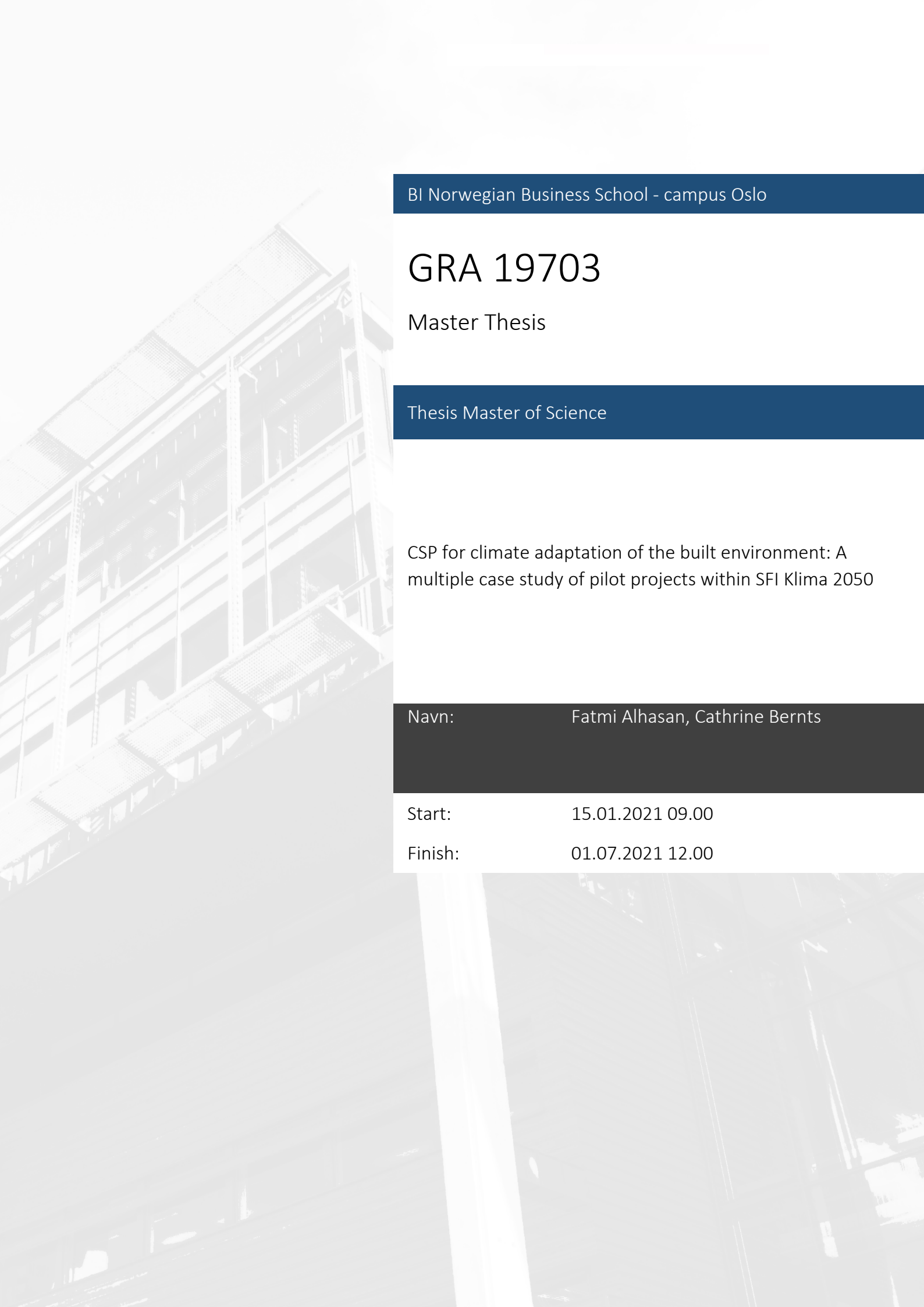

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Master Thesis

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CSP for climate adaptation of the built environment: A multiple case study of pilot projects within SFI Klima 2050

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Abstract

The objective of this master thesis is to enhance pre-existing literature on cross-sector partnership (CSP), by providing empirical evidence of CSP. Our goal is to explore the characteristics of CSP in an empirical context and provide a developed understanding of the phenomenon. We have done so by investigating the characteristics of CSP in the empirical setting of Klima 2050 – an initiative set out to deal with climate adaptation. We conducted a qualitative multiple case study of four projects within Klima 2050 and our findings shows why actors participate in CSP, what the partners in this type of collaboration do and the potential effects of the partnership and lastly how partners deal with challenges and how they succeed. Furthermore, our study revealed that many of the characteristics of CSP were similar to previous literature, while other characteristics deviated from pre-existing literature.

Acknowledgement

This thesis is the outcome of an intense learning process for both writers. This process has truly been a roller-coaster; burdensome at times, but all-together highly fulfilling. First of all, we wish to extend a special thanks to our supervisor, Lena Elisabeth Bygballe, who gave us the golden opportunity to do this amazing project on the topic of cross-sectoral partnerships within the climate adaptation setting. This truly helped us in doing loads of research, and put our ideas, which by the way was way above the level of simplicity, into something concrete. Moreover, we want to thank the interviewees for openly sharing their opinions and experiences. We would also like to thank our families and loved ones for supporting us during our work with this thesis, and who helped us in finalizing this project within the limited time frame. Lastly, we would like to quote Snoop Dogg:

"I wanna thank me for believing in me
I wanna thank me for doing all this hard work
I wanna thank me for having no days off
I wanna thank me for, for never quitting"

Again, thank you, this incredible accomplishment would not have been possible without any of you.

Oslo, 29th of June 2021

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1.0 Introduction and research question

Environmental and climate challenges are some of the biggest challenges facing society. The climate in Norway and the world in general is changing drastically and it is expected that the upcoming years will provide us with more extreme weather, which present constructions are not built to handle (Klima2050, 2020b). Research has outlined that one way of handling societal problems is through cross-sector partnerships (Doh et al., 2019; Hardy et al., 2006), a theory which will be the base of our thesis. And based on our chosen topic, we have formulated the following research question:

"*What characterizes cross-sectoral partnerships set up to deal with climate adaptation?*"

Because this research question is extensive, we needed to examine several angles to be able to answer it. Based on the characteristics outlined in the theoretical foundation, we ended up with these three sub-questions connected to our research question:

1. *Why do actors participate in cross-sector partnerships?*
2. *What do the partners do and what are the effects of the partnerships?*
3. *How do the partners deal with challenges and how do they succeed?*

Our goal is to explore the characteristics of cross-sector partnerships in an empirical context and provide a developed understanding of the phenomenon. By this, we want to compare previous literature with our empirical findings, and conclude whether the characteristics are deviant or not.

On that basis, we have been provided the opportunity to study cross-sector partnerships in the setting of Klima 2050. Klima 2050 is a center that sets out to reduce risks associated with climate changes and enhanced precipitation and flood water exposure within the built environment (Klima2050, 2020b). The centre's main focus is to conduct pilot projects to develop new solutions for climate adaptations. These pilot projects involve multiple partners, and we got the chance

to explore *four* of the sixteen projects in Klima 2050, which will be the foundation for our empirical setting. These four pilot projects were mainly chosen because they represent cross-sector partnerships (CSP); "alliances among private, public, and/or non governmental organizations that tackle common interests where different sectors may lack capacity to achieve their interests alone." (Doh et al., 2019, p. 451)

Although CSP is a broad research field, and many studies have been conducted on the characteristics of CSP, there is lack of empirical evidence of collaboration between private and public sector (Tompkins and Eakin, 2013; Doh et al., 2019). Hence, the aim of this thesis is to enhance literature, by providing empirical evidence of CSP. To study this phenomenon, we decided on conducting an explorative, multiple case study in this thesis. Our thesis will be delimited by looking into four pilot projects, and will be based on interviews from the representatives from these projects. Further, our research is delimited by selecting projects based on three criterias, which will be explained in chapter 2.1 Research design. Our theoretical foundation for this thesis is grounded in collaborative strategy as a field of study. As this is a broad field of study, we delimited our thesis by focusing on cross-sector partnerships, which is one type of collaborative strategy.

