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Post-Climate Assemblies:

Supporting Citizens to Continuous Long-Term Engagement in Local Climate Action

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Title Page

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Abstract

Climate change is an increasingly predominant threat to humanity which needs to be addressed in all forthcoming developments of society. It is scientifically proven, that climate change is induced by human actions which makes it a joint problem that we all need to be aware of and act upon. Climate assemblies are emerging across multiple countries globally to address climate-related issues in deliberative democratic processes, and studies have shown that participants in these assemblies have changed their views and behaviour to be more considerate of environmental impact in their personal life after their involvement in the assembly. To accede to the urgency of the climate crisis, this thesis will investigate how citizens can be supported to develop local climate initiatives after their participation in formalised climate assemblies. The thesis presents three supporting processes, based on existing inspiration sources found through empirical material collected within the Knowledge Network on Climate Assemblies (KNOCA) through participatory methods. The implementation of the proposed processes has been discussed with a view to the Actor-Network Theory (ANT) analysis and the Multi-Level Perspective (MLP) to determine relations and involvement in preceding networks and potential opportunities for the processes to enter the regime of the socio-technical system. The main contribution of this thesis is thus to fill the current knowledge gap that exists within the area of citizens' post-assembly experience, with the aim of engaging and supporting the assembly participants to commit to developing local climate initiatives.

Preface

The motivation for conducting this research emerged during my internship and employment at the Danish Board of Technology, working in the *Knowledge Network on Climate Assemblies* (KNOCA), which explores the design and application of climate assemblies and promotes best practices among international stakeholders. KNOCA collects and produces guidance on diverse areas that can benefit stakeholders who are involved in climate assemblies. It became clear that the area of supporting participants post-assembly is a neglected field of research, and it woke an interest in me to commit to filling some of the gaps myself through this thesis.

The presented results in this study are aimed at being a supporting contribution to KNOCA's existing guidance and the outcome could benefit stakeholders within the network such as policy-makers, practitioners, activists, or researchers. The study investigates first of all if there is a need for a process after a climate assembly ends where the citizens can be supported in staying active in the green transition through local climate initiatives. Next, the study will propose different solutions that could be implemented to satisfy the need for a supporting process.

During the study, multiple stakeholders have been involved and have contributed knowledge through interviews. A special thanks to colleagues in the KNOCA project for initiating and supporting the project throughout the complete study. Thanks to Peter Bryant from Shared Future for organising a workshop within this area and providing relevant information for my research. Thanks to the five citizens who have participated in a climate assembly and agreed to be interviewed to share their views and opinions on participating in a process after the assembly ends. Thanks to the interviewees from the CSE Officer program and the DOLL Living Lab for elaborating on the work they have done. Lastly, a big thanks to my AAU supervisor, Wendy Gunn, for the guidance and support she has provided throughout my project.

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Glossary list

Climate Assembly: *Climate assemblies is a setting that invites randomly selected citizens who represent the broader demographic to discuss and deliberate on climate-related issues and develop recommendations for political decision-making processes.*

Community of Practice: *A group of people who shares the same interests, set of problems, or a common worry.*

Climate distress: *When the climate crisis proposes a threat to the sense of feeling safe and ones expectations about the future, which can include serious moral and ethical concerns for individuals.*

KNOCA Workshops: *Online workshops that invites an audience of the member base in KNOCA to a debate about a chosen topic, where relevant speakers are invited to inform and answer questions about the topic.*

KNOCA Learning Calls: *A Learning Call is an event where stakeholders from a particular climate assembly are invited to share their experiences with the knowledge network to present their learnings from the process and give advice to future assemblies.*

Abbreviation list

ANT: *Actor-Network Theory*

CSE: *Civil Society Engagement*

DBT: *The Danish Board of Technology Foundation*

DfST: *Design for Sustainability Transitions*

DOLL: *Danish Outdoor Living Lab*

GDPR: *General Data Protection Regulation*

IPCC: *Intergovernmental Panel on Climate Change*

KNOCA: *Knowledge Network on Climate Assemblies (also referred to as 'The knowledge network')*

MLP: *Multi-Level Perspective*

OECD: *Organisation for Economic Co-operation and Development*

PB: *Planetary Boundaries*

PR: *Public Relations*

PT: *Practice Theory*

SDE: *Sustainable Design Engineer(ing)*

STS: *Science and Technology Studies*

STT: *Socio-Technical Transitions*

TT: *Transition Theories*

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Introduction

[Today, all citizens of the earth face a challenge so significant that our future depends on the choices and solutions we come up with right here in the present. This challenge is of course the emerging climate crisis and even though we have been aware of the consequences for several decades, we haven't developed adequate solutions to solve it (Satgar, 2018). Instead, we still face increasing global warming causing disasters and making several geographical areas of our planet inhabitable for humans, animals, and plants. It is scientifically proven that climate change is induced by human actions, and this makes it a joint problem that we all need to deal with and act upon immediately (ibid).

The report of the World Commission on Environment and Development in 1987 states: "*The Earth is one, but the world is not*" (p. 28), which draws our attention to the natural environment and that our Earth's deterioration does not match human behaviour and development that is our world. The Brundtland report (1987), played an influential role in creating awareness of the climate crisis since it was the first governmental report to bring attention to the necessity for global sustainability and focus on the ongoing crisis as our common responsibility, as well as ensuring, our common future (Brundtland, 1987).

Today, three and half decades after the Brundtland report was released, we are still struggling to find answers and solutions that can secure our future on the planet.][1], We are reminded of the need for a shift in our consumer behaviour in society and in our lifestyle, and changes are more urgent than ever. The newest published IPCC (Intergovernmental Panel on Climate Change) report (2023) states that "*Human-caused climate change is a consequence of more than a century of net GHG emissions from energy use, land-use and land use change, lifestyle and patterns of consumption, and production*"(Lee et al., 2023, p. 10) and "*Climate change has caused substantial damages, and increasingly irreversible losses, in terrestrial, freshwater, cryospheric, and coastal and open ocean ecosystems*" (Lee, et al., 2023, summary, p. 5). These statements are a few of the many alarming facts and predictions that will have severe consequences for the world as we know it if we don't act on the warnings immediately. The urgency of dealing with climate issues must be greatly emphasised and people need to be activated to engage in the green transition. We shouldn't rely on others to solve problems that are common for all of us, instead, people need to be responsible for their actions and try to create even small changes that will reduce human impact on climate change.

[1]*Build on introduction from: Refsing, Nanna Kent (2023) How Climate Assemblies can Strengthen Sustainable Transitions: An integration of Transition Management in Deliberative Democratic Processes. Unpublished MSc internship report: Aalborg university*

To accede to the urgency of reducing climate impact caused by unsustainable human behaviour, this thesis will investigate how citizens, who have participated in climate assemblies, can continue their active engagement in the green transition through processes that seek to support the citizens in developing local climate initiatives. Throughout the thesis, I intend to analyse existing processes, based on a range of empirical research, through different theoretical frameworks to propose and discuss solutions for the thesis remit.

Problem Definition

It has been shown through evaluation studies that climate assembly participants have changed their behaviour to be more considerate of environmental impact in their personal life after their involvement in climate assemblies (Elstub et al., 2023). An evaluation report from the UK Climate Assembly confirms that climate assemblies are an inspiration and an educational place for the citizens and that it does have an impact on people's forthcoming behaviour to achieve a more sustainable lifestyle (ibid). However, these changes in behaviour are completely up to the citizens themselves to actualise and they must decide what they can manage to change on their own. The knowledge obtained in the assembly offers ample opportunity for the citizens to have a continuous active position in the green transition and create even more changes in their own life as well as affecting others to change their unsustainable behaviour. In this study, I will seek to clarify how a supporting process for citizens who have participated in climate assemblies could be provided to engage them in the green transition. The process should encourage the citizens to change their unsustainable behaviour patterns by providing them with enough resources, knowledge, and support to make impactful sustainable long-term changes in their own lifestyles. The basis of the research in this study will be scoped to follow Danish governmental structures and evolve around empirical material from participants from Danish climate assemblies.

Research questions

The need for active engagement in climate action from citizens is more urgent than ever, and citizens are an important segment to include in the green transition to achieve a collective reach of mutual goals of minimising climate impact. Citizens have the chance to make changes at a local level in their respective communities which is an important factor in the green transition. This thesis will address the following questions:

- *How can citizens stay committed to local climate action beyond their participation in formalised climate assemblies?*

and

- *How could a process, including active participation and deliberation, support citizens in long-term engagement in climate action in local areas beyond climate assemblies?*

Main contribution and approach to research

This thesis is written within the field of *Sustainable Design Engineering* (SDE) that builds upon different knowledge areas within existing educational traditions. The combination of knowledge from sustainability transitions, collaborative design, and engineering provides various theories, tools, and methods to address sustainability issues (Valderrama Pineda & Niero, 2020). As an SDE my research includes interdisciplinary approaches to address the research question by applying *Actor-Network Theory* (ANT) from *Science and Technology Studies* (STS) and the *Multi-Level Perspective* (MLP) framework from *Socio-technical Transition* (STT) research. Underpinning my study has been the gathering of empirical material through participant observations, participant research, document analysis and semi-structured interviews.

The main contribution of this thesis is to fill the current knowledge gap of implementing post-assembly processes aimed to support citizens in staying active in the green transition after their role in the assemblies has finished. The research that is documented in this thesis has been done in collaboration with *The Knowledge Network on Climate Assemblies* (KNOCA), which uses evidence and knowledge exchange to improve the design, implementation, and impact of climate assemblies (About Us - KNOCA, 2023). Findings from the thesis should be considered a knowledge contribution to KNOCA, which can be built upon and developed into additional guidance to be shared within the network (see existing KNOCA guidance here).

The design approach throughout this study has mainly been entrenched in participatory design with the aim of "*investigating, understanding, reflecting upon, establishing, developing, and supporting mutual learning between multiple participants in collective 'reflection-inaction'*" (Simonsen & Robertson, 2013, p. 2). The approach of participatory innovation has also been used throughout the project with the goal of taking the citizens' needs as a starting point to generate solutions (Buur & Matthews, 2008), that will increase their active engagement in the green transition. The participation approach in this study has several aspects since participants from climate assemblies, stakeholders, and fellow researchers within KNOCA have contributed to knowledge production throughout the project, as well as my own position as a researcher engaging in the work within the KNOCA team through participant observations and participant research. Combining these methods of participation as a researcher in the study (Figure 1) has been useful to understand the process and unravel the complexity that exists within the challenges in climate assemblies (van

Oorschot et al., 2022). Furthermore, my own participation in the study has contributed to building relations within climate assembly communities and has given me opportunities to contact relevant stakeholders with a certain agency of being a KNOCA team member.

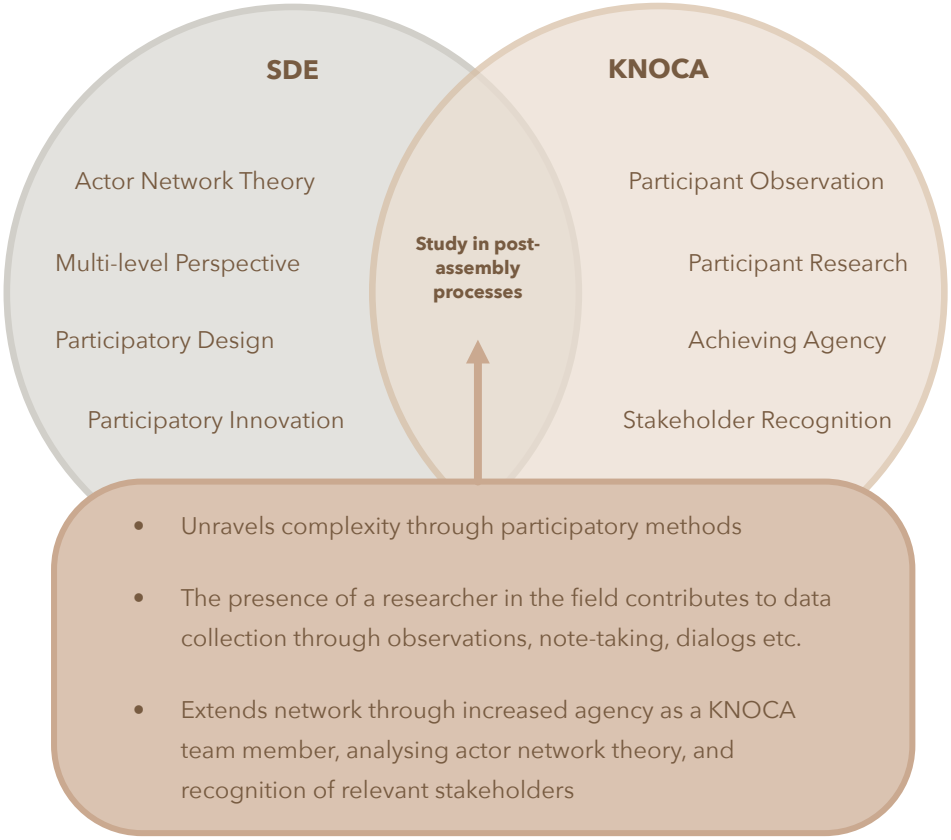

Figure 1. Outcome of the combination of methodical and theoretic research approaches in this thesis as an SDE and KNOCA researcher.

