Brouwer, 2022), there has been a growing call for more reflection (Mortati et al., 2018; Sangiorgi, 2010; Seravalli et al., 2022; Vink & Koskela-Huotari, 2022). This design experiment suggests Haraway's (1992) metaphor of *diffraction* can be applied as an approach to service design to address its current shortfalls. This is due to the ability of *diffraction* to increase "sensitivity towards how designers are part of the world's continuous becoming, and an ethics concerning designing as a knowledge-making process that affects that world" (Lilja, 2024, p. 77). This paper provides a methodological contribution by sharing insights on how a *diffractive* approach and journey mapping can enhance each other through: troubling the case to embrace plurality, complexity and relationships; encouraging messiness and enabling the differences that matter to be visualised; and increasing the participatory nature of journey mapping to support the understanding and creation of *situated knowledges*. Further exploration into how *diffraction* can be amplified within service design is recommended to enhance its ability to make a difference in the world (Barad, 2007; Haraway, 1992) by tackling socially complex challenges.

Acknowledgments

Firstly, the authors would like to thank all the research participants for making this research possible. Secondly, the authors would like to thank everyone involved in the 'Research in Collaboration' PhD course at Malmö University, which inspired this experimental research. Finally, the authors would like to thank the anonymous reviewers for their constructive feedback that supported the improvement of this paper.

The European Union funds Christina Margaret Kinnear Lindeberg's contribution under Grant Agreement No. 101120074 – *CoDesign4Transitions* (HORIZON-MSCA-2022-DN-01). Views and opinions expressed are, however, those of the author only and do not necessarily reflect those of the European Union or NAWA. Neither the European Union nor NAWA can be held responsible for them.

References

Alander, S. (2007). *Offentliga storkök i det gröna folkhemmet—Diffrakterade berättelser om hållbar utveckling*. Luleå tekniska universitet.

- Alander, S., & Mörtberg, C. (2003). *SITUATED KNOWLEDGES IN THE CREATION OF SUSTAINABLE TECHNOLOGIES*. Gender and Power in the New Europe, the 5th European Feminist Research Conference, Lund, Sweden.
- Alvesson, M., & Sköldberg, K. (2009). *Reflexive Methodology: New Vistas for Qualitative Research*. SAGE.
- Ávila, M. (2019, June 3). Three Ecologies Diffracted: Intersectionality for ecological caring. *Nordic Design Research Conference*. Nordes 2019: Who Cares? <https://doi.org/10.21606/nordes.2019.007>
- Barad, K. (2007). *Meeting the Universe Halfway*. Durham: Duke University Press. <https://www.dukeupress.edu/meeting-the-universe-halfway>
- Barad, K. (2014). Diffracting Diffraction: Cutting Together-Apart. *Parallax*, 20(3), 168–187. <https://doi.org/10.1080/13534645.2014.927623>
- Blomkvist, J., Clatworthy, S., & Holmlid, S. (2016). Ways of Seeing the Design Material of Service. *Proceedings of ServDes 2016: Service Design Geographies*, 1–13. <https://ep.liu.se/konferensnummer.aspx?series=ecp&issue=125>
- Botero, A., Hyysalo, S., Kohtala, C., & Whalen, J. (2020). Getting Participatory Design Done: From Methods and Choices to Translation Work across Constituent Domains. *International Journal of Design*, 14(2), 17–34.
- Boztepe, S., Christiansson, J., de Götzen, A., Hepburn, L.-A., & Keinonen, T. (2024). Rethinking design in the public sector: A relational turn. *International Journal of Design*, 18(3), 1–7. <https://doi.org/10.57698/V18I3.01>
- Boztepe, S., Linde, P., & Smedberg, A. (2023, October 9). Design making its way to the city hall: Tensions in design capacity building in the public sector. *IASDR 2023: Life-Changing Design*. IASDR 2023: Life-Changing Design. <https://doi.org/10.21606/iasdr.2023.458>