To study the research question, we will develop a theoretical foundation, which will provide an overview of the characteristics of CSP. The aim of viewing relevant literature is to create a basis for our research and theoretically understand what CSP is, which actors are involved, their key-drivers, the challenges they encounter and lastly how they overcome challenges. Based on this contemplation, we derive a model, which will be the basis of our discussion of the findings.

We will start the thesis by presenting the research methodology, followed by chapter 3.0 – the theoretical foundation of the thesis. After the theoretical foundation is concluded, the findings will be presented according to the structure generated by our three sub-questions. This structure will follow in 5.0 Discussion, and the thesis will be concluded in chapter 6.0 by summarizing our study and answering the research question. Moreover, the implications, limitations and suggestions for future research will also be presented in this chapter.

2.0 Research methodology

Our research question is: *"What characterizes cross-sectoral partnerships set up to deal with climate adaptation?"* To answer this question, we will apply a qualitative research method. This qualitative approach contains a multiple case study of the four chosen pilot projects in the Klima 2050 initiative. Moreover, we will provide a detailed description of the methodology that we have chosen, as well as how we seek out to ensure quality in our research.

2.1 Research design

Yin (2009) stated that research design can be defined as "the logical sequence that connects the empirical data to a study's initial research questions and, ultimately, to its conclusions" (Yin, 2009, p. 26). In other words, research design refers to the whole process of research from having an idea of a problem to writing research questions, and then over to data collection, analysis, interpretation and lastly, report writing (Creswell, 2007). Further, we will begin by providing an overview of our literature study.

2.1.1 Literature study

The aim of this research project was to understand the characteristics of cross-sector partnership set out to deal with climate adaptation. On that account, the literature study was an important part of our thesis, and built the foundation of our interview guide. Our literature study was extensive and we went through a significant amount of articles before ending up with a selection relevant for our thesis. We limited our search within the field of collaborative strategy, focusing on one type of collaborative partnership: cross-sector partnerships. A thorough overview of the research results and process can be found in **Appendix 1**.

We searched for relevant literature in three databases; Google Scholar, Web Of Science and BI´s library. Each of the three databases offers different search functionalities. In Google scholar we could only search by title or key-words, which guided us to the respective authors' Google Scholar Profiles. For the simplification

of work, we chose to limit our search to only journal articles, within the field of Management and to the field of Business ethics.

We had three methods for finding relevant articles: 1) recommendations from our supervisor, 2) search in the three databases mentioned above, and 3) based on previous findings, we researched cited articles.

Our research strategy was to begin our research by getting an overall understanding of the subject at hand. Based on these findings we thereafter searched for specific keywords. Hence, we first conducted a general search using the terms "collaborative strategy", "cross-sector partnerships", and "cross-sectoral partnerships". The result of this search provided us with some of the same articles recommended by our supervisor. Based on this, we decided that these articles would be the base for our chapter 4.0 Theoretical foundation. We started thoroughly reading core articles, aiming to find relevant subjects and keywords to research further. Examples of such keywords were "impact of cross-sector partnerships" and "cross-sector partnerships AND systemic change". Furthermore, we researched cited authors and articles in which the core articles had based their research upon. One example of this is from the authors Clarke & Crane (2016): "Cross-Sector Partnerships for Systemic Change: Systematized Literature Review and Agenda for Further Research", where they referred to "Matos-Castaño et al. 2014". Hence, we searched for: "Unpacking the path-dependent process of institutional change for PPPs.".

2.1.2 Case study

"The case study is a research strategy which focuses on understanding the dynamics present within single settings." (Eisenhardt, 1989, p. 534). In other words, case studies illuminates *why* decisions were taken, *how* they were implemented, and with *what* result (Yin, 2009b). Furthermore, it is important to emphasize that the aim of case studies is to develop theory, not to test it. Hence, the case selection is not generalizable for a population (Eisenhardt & Graebner, 2007a). Because of this reason it is advantageous to formulate the research question so that it is possible to develop a theory. Yin (2009) described that it is advantageous to use a case study if

the research question is a "how"-question – qualities which our research question in many ways embrace. By defining the characteristics of cross-sectoral partnerships set up to deal with climate adaptation, we will look into *why* the partners collaborate, *what* they do, and *how* they succeed in their respective partnerships.

Multiple-case design

Multiple-case designs often provide evidence that is more compelling and more robust in comparison with single-case designs (Yin, 2009b). Yet, conducting a multiple-case study is time-consuming and may require extensive resources (Yin, 2009b), which is important to consider when choosing the case design. Multiple-case studies can either be holistic or embedded (Yin, 2009b). An embedded case study has multiple units of analysis, and may include the collection and analysis of archival data, in addition to surveys. Holistic case studies on the other hand have only one unit of analysis (Yin, 2009b). We will be conducting a multiple case study, resembling an embedded approach, where the unit of analysis is partnership. It is embedded because all four projects are part of the Klima 2050 initiative. Hence, the findings will only provide some implications of the characteristics within Klima 2050, but not study the initiative itself.

This case design is selected for our thesis, because multiple-case studies typically provide a stronger base for theory building (Yin, 1994; Eisenhardt & Graebner, 2007a). Moreover, this theory-building approach is embedded in rich empirical data, which will make it easier to produce theory that is accurate and interesting (Eisenhardt & Graebner, 2007a). In the interest of strengthening the reliability and validity of the study, we are using various types of data sources. Furthermore, we will use an exploratory approach in our case study. Commonly, researchers choose between deductive or inductive strategy, but our research strategy will be *iterative*, which requires spin back and forth between data and theory (Bryman & Bell, 2015). This means that when theoretical reflection on the data has been executed, we might decide to collect additional data to form the conditions in which a theory will or will not hold.

Qualitative research

Case studies might draw upon both quantitative and qualitative research, but in this thesis we will apply a qualitative research approach. A qualitative approach is suitable to use when applying an exploratory method, where the aim is to understand the underlying reasons, opinions and motives (Bryman & Bell, 2015), which is why we chose a qualitative method. Bryman & Bell (2015) defines qualitative research as a "(...) research strategy that usually emphasizes words rather than quantification in the collection and analysis of data (...)" (Bryman & Bell, 2015, p. 38). Qualitative research focuses attention on an inductive approach to the relationship between theory and research, in which the focus is placed on the generation of theories. Also, in qualitative research, we seek close involvement with the people being investigated, so that we can certainly understand the world through their eyes. In addition, qualitative research often claims that their contextual approach and their prolonged involvement in a setting produce rich data (Bryman & Bell, 2015). Eisenhardt & Grabner (2007) emphasized that this qualitative data "offers insights into complex social processes that quantitative data cannot easily reveal." (Eisenhardt & Graebner, 2007b, p. 26).

2.1.3 Case sampling

For the research of this thesis, a purposive sampling technique was applied to select projects (Bryman & Bell, 2015). The aim was to select a sample of projects which ensured cross-sectoral collaboration. Moreover, to select our sample we established three criterias, which are expanded upon after explaining the context of the project.