Preliminary Information
-Scoping the study

Citizens' & Climate assemblies

Climate assemblies have become a popular method in many countries globally to address climate-related issues in a deliberative democratic process. Climate assemblies invite citizens to develop recommendations regarding climate policy for political decision-making processes (Elstub et al., 2021; King & Wilson, 2023; Pek, 2022).

Figure 2 shows the rough process of a climate assembly and by following the chronology of the figure, the first step is to recruit the members of the assembly who are selected through civic-lottery methods to represent the broader demographic. The members are invited into a space which is facilitated by an external transparent team who provides guidelines and support for the discussions and processes (The Citizens' Assembly's Recommendations, 2019). The facilitation of the assembly ensures that participants are taught to think of long-term solutions when dealing with climate and societal issues with the purpose of reaching collective decisions that include and engage the public (Elstub et al., 2021; Pek, 2022). The participants are presented with relevant knowledge by a panel of experts, who informs the citizens on a specific topic which makes it possible for the participants to deliberate and address the assembly remit (Elstub et al., 2021). At the end of the assembly, the citizens have decided on multiple suggestions,

which are generally formulated as policy recommendations in an official report, that politicians receive with the purpose of including the citizens' suggestions in future climate policies.

Figure 2. Overview of the process of climate assemblies based on method from (The Citizens' Assembly's Recommendations, 2019).

Defining Sustainability

Sustainability is a term that has evolved over time and in the past decades, the term has become well-known to people all over the world. It can be argued that the origin of the term sustainability was described in the famous Brundtland report (1987) as it explained how the meaning of sustainable development is; that development should meet the needs, we have in the present without compromising the needs of future generations (Brundtland, 1987). This definition of sustainable development has become globally known but concurrently with the focus on sustainable development, the term sustainability was developed as well. Three pillars were introduced for sustainable development to make it measurable, and the definition of sustainability should now consider environmental, social, and economic aspects (Kuhlman & Farrington, 2010). These pillars started to be implemented through the introduction of the accounting framework Triple Bottom Line which should secure greater business value. The reasoning behind the framework was found in a new sustainable development in the corporate world and it was stated by the Business Council for Sustainable Development Chairman that "*Sustainability requires that we pay attention to the entire life cycles of our products and to the specific and changing needs of our customers*" (Elkington, 1994, p. 91). The origin of the three pillars of sustainability is important to notice since the goals in business contexts are different from the goals in public policy where profit is not the driving influence. This makes the economic pillar difficult to measure and therefore it was

translated to the gross domestic product of a country (Kuhlman & Farrington, 2010). This translation does however create a consolidation of the economic and social perspectives since the gross domestic product is intended as a measure of welfare (ibid). The Brundtland report suggests finding a sustainable balance between needs and resources or short-term and long-term. The three-dimensional approach adds another factor to satisfy which is the economic perspective. The two-dimensional approach of balancing social and environmental sustainability does bring important contradicting factors into the definition since environmental benefits can come with the costs of welfare and vice versa (ibid). It is however extremely difficult to bring another dimension into this fragile balance and naive to think that all dimensions could be weighted equally.

"*The contradiction between our desire for a better life and our concern for what this may do to the environment is obscured by conceptualizing these two concerns into three dimensions, and then suggesting that a solution is possible where all three are in harmony*" (Kuhlman & Farrington, 2010, p. 3439).

The human development of the Earth is continuously increasing, and humanity has become the most dominant factor of change which requires a sustainability approach that embraces human development within reasonable boundaries to secure stability on the planet. A framework that seeks to keep the world within a safe operating space is the *Planetary Boundaries* (PB) which describes how large of an impact humans can have on global environmental processes without risking causing dramatic changes in the global environmental state (Rockström, 2015). The research behind the concept of PB describes how the Earth is a complex system with multiple boundaries that need to be considered to determine the condition of our planet. The boundaries are each affected by human impact and the PB framework seeks to understand how changes in one or more boundaries would affect the complete system (Ibid). Multiple boundaries have already been exceeded and we need to radically reduce the human-induced footprint to avoid irreversible consequences. The urgency for changes in human behaviour is also expressed in the newest publication of the IPCC report (2023) which determines that human behaviour is causing serious consequences stating "*Human-caused climate change is already affecting many weather and climate extremes in every region across the globe*" (Lee et al. 2023, p. 5). Furthermore, the director of the Stockholm Resilience Centre, Line Gordon states:

"*It is still possible to halt current climate change trends and secure a liveable future for all, according to the new IPCC report. But the window of opportunity is narrowing quickly; we must act now*" (Stockholm Resilience Centre, 2023)

The sustainability approach in this study (Figure 3) will, based on the previous descriptions, take distance to the economic pillar of sustainability, and follow the approach of the first definition of sustainable development stated in the Brundtland report (1987)

where resources and well-being should be balanced. In addition to this, the scientific research of PB states that future development should be kept within a safe operating space, as well as the urgency expressed in the newest IPCC report (2023) to change human behaviour, is considered in this study. The definition of sustainability in this thesis will therefore seek to change human behaviour to avoid further crossing of PB while maintaining a satisfactory quality of life and well-being.

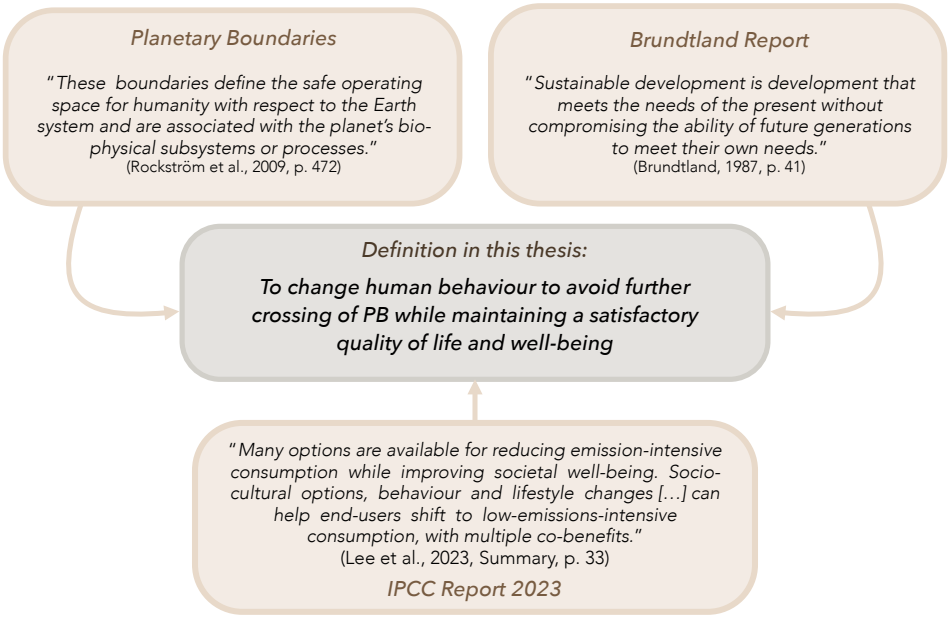

Figure 3. Combination of sustainability approaches to define sustainable development in this thesis.

Climate distress

The field of climate behavioural psychology explains how the climate crisis proposes a threat to the sense of feeling safe and expectations about the future, which can include serious moral and ethical concerns for individuals (Andrews, 2022). This condition can have long-term effects on people, who learn about the severe risks and consequences the climate crisis brings, and the reality of humans' impact on the planet. These learnings are likely to be anticipated as threatening and they can create moral and ethical dilemmas as well as pre-traumatic stress (ibid). This is a concern that is worth noticing when introducing citizens to climate issues and encouraging them to change their behaviour (Andrews, 2022; Searle & Gow, 2010).

It has been discussed that participants from climate assemblies have reported their views on topics related to climate change after participating in the assembly. 89% of respondents from Climate Assembly UK surveys stated that they had changed their view on climate change in a small or significant way after being a part of the assembly (Elstub et al., 2023). Statements from the citizens describing the change of views include "*I now believe climate change is happening*", "*I feel the climate assembly has given me an opportunity to learn and become interested in climate change*" and "*Before I wasn't as educated on how we could change our lifestyles in order to reach net zero by 2050 but now I have learnt a lot more about the specific changes we can make e.g.in every-*

day travel so I have changed my opinion on this" (Elstub et al., 2023, p. 7). These statements show a shift in the participants' mindsets and processes that seeks to change people's behaviour and opinions about climate change. Climate distress should thus be considered in the preparation phase of designing both climate assemblies and potential post-assembly processes where facilitators should be careful to not overwhelm the citizens with factual knowledge that could lead to climate distress.

Literature Review

To get an in-depth insight into the literature that already exists in the post-climate assembly area, a literature review was conducted to investigate how others have researched the topic before, as well as provide an overview of relevant knowledge from existing literature that can influence my own research on this topic. The literature review builds upon my own previous study on climate assemblies and transition theory carried out over a four-month period in 2022 drawing on key authors in transition management here among Loorbach (2010) and Roorda et al. (2012). The literature review does also expand with additional findings to substantiate that the study is based on updated research.

The literature was scoped focusing on multiple key areas: Climate assembly, Citizens' assembly, Support to citizens, Supporting democratic processes, Democratic climate politics, Democratic policy-making, and Deliberative democratic process. To find relevant literature, a combination of the keywords in the different areas was typed into different databases such as Scopus; Google Scholar; Web of Science and by carrying out citation searches.

A previous study

-Integrating transition management in climate assemblies

The interest and motivation behind the research conducted in this thesis originated from a four-month internship and additional six-month employment at DBT, where I worked on a project investigating climate assemblies across European countries to determine the best practices based on different experiences. This thesis builds on my previous study on integrating principles from transition theory in climate assemblies (Refsing, 2023). The reason behind the choice of topic in this study originated from the KNOCA team, to investigate a new area within the research of climate assemblies. To develop a line of argumentation, I will provide background information about the line of work I have been engaged in, that occupies climate assemblies and the main conclusions, and empirical material from my previous research that this study will build upon.

The Danish Board of Technology (DBT)

[DBT is a foundation working with national and international projects for the common good to achieve their mission: "*work for society's development being shaped by informed and forward-looking collaboration between citizens, experts, stakeholders, and decision-makers*" (About Us - The Danish Board of Technology, 2023). The organisation is highly focused on democracy, the climate crisis, and technological development in decision-making processes with public involvement to influence society. DBT is also a frontrunner within Danish climate assemblies and has designed and facilitated the two phases of the National Climate Assembly (Det Danske Klimaborgerting - Teknologirådet, 2021) and has established, designed, and facilitated a local climate assembly in the Danish city of Aarhus (Klimaborgersamling - Aarhus Kommune, 2022).

Knowledge Network on Climate Assemblies (KNOCA)

Besides DBT's involvement in Danish climate assemblies, they are also a partner in the EU project, KNOCA, which works as a knowledge network across countries on how to increase democratic decision-making in climate policy through the development of climate assemblies (The Danish Board of Technology, 2021). KNOCA has since its establishment in 2021 been working with international stakeholders to discuss and deliberate experiences and ideas within climate assemblies to inform and enlighten the network. Team members in the KNOCA project are also collaborating partners in this thesis and have suggested the topic of supporting members post-assembly as a knowledge gap in the existing work and a proposal for future investigation in the network.

Research Seminar as Empirical Material

In my previous study (Refsing, 2023) I investigated how transition theory could inspire climate assemblies to aim more directly at cre-

ating sustainable transitions. I drew upon empirical materials from a research seminar I developed and carried out with researchers and practitioners from KNOCA within the field of climate assemblies. The participants in the seminar were invited to share thoughts and opinions on the limits and potentials of integrating transition management theories and methods to determine if it would bring any value to climate assemblies. The main conclusion from the seminar, which I will build upon in this study, was the expressed need to implement experimental phases in climate assemblies, which was discussed with inspiration from the sixth phase of transition management (Roorda et al., 2012), where radical transition experiments should be initiated. There are however restrictions such as limited resources that prevent this from happening in the current framework of climate assemblies. Considering current limited resources, I will however investigate possible solutions that encourage citizens to experiment with climate initiatives after their participation in climate assemblies. The solutions will require resources that are not available in the current climate assembly format, but throughout the study, I seek to build a line of argumentation persuasive enough to reconsider extending the current format.

The importance of climate assemblies

Citizen assemblies have emerged as a democratic influence on policymaking and to increase the need to acknowledge and take action in the climate crisis, more assemblies with climate on the agenda have gained attention in governance bodies in the past few decades (Elstub et al., 2021; Pek, 2022). Deliberative democracies have been argued to be an important method to address complex challenges since citizens are brought together to reflect upon and talk about their own preferences, judgments, and opinions on a common concern such as climate change (Dryzek & Niemeyer, 2019)][2]. Furthermore, scepticism evolves around electoral democracies since evidence has shown that citizens do not vote based on their concerns about an issue or even their self-interest, but on the basis of the groups and the candidates with whom they can identify themselves (ibid). Climate assemblies deliberate together and aim to reach collective decisions to create relevant recommendations for politicians (Pek, 2022). Deliberative democracies such as climate assemblies focus on a citizens-centred approach to policymaking and it contributes to building trust as well as bridging the gap that exists in political, scientific, and social consensus on climate change issues (Wells et al., 2021).