- Cornish, F., Breton, N., Moreno-Tabarez, U., Delgado, J., Rua, M., de-Graft Aikins, A., & Hodgetts, D. (2023). Participatory action research. *Nature Reviews Methods Primers*, 3(1), Article 1. <https://eprints.lse.ac.uk/118822/>
- Corubolo, M., Seravalli, A., & Selloni, D. (2018). Sharing and collaborating in service design. *Proceedings of ServDes 2018: Service Design Proof of Concept*, 237–251. https://ep.liu.se/en/conference-article.aspx?series=eCP&issue=150&Article_No=21
- Cottam, H. (2018). *Radical Help*. Virago.
- Dawney, L. (2018). Diffracting. In *Routledge Handbook of Interdisciplinary Research Methods*. Routledge.
- Følstad, A., Kvale, K., & Halvorsrud, R. (2014). Customer Journeys: Involving Customers and Internal Resources in the Design and Management of Services. *Proceedings of ServDes 2014: Service Future*, 412–417. https://ep.liu.se/en/conference-article.aspx?series=eCP&issue=99&Article_No=42
- Frayling, C. (1993). *Research in art and design* (Vol. 1). Royal College of Art.
- Gioia, D., Corley, K., & Hamilton, A. (2013). Seeking Qualitative Rigor in Inductive Research. *Organizational Research Methods*, 16, 15–31. <https://doi.org/10.1177/1094428112452151>
- Glaser, B. G., & Strauss, A. L. (1967). *The Discovery of Grounded Theory: Strategies for Qualitative Research*. Aldine.
- Goodwill, M., Bendor, R., & van der Bijl-Brouwer, M. (2021). Beyond Good Intentions: Towards a Power Literacy Framework for Service Designers. *International Journal of Design*, 15(3), 45–59.

- Hansson, K., Nilsson, G., & Tiberg, I. (2020). *The co-creation of situated knowledge: Facilitating the implementation of care models in hospital-based home care* (pp. 155–174). <https://doi.org/10.21525/kriterium.24.g>
- Haraway, D. (1988). Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective. *Feminist Studies*, 14(3), 575–599. <https://doi.org/10.2307/3178066>
- Haraway, D. (1992). *Promises of monsters: A regenerative politics for inappropriate/d others*. Routledge.
- Haraway, D. (1997). *Modest_Witness@Second_Millennium.FemaleMan@Meets_OncoMouse: Feminism and technoscience*. Routledge.
- Haraway, D. (2016). *Staying with the trouble: Making kin in the Chthulucene*. Duke University Press.
- Hillgren, P.-A., Seravalli, A., & Emilson, A. (2011). Prototyping and infrastructuring in design for social innovation. *CoDesign*, 7(3–4), 169–183. <https://doi.org/10.1080/15710882.2011.630474>
- Huybrechts, L., Benesch, Henric, & and Geib, J. (2017). Institutioning: Participatory Design, Co-Design and the public realm. *CoDesign*, 13(3), 148–159. <https://doi.org/10.1080/15710882.2017.1355006>
- Huybrechts, L., Van den Eynde, D., KABENDELA, G., Knapen, E., Kimaro, J., & Magina, F. (2024). *Institutioning as action: Mediating grassroots labor and government work for sustainable transitions*. <https://doi.org/10.57698/V18I3.07>
- Kensing, F., & Blomberg, J. (1998). Participatory Design: Issues and Concerns. *Computer Supported Cooperative Work*, 7, 167–185. <https://doi.org/10.1023/A:1008689307411>