Project context

Our case sample is part of Klima 2050, an initiative aiming at reducing societal risks associated with climate changes and increased precipitation, as well as flood-water exposure within the construction industry. In short, Klima 2050 is a Centre of Research-based Innovation (SFI) that is financed by the Research Council of Norway and the institution parties (*Klima 2050*, 2020). All partners across the four projects have voluntarily decided to participate in Klima 2050, which may affect the findings in our thesis. Furthermore, the premise of Klima 2050 participation is cross-sectoral collaboration; meaning it is expected that partners engaging in pilot

projects have to collaborate across sectors. Interestingly, cross-sector and interdisciplinary collaboration is also a premise within each of the sector's domains; for instance stormwater planning requires collaboration across sectors and many of the actors in Klima 2050 are used to working cross-sectoral. In many ways, Klima 2050 functions as a facilitator, or an arena, for academic discussions, which may affect the partnerships we are investigating. As an arena, Klima 2050 facilitates academic discussions, as well as coordinating the pilot projects, organizing each pilot and formulating pilot goals.

Criterias for the selection

The sample was selected out of Klima 2050 using three criterias:

1. The sample should represent projects from different business areas.
2. The sample should include actors from two or more sectors.
3. The projects should have surpassed the initiation phase.

Since we had a clearly specified research question, the pilot projects were chosen on the grounds that it would allow a better understanding of the situation in which the research question is trying to understand. This is called critical case sampling (Bryman & Bell, 2015). It was important to select a sample that would ensure robustness for the analysis, which the three criterias ensured. When studying the characteristics of cross-sector partnerships, it was critical that our research actually reflected cross-sector and interdisciplinary partnerships, because our sample had to include actors from different business areas and sectors. Our selection includes the public, private and research sector. However, the research partners are not pure NGOs, as they have commercial interests as well. Moreover, studying the characteristics is only possible if the partnership context has been established and there has been some progression. If this criteria was not present it would not be possible to study why the partners participate in the partnerships, what they do and the effects of their collaboration, and lastly which challenges they encountered and how they succeed. Based on these three criterias we had a dialog with representatives with Klima 2050, and were recommended five pilot projects.

Based on our three criterias, we selected these four pilot projects; *Project 1*, *Project 2, Project 3,* and *Project 4.* Furthermore, all of the projects are ongoing, which is why it is only possible to study the interim effects of the projects – not the final outcomes. The fifth project we were recommended was so comprehensive that it would have been more fitting to conduct a single case study. While a single-case study could have richly described the phenomenon (Siggelkow, 2007; Eisenhardt & Graebner, 2007a) of cross-sector partnerships, the aim of our study was to build theory. Choosing multiple-case designs often provides a stronger basis for theory building (Yin, 1994; Eisenhardt & Graebner, 2007a), which is why we ended up with the four projects.

2.1.4 Project descriptions

Project 1: Early Warning System

Project 1 is owned by the public partner. The project entails partner representatives from the public, private and the research sector. This project addresses the challenges connected to debris avalanche and flash floods that begin because of local precipitation systems with a short time span; up to a few hours. The objective of this pilot project is to administer a cost-effective early warning system that combines regional as well as locally observed data.

Project 2: Stormwater and Maintenance

This pilot project is the most versatile in terms of cross-sector collaboration. It is owned by the private partner, and the participants are the public, private and the research sector. The pilot project represents a broad-spectrum of issues dealing with stormwater management and the aim of *Project 2* was to document the functionality and efficiency of established stormwater management solutions. Moreover, the pilot entails a unique construction contract; operation and 20 years maintenance of a road.

Project 3: Stormwater Planning

The pilot project Stormwater Planning is owned by the private partner, and their public partner was their only partner. The intention of this project is that the future planning in urban areas needs to have a reasonable risk of consequences of climate

change, simultaneously as it enables appealing and flexible environments. This pilot project wishes to examine, develop as well as document work activities and procedures for planning of urban environments and urban locations and guarantee doable risks associated with stormwater. The project's goal is that the procedures brace fast and sustainable choices in the planning processes.

Project 4: Stormwater Management Facility

This pilot project is owned by the public actor, and the participants of this project are two private actors, as well as the research partner. The project scope was to create a solution which would deal with stormwater generated in cities. *Project 4* is the only project in our sample which has achieved the project goal; they have built a management facility, alleviating the pipeline network. Continuing onwards, the project scope is to document the effects of the facility.

2.2 Data collection

Because our research is conducted at different phases of the pilot projects development, it is essential for us to be realistic when collecting the data; in this case, use the data that are accessible to us. We have pursued to use rich and varied data to shed light on the topic of the development of innovative solutions for climate adaptation. Our data collection involves 12 in-depth interviews with individuals of relevant character, and these are our primary data source. Within each project, we interviewed at least one representative from each sector. The analysis is supplemented with secondary data from Klima 2050s official documents and documents provided by the interviewees.

Secondary data was collected in the initiation phase of our study and in connection with the interviews, and was primarily used to conceptualize the context of our empirical setting. Firstly, we used the official website of Klima 2050 in the preliminary phase of our study, which was used to get an overall understanding of the label of Klima 2050. Moreover, internal documents, project presentations, and project descriptions were studied to get a more comprehensive understanding of what the projects revolved around, who the partners were, and how the project partners collaborated.

2.2.1 Interviews

Even though the use of interviewing, transcription of interviews, and the analysis of transcripts are all time-consuming, it was a better and more flexible choice for us than to use ethnography (Bryman & Bell, 2015). This is specifically in regards to the current COVID-19 situation, which has made it hard for us to observe the projects in person.

There are several characteristics that we see as an advantage in regards to qualitative interviewing, which is what we have chosen for our study. First of all, qualitative research regularly requires the reconstruction of events by asking the interviewees to think back over how a certain series of events unfolded in terms of a current situation. In addition, qualitative interviewing is less intrusive in people's life compared to participant observation. This stems from the fact that interviews will take less time. Even though interviews in qualitative research can at times be very long and reinterviewing is not uncommon, the impact on people's time will in all likelihood be less than having to take observers into account. But this is of course situational. (Bryman & Bell, 2015)

In qualitative interviews, the approach is usually less structured than in quantitative research. Moreover, in qualitative interviewing, interviewers can go off remarkably from any schedule or guide that is being used. They can also ask new questions that follow up the interviewees' replies and can differ the order of questions and even the wording of questions.

In qualitative interviewing, there is much greater interest in the interviewee's point of view. Because of this, qualitative interviewing tends to be flexible, responding to the direction in which interviewees take the interview and possibly adjusting the emphasis in the research as an outcome of crucial issues that emerge during the interviews. In addition, in these types of interviews, the researcher desires rich, detailed answers. Furthermore, it is common that the interviewee may be interviewed on more than one and sometimes even several occasions. (Bryman & Bell, 2015)

Semi-structured interviews

The kind of qualitative interviews that we have conducted for this study is semi-structured interviews. This is because we wanted to ask a series of questions that are in the general form of an interview schedule, but we wanted to be able to vary the sequence of questions. The questions that we asked were rather more general in their frame of reference than what is typically found in a structured interview guide. We also asked additional questions in response to what were seen as important replies. (Bryman & Bell, 2015)