[2]*The sections in brackets are built upon text from: Refsing, Nanna Kent (2023) How Climate Assemblies Can Strengthen Sustainable Transitions: An Integration of Transition Management in Deliberative Democratic Processes. Unpublished MSc internship report: Aalborg University*

Citizens' agency through assemblies

According to Shared Future's guide for local authorities and other bodies (Bryant & Stone, 2020), citizens who have participated in a climate assembly often increase their agency just by being involved in the process. These citizens constitute a cohort of local people who are concerned about the climate crisis and are willing to participate in other activities that address the issues (ibid). Through the process of being involved in climate assemblies, citizens feel respected and valued creating dynamic shifts between citizens and authorities. Climate assemblies provide citizens with optimal conditions to undertake climate actions both individually and collectively through training, sharing of essential information, and collaborative discussion they had during the assembly (ibid).

Surveys as indicators for impact

Studies from the UK about citizens' ongoing commitment to climate action after the UK National Climate Assembly ended, show that over 90% of the respondents had made ongoing changes to their practices of climate action since participating in the assembly (Elstub et al., 2023). Results from the studies highlight that ongoing citizen action post-assembly is important for engaging with the urgency of the climate crisis, which necessitates immediate action from both authorities and citizens. The study conducted surveys with assembly members over a period of two and a half years to find out if the members' climate-related views and behaviour changed after participating in the assembly. The surveys aim to inform initiators of climate assemblies, as well as public engagement in governance, about the impact of members' political views and behaviours regarding climate action (ibid). The findings in the study "*also raise interesting questions about how, and to what end, citizens' assemblies and similar practices and techniques could be scaled in efforts to tackle the climate crisis*" (Elstub, n.d., p.1), which is particularly relevant for the problem statement of this thesis.

The results of the surveys did show how being a part of the assembly had an impact on the participants' daily life. For instance, it showed that the members had higher concerns about the climate crisis after being in the assembly and that they had gained more knowledge about climate change (Elstub et al., 2023). The assembly did not only give the participants increased concern and knowledge about the climate, but it also encouraged them to change their behaviour in a more sustainable direction. 91% of the respondents to the post-assembly surveys reported that they had made one or more changes since they participated in the assembly and 49% of the respondents had made 10 or more changes (ibid). This clearly shows that the concept of climate assemblies does have an influence on the citizens who participated, and it can help inform and influence people to change their habits in their personal life and take more climate-oriented decisions.

Civil Society Engagement Officers

Learnings from previous citizens' assemblies showed the importance of connecting public society to the ongoing assembly and its process and more specifically, creating awareness about the assembly so the recommendations will have meaningful impacts (Grossmann & Spilauer, 2022). These learnings originated the creation of the Austrian *Civil Society Engagement* (CSE) Officers, who worked closely with all the actors involved in the Austrian Climate Assembly during 2022. The CSE Officers' roles were to communicate to and inform the broader civil society about the process to an extent that assured the Climate Assembly were understandable and transparent to make the method trustworthy and make sure the results were supported. Some of the key objectives for the CSE Officers' role in the Austrian Climate Citizens' Assembly entailed "*support the assembly participants in spreading the word about the assembly and become active in their home regions*" (Grossmann & Spilauer, n.d., p.3). This relates to the problem definition of this thesis (p. 10), which is describing the lack of support for citizens after the assembly ends. In this case, the support does however not necessarily take place after the assembly has ended, but also during the process which doesn't clarify how to approach the support described in the research question (p. 10).

The practice of the CSE officers is to follow the assembly's process closely including assisting in facilitation, providing support to the *Public Relations* (PR) team, and propagating the work in the Assembly to civil society (Grossmann & Spilauer, 2022). Using CSE Officers as a method in this instant had both pros and cons. On the one hand, the Officers followed the process closely and were able to witness the Assembly's work up front and they got to know the citizens which created a stronger trusting relationship between them. On the other hand, there was a lack of communication between the administrators and the CSE officers, which prevented the officers to use the full potential of their roles (ibid). It is stated in the report of the civil society engagement officers, that they tried to support the assembly participants in their engagement (Grossmann & Spilauer, 2022, p. 12), however, it doesn't clarify what kind of support is provided (both short and long term), or how this support is performed, which are questions that this thesis is attempting to address.

The Literature Gap

Based on the knowledge presented in this literature review, there can be identified certain gaps in the existing literature that this study will seek to fill. First, the previous study, I conducted in integrating transition management in climate assemblies showed that there is a need for experimentation processes after a climate assembly ends and it was expressed in the research seminar by members of the KNOCA-team, that citizens should get the opportunity to experiment with climate initiatives, but it is unclear how to get enough resources for such a process (Refsing, 2023). This

study will seek to provide suggestions for how a post-assembly process could take place and what it should entail. Furthermore, I will discuss different possibilities for implementation and the required resources that are needed.

Secondly, the literature shows, that climate assemblies function as a deliberative democracy within climate policy and is becoming well-reputed to let the citizens be heard. The citizens who participate in the assembly get a certain level of agency that makes the citizens feel respected and valuable to make a difference in society. Surveys from the UK climate assembly shows that most assembly members have made changes in their private life to live more sustainably after being presented with factual knowledge by experts inside the assembly. The literature does conclude that citizens who have participated in climate assemblies are provided with optimal conditions to make changes and are both motivated and capable of creating initiatives to support the green transition. The gap within this area of literature is how citizens should use their agency and motivation to create actual change. This study will propose different ideas as to how citizens that have attended a climate assembly could use their engagement to create climate initiatives and get supported to reach their full potential.

Third and lastly, the literature shows an example from the Austrian Climate Assembly of how citizens could be supported both during and after the assembly by the CSE Officers. This shows one way to provide the needed support for the citizens to get started with developing their own innovation in the green transition. It does however not specify how any procedures or descriptions of how the support was carried out and what it entailed of resources for the CSE Officers to continue their work after the assembly had ended. This study will investigate the Austrian case further and define the needed resources for a supporting process similar to what the CSE Officers provided.

Research Design

The research conducted in this thesis has been an iterative process through different phases. The overall phases are shown in Figure 4 and have all been knowledge contributors to addressing the research questions of this thesis through proposed solutions. The first phase is the empirical analysis which builds upon the literature review and encompasses interviews with citizens, participant research and observation in professional climate assembly contexts, document analysis of relevant briefings and reports, and the output of a KNOCA workshop on supporting participants post-assembly. Based on the empirical analysis, the next phase emerged including inspiration sources which are solutions that already exist and have been tried out. These inspiration sources are brought into the next phase of a theoretical analysis using the ANT and MLP frameworks. Based on the results from the theoretical analysis, the study moved into the final phase of proposing solutions that address the research questions by comprising the outcome of all previous phases to present supporting processes on a well-informed and considered basis. An additional phase includes a workshop with KNOCA stakeholders is planned to take place in June 2023 and will be presented to the oral exam of this thesis project. Throughout the study, all phases have been adapted and adjusted through iterative processes when new information has been brought to my attention.

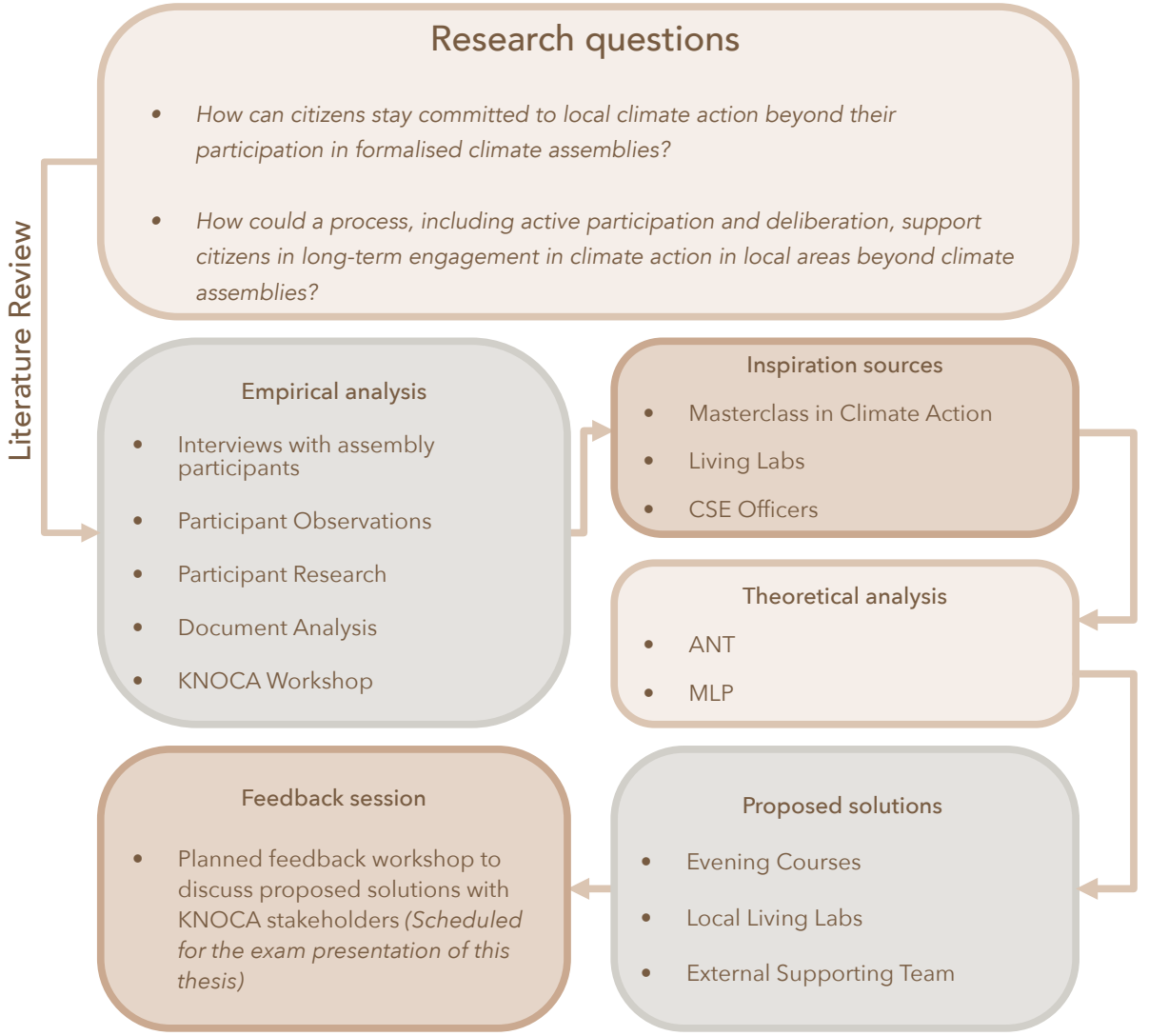

Figure 4. Overview of the research design in this thesis showing methodical, theoretical, and analysing phases to address the research questions.

chapter

02

Methods

Participatory observation

Participant observation has been used throughout the entire study and research of this thesis through my part-time job as a student assistant in the KNOCA project, which has given me first-hand insights and opportunities to study the topic within a community of practice that engages, involves, and researches climate assemblies as integral to their everyday practices. Participant observation is used in anthropology and sociology to gain an understanding of people's day-to-day behaviours and habits (Guest et al., 2017). Investigating a field through this method gives the researcher a connection to the underlying practices that exist in a specific community without the people themselves being aware of them. However, "*The challenge of harnessing this innate capability for participant observation is that when we are participant observers in a more formal sense, we must, at least a little, systematize and organize an inherently fluid process*" (Guest et al., 2017, p. 2). This means that the researcher must play a role in the specific setting while at the same time documenting the necessary information they observe and experience by being a part of the research field. The participatory observations in this study have mainly consisted of my participating role as a KNOCA researcher which has allowed me to become acquainted with several stakeholders within climate assembly communities across countries. This has been valuable for further research and interviews to gain deeper insights and inspiration for this study.

Participatory research

Participatory research was used throughout the study to gain insights from researchers, practitioners, academics, and stakeholders within climate assemblies. These insights were obtained through my position in the KNOCA team where we regularly invite participants and panellists to present and discuss certain topics. The format of the workshops is to invite an audience of the member base in KNOCA to a debate about a chosen topic where relevant speakers are invited to inform and answer questions about the topic (previous workshops can be viewed here). The method of participatory research can be defined as "*an umbrella term for research designs, methods, and frameworks that use systematic inquiry in direct collaboration with those affected by the issue being studied for the purpose of action or change*" (Vaughn & Jacquez, 2020, p. 1). Using participatory research reveals several benefits including being presented with informed research relevant to the specific real-world context and discussing both problems and results with people who are directly affected by it, which can be translated into a real community in non-academic settings (Vaughn & Jacquez, 2020).

Semi-structured interviews

The primary method for gathering empirical materials in this project has been semi-structured interviews. The interview method was selected to encourage a subjective response from the interviewees and to generate understandings that concern personal opinions about a given situation. The semi-structured interviews can turn into a conversation between the participant and the researcher since the "*participants are free to respond to these open-ended questions as they wish, and the researcher may probe these responses*" (McIntosh & Morse, 2015, p. 1), which can ease up the interviewee into sharing more detailed and personal knowledge. By using this flexible framework of interviews, the researcher is provided with a degree of relevancy on the subject and can ask further clarifying questions during and as the conversation unfolds (McIntosh & Morse, 2015). The choice of using semi-structured interviews in this study can also be supported by using ethnographic research methods in sustainability transition research, which is valuable because of their combined ability to provide detailed answers and reveal issues that would have otherwise remained hidden from the researcher (Murto et al., 2020). Semi-structured interviews were recognised as a suitable method for this study since they can make the ambiguity surrounding people's understanding of sustainability issues more accessible for the researcher (ibid).