- Kim, M. (2018). An Inquiry into the Nature of Service: A Historical Overview (Part 1). *Design Issues*, 34(2), 31–47. https://doi.org/10.1162/DESI_a_00484
- Krogh, P. G., Markussen, T., & Bang, A. L. (2015). Ways of Drifting – 5 Methods of Experimentation in Research through Design. *ICoRD'15*. International Conference on Research into Design, Bangalore.
- Lilja, P. (2024). *Mineral Matterings: Diffractive Practices of Design* [Elektronisk resurs]. KTH Royal Institute of Technology.
- Löwgren, J., & Stolterman, E. (2004). *Thoughtful interaction design: A design perspective on information technology*. MIT Press.
- Mellander, E., & Wiszmeg, A. (2016). Interfering With Others—Re-configuring Ethnography as a Diffractive Practice. *Kulturstudier*, 7(1), 93. <https://doi.org/10.7146/ks.v7i1.24056>
- Moore, M.-L., Riddell, D., & Vocisano, D. (2015). Scaling Out, Scaling Up, Scaling Deep: Strategies of Non-profits in Advancing Systemic Social Innovation. *Journal of Corporate Citizenship*, 2015(58), 67–84. <https://doi.org/10.9774/GLEAF.4700.2015.ju.00009>
- Mortati, M., Christiansen, J., & Maffei, S. (2018). Design craft in Government. *Proceedings of ServDes 2018: Service Design Proof of Concept*, 561–571.
- OECD. (2022). *OECD Guidelines for Citizen Participation Processes*. OECD. <https://doi.org/10.1787/f765caf6-en>
- Pahl, K., Steadman-Jones, R., & Vasudevan, L. (2023). *Collaborative Research in Theory and Practice*. Bristol University Press. <https://bristoluniversitypress.co.uk/collaborative-research-in-theory-and-practice>
- Parker, S., & Heapy, J. (2006). *The journey to the interface: How public service design can connect users to reform*. Demos.

- Peyretou, P. (2020). Climat: 10 minutes pour cadrer un débat “Maintenant on fait quoi ?” *Medium*. <https://pierre-peyretou.medium.com/climat-10-minutes-pour-cadrer-un-d%C3%A9bat-maintenant-on-fait-quoi-361beb5b8251>
- Raworth, K. (2017). *Doughnut economics: Seven ways to think like a 21st-century economist*. Random House.
- Sangiorgi, D. (2010). Transformative Services and Transformation Design. *Proceedings of ServDes 2010: Exchanging Knowledge*, 65–75. https://ep.liu.se/en/conference-article.aspx?series=eCP&issue=60&Article_No=6
- Sefyrin, J. (2012). From Profession to Practices in IT Design. *Science, Technology, & Human Values*, 37(6), 708–728.
- Sefyrin, J., & Mörtberg, C. (2010). ‘But that is a systems solution to me’ – negotiations in IT design. *CoDesign*, 6(1), 25–41. <https://doi.org/10.1080/15710881003671882>
- Seravalli, A., Upadhyaya, S., & Ernits, H. (2022). Design in the public sector: Nurturing reflexivity and learning. *The Design Journal*, 25(2), 225–242. <https://doi.org/10.1080/14606925.2022.2042100>
- Taguchi, H. L. (2012). A diffractive and Deleuzian approach to analysing interview data. *Feminist Theory*, 13(3), 265–281. <https://doi.org/10.1177/1464700112456001>
- Udén, M. K. (2018). *The novel feminist diffraction concept: Its application in fifty-one peer-reviewed papers*.
- van der Bijl-Brouwer, M. (2022). Service designing for human relationships to positively enable social systemic change. *International Journal of Design*, 16(1), 23–34. <https://doi.org/10.57698/V16I1.02>



- Vega, L., Mäkelä, M., & Seitamaa-Hakkarainen, P. (2023). Listening to the sociomaterial: When thinking through making extends beyond the individual. *Design Studies*, 88, 101203. <https://doi.org/10.1016/j.destud.2023.101203>
- Vink, J., & Koskela-Huotari, K. (2021). Social Structures as Service Design Materials. *International Journal of Design*, 15(3), 29–43.
- Vink, J., & Koskela-Huotari, K. (2022). Building Reflexivity Using Service Design Methods. *Journal of Service Research*, 25(3), 371–389. <https://doi.org/10.1177/10946705211035004>