We produced an interview guide in preparation of the interviews **(Appendix 2)**. To do so, we used our literature study as a foundation to identify relevant topics. However, we were aware that we wanted our interview guide to be relatively open so the interviewees could tell us additional information. Furthermore, the wording of questions were very much thought out beforehand of the interviews. We chose to use McNamara's (2009) components for the preparation phase of the interviews: (1) *Wording should be open-ended* (interviewees should be able to choose their own terms when answering questions), (2) *Questions should be as neutral as possible* (Avoid wording that might influence answers, e.g., evocative, judgmental wording), (3) *Questions should be asked one at a time*, (4) *Questions should be worded clearly* (This includes knowing any terms particular to the program or the respondents' culture), (5) *Be careful asking "why" questions* (These questions may cause respondents to feel defensive, e.g., that they have to justify their response, which may inhibit their responses to this and future questions). (McNamara, 2009)

In addition to the preparation of the interview guide, we also prepared for the interview setting itself. To do so, we followed McNamara's (2009) eight components: (1) Choose a setting with little distraction. Since we were in the middle of a pandemic, we conducted the interviews through zoom. (2) Explain the purpose of the interview, (3) Address terms of confidentiality, (4) Explain the format of the interview, (5) Indicate how long the interview usually takes, (6) Tell them how to get in touch with you later if they want to, (7) Ask them if they have any questions before you both get started with the interview, (8) Don't count on your memory to

recall their answers. That is why we ask if it is okay to record the interview before we start. (McNamara, 2009)

2.3 Interviewee sample

In the phase of selecting interview objects, we initiated the process by starting with one natural representative from each project, and thereafter applied the snowball effect to identify and select supplementary interviewees (Bryman & Bell, 2015). We wanted to get in touch with people who had understanding and experience with the topic we wanted to investigate in this thesis.

2.3.1 The interviewee

In the early stages of this thesis, some reflections surrounding the informants were made. And when proceeding to further research our chosen topic, we wished to attain details and perspectives from several sector representatives of the pilot projects. The aim for us in this phase of research was to accumulate different opinions from various sectors and their representatives on the same project. We wanted to use this as a base to understand what tends to happen in such cross-sectoral partnerships, and how differences are shown and how they get dealt with. It is in this regard it is interesting to explore if there are any differences across the sectors and what characterizes the partnerships.

When proceeding to collect the data, we conducted twelve interviews, of which five were conducted with the respective public sector representatives, four were with representatives from the research sector, and the last four of the interviews were conducted with representatives from the private sector. It is worth mentioning that several of the informants have a lot of experience with working cross-sectoral, as it is often a premise in their work. Additionally, some of the informants had previous experience with the involved parties, both from previous work relations or in some cases from collaborating on several Klima 2050 projects. Furthermore, the interviewees across the four projects contributed with unique capabilities, and various roles such as project leader, project owner, among others.

Table 1: *The tables below show our interviewees in the different pilot projects.*

Project 1: Early Warning System

Interviewee	**Sector**	**Date**
Interviewee #1	Research sector	8. mars 2021
Interviewee #2	Research sector	19. mars 2021
Interviewee #3	Public sector	23. mars 2021
Interviewee #4	Public sector	21. april 2021
Interviewee #5	Private sector	24. march 2021

Project 2: Stormwater and Maintenance

Interviewee	**Sector**	**Date**
Interviewee #6	Research sector	9. mars 2021
Interviewee #7	Public sector	12. april 2021
Interviewee #8	Public sector	12. april 2021
Interviewee #9	Private sector	14. april 2021
Interviewee #10	Private sector	16. april 2021

Project 3: Stormwater Planning

Interviewee	**Sector**	**Date**
Interviewee #11	Private sector	12. mars 2021
Interviewee #12	Public sector	18. mars 2021

Project 4: Stormwater Management Facility

Interviewee	**Sector**	**Date**
Interviewee #6	Research sector	9. mars
Interviewee #12	Public sector	18. mars

2.3.2 Comments on interviews and samples

During the process of scoping the informants, our goal was to have a wide scope, as a means to gather data from individuals with various opinions and point of views. However, we constantly had in mind that the informants would not necessarily represent the general opinion of the sector as whole, but only their personal experience from the pilot project.

We also discussed the interview guide with both our supervisor, as well as having trusted people read through the guide, so that we would ensure that the questions held the needed quality. We provided the interviewees with a description of the topic and the aim of the thesis. The reason behind this decision was to prepare the informants and encourage them to be open-minded in regards to our thesis topic.

Furthermore, when starting this thesis we sat out to interview all sector-representatives within each of the four projects. However, in some of the pilot projects, we ended up with only a selection of sector representatives. In the end, it did not affect the quality of our research because the objective of our thesis was not to research the opinions of each sector, but to accumulate different opinions from various sectors and their representatives on the same project.

2.3.3 Language

All interviews were directed in Norwegian, as well as the included transcriptions. This was done to reduce the risk of losing data in the process of translating from Norwegian to English immediately. When further trying to code our data, we did it first in Norwegian, and then converted the main factors and details to English. Also, during the process of writing our master thesis, we did directly translate quotes to English. We made sure that all translations were assessed and accepted by both writers of this thesis, so that we would keep the informant's point of view as accurate as possible.

2.4 Analytical process

In this master thesis, we chose to follow Hesse-Biber & Leavy (2010) four-stage-model that involve: 1) data preparation, 2) data exploration, 3) data reduction, and lastly, 4) data interpretation. Moreover, we used Eisenhardt's (1989) article to first conduct a within-case analysis and then search for patterns across the cases; a cross-case analysis.

During the first stage, the interviews were all transcribed and both of us looked individually at the transcriptions afterwards, to be able to determine any inconsistencies. In the next stage, both of the researchers again read through the transcriptions by themselves as well as took notes of the most important parts of the interview before we met and reviewed the data as a team. After discussions, we decided that it would be beneficial to print out the transcribed interviews. At this stage we conducted a within-case analysis. In the third stage the cross-case analysis was carried out, we tried to narrow the transcriptions down into repeated patterns, reducing them into keywords with a color-coding system. Lastly, we went back to the raw data to guarantee that we did not miss any relevant findings.

The analytical process was grounded in the theoretical foundation of our thesis, and the process started by categorizing factors and themes outlined in theory. We ended up with five categories representing these factors and themes. In the next stage of the process, we analyzed the findings whinin each case. First, we wrote detailed summaries from the findings as suggested in (Eisenhardt, 1989), thereafter we decreased our findings by unifying some of the data or excluding some of the less important classifications, leaving us with keywords or sentences. In the next step we started the cross-case analysis, where we searched for patterns across the four cases (Eisenhardt, 1989). To discover the patterns we color-coded the factors, and compared them across the cases. We ended up with a table which showed these similarities. An excerpt from our analytical process can be seen in **Table 2** below. This excerpt shows the cross-case analysis, but we find it useful to provide an excerpt of the within-case analysis as well, because it provides a deeper

understanding of the findings. The excerpt of the within-case analysis is to be found in the beginning of chapter 4.0 Findings, in **Table 4**.

Additionally, both researchers were aware of the fact that structure is really important in this process, so in the within-case analysis we decided on analysing the first pilot project before going to the next project. In the last stage, data interpretation is linked with the previous stages, and is frequently done at the same time (Hesse-Biber & Leavy, 2010). Our results from this analysis are shown in chapter 4.0 Findings. We have illustrated our points in that chapter by adding direct quotes from the interviews.