Document analysis

Document analysis is a method for gathering, reviewing, and evaluating documents. It is a systemic procedure within qualitative research that examines data within an area to produce empirical knowledge by eliciting meanings and gaining an understanding of the topic (Bowen, 2017). The analytic approach to reviewing documents has helped understand and categorise the primary sources that could influence this study. The document analysis in this study has been complementary research. The analysed documents include briefings of emerging research written by stakeholders within the framework of climate assemblies that provides evidence-based recommendations for designing climate assemblies (see briefings here). Furthermore, documents such as final reports from several different climate assemblies and relevant reports written by members of the KNOCA network, such as the UK climate assembly evaluation (Elstub et al., 2023) and the Austrian evaluation of the role of CSE Officers (Grossmann & Spilauer, 2022) (p. 20), have been reviewed throughout the study.

Theoretical Framework

The two main theories chosen as a framework for this study are *Actor-Network Theory* (ANT) and *Multi-level Perspective* (MLP). ANT has been developed since the 1980s when literature first was written about translation processes and it has since then been used to navigate in heterogenous networks of actors and actants to interest, enrol and mobilise actors into new projects through problematisation of the actors' own interests (Callon, 1986). The MLP framework aims at explaining socio-technical change in systems to prominent sustainable transitions in society (Geels, 2012). This transition framework shows how niche innovations can change the dominant structures in society by investigating historical perspectives as well as impacts from uncontrollable development. Combining these frameworks will give both a detailed analysis of the translation of actors in the network and a broader contextual analysis of how to initiate a green transition in the socio-technical system (Callon, 2001; Geels, 2012). Both theories are relational approaches within transition studies, and the aim of both is to challenge and discuss change in socio-technical contexts.

The use of theories is valuable to get a deeper understanding, that only emerges when different theoretical perspectives are analysed and brought together in co-existing interpretations (Sovacool & Hess, 2017). The meaning of a theory is to explain a particular phenomenon within a certain field, and in this study, the ANT and MLP theories were chosen to explain the changes in actors' relations and interests, and changes in the sociotechnical system, which is needed to design and create solutions that support sustainable transitions. The co-existing of these theories gives me as an SDE the possibility of gaining an insightful understanding related to the given problem within a socio-technical context, to design solutions in a systematic approach that supports sustainable development (Valderrama Pineda & Niero, 2020).

Actor-Network Theory

ANT is a framework seeking to show how society is constantly reconfigured and to provide tools for analysing the process of dynamic changes in the networks and relationships between actors in the social and natural world (Callon, 2001). ANT adapted the concept of the network from semiotics that explains how entities get their attributes from relations with other entities in the network (Law, 1999). This makes the influences of these relations in an actor-network important and interesting to analyse since it is these relations that define the actors in the network. ANT has precursors in studies in the sociology of science where ethnographic studies showed how practically everything can be negotiated (Elgaard-Jensen, 2003). Negotiations play an important role in ANT translation processes because actors' identities and interests must constantly be negotiated in the network to create shifts in the dynamic

structures (Callon, 1986). ANT is a theoretical and methodological approach that investigates changes in relationships which are continuously evolving. These dynamic and heterogenous networks consist of a variety of different elements and both human and non-human actors are affecting each other's role and identity in the network (Law, 1992).

Another aspect of ANT is translation processes, which allow a network to be represented or expressed by single entities. Callon (1986) states that "T*o translate is to displace […] But to translate is also to express in one's own language what others say and want, why they act in the way they do and how they associate with each other: it is to establish oneself as a spokesman*" (p. 18-19). A translation process includes different phases that ensure the identity of the actors and the possibility for interaction in the network are being negotiated and delimited (Callon, 1986). These phases are referred to as moments and together they constitute Callon's (1986) framework of *four moments of translation*. The four moments are described below:

Problematisation:

In the problematisation phase of a project, the nature of a problem gets defined by actors in the network who seek new insights while at the same time making themselves indispensable (ibid). The problematisation phase is about getting actors in the network to find a common interest to investigate and get them to share the same rooted problem, in other words, problematisation is "*a system of alliances, or associations, between entities, thereby defining the identity and what they 'want'*" (Callon, 1986, p. 8).

Interessement:

The interessement phase 'locks' the actors into their roles using various devices to implement actions of stabilising and imposing the identity of others in the network through problematisation (Callon, 1986). This is the phase where the actors develop an interest in the project and realise how they can gain something from the process. In this phase, the actors' roles can be negotiated and potentially switched as soon as it is defined what is at stake for each actor.

Enrolment:

Even though the previous phases have woken an interest in working with the problem, the actors are not necessarily convinced to assemble alliances (ibid). If the interessement phase is successful it will achieve enrolment, but it should not be assumed that interessement always will have success. Mutual negotiations that protect and support the development and acceptance of the project and alignment of the actors' roles in the project are indicating the enrolment phase.

Mobilisation:

For the project to succeed it must be determined who in the network speaks in the name of whom and who represents whom (ibid). The project must be represented in the actors' continuous work and new networks are established to evolve the process. In the mobilisation phase, there should be several spokespersons in the network who can create awareness and inform others about the project on their own. This will eventually lead to new problematisations with new actors who might have an interest in the ongoing project.

The intention of ANT mapping in this project is to outline the different actors involved in the process of climate assemblies and to identify their interests. The network mapping will be helpful for this study to determine which actors should be translated into a new process that seeks to activate the citizens in the green transition based on the identified interests that exist in the network. It will also provide an analytic overview of the relations between the actors and how the citizens from climate assemblies will have the opportunity to enter a new network of supporting processes.

Multi-Level Perspective

MLP is a theoretical transition framework investigating and analysing issues related to stability and change in a socio-technical system and how the interactions between niches, regimes, and exogenous landscapes unfold at multiple dimensions (Geels, 2012). MLP has emerged as an analytic framework to consider socio-technical transitions to sustainability since issues related to climate change require deep-structural systemic changes to be addressed (Geels, 2011). Effective mitigation of climate change will require long-term innovative solutions and transformations in our established societal system and MLP can be used as a framework to show and understand 'the big picture' of the needed transitions (Geels et al., 2017). The premise of an MLP analysis is, that transitions are non-linear processes resulting from interactions and development between three analytical levels: *Socio-technical landscape* (wider context), *Socio-technical regime* (established practices) and *Niches* (radical innovations) (Geels, 2012).

Niches:

Niches can be understood as 'protective spaces' for innovations such as R&D laboratories, subsidised demonstration projects, or small market niches where the users support emerging innovation (Geels, 2012). Niche actors aim to get their novelties into the existing dominant regime or even replace the established practices

with their new ideas (Geels, 2011). It can be extremely difficult to change the regime due to lock-in mechanisms and niche innovation may not align with the current dimensions of the regime but rather challenge it to create change, which is also why "*niches are crucial for transitions, because they provide the seeds for systemic change*" (Geels, 2011, p. 27).

The socio-technical regime:

The stability of an existing established socio-technical system is articulated at the regime level where deep-structural rules are embedded such as lifestyle and user practices, legally binding contracts, institutional arrangements and regulations, etc. (Geels, 2011, 2012). Innovation and change do occur in existing regimes, but only to a predictable and incremental extent, given lock-in mechanisms and path dependency. The structures of the regime can be so deeply integrated, that actors are blinded to development happening outside their scope (Geels, 2012). Changes in the regime cannot happen through actions at an individual micro-level but require shifts in structures and radical innovation that can be affected by niche and landscape impact (ibid).

The socio-technical landscape:

The broader contextual developments that influence both niches and the regime dynamics are referred to as the socio-technical landscape (Geels, 2012; Geels et al., 2017). The landscape level cannot be influenced or shifted in the short run by regime and niche-level actors since it forms an external context including demographical trends, political ideologies, societal values, macro-economic patterns, and natural impacts (Geels, 2011). According to Geels (2012), this level should be viewed as a "*landscape in the literal sense, something around us that we can travel through; and in a metaphorical sense, something that we are part of, that sustains us*" (Rip & Kemp in Geels, 2012, p. 473).

The MLP framework is relevant for this study to present a mapping of the three analytical levels, which shows how the regime has been changed in the past and where there are opportunities for sustainable niche innovation to enter the regime. MLP should identify how the landscape can put pressure on the regime and allow niches to enter the regime with radical innovation and change the dominant structures to have a greater impact on sustainability. MLP will be used to analyse changes in the regime in the past and show how opportunities can unfold for future innovative solutions on a niche level to emerge in the current regime.

chapter

03

Empirical Material

Interviews

Throughout this study, several semi-structured interviews were conducted to get greater insights into citizens' participation in climate assemblies. The aim of these interviews was to understand if the citizens from climate assemblies would be interested in participating in additional processes that could increase their commitment to the green transition. At the beginning of the project, an unpredictable challenge occurred in getting in contact with citizens from assemblies since the participants are protected by *General Data Protection Regulations* (GDPR) that anonymised their personal information and thereby making it difficult to get in contact with them. After several attempts to contact the citizens through other actors, including colleagues in DBT and stakeholders within the Danish Climate Ministry, I managed to get interviews with five participants from different climate assemblies. I wished for a larger number of interviewees from climate assemblies, but due to the GDPR rules and a limited time span, I decided to focus on the five interviews as being limited but sufficient representatives from citizens in climate assemblies. The interviews were semi-structured and based on pre-defined questions regarding citizens' motivation for being involved in climate initiatives and especially regarding their opinions on further work within the framework of climate assembly.

Analysing the responses

Data from the interviews were analysed through multiple iterations with the aim of extracting the most relevant material to address the research questions by coding the outcome to find meaningful attributes that engage analytical processes through patterns and categorization (Saldaña, 2009). The first iteration of coding aimed to clean the data by reading through the interviews several times and gaining a consistent understanding of the main themes emerging in the conversations (Figure 5). In this process, the interviews were translated from Danish to English and summed up in shorter sentences that only contained the main points.

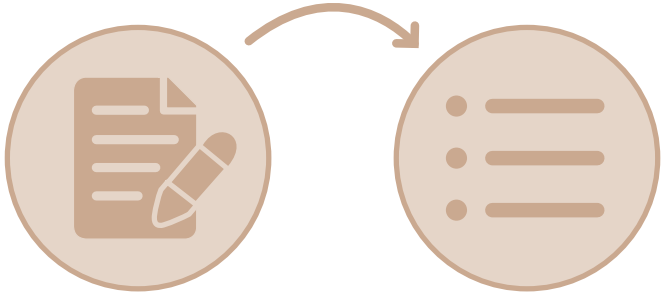

Figure 5. Illustration of the first iteration of coding the interview responses showing the extraction of main themes from the notes that was taken during the interviews.

In the second iteration of coding, different keywords from the research questions and the problem definition were chosen to use as search-words in interviews (Figure 6). The selected words are presented below:

Commitment	Action/active	Engagement
Support	Process	Change

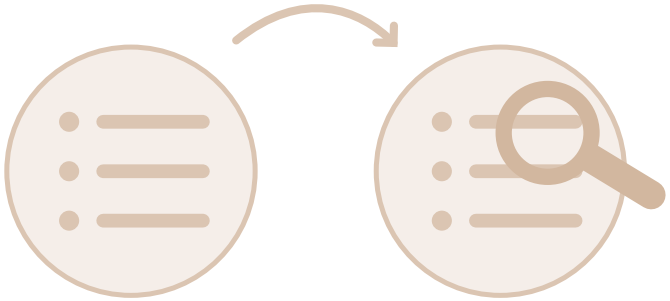

Figure 6. Illustration of the second iteration of coding the interview responses showing the search of keywords in the main themes.

These keywords were selected as the most representative words from the problem definition and the research questions (p. 10). Commitment relates to the citizens' commitment to climate action and their motivation to be committed. Action and active relate to activities from the citizens that have an impact on the green transition. Engagement relates to citizens' engagement in climate activities and initiatives. Support relates to the need for support and facilitation in a process to initiate climate action. Process relates to processes with citizen involvement to carry out climate initiatives. Change relates to changes that have a positive impact on the green transition. All the words were used to search for information about a future proposal for a solution to the research question in this study. The interviews were analysed with respect to these words to sort out the responses that didn't relate directly to them.

The third iteration of coding aimed to further delimit the responses to exclude any information that wasn't directly related to the keywords (Figure 7). This was done by reading through the answers again and deciding whether the response was relevant to the essence of the problem definition and the research question. An example of this was the data related to the word process which had several different contexts throughout the responses and intentionally should be related to further processes with citizen involvement to make impactful changes.

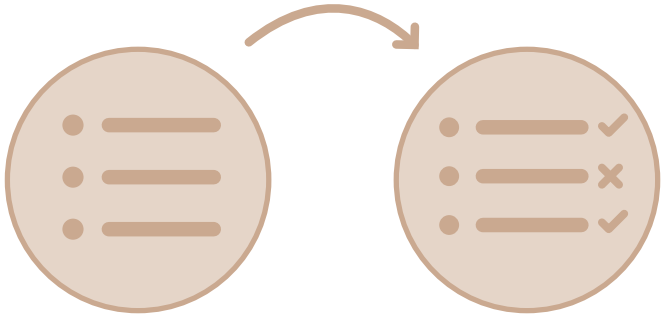

Figure 7. Illustration of the third iteration of coding the interview responses showing the sorting out of irrelevant material.