Table 2: *Themes that appeared from the cross-case analysis*

Themes	**Excerpts from our data analysis**
Key drivers and motivation	- Overall project goal - Self-interest - Reducing costs - Challenge well-established beliefs - Works together on a regular basis. - Collaboration yields better end results → larger possibility of success - Unique skills and capabilities
Partnership organization	- Project organization based on capabilities - Discussions through meetings - Relaxed partnership culture
Results and effects	- Implementation potential - Spin-off activities - Data will be available
Challenges	- Overall, no significant challenges - Communicating - Problem formulation - Time
Conditions for success	- Overall project goal - Clarification of expectations - Self-interest - Trust, respect and openness - Understand the problem at hand

2.5 Ensuring quality in the study

The most used method when assessing the quality of the data of case studies is reliability and validity (Bryman & Bell, 2015). However, several writers have debated that qualitative studies should be evaluated according to completely different criteria from those that are used by quantitative researchers. Lincoln and Guba (1985) present that it is vital to define terms and ways of establishing and evaluating the quality of qualitative research that present an alternative to reliability and validity. In fact, they suggest two main criteria for evaluating a qualitative study: *trustworthiness* and *authenticity*.

2.5.1 Trustworthiness

Trustworthiness consists of four criteria; credibility, transferability, dependability, and confirmability, which all have an equivalent criterion in quantitative research (Bryman & Bell, 2015).

Credibility, which parallels internal validity, refers to the confidence in the "truth" of findings (Lincoln & Guba, 1985; Bryman & Bell, 2015). To ensure the credibility of our findings and interpretation, different measures were taken. First of all, the interviewees were chosen based on their qualifications, as well as their experience and active involvement in the pilot projects. A thesis description was provided to the interviewees prior to the interview, which gave the informants the chance to prepare. Furthermore, all the interviewees were auto-recorded to guarantee the accessibility of raw material, so that we would have the opportunity to look back at the data we have collected and to interpret them.

Transferability, which parallels external validity, refers to whether or not the findings are generalizable or applicable in other contexts (Bryman & Bell, 2015). Since we are conducting a multiple case study, this means that the transferability is going to be higher than single case studies on some level (Eisenhardt, 1989). To get a higher transferability, it is crucial to express the criteria of which primary traits were used to pick the interviewees (Moretti et al., 2011).

Dependability, which parallels reliability, refers to whether or not the findings are probable to be the same if the study were to be duplicated (Bryman & Bell, 2015). This requires that one needs to make sure that complete records are held onto all stages of the research process, and that they are accessible. In addition, one needs to describe the research process thoroughly. These measures are taken to ensure high dependability. We have therefore described and documented the process of research collection in-depth in this 2.0 Research methodology chapter. Furthermore, we have added our interview guide as an appendix at the end of the thesis.

Confirmability, which parallels objectivity, is concerned with making sure that the researcher can be shown to have acted in good faith (Bryman & Bell, 2015), while simultaneously acknowledging that complete objectivity is impossible in business research. This means that by acting in a certain way, we can reduce possible biases. This was especially important for us, since we were two researchers in this master thesis. When gathering data, we strived to make decisions which would limit our objective or personal point of view on the research. For instance, we tried to base our interview guide on the theoretical foundation of our thesis. Additionally, the interviews were both recorded as well as transcribed without altering the text, so that we would further eliminate any biases.

2.5.2 Authenticity

Authenticity raises a bigger set of challenges regarding the wider political impact of research (Bryman & Bell, 2015). This criteria focuses on giving the social context members the motivation to act upon and to enhance their situation, which is why we actively tried to engage and motivate the informants during the interviews. For instance, we ensured them that what they responded was helpful and related to the topic of our thesis, in order to spur their personal engagement. Authenticity consists of several criteria, but we will only be focusing on the ones we find most relevant for our thesis; *fairness* and *ontological authenticity.*

Fairness, meaning if the research fairly represents various viewpoints among members of the social setting where the research is done (Bryman & Bell, 2015).

We wanted to include the perception of different members representing different sectors. Furthermore, it was important to interview people with various backgrounds and perspectives on cross-sector partnerships within their respective pilot projects.

Ontological authenticity, meaning if the research helps members to get a better understanding of their social setting (Bryman & Bell, 2015). During the interviews, several of the informants stated that the questions for our topics were well formulated, leading to the interviewees getting a better understanding of the cross-sectoral partnership topic at hand. Each interview was completed by asking the informants if they had any additional information to add or if they had any questions. While most of the interviews did not add anything, some added important insights about cross-sector collaboration in general. In short, this shows that the informants agree with the researchers interpretation of reality.

2.6 Ethical considerations

"*Research ethics involves the application of ethical principles to scientific research*" (Straits & Singleton, 2018). Hence, scientists should conduct their research with care, be honest when reporting their findings, as well as be open to criticism and new ideas. Moreover, ethical issues emerge when the pursuit of a research question or the usage of research techniques dispute universal ethical principles. (Straits & Singleton, 2018)

This is why we, throughout the entire process of writing our thesis, considered the ethical aspect of it; in the planning process, when we conducted the interviews, after organizing the data, as well as when we saved the data. Furthermore, according to Bryman & Bell (2015), there are eleven key points that represent the most crucial principles relating to ethical considerations in dissertations (Bryman & Bell, 2015). We therefore informed every participant beforehand about our research, and it was of course completely voluntary to participate. In addition, the participants were permitted to withdraw whenever they wanted to if desired. Moreover, we ensured that the transcripts and recordings as well as other data would be completely

anonymous and saved in a folder that is protected by a password. After the thesis process is completed, all data and interviewee information will be deleted.

3.0 Theoretical foundation

This chapter introduces the theoretical foundations of this master thesis, which focus on collaborative strategy and cross-sector partnerships, which will be used to conceptualize the thesis and offer theoretical groundwork for the empirical setting. The aim of this chapter is to present an overview of the theory of collaborative strategy, which will be limited to what we consider relevant references to describe the phenomena, as outlined in the previous chapter. The thesis will specifically focus on one type of collaborative strategy; cross-sector partnerships in temporary settings.

A collaborative strategic partnership may occur in various settings and contexts. This thesis will study cross-sector partnerships in the form of temporary organizing (Lundin & Söderholm, 1995), because our empirical setting takes place under such circumstances. Temporary organized cross sector partnership is characterized by predetermined time frames or short term perspectives (Bakker et al., 2016). Moreover, there is little evidence of collaboration between private and public actors (Tompkins and Eakin, 2013; Doh et al., 2019) and many scholars stress the need for more empirical evidence on the matter, which is the reasoning behind writing this thesis.

3.1 Collaborative Strategy

3.1.1 Context development

The phenomenon of collaborative strategy has been reviewed and studied by many scholars throughout the years. The origin can be sourced back to Astley & Fombrun (1983) and Astley (1984) where it was first referred to as *collective strategy* and later on as shared meta-strategy or collaborative strategy by Huxham & Macdonald (Huxham, 1993; Huxham & Macdonald, 1992). This shared meta-strategy builds upon the assumption of *collaborative advantage* and is “concerned with developing

synergy between organizations towards the achievement of common goals." (Huxham & Macdonald, 1992, p. 50). More recent research argues the usage of collaborative strategy and multi-actor collaborations as an efficient way of dealing with collective issues facing society and to spur innovations (Torfing, 2019). Furthermore, this field of study has been referred to as collaborative multi-actor research that could be the prominent research and development strategy to tackle societal problems like climate change mitigation (Schmid et al., 2016).

Collaborative partnerships often occur when organizations are faced by complex and multifaceted issues, such as issues related to climate change and other societal problems (Phillips et al., 2000). A complex problem area occurs when "The issues involved are too extensive and too many-sided to be coped with by any single organization, however large." (Trist, 1983, p. 270). These societal problems can be problems facing society at whole or field-related to a specific organizational population, also referred to as interorganizational domains (Trist, 1983). A problem becomes field-related when "(...) it engages with a set of problems, or societal problem area, which constitutes a domain of common concern for its members." (Trist, 1983, p. 270). The benefits of collaborative partnerships are twofold; On one side, collaborative partnerships could solve the complex challenges that initiated the partnership, and on the other side it also facilitates the collaborators with knowledge sharing and the possibility to carry skills and practices back to their own institutions and organizations (Phillips et al., 2000).

3.1.2 Definition of collaboration

Before proceeding, it could be beneficial to define collaboration. It could be defined as "a co-operative relationship among organizations that relies on neither market nor hierarchical mechanisms of control" (Phillips et al., 2000, p. 24). Such definition holds three characteristics: the collaboration occurs among organizations, thus it is inter-organizational. Furthermore, the definition limits collaborative relationships to those that are not mediated by market mechanisms (Phillips et al., 2000). Lastly, such definition excludes relationships that involve the use of control through legitimate authority. Examples of such collaborations are consortia,

alliances, joint ventures, round-tables, networks, and associations (Lawrence et al., 2002a). An important delimitation of such a definition is that it excludes collaboration from other interorganizational forms of collaborative activity; for instance as in supplier relationships (Lawrence et al., 2002b).

3.2 The purpose and key-drivers behind cross-sectoral partnerships

The research on collaborative strategy is a broad field of study, which is why our thesis will be focusing on the characteristics of cross-sectoral partnerships (from now on referred to as CSP). This contraction is reasoned with the empirical context of our study. CSP or multi-sector collaboration has become an important means of solving complex societal problems (Doh et al., 2019)(Hardy et al., 2006).

3.2.1 The characteristics of CSP

CSP is arguably a good way of dealing with complex, social and ecological problems, especially when managing innovative solutions for environmental and sustainability issues (Clarke & Fuller, 2010). CSP involves actors from different sectors, and is a vehicle for solving e.g. societal issues (Doh et al., 2019). The sectors may include public, private, and nongovernmental organizations, which combine resources and leverage on differential cost advantages between the public and private sector. Furthermore, this type of organizational form functions as an arena to "pursue multiple shared goals across sectors." (Doh et al., 2019, p. 455). The most common form of partnership is between governments and firms: the classical public-private partnerships (from now on referred to as PPPs) (van Tulder & Keen, 2018). Project-based cross sector partnerships (CSSPs) are one type of CSP formed to address social issues and causes that dynamically engage the partners on an ongoing basis (Selsky & Parker, 2005). Furthermore, partnerships can vary a lot in size, scope, as well as purpose. Examples of this are short- to long-term frames, voluntary to mandated, and local to global level (Selsky & Parker, 2005). Regional sustainable development partnerships are one type of cross-sector partnerships that are bounded by geography and involve numerous partners including universities, public sectors, and private sectors (Geddes, 2008). These local and regional partnerships have been investigated as one way to address social

and complex problems within regions, especially partnerships between *the three spheres of the state, market and public society* (Geddes, 2008).

3.2.2 Key drivers and motives for collaborating

In order to understand the phenomenon and purpose of CSP, it is important to understand why organizations engage in CSP; the motivations and key-drivers for participating in cross-sectoral partnerships. Although complex societal challenges may seem intangible, they may provide opportunities and encourage organizations to collaborate: "Ambitious but achievable objectives that harness science, technology, and innovation to solve important national or global problems" (U.S. Office of Science and Technology Policy, 2014; Doh et al., 2019, s. 451). Studying the effects of CSP, we have to understand the incentives and the motivations for forming partnerships. These incentives will vary depending on a specific sectors' point of view (Selsky & Parker, 2005).

Pressures and enlarged expectations from the public is one incentive for organizations in every sector that motivate the organizations to partner across sectors. Also, the request for CSR (Corporate Social Responsibility) motivates businesses to partner up (Selsky & Parker, 2005)(Senge et al., 2007). Furthermore, climate related challenges could encourage collaboration and spur innovation. This way of viewing the problems encountered by environmental challenges could be defined as environmental entrepreneurship. Environmental entrepreneurship is defined as "the process of discovering, evaluating, and exploiting economic opportunities that are present in environmentally relevant market failures" (Dean & McMullen, 2007, p. 58; Doh et al., 2019).

Nonprofits on the other hand, are driven by the demand for enhanced efficiency and liability, and governments are motivated to give more benefits and services, simultaneously as being less invasive and more transparent (Selsky & Parker, 2005). For public actors these incentives are about achieving long-term benefits for society. Common for all sectors is the fact that they are dependent on each other in order to achieve societal or systemic change. Governmental institutions are limited to the borders of their region, and often leave private stakeholders the lead on such

changes (Senge et al., 2007). This fact in itself is an important contributing factor that motivatates sectors to partner up.

As contemplated in the theoretical groundwork, there are many benefits that would encourage the initiation of collaborative partnerships. Although some of the drivers behind engaging in collaborative partnerships are similar for private, public, and non-profit sectors, there are some differences that distinguish them from each other. Furthermore, each sector contributes with unique resources and capabilities. Cross-sector partnerships could revolve around leveraging on the resource complementarities across sectors, facilitating the development of innovative approaches to institutional challenges (Rangan, Samii, & Van Wassenhove, 2006; Doh et al., 2019). This approach provides cost advantages for the involved sectors (Doh et al., 2019) and might provide cost savings (Buckley & Casson, 1998)

The private stakeholders

First of all, some private stakeholders are driven by societal pressure to redeem the environmental impact on society created by their industry: companies are part of the problem, thus they have the responsibility to contribute to solving the problem. Take the transport sector for instance; this sector is a massive contributor to air pollution, hence they have to shift to fossil-free options to solve the problem (Kumar & Alok, 2020; Günzel-Jensen & Rask, 2021). As outlined earlier, environmental entrepreneurship does also work as a motivating factor for corporations to join collaborative partnerships (Doh et al., 2019). Private stakeholders in the construction industry could therefore exploit the opportunities created by the need for climate adaptation measures within the built environment. If they were to act as environmental entrepreneurs, their motive would be profit-minded and hence not have broader collective goals (Lenox & York, 2011; Doh et al., 2019). This characteristic has been observed by previous management research: "(...) private sector tends to consider biological and geophysical threats only to the extent that they in-terfere with day-to-day operations (...)" (Wright & Nyberg, 2017; Doh et al., 2019, s. 453). This view demonstrates that private sectors tend to focus on short-term objectives (Doh et al., 2019). Although some recent research provided evidence that contradicts the former assumption, meaning that some firms are

developing adaptation practices that "focus on broader socio-ecological systems" (Doh et al., 2019, p. 254).

The public stakeholders

Public sector contributes a lot of resources, especially by funding projects, which facilitates and influences legislation. Hence, the public sector acts as a driving force for the private sector to innovate climate friendly options – creating an inter-dependence relationship between public and private sector. An empirical example of the resources the public sector offers in a collaborative partnership is provided by Rohatyn (1979) in an article from the New York Times (Trist, 1983): in an Energy Corporation the state would facilitate a partnership by subscribing initial capital and federal government by guaranteeing loans (Rohatyn, 1979; Trist, 1983). Even though the public sector contributes with such resources, they have their shortcomings as well, which is why the public sector also depends on the private sector if the goal is to reach societal change. The public sector is among many things "poorly coordinated, reactive, ad hoc, and managed at multiple levels of governance, complicating planning and implementation." (Brooks & Adger, 2005; Doh et al., 2019, s. 454). This was observed in a Norwegian project: "Local municipalities in Norway believe that large-scale flood defence schemes have undermined their capacity to develop more robust and locally attuned adaptive responses (Næss et al., 2005; Urwin & Jordan, 2008, s. 181)". An implication of this is that public governance rarely leads to true innovations. Public sector may offer funding to R&D and create policies favorable for innovative initiatives from private sectors, but does not have the possibility to commercialize new technologies and business models that would be needed to reach societal goals (Doh et al., 2019; Senge et al., 2007). Senge et al. (2007) highlighted that public sectors often are restricted by geographical limits, thus they do not have the ability to commercialize innovations that would lead to systemic change. For that reason, the public sector depends upon private stakeholders to commercialize innovations across geographical boundaries (Senge et al., 2007).