The data from the interviews after the three iterations can be viewed in Appendix 1. The essential material from the five interviews after the analysis is listed below:

- *Participants from the Danish National Climate Assembly hope to be invited to a third process where they can learn how to take concrete action in the green transition.*
- *Further processes that involve the citizens should be within the same framework as a climate assembly.*
- *Concrete guidance to learn how to change behaviour and routines to be more sustainable in one's personal life would be appreciated.*
- *It would be of interest to hear experts present factual knowledge about climate issues and it will strengthen the motivation to change any unsustainable behaviour.*
- *The knowledge that the citizens gain in the assembly is in itself very valuable.*
- *A collaborating process between experts and citizens is of interest.*
- *Citizens should be involved in future policy processes to give them a larger sense of responsibility to act on climate issues and stay active in climate policies.*
- *Citizens from climate assemblies would be interested in other similar processes to work with climate initiatives such as increasing sustainability in local areas.*
- *It would be preferred to be included in a community when working with sustainable initiatives.*
- *Citizens in these sorts of processes are voluntarily participating and additional work can interfere with people's personal schedules.*

Participant observations

Through participant observations as a KNOCA researcher, I have been acquainted with different stakeholders by participating in events hosted by KNOCA that gather and invite actors in climate assembly contexts to present and discuss different topics. An event, which proved to have a great influence on this study, was the Learning Call on Austria's Climate Assembly. A Learning Call is a KNOCA event where stakeholders from a particular climate assembly are invited to share their experiences with the knowledge

network to present their learnings from the process and give advice to future assemblies. In this case, it was stakeholders from the Austrian Climate Assembly who presented their learnings, and among these, was a spokesperson from the CSE Officers (p. 20). The observations and learnings I gained participating in the Learning Call made me acquainted with the Austrian framework of using CSE Officers to support the citizens, both during and after the assembly, which lead to the using this case as an inspiration source for this study (p. 38). The empirical material from the CSE Officers was gained through document analysis of the final report that was published as guidance for commissioners and organisers who seek to engage different publics and support participants after the assembly ends (KNOCA, 2023). To get further insights into the actual support that was provided in the process, an interview with one of the CSE Officers was arranged. The interview was conducted with Paula Spilauer (*Civil Society Engagement Officer of the Austrian Climate Assembly*) who elaborated on the supporting process. The main conclusions from the interview can be viewed in Appendix 2.

Participant research

The biggest contribution from participant research has been an explorative KNOCA workshop on the exact topic of this thesis. The KNOCA Workshop on Supporting Participants post-assembly was organised to create a deliberative space for members of the knowledge network to discuss the potential of assembly participants to push for change after an official climate assembly has ended. The workshop was facilitated by Peter Bryant (Director of Shared Future) and included presentations about experiences related to the topic by different practitioners, here amongst Paula Spilauer (CSE Officer) who presented the Austrian case of using CSE Officers during and after the assembly (p. 20), and Rune Baastrup (Director in DeltagerDanmark) who presented their work with Hørsholm Municipality of educating citizens to be green ambassadors through the Masterclasses in climate action (p. 36). The workshop took place on May 9th which was in the final phases of this study, which meant, that the outcome was only used as points of discussion since time restrictions prevented an in-depth investigation of the participants' suggestions on the topic.

The workshop started off with presentations from different stakeholders to share their experiences, and afterwards, the participants got to discuss relevant issues concerning the topic including the process and resources, and the organisation of such a process. The participants discussed the different issues and noted the learning points from their conversations along with ideas as to what

KNOCA could do to continue developing work within this area. A selection of the outcome is presented in the following:

Learning points from discussions:

- The importance of planning for follow-up at the start.
- Offering learning opportunities in relational organizing and relational facilitation, for community members who want this.
- How assembly members can be more effective with support from public authorities, facilitators, and other specialists.
- Important to recognise the large difference between facilitated space (assembly/jury) and what comes next. Members need to be prepared.
- The challenge and opportunities of connecting different democratic (deliberative/participatory/community building etc) approaches by intention or design.

What should KNOCA do?

- Offering a capacity-building course for the participants (communication, getting into contact with political leaders, etc.)
- Building on Rune's example (Masterclass in climate action, ed.) of ways of encouraging public narrative and storytelling/social movements- how this can be built into Citizens assemblies as well as part of follow-up.
- Set up a network of European organizations dealing with programs/actions for the engagement of the outgoing citizens.
- Including how NGOs and other actors can adapt their 'support' (whether that be training or something else) to suit the assembly (co-production, working with diverse groups etc)

All statements are written by workshop participants in Miro (a digital collaboration platform) during the discussions in the workshop. The statements are not made public and were accessed through my participation in the workshop. The statements have been approved to be used in this thesis by Peter Bryant (Host of the Workshop) and Graham Smith (Chair of KNOCA).

Document analysis:

The knowledge obtained through document analysis supports the remaining empirical material by providing reasonings from official and acknowledged documents within the field of climate assemblies. A KNOCA briefing about different evaluating approaches to climate assemblies composed by Dr. Jayne Carrick (Postdoctoral Research Associate within the South Yorkshire Sustainability Centre) states that, according to the OECD (Organisation for Economic Co-operation and Development), the evaluation of member aftercare should consider "*the provision of support to speak about their experiences and recommendations to their communities or the broader public*" (Carrick, 2021, p. 14). This refers to considerations about supporting climate assembly participants to share their experiences, which is reflected in the Austrian CSE Officers' work, but otherwise hasn't been a part of the climate assembly framework. Other documents that have supported the problematisation of this study is the UK Climate Assembly briefing that explains "*changes that occurred to assembly members' climate change and political attitudes and behaviours during and since participating in Climate Assembly UK*" (Elstub et al., 2023, p. 1). The results from the surveys conducted in the briefing have already been explained in the literature review (p. 19) and the outcome shows, that the majority of assembly participants have changed their habits to be more considerate of climate impact based on their participation in the assembly, strengthens the potential to investigate how citizens can be supported to stay active in the green transition.

Sources of Inspiration

-Incentives for proposing solutions

To propose possible solutions to the problem definition of this project, it was investigated through the empirical material how other similar processes were designed and how they could be adapted for this study to help create a supporting process. The sources of inspiration will be presented below.

Masterclass in Climate Action

The *Masterclass in Climate Action* program was a project in Hørsholm Municipality that was developed and facilitated by the organisation *DeltagerDanmark*. The program offered citizens within the Municipality courses about climate action to become green ambassadors (Masterclass i Klimahandling, 2022). The program was developed on the initiative of the DK2020 pilot project, where Danish municipalities have a unique opportunity to develop and improve the work being done on climate action initiatives within the municipality (Bundgaard et al., 2021). In Hørsholm Municipality it was decided that there should be two processes of citizen involvement. The first process should be within the classic framework of a citizens' assembly, where the citizens are invited into informative processes and based on their learnings they will deliberate and decide on an outcome that is handed over to the politicians. The second process should however be an informal space where the most passionate citizens could get inspiration and tools for sustainable initiatives in their local area. This second process

could be understood as a supporting process for the citizens in climate assemblies, who wants to further develop their knowledge and engagement with climate initiatives.

In the second programme in Hørsholm, a selection of relevant knowledge for the citizens to understand and align with was presented. One of the principles that were repeated during the sessions was the IKEA effect, which is a phenomenon suggesting that individuals who are a part of constructing an object will feel more responsible for it afterwards and "*by building things themselves, people both control and shape their environments, thereby demonstrating their competence to themselves and to others*" (Sarstedt et al., 2016, p. 307). This phenomenon was aimed to have the same effect on citizens to develop a feeling of responsibility in the green transition if they get the opportunity to work with climate initiatives themselves. The program featured three evening gatherings where the citizens gained knowledge on how to make effective climate initiatives, tools to gather associations or neighbourhoods around green projects, and training in how to motivate others for joint handling of the issues (Masterclass i Klimahandling, 2022).

Living Labs

Living labs are protected spaces for open innovation and user-centred design solutions to real-life issues, where stakeholders from public or private institutions are collaborating, co-creating, prototyping, testing, and validating to solve sustainability issues (Hossain et al., 2019). It should be stressed that the importance of user involvement is essential in the concept of living labs and the role of the user will shift from being a passive informer to a design team to be active co-creators of the solutions in question (Leminen, 2013).

An example of a living lab is DOLL (Danish Outdoor Living Lab) which is an innovation hub that develops and demonstrates intelligent lighting and Smart City-solutions by inviting relevant actors and users into the living labs to create new solutions for municipalities (LUCIA Pilot Site in Albertslund, Denmark - Danish Outdoor Lighting Lab (DOLL), n.d.). In an interview conducted with the Head of DOLL, it was elaborated on how DOLL and how living labs, in general, operate (Appendix 3). DOLL is a national scale living lab that aims at developing already existing ideas and innovations. Examples of other smaller-scale living labs are *Aarhus City Lab* and *Copenhagen Solutions Lab*, which both work on the municipality level. All Living Labs does however rapidly test solutions and invites relevant stakeholders into the process to define problems and needs.

Civil Society Engagement Officers

In the literature review, I explained how the Austrian Climate Assembly had an influential external team of CSE Officers. Their role during the assembly was mainly to coordinate and organise communication about the assembly with relevant parties outside the assembly. The Officers followed the assembly's process closely and could support the citizens both during and after the process. The support that the Officers provided post-assembly was especially interesting as inspiration for this study since it is one of scarcely any examples of how support has been provided to citizens after their participation in a climate assembly.

In an interview with Paula Spilauer (*CSE Officer of the Austrian Climate Assembly*), it was elaborated on how the participants were supported after the assembly ended (Appendix 2). During the interview, Paula explained that: The support the CSE Officers offered was based on the participants' initiative to create an association to engage to develop and spread the word about local climate initiatives. This association gave the officers a new job as acting gatekeepers of communication between the citizens and local institutions, who would be interested in collaborating with the citizens to develop new ideas for the green transition. Some citizens were determined on what they wanted to work with, and the Officers acted as a communication link between them. In other cases, the citizens didn't know what they wanted to work with, and the Officers had to inspire and interest them in a project they were passionate about. Another important task for the Officers was to establish communicative structures among all association members so the participants could follow the others' projects in the different regions, get inspired to do new projects, and support citizens who were already doing a project.

chapter

04

Theoretical Analysis

The theoretical analysis was made to get an insight into the established network and socio-technical system of climate assemblies. The existing processes described as inspiration sources are used to understand the involvement of actors in each process and how the processes currently are positioned in the socio-technical system. The ANT analysis shows the actors and their different interests, which gives them a position in the network. The ANT analysis will further show how the three inspiration sources could be integrated into the existing network of climate assemblies and how actors might change their position in the post-assembly processes. Lastly, the ANT analysis will propose how the citizens should go through a translation process to keep their active engagement in the green transition and mobilise other actors in creating new networks. The MLP analysis will show how the inspiration sources are reflected as protective spaces at a niche level and how the landscape level can pressure the regime into adapting these niche innovations. Both analyses are conducted after the empirical analysis and with the basis of the information obtained through empirical research (see Research Design p. 22).

ANT analysis

The actor network of climate assemblies was mapped out and analysed to determine both human and non-human actors and their relations and influences on each other. The network shows the actors' relations and interests that position them in the network. The network can be viewed as a narrative of the climate assembly process. In this case, the network changes by negotiating the actors' positions in the network by extending the narrative to an additional supporting process after the assembly ends. It is also in this additional process the actors should be mobilised to evolve the process, create new networks, and keep extending the narrative.