Non-profit stakeholders

The nonprofit sector, including nongovernmental organizations (NGOs), is a force that influences and complement policies. By doing so, they spark interest and the need for fundamentally important societal changes (Doh et al., 2019). Their biggest shortcomings include the lack of policy making agency and capital to finance the efforts needed to reach systemic change, such as environmental adaptive measures. Furthermore, they do not have the ability to innovate such measures needed to confront the grand challenges raised by climate change (Doh et al., 2019).

3.3 Potential effects of CSP

Despite the huge interest surrounding the CSP approach, many scholars stress the need for legitimizing the actual effect CSP has in solving complex problems. As Barnes and Brown (2011) state: "(...) there remains general ambiguity about the meaning of the idea of partnership and how its conceptualisation is meant to normatively guide a more co-ordinated move from theory to practice." (Barnes & Brown, 2011, p. 165)

Scholars have addressed this problem and studied potential outcomes and impacts of CSP. van Tulder et al., (2016) developed four loops of partnership impact, whereas the first-order impact loop assesses the impact of partnerships through the effect of internal value-added between inputs (the resources and capabilities provided to achieve the partnership mission) and throughputs (the implementation process of achieving partnership objectives). The second-order impact loop captures the effects of internal value added between the inputs and outputs (measurable results). Hence, it captures the tactical level of project performance effects. The third-order impact loop assesses interaction effect from mission to inputs, and thereafter to outcome. These effects include synergistic and shared value creation for the participants. The fourth-order impact loop is the overall added value captured by the partnership. It assesses the full extent of the partnership contribution to the social issue. Reaching its full potential, the impact of CSP would lead to systemic and societal change. (van Tulder et al., 2016)

There is a widespread perspective that suggests that partnerships can be a trigger or contribute to systemic change (Waddell et al. 2015; Waddock et.al 2015; Dentoni et al., 2018). Systemic change can be defined as "Change that pervades all parts of a system, taking into account the interrelationships and interdependencies among those parts." (van Tulder & Keen, 2018, p. 315). This kind of large-scale change has two characteristics: Firstly, *breadth of change*, which involves a variety of actors across a wide range of systems who engage in change actions. Secondly, *depth of change*, which entails a powershift in existing structures and changes the complex relationships at multiple levels (Waddell et al., 2015). Furthermore, there are three types of large scale change: incremental, reform, and transformation (Waddell et al., 2015). Incremental change evolves around reinforcing a system or replicating emerging technology, while reform occurs when power structure within one specific system shifts. The last type, transformational change, is defined as fundamental systemic change. (Waddell et al., 2015). The latter can be linked to systemic change as an ultimate impact of cross-sector partnerships, as referred to in the articles of Dentoni et al. (2018) and van Tulder et al. (2016). Change on this level is about "(...) new ways of understanding what is possible and acting on them," (Waddell et al., 2015, s. 8). If actors were to achieve this type of change they would have to innovate and create new opportunities (Waddock et al., 2015). Many scholars debate that this is only possible when multiple actors come together in cross-sector partnerships (Clarke & Crane, 2018; Senge et al., 2007).

3.4 Challenges in CSP and how to overcome them

Even though organizations are incentivised to join CSPs and the potential effects of such partnerships are grand, this collaborative form presents significant managerial challenges as well (Hardy et al., 2006). These challenges occur because "(...) participants are required to work together despite the fact that they are representatives of organisations that may have different and potentially contradictory objectives and philosophies." (Hardy et al., 2006, p. 97). Further, Doh et.al (2019) have outlined that the interests of private and public may find themselves competing for scarce ecosystems and natural resources. Moreover, cross-sector partnerships may encounter goal conflicts and conflicting expectations between the partners, which in the end can undermine the

effectiveness of the partnership (Doh et al., 2019). Such conflicts may be resolved through collective governance mechanisms; e.g. through an ongoing dialogue or establishing leadership positions, which facilitate trust and discourage partnership dissatisfaction (Doh et al., 2019).

Studies have disclosed structural challenges in cross-sector partnership (Babiak & Thibault, 2009). These structural challenges revolve around governance, roles, as well as duties guiding the partnerships and with the difficulty of partnership forms and structure. Moreover, inadequate managerial structures may include lack of clear planning, lack of communication, and lack of termination strategy (Babiak & Thibault, 2009). Babiak & Thibault (2009) also revealed strategic challenges when it comes to the subject matter of competition versus collaboration among different partners and the changes in task and purpose along the time span of the relationship. These findings imply that cross-sector partnerships are more likely to succeed in dyadic forms, rather than in a partnership that requires multiple organizations.

Even though there are a lot of challenges to overcome in CSP, there are several scholars that have studied factors that would contribute to a successful partnership. Clarke & Fuller (2010) address the importance of collaborative strategic management in cross-sector social interactions and how issues of cooperation between partners, shared ideology by partners, and the joint formulation of a deliberate strategic plan influence the management of the subsequent implementation stage. Furthermore, Clarke & Fuller (2010) found that differing contextual factors and contextual differences are important to consider in cross-sector partnerships: "... a need for distinctive emergent strategies that are issue-specific to the particular partnerships, as well as tailored to the needs of individual partners." (Clarke & Fuller, 2010, p. 99). By following this philosophy of Clarke & Fuller (2010), the partners may work towards achieving the collaborative strategic plan goals. Per definition, collaborative strategy includes working "(...) both individually and jointly toward their collaborative goals (...)" (Clarke & Fuller, 2010, p. 86).

There is empirical evidence showing that it is possible to achieve institutional change in the context of PPPs (Matos-Castaño et al., 2014), but critical for changing institutions in regards to PPPs is "a long-term orientation towards institutional change and a willingness to learn and modify transitional institutions" (Matos-Castaño et al., 2014, p. 62). Addressing how CSP can develop over time is important in order to avoid pitfalls as well (Klitsie et al., 2018). This can be achieved by "(...) allowing an optimal number of frames about the issue by a diverse array of partners. They argue that progress on agreements can be thwarted by too many frames." (Klitsie et al., 2018; Clarke & Crane, 2018).

Researchers in the field of management have highlighted the critical significance of cooperation and coordination for the achievement of goals (Buckley & Casson, 1998)(Smith et al., 1995). For instance Smith et.al. (1995) connected cooperation to effects, and focused on performance variables and individual satisfaction. This centre of attention is compatible with the understanding of cooperation as a dynamic process: cooperation will not continue if the benefits for the cooperation do not equal or surpass its costs. Hence, the benefits are often described in relation to performance and satisfaction. Nevertheless, a lot of the corporation's benefits can be expressed non economically; benefits can involve fast cycle time of product to market, quality improvement, decision making of high quality as well as enhanced competitiveness. These mentioned dimensions can be considered to be intervening factors that can assist in explaining why cooperation may increase performance and satisfaction.