The ANT illustration (Figure 8) shows, from the top down, how climate assemblies were motivated, who initiates and is involved in the assembly and what comes out of the process as well as whom it influences. Here we find non-human actors such as *The Paris Agreement* (United Nations, 2015), *The European Green Deal* (Fetting, 2020), and *The Danish Climate Act* (Aftale Om Klimalov, 2019), which all initiated legislations that motivated new climate initiatives. Next are the municipalities or ministries who approve the establishment of an assembly and the designers and facilitators who are hired to oversee and develop the process. The citizens are central actors in the network and develop the recommendations with evidence from an expert panel, which is published in a

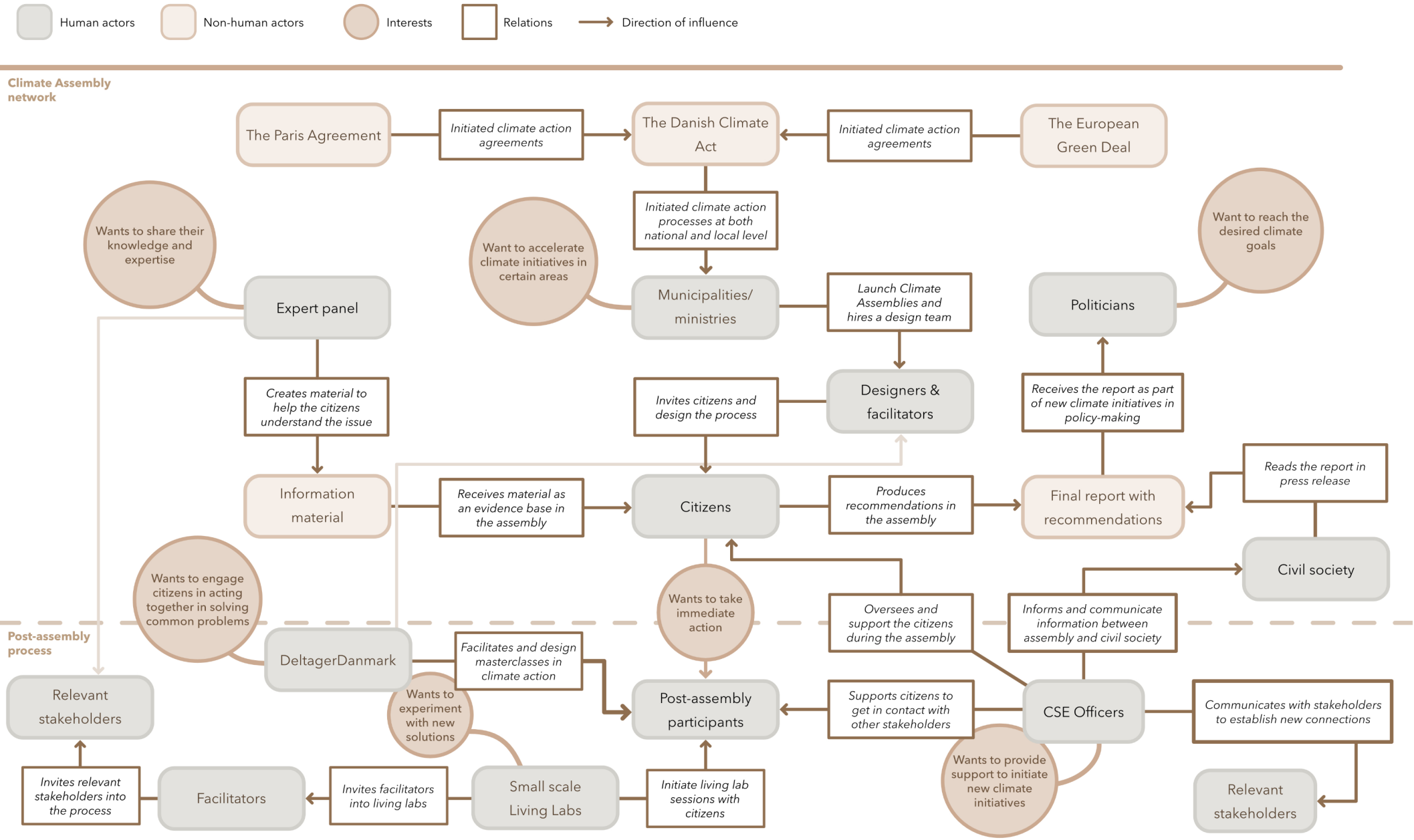

Figure 8. Mapping of the actor network in climate assemblies and the three sources of inspiration showing human and non-human actors, their interests, and the relations between them. The analysis shows how citizens in climate assemblies can enter a new network of a supporting process and how these processes are connected to the existing network.

report that gets handed over to politicians, who can draw upon it to develop new climate policies.

In Figure 8, the lower part of the network shows the additional process of supporting citizens post-assembly. In this section, all three inspiration sources of the process are represented, and it is shown, how the network gets extended with new actors, relations, and interests. The main changes of the overall network, in all three cases of implementing the processes, will be for the citizens who will experience an entry into a new network after their participation in a climate assembly.

The first inspiration source of Masterclasses would be an independent process that citizens are offered after they have completed their involvement in a climate assembly. The Masterclasses will be facilitated and designed by an organisation which could be DeltagerDanmark since they have a variety of methods and tools as well as previous experience. The facilitators could also be the same facilitating team from the climate assembly to create continuity in the process. DeltagerDanmark states that their goal is to engage citizens, employees, or members in acting together on common problems or dreams (Om Os | DeltagerDanmark, 2022), which is their interest in being positioned in the network and the reasoning behind their involvement in the process.

The process of living labs is also an independent process that is carried out after the climate assembly ends. The living labs are initiated by institutions with an interest in testing new solutions. This could, for example, be municipalities such as Aarhus City Lab or Copenhagen Solutions Lab, which both want to test new solutions and technologies and create innovation with user involvement. The living labs enter the network with an interest in experimenting with new solutions to find effective ideas to deal with climate issues. The process inside the living labs should be overviewed or facilitated by a third party who can support the citizens during the process. This third-party organisation could be DeltagerDanmark or DBT, whom both have experience and knowledge about facilitating user-involvement processes. This new network that evolves around living labs does not interfere with the existing network of climate assemblies. There are however possibilities to invite some of the experts from climate assemblies into the living labs to let them work alongside the citizens to develop new innovations.

The third process of CSE Officers is different from the two previously presented networks. The CSE Officers must be a part of the climate assembly to build mutual trust with the citizens and support the participants during the assembly process. The Officers also have a responsibility of communicating important information from the climate assembly to the broader civil society through different media. The CSE Officers enter the network with an interest that expresses their wish for new climate initiatives and that they are willing to support different actors to succeed in developing new relations and ideas that maintain these initiatives. The CSE Officers work as communicative gatekeepers in the network and

build bridges between citizens and the surrounding public to establish consistent contact between these actors who will later work together on climate initiatives. This process can be viewed as a translation process since it is the CSE Officers' job to problematise citizens and get them interested in certain areas within sustainable development. Once the interest is established the CSE Officers negotiate the citizens' position in the network and enrol them into new relations in new networks with different actors. When the citizens are comfortable in the new network they will be mobilised in the project and the CSE Officers can leave or be passive actors in the network while the citizens still evolve and negotiate new relations as mobilised actors.

The proposed new networks would be an offer for the citizens with an interest of taking immediate action in the green transition to combat climate-related issues that they had just learned about inside the assembly. This group of citizens would, because of their participation in the climate assembly, already be problematised and have common interests to engage in a new network with other actors who also want to act on climate issues. By offering the citizens a process where they can develop their engagement and ideas in the problematised area, they will meet new actors and will be interested in being a part of the new network once they realise how they can benefit from the process and how they can be active in developing climate initiatives. If the interessement phase (p. 27) in this process is successful, the citizens will accept their role in the new network and there will be mutual support for protecting and developing the climate initiatives and thus an enrolment process will be achieved. The goal of these processes is to teach and support the citizens in developing climate initiatives in their local society and if the supporting processes should be considered successful it is important to mobilise the citizens in the network. The citizens need to act as spokespersons and evolve the network with new actors who can be translated and keep developing the project.

MLP analysis

The Multi-level perspective analysis was made to show how the elements within the socio-technical system are connected, and how they affect each other to create change in the dominant structures (Figure 9). The MLP consists of three different analytical layers representing niches at the micro-level, the dominant socio-technical regime at the meso-level and the socio-technical landscape at the macro-level. The three sources of inspiration (p. 36) are all niche innovations at the micro-level, and it will require external pressure on the regime to create any shifts in the current structures to give niche innovations a chance to enter the meso-level. This pressure could come from the landscape where broader contextual developments influence the regime structures and eventually creates a window of opportunity that works as an entry for niche innovations. If this process is successful, the niche innov-

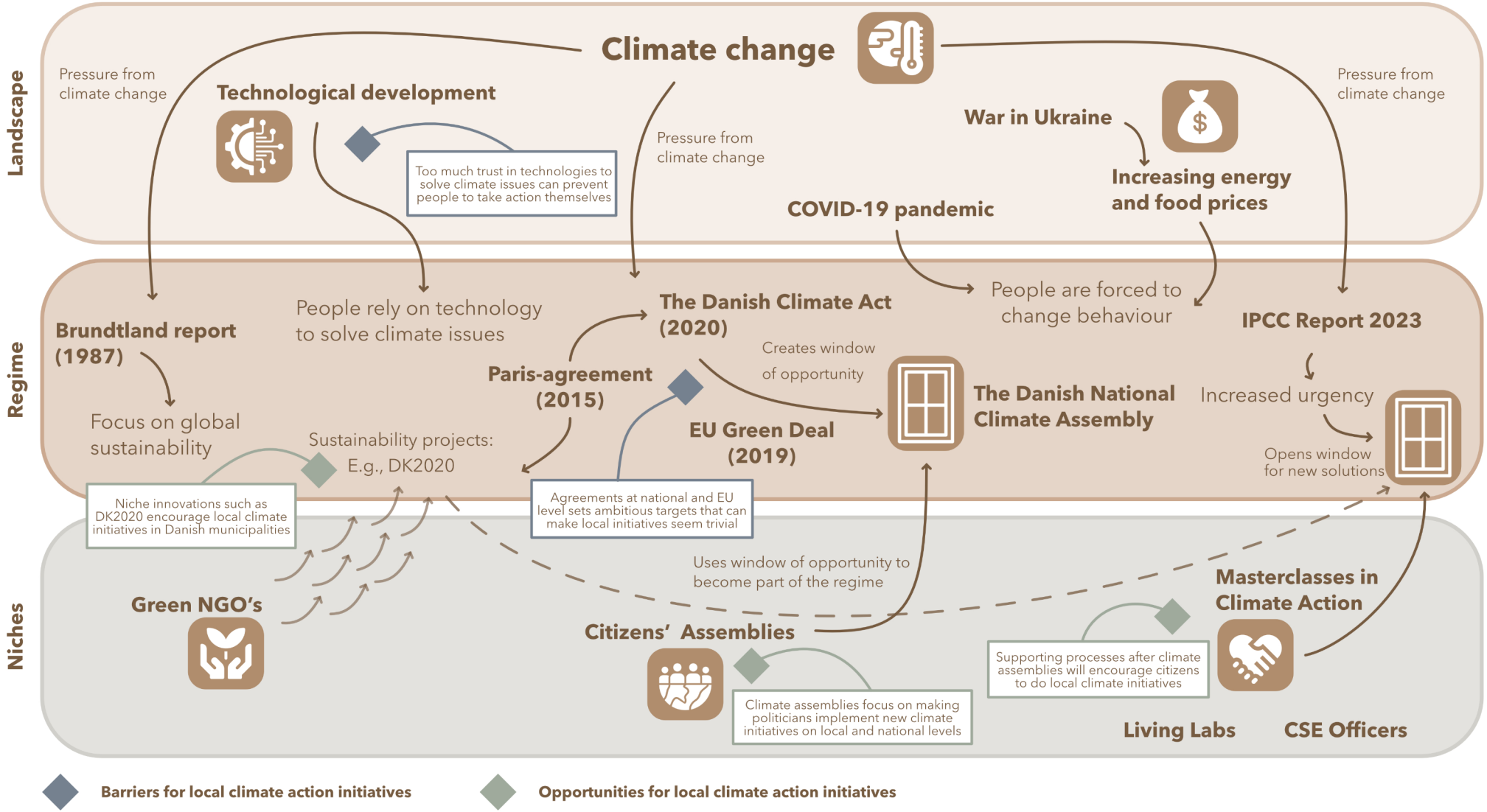

Figure 9. MLP analysis showing how niche innovation can exert pressure and eventually enter the dominant regime and the barriers and opportunities for local climate action initiatives on the micro, meso, and macro level in the socio-technical system.

ation will exert pressure to eventually become a part of the regime and will in time be a new dominant structure. The analysis maps out previous events that created changes in the regime to determine how and when the next window of opportunity could emerge. The aim of the analysis is to show how the inspiration sources could enter the regime as possible solutions by using a window of opportunity created by pressure from the landscape.

The regime in the MLP analysis shows how the focus on sustainability arose in global societies after the Brundtland report (1987) was released. This created a shift in mindsets and structures, and sustainability issues became a part of several governmental agendas which later lead to frameworks and agreements such as the Paris Agreement. Later the development of legislations and agreements continued, and The European Green Deal was presented in 2019 along with the Danish Climate Act the following year. This development shows how the regime structures have narrowed the focus from creating awareness about sustainability at a global level to making concrete national climate laws. These climate legislations did create openings in the regime to niche innovations and in 2020 the *DK2020* project of implementing climate action plans in Danish municipalities did enter the regime and has since expanded from including 20 to 95 municipalities (Bundgaard et al., 2021). The Danish Climate Act (2020) initiated the implementation of Denmark's first national climate assembly, and this created a window of opportunity for citizens' assemblies, which had previously been an innovation at the niche level, to enter the regime and become a part of the established structures. The pressure from the exogenous landscape on the regime has mainly been climate changes. This pressure is the most dominant influence at the landscape level, but other influences such as the ongoing technological development did have an influence on people's opinions on how to solve climate-related issues. Technological development has both given us revolutionary solutions like green energy sources, but it has also given people an understanding of the technology being the needed solution for climate change.

The COVID-19 pandemic and the Ukraine war have influenced people's behaviour related to climate issues. The pandemic necessitated global populations to stay at home for extended periods and that led to a significant reduction of CO2 emissions from e.g., the transport sector. Some behaviour did stick to our routines for example that it has become socially accepted that people work from home regularly. The war in Ukraine made the energy and food prices increase to a level where some people simply couldn't afford to live as they were used to. This has led to a reduction in demand for unsustainable goods since the costs were significantly higher than before. Even though these landscape influences have had a positive impact on climate change, they have an extremely negative impact on people's lives and well-being which doesn't align with the definition of sustainable development (p. 13) in this thesis. They have however shown people that they can manage to change their behaviour drastically in a short amount of time, which is exactly what is needed to combat certain climate issues.

The pressure from climate change at the landscape level becomes more urgent with time. The longer we wait to act the more severe becomes the problems. This has also been documented in the newest IPCC report that was released in March 2023 (Lee et al., 2023). The report contains warnings and predictions about future climate-related events, and it has created a global sense of urgency for policymakers across multiple countries. This urgency could create a new window of opportunity to implement niche innovation in the regime, and more specifically, one of the niche innovations could enter the dominant structure of Danish climate policy.

The MLP analysis shown in Figure 9 does not only show the window of opportunity for innovations at the niche level but does however indicate opportunities and barriers for local climate initiatives that exist in the socio-technical system. These indicators aim at showing which of the elements in the three levels give good conditions for implementing local climate action initiatives and which elements are challenging the implementation. The barriers are currently the technological developments which falsely lead people to believe that the climate crisis can be prevented by new technology alone and therefore, citizens do not need to change their behaviour. Another barrier is the different climate agreements (Paris Agreement, European Green Deal) that seek to prevent climate disasters through ambitious goals that can make small local changes seem irrelevant. Importantly, as Figure 9 shows, all niche innovations represented in the MLP give opportunities for local initiatives since they are protected spaces where experimentation is allowed within local communities.

chapter

05

Solution Space

Proposed Processes for Supporting Citizens Post-assembly

The proposed processes in this project are developed based on the existing inspiration sources described on page 36 which are already functioning and implemented in society and have been proven to initiate and test different climate initiatives. The inspiration sources are transferred as solutions to the research questions in this project with alterations based on the empirical analysis and the MLP and ANT analysis.

Solution 1 – Evening Courses

The first solution is based on the project from Hørsholm Municipality, where DeltagerDanmark designed and facilitated evening courses to activate the participants to do climate initiatives on their own. This solution will provide a setting for curious and proactive citizens who want to learn how to contribute to climate initiatives in their own local areas based on their participation in climate assemblies. This active local engagement has previously been requested by the interviewees who had participated in a climate assembly (p. 33) and the primary focus of this solution is to give the citizens concrete guidance on how to change behaviour to have a more sustainable lifestyle. It was furthermore expressed in the interviews that a post-assembly supporting process should have a similar setting as climate assemblies to make it coherent with the first phase(s) of the climate assembly. This solution will therefore need a similar arrangement as a climate assembly with third-party facilitators and as the ANT showed, both DeltagerDanmark, who facilitated the Masterclasses in Hørsholm and DBT, who facilitated both the national and a local assembly in Denmark, could be candidates for this process. The participant research in this study showed, through the KNOCA workshop, that community members should be offered learning opportunities to continue their engagement in climate action processes (p. 35), and the evening courses will provide these opportunities for post-assembly participants. A proposal in the workshop evolved around building on the Masterclass framework to encourage public narrative and storytelling to transform the complexity of climate-related issues into tangible information and initiatives.

Solution 2 – Local Living Labs

With inspiration from the work in DOLL (p. 37), living labs are suggested as the second solution. Living labs will bring together citizens who are encouraged and willing to work more with climate-related issues in their own daily life as well as in their local communities. The living labs should be arranged at a small-scale level,

so the citizens can have a protected space for prototyping solutions in a structured and facilitated space within their own local areas. As the ANT showed, the Local Living Labs can also provide a setting for citizens to work alongside experts from climate assemblies, who get invited as stakeholders in the Living Labs. This close collaboration between citizens and experts was requested by the interviewees (p. 33) for the citizens to get deeper insights into different climate-related issues and collaborate with experts to develop new ideas. One of the considerations in the KNOCA workshop, regarding the discussion of supporting citizens post-assembly, showed that a process should consider how assembly members could be more effective in the green transition with support from public authorities, facilitators, and other specialists. The Local Living Labs will provide a setting with learning opportunities for the citizens in a facilitated space and at the same time collaboration between citizens and specialists. The Living Labs will however be in a completely different physical framework than climate assemblies and this could result in reluctance from the citizens since it seems more like a new process than a continuous process to climate assemblies. In the interview with the Head of DOLL (see Appendix 3), it was articulated that Local Living Labs could be initiated through projects such as DK2020, which allows Danish municipalities to develop local climate action plans to strengthen sustainability in local areas. The DK2020 project is also represented in the MLP as a dominant structure that could give niche innovations, such as Local Living Labs, a chance to enter the regime.

Solution 3 – External Supporting Team

The third solution is inspired by the Austrian CSE Officer program, where an external team is supporting participants during and after the climate assembly. In this solution, an external team would be hired from the beginning of the climate assembly process which will secure mutual trust between the citizens and the team. After the assembly ends, there will be a team ready to guide the citizens into new active climate initiatives through processes similar to the association that the Austrian assembly members established, or new ideas for processes that could lead to climate action. In the KNOCA workshop (p. 35), the participants suggested a capacity-building course for the citizens that would support communication and establish contact between assembly members, political leaders, or other stakeholders who can help implement the citizens' climate initiatives in local communities. This solution would at the same time create a community for the citizens to engage in among all the participants who are interested in developing new climate initiatives and becoming active in local regions. It can be beneficial for the citizens to be a part of a community of practice that supports each other and have the same interests, which was also expressed in the interviews (p. 33). The ANT shows that a solution, similar to the CSE Officers' case, would need to be involved in the existing network of climate assemblies. Those responsible for creating communication bridges between citizens and other stakeholders must have followed the assembly process from the start.

chapter

06

Discussion

The problem definition in this study explained how citizens who have participated in climate assemblies are provided with optimal conditions to change their unsustainable behaviour and continue being an active part of the green transition. However, the current framework of climate assemblies does not offer any support to the citizens after their participation, which leaves the citizens without assistance to continue their engagement in developing climate initiatives. The aim of the research in this project has thus been to investigate how citizens can be supported through a process to stay active in the green transition at a local level after ending climate assemblies. The research questions stated:

- *How can citizens stay committed to local climate action beyond their participation in formalised climate assemblies?*

  and

- *How could a process, including active participation and deliberation, support citizens in long-term engagement in climate action in local areas beyond climate assemblies?*

Three sources of inspiration (p. 36) were presented based on the empirical analysis (p. 31) which were further analysed through the ANT and MLP framework (p. 40). Through the ANT analysis, it was shown that new networks emerged with the three additional processes and the citizens could be translated into the networks through their interest to act upon climate-related issues immediately. The ANT also showed how each network of the three processes should be connected to the existing network of climate assemblies, where especially the CSE Officers-solution had to be involved in the prior network of climate assemblies. The MLP analysis showed how pressure from climate change in the exogenous landscape led to increased urgency of climate action and created a window of opportunity for niche innovation to enter the regime. Furthermore, the DK2020 project, which previously had entered the regime from the niche level, could initiate the three processes to become dominant structures in Danish municipalities.

Through both the empirical and theoretical analysis, three solutions were proposed, based on the inspiration sources, to address the research questions in this project. This section will discuss how well the solutions contribute to addressing the research questions and what should be considered in implementing them. Furthermore, the solutions will be critically reviewed and compared to existing literature throughout the discussion to determine limitations and potentials that can support further development of the processes.

Evening Courses

The first solution for a supporting process is the evening courses inspired by the Masterclass in climate action in Hørsholm Municipality. This solution indicates a strong commitment to local climate action since the courses are designed and conducted by actors within municipalities, who can present knowledge and possibilities for initiatives to the specific local context. Furthermore, the solution invites active participation and deliberation that will engage the citizens in long-term climate action in local areas within the municipality. According to Loorbach (2010), long-term thinking "*is a framework for shaping short-term policy in the context of persistent societal problems*" (Loorbach, 2010, p. 167). Using this definition, it can be argued that this solution prepares the citizens for initiating short-term climate actions in their local communities within a broader context of long-term sustainability goals. The content of the Masterclasses in Hørsholm Municipality states; "*When we want to create strong and sustainable acting communities, it is crucial that we know whom we act with, what they are interested in and what resources they have. It is the foundation on which effective joint action and change are built*" (Hørsholm municipality, 2022, p. 2, translated). This statement shows how the considerations behind the design of the courses are focused on joint action plans, that will lead to changes in structures through translation processes of the citizens, who will learn how to problematise relevant topics for other actors and hopefully mobilise them into new sustainable acting communities. As a result, this solution addresses both research questions to a satisfactory extent by creating a process for citizens to commit to developing climate initiatives through long-term engagement in local communities.

The Evening Courses could be well implemented into the framework of climate assemblies as the inspiration source of Masterclasses in climate action already have been proposed as a follow-up process in the KNOCA workshop (p. 35). Here it was articulated how the solution could be further developed to encourage public narratives and storytelling in local communities. The evening courses demonstrate a correlation within the body of research on storytelling since: "*Storytelling has emerged as a narrative strategy for addressing issues related to sustainability where storytelling can provide concrete examples of otherwise abstract and inaccessible facts, and evoke emotions by tapping into archetypical patterns for the transmission of knowledge and orientation*"(Fischer et al., 2020, p. 2). This definition of storytelling shows that the narrative already starts in climate assemblies where the complexity of climate-related issues is unravelled to provide the citizens with a comprehensive understanding that can be used to develop effective recommendations. The storytelling approach thus continues into the evening courses since citizens are invited again to be informed about factual knowledge regarding sustainability issues to develop local initiatives, much like in the climate assembly. Another aspect of storytelling does however indicate that storytelling also is expected "*to provide interpretative pat-*

terns via the narrative framework that can facilitate reframing and building shared understanding" (Fischer et al., 2020, p. 2), which adds a reframing perspective that isn't addressed in the solution of evening courses currently.

The Evening Courses should be implemented as an extended offer to the citizens who have completed their participation in a climate assembly. Since climate assemblies both are conducted at a local, regional, and national level it is important to align the Evening Courses with a purpose that is directed to the different demographic groups of participants. The courses could therefore either be directed at specific initiatives for a certain municipality at a local level, or to general initiatives that are not depended on a certain area in a broader context. Through the ANT analysis (p. 41), it was shown how the facilitators in the evening courses could be the same facilitators in the climate assembly and thereby build relations and trust with the citizens throughout the process. It was also expressed in the interviews (p. 33) that a post-assembly process should have the same framework as the climate assembly itself. This would be achieved if the facilitators are well-known faces for the citizens and if they already are familiar with the framework and methods of the facilitation. The MLP analysis (p. 44) showed a broader context of the solution and how it can be implemented in the regime through pressure from the landscape. The solution therefore would have a chance to move from being a niche innovation to being a part of the dominant regime through already existing initiatives such as the DK2020 project. In this solution, the citizens are continuously being taught about climate facts and knowledge that could also have consequences for climate distress symptoms. It is therefore important that the facilitators and the experts who present the factual knowledge are aware of these consequences and as such try to prevent unnecessary distress among the citizens.

Local Living Labs

The second solution would give citizens who have participated in a climate assembly an opportunity to work and experiment with specific ideas and initiatives to support the green transition. The Local Living Labs should be a protected space for citizens to develop innovative solutions to climate-related issues in close collaboration with experts, knowledge institutions, local authorities, companies, and other relevant stakeholders. This solution will keep the citizens encouraged in local climate action initiatives and it will even allow the citizens to test hands-on experiments. The Local Living Labs will invite active participation as well; however, the deliberation aspect of this solution will be limited. This raises doubts about how well the solution addresses the research questions posed in this thesis since one of the questions indicates that deliberation should be an active factor. Living labs can provide multi-dimensional inputs for innovation since they invite different types of stakeholders to conduct experiments (Hossain et al., 2019) which is essential for further development and evolvement

of the networks created within the living labs. The Local Living Labs should enable the citizens to draw upon the knowledge they have obtained in the climate assembly to develop specific ideas into actual solutions through rapid prototyping with supervision and support from professional facilitators. A recurring criticism of living labs is however the difficulty of scaling up the project to other local areas. Yndiegn et al. (2021) discuss how to scale social innovation, more specifically, how to scale a project of a public senior-driven living lab created in one part of Copenhagen Municipality to be continued in another part of the Municipality. The criticism presented in Yndiegn et al. (2021) study evolves around the upscaling of the public living lab and how the network of senior citizens had developed around one specific context where daily activities, such as shared lunches and coffee breaks, became an integrated part of the citizens' agendas associated with the Living Lab. The study highlights that a network of citizens can be strongly developed within certain communities and thus be difficult to change, evolve or upscale. The study of scaling social innovation points out that there are some difficulties when attempting to sustain and grow the community that has been created within living labs. The study states: "*different challenges emerge and raise questions of ownership - or who owns the concept and the right to define what practices and routines to establish*" (Yndigegn et al., 2021, p. 332). These difficulties should be considered when offering citizens to join a community within local living labs to continue to develop climate initiatives, however, the study of scaling social innovation did base their discussion on living labs, which was offered to the public as part of different campaigns by the Municipality. This difference should be considered since the Local Living Labs only would invite a specific group of citizens, namely the citizens who have previously participated in climate assemblies. Learnings from the limitations and potentials of previous living labs, therefore, could be valuable to consider in evolving the network around the Local Living Labs to enable citizens to spread the word about developing climate initiatives and interest, enrol, and mobilise new actors into the problematisation (Callon, 1986). However, the main concern that should be considered, is that the communities created around the living labs can get fixed to a specific context, like the senior-driven living lab in Copenhagen Municipality, making it difficult to up-scale and evolve.

Implementing this solution would require human and physical resources since the Living Lab itself should be located in a fitting space and the experiments could require activities involving various materials and objects (Ceschin, 2014). The ANT analysis (p. 41) showed how several stakeholders should be involved for this solution to be successful, and both actors from climate assemblies, such as the expert panel, or new relevant stakeholders, such as knowledge institutions or local authorities, could be invited into the process. The MLP analysis (p. 44) showed how previous initiatives such as the DK2020 project got implemented in the regime and this specific project was mentioned again as a way of initiating Local Living Labs by the Head of DOLL Living Lab in an interview

(see Appendix 3). The exposure of climate distress in this solution would be limited since it focuses on letting the citizens develop solutions rather than informing them with factual knowledge of the consequences climate change can bring. The Local Living Labs could in fact have the opposite effect on climate distress since it gives citizens the opportunity to develop hands-on solutions that can improve sustainability in local areas. This will give citizens the feeling of contributing to the green transition and it will increase their motivation to keep being active in climate initiatives.

External Support Team

The third and last solution is an external team of people who follow the climate assembly process to build a mutually trusting relationship with the citizens and connects the citizen to local institutions after the assembly ends, to continue doing climate initiatives. The solution is aimed at the citizens who gained the motivation and willpower to be more engaged in the green transition through the climate assemblies and seek to find projects they can support to increase local sustainability. This solution is providing support to the citizens to continue their active engagement and commitment to local climate initiatives as well as encourage active participation and deliberation among the citizens and local institutions. This means, that the solution contains all aspects formulated in the research questions and thereby is provided with optimal conditions for a post-assembly supporting process. The external team does however face multiple challenges in creating the best foundation for supporting the citizens in future processes. Based on the findings in the final report that the CSE Officers published as an evaluation study (Grossmann & Spilauer, 2022) and an interview with one of the Officers (Appendix 2), challenges and limitations will be discussed. The first major learning from the CSE Officers was, that they should have been involved in the climate assembly process from the very beginning. Furthermore, the citizens in the assembly had difficulties understanding the role of the Officers, which did not make the framework work after the intentions. These learnings stress the importance of communicating the role of the Officers and what they can offer, to avoid confusing the citizens (Grossmann & Spilauer, 2022). Communication is a crucial aspect of this solution, both in regard to communicating the potential of the external support team's roles, but also to create communication bridges between citizens and local institutions, that are willing to collaborate in developing climate initiatives. Another learning expressed by one of the Officers in the interview (Appendix 2) was the importance of keeping track of the different projects that the citizens got involved in and establishing a communication structure among all the citizens to secure that everyone is informed and aware of other ongoing projects. The solution does therefore align with the research questions although previous learnings show how especially communication structures are a crucial aspect for the solution to be performed as intended.

This supporting process will require the fewest resources, compared to the other proposed solutions, since it doesn't need a physical location but only communication channels between the team and the participants. Results from the ANT analysis (p. 41) revealed that the External Support Team needs to be involved in the climate assembly since it is important to build a trusting relationship with the citizens to connect them with new local institutions. This solution will therefore work optimally in mobilising citizens and relevant stakeholders who are contacted by the external team to keep the project alive and expand the network. The MLP analysis (p. 44) showed how climate legislation created a window of opportunity for the niche innovation of climate assemblies to be a part of the dominant regime and enter the meso-level through the establishment of Denmark's first National Climate Assembly. In parallel, the increased urgency necessitated by the most recent IPCC report (Lee et al., 2023) opens another window of opportunity that supports that an external team could be implemented in continuation of all established climate assemblies. This solution is more dependent on climate assemblies than the two previously presented processes since it wouldn't work without the team following citizens in a climate assembly. This solution could be helpful to avoid climate distress, and (as such) eliminate any climate-related anxiety that could have occurred during the climate assembly. The evaluation report of the CSE Officers stressed the importance of finding a balancing structure at the beginning of the assembly and asked the question: "*How can we make sure to empower and support the citizens and their work with civil society without pushing or overwhelming them?*" (Grossmann & Spilauer, 2022, p. 7), which clarify that overwhelming the citizens is a concern.

Summary of discussion

Throughout this thesis, underpinning my understanding of sustainability (p. 13), lies an emphasises on the need for behavioural change at macro, meso, and micro levels to sustain future development within a safe operating space without compromising well-being aspects. All three solutions proposed are designed to be people(s) orientated since they all are managed by a team of facilitators who have experience in collaborating with people from a diversity of backgrounds and supporting them in climate action activities beyond formalised climate assemblies. Implementing such solutions, I argue, could benefit citizens through engendering crucial changes to achieve a sustainable future. Importantly, through the citizens' ongoing participation in these activities, they will be introduced to different climate-related scientific research, and experts from different disciplinary will present why and how actionable initiatives should be conducted. Such an approach offers citizens the advantage of already being acquainted with scientific climate theories and methods when they are developing climate initiatives post-assembly.

Limitations to the research in this study consisted of time restrictions in relation to the overall project timeline and with respect to accessibility to interviewees including citizens, researchers, and other stakeholders. The citizens who agreed to be interviewed were difficult to get in contact with due to GDPR restrictions and this created an unexpected delay in the process of gathering empirical material. The limited time was also an important factor in conducting interviews with other stakeholders. Researchers and practitioners within the climate assembly framework all have busy schedules, which made it difficult to arrange interventions such as workshops with multiple stakeholders gathered in one place at once. These limitations influenced the possibility of instigating co-design and co-creation approaches involving a series of iterations in close collaboration with citizens and stakeholders. The design approach adopted in the study was thus limited to a participatory design framework engaging stakeholders across multiple sites including participant research and observations, and the design of a feedback workshop involving climate assembly specialists encompassing both physical and online engagement (Öztekin & Gaziulusoy, 2020). A co-design and co-creation approach engaging citizens together with stakeholders in this study could have provided solutions with more detailed attributes since a wider diversity of actors within the process could have followed the development of the design closely and would have had the potential to affect the outcome with their own contributions.

Suggestions for further research

To further build on the thesis research findings, I propose to introduce aspects of practice theory to complement my existing analytical work conducted through the application of MLP (Öztekin & Gaziulusoy, 2020). As Öztekin and Gaziulusoy point out; "*plurality of perspectives, approaches and projects is also necessary to proceed through the complexities and uncertainties of sustainability transitions. Thus, integrative work is essential in order to build transdisciplinary dialogue, continuity and collaboration between diverse knowledges and practices; DfST, TTs and PT provide a fertile ground for such integrative explorations*" (2020, p. 216). Since the study has evolved around behavioural changes in post-assembly participants' and wider contextual networks, and the need for shifts in human behaviour expressed in the sustainability definition (p. 13), parallels can be drawn to social practice theory approaches which can be used to examine "*changes in the conceptions of transitions by providing perspectives from users and everyday practices and analysing their relational interdependencies with systems*" (Öztekin & Gaziulusoy, 2020, p. 216)

In terms of policy discourse Heiskanen and Laakso (2019) explain "*Social practice theory represents the newest entrant into the field of sustainable consumption research and policy discourse, and investigates how daily practices are shaped by established services and technologies, by shared norms, conventions and capabilities, as well as by organizational, institutional and political rules*"

(p.156). Thus, by extending the current thesis research integrating social practice theory, it could be determined how practices within the climate assembly participants' own life and in relation to the wider contextual network could be shifted into a sustainable transition. This could be considered by studying changes in everyday practices at a community or society level since shared norms within these structures are determining how citizens' unsustainable practices develop. There is thus a need for a shift in the dominant structures, which can be supported and investigated by involving social practice theory. Svennevik (2022) reminds us, "*Changes in socio-technical systems therefore only happen if the practices which embed those systems in the routines and rhythms of life change; and if those practices change, then so will the socio-technical system*" (p.170). This statement supports that socio-technical transitions only are successful if there is a transition in the practices within the system. A further investigation of changes in a socio-technical system and the practices embedded in the system, as well as climate assemblies' and other supporting processes' roles in affecting these practices to create sustainable transitions, are recommended as a development of the research approach adopted in this thesis.

chapter

07

Conclusion

Through the empirical materials generated through semi-structured interviews with citizens who have participated in different climate assemblies, and research within the work of the KNOCA project through participation methods, three different inspirational examples of supporting processes are presented in this thesis. The examples were all processes that already exist and have been tested by both actors within and outside climate assembly frameworks. The three processes were carried out in the form of: Masterclass in Climate Action developed by DeltagerDanmark in collaboration with Hørsholm Municipality, Living Labs as protected spaces for open innovation inviting both citizens and experts to develop new climate-related solutions, and the CSE Officer framework from the Austrian Climate Assembly, which supports citizens during and after the assembly to establish contact between the citizens and local institutions to develop climate initiatives in collaborative processes. Using these processes as sources of inspiration for further development, a theoretical analysis was conducted to gain insights into the network and translation process as well as the position of the processes in the socio-technical system.

Based on the ANT analysis it can be concluded that all three solutions would create a new network for the citizens to enter after their participation in the climate assembly. The third solution of an External Support Team is however different from the remaining two solutions since the network involves and engages in the current network of climate assemblies. The MLP analysis showed how all three solutions are innovations at the niche level and if they should have a chance to enter the dominant structures in the regime, they must follow a window of opportunity created by exogenous pressure from the landscape level and opportunities from other niche innovation that have succeeded in entering the regime before. This could for instance be the DK2020 project which allows Danish municipalities to create a climate action plan, which very well could include climate assemblies and following supporting processes.

Further conclusions of the results show how the three inspiration sources could be developed into proposed solutions for a post-assembly supporting process. The solutions should however consider certain aspects of further development based on critical attitudes in literature and previous learnings from similar processes, which have been discussed in this thesis. The first solution of Evening Courses must consider reframing aspects to appear as a storytelling approach for promoting sustainability within local communities as well as clarifying how factual knowledge about climate change should be presented to avoid any unwanted distress. The second solution of Local Living Labs should be aware of the possibility of fixed networks which can prevent the up-scaling and evolvement of the solution. This issue must be embraced from the beginning to secure long-term transitions and ongoing evolve-

ment of the network surrounding the Local Living Labs. The third and last solution of an External support team must consider the communication aspect of the process to succeed in creating new relations between citizens and local institutions to develop climate initiatives. The communication aspect was found to be crucial for the whole process in this solution and should not be compromised at any point.

Lastly, it can be concluded that all three solutions were aligned with the sustainability definition presented at the beginning of this thesis (p. 13) stating that sustainable development should seek to change human behaviour to avoid further crossing of planetary boundaries while maintaining a satisfactory quality of life and well-being. The proposed solutions all invite to develop climate initiatives, that are initiated by citizens themselves through facilitated processes with expert-based insights originating from scientific climate research. This will support the balance of changing unsustainable behaviour enough to avoid exceeding additional boundaries and without compromising citizens' essential quality of life. For a thorough investigation of a shift in behaviours required, it has been recommended to extend this research by integrating social practice theory to determine how a sustainable transition can be initiated through behavioural changes in the socio-technical system.

Reflection

-As a Sustainable Design Engineer

This thesis was conducted within the field of Sustainable Design Engineering (SDE) to investigate how the deliberative democratic process of formalised climate assemblies can be evolved with further processes to support and engage citizens in developing local climate initiatives in society. To carry out research as an SDE implies different knowledge areas from Sustainability, Design, and Design Engineering under the umbrella of Science and Technology Studies (STS) (Valderrama Pineda & Niero, 2020). Through these areas, I have implied systemic thinking to support long-term changes in socio-technical systems to achieve the highest transformative potential in locked-in dominant structures (ibid). This systemic approach has proven to be valuable for the study since a focus on the broader socio-technical system through MLP and ANT analyses has provided argumentation for up-scaling and mobilisation of the solutions and the associated actors. My approach in this study was however not only at a strategic level since I found myself in a relatively new community of practice for an SDE to engage in, by working alongside scientific researchers, practitioners, and policymakers in the KNOCA team within DBT. I found that parallels could be drawn between situations in the KNOCA work and my educational background as an SDE, especially through the facilitation of events and user involvement in projects, which have a connection to design research, and through interdisciplinary exploration across multiple stakeholders within different disciplines.

Ceschin (2014) argues that "*designers could guide and support a company, an institution, or a network of actors in the process of introducing and gradually embedding sustainable concepts in society. In sum, a new and broader role for design for sustainability emerges*" (p. 18), which describes another parallel between the KNOCA and SDE approach. KNOCA has established a knowledge network of members within different climate assembly communities for whom they create guidance, host events, and generally inform with relevant knowledge to embed the sustainability concept of climate assemblies in society. I, as an SDE, have carried out a thesis project as a knowledge contribution to KNOCA to develop the sustainability concept of supporting the citizens in climate action initiatives after their participation in formalised assemblies. My contribution is thus meaningful and brings value to the knowledge network in a new trans-discipline across SDE and deliberative democratic policymaking, which can be further developed and tested until it can be gradually embedded in society.

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