Approaching collaborative partnerships with an environmental entrepreneurial view enables the possibility to benefit from resource mobilization and legitimacy creation through such partnerships (Doh et al., 2019; Günzel-Jensen & Rask, 2021). Günzel-Jensen & Rask (2021) conducted a study that looked for an in-depth understanding of the displeasing outcome of collaboration efforts when achieving innovative solutions for huge environmental challenges. The company in this study predicted that to be successful, one needs to obtain commitment from key partners from the public, private and social sectors in order to produce a sustainable solution. However, even though attracting and collaborating with partners is essential to

attain legitimacy and access to resources, it caused a *paradox of stakeholder involvement* (Günzel-Jensen & Rask, 2021). This paradox, with its limitations, presents two tensions in stakeholder commitments. Firstly, stakeholder commitment can limit the capacity to learn. Secondly, stakeholder commitment can create lack of flexibility. The implication of the *paradox of stakeholder involvement* is that tensions can force the innovation to stagnate, leaving the stakeholders with only an entrepreneurial idea to tackle climate change (Günzel-Jensen & Rask, 2021)**.**

3.5 Summarizing the theoretical groundwork

Our theoretical investigations have outlined the theoretical importance of cross-sectoral partnerships and how it can be applied as means to solve environmental challenges facing society. Not only proving the existence of CSP, but the characteristics of such partnerships. The theory outlines key-drivers and incentives for entering collaborative partnerships, and the potential effects such partnerships may have. Despite the many positive effects of CSP, literature suggests that it is difficult to collaborate, and the partnership participants may encounter challenges. Moreover, there is a lot of theoretical and empirical evidence which presents key success factors, and factors which may deal with partnership challenges.

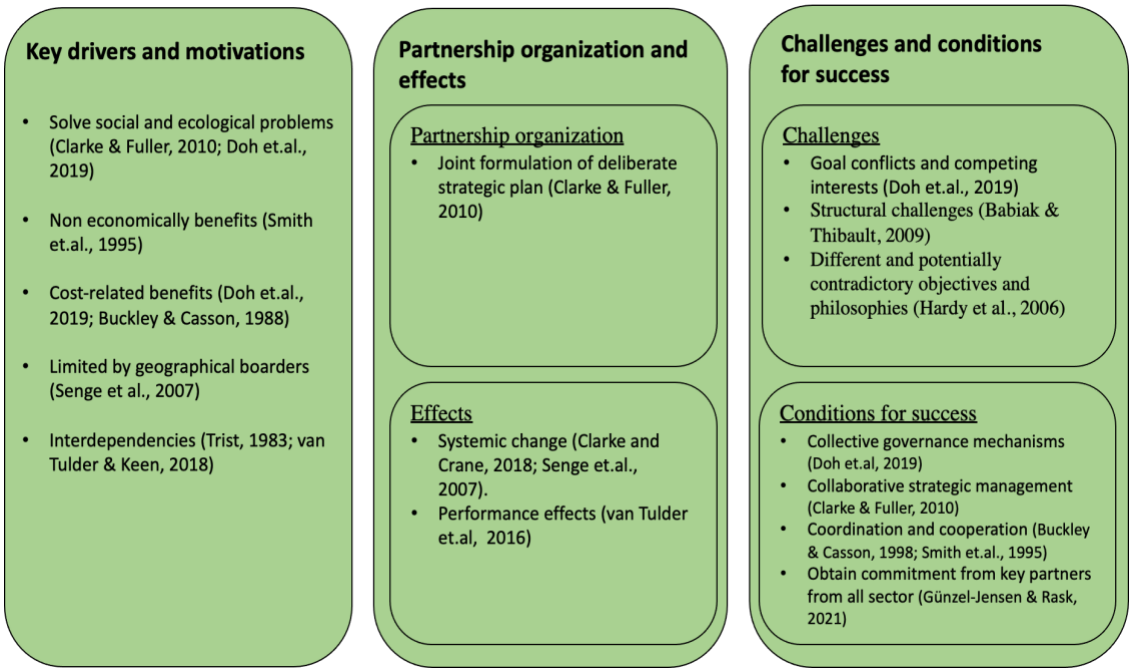
3.5.1 Conceptualising CSP and its characteristics

Our research question was "*What characterizes cross-sectoral partnerships set up to deal with climate adaptation?*". Based on our theoretical research we have identified three questions which will elaborate and specify our research question:

1) ***Why*** *do actors participate in cross-sector partnership?*
2) ***What*** *do the partners do and what are the effects of the partnerships?*
3) ***How*** *do the partners deal with challenges and how do they succeed?*

In order to conceptualize CSP and its characteristics, and enhance the literature within the field of study with our empirical context, we have developed a figure which summarizes the theoretical chapter and provides the basis of our empirical study.

Figure 1: *Summarizes the characteristics of CSP based on theoretical foundation.*



4.0 Findings

This chapter will present the findings of our study based on our research question: *"What characterizes cross-sectoral partnerships set up to deal with climate adaptation?"*. As contemplated in chapter 2.0 Research methodology, we have conducted both a within-case analysis and a cross-case analysis. The findings will reflect the cross-case analysis, although to understand these findings we find it useful to include an excerpt of the within-case analysis, which will be found in **Table 4**. The findings from the cross-case analysis will be presented according to the model derived from our theoretical foundation, by answering:

1. *Why do actors participate in cross-sector partnerships?*

2. *What do the partners do and what are the effects of the partnerships?*

3. *How do the partners deal with challenges and how do they succeed?*

We will start by presenting a summary of the four pilot projects in **Table 3** and the excerpt of the within-case analysis **Table 4.** Thereafter we will look into why the actors participate in cross-sector partnerships, and outline the projects' key drivers and motivation behind participating. Moreover, we will investigate what the partners do, and the potential effects and outcomes of the partnerships. Lastly, we will lay out the findings showing the challenges within each project, and conditions which have to be present in order to succeed. To summarize the findings chapter, we will build upon the model derived in 3.0 Theoretical foundations by identifying the factors answering *why*, *what* and *how*.

Table 3: *Summary of the pilot projects.*

Projects	**Characteristics**
Project 1: Early Warning System	Early warning system preventing debris avalanche and flash floods that begin because of local precipitation systems with a short time span.
Project 2: Stormwater and Maintenance	Test and document the functionality of established stormwater solutions, model chosen sub-catchments and evaluate risk.
Project 3: Stormwater Planning	Develop a method for stormwater planning within a chosen geographical area. Furthermore, the goal of this project was to advise on opportunities for climate adaptation in planning processes.
Project 4: Stormwater Management Facility	Build an infiltration system and a detention magazine, and in the end document the effect.

Table 4: *Excerpt from the within-case analysis.*

	Early warning system	***Stormwater and Maintenance***	***Stormwater Planning***	***Stormwater Management Facility***
Key drivers and motivations	- Safer roads using early warning systems - Implement solutions on other locations - Unique skills and capabilities - Interdependencies	- Motivated by Klima 2050 involvement - Develop a new, and more environmentally friendly solution - Self-interest - Collaboration is more resource effective - Dependent on each other	- Knowledge creation - Create a tool for stormwater management - Dependent on each other to solve the problem	- Knowledge creation - Develop and test the solution - Dependent on different skills and capabilities to solve the problem
Partnership organization	- Tasks were distributed based on partner skills and capabilities - Main field trip was significant for the partnership organization - Mainly online correspondence	- Online meetings every other week - Relaxed setting → enabling discussions - Discusses specific solutions	- Meetings every second week - Relaxed partnership culture - Work group meetings	- More meetings in the beginning - Meetings were productive, and involved problem solving
Effects	- Publish results - Knowledge creation	- Information will be publicly available - No patents - Document the effects	- Publish project results - No actual product will not be developed - Knowledge is the most important effect	- An innovative solution is created - Publish the data - Spin-offs to document the effects
Challenges	- No significant challenges - Slow progress due to external conditions - Coordinate tasks - Too few meetings	- No critical challenges, but it could be difficult to share information across organizations	- Different terminology - Problem definition - Lack of clear goals and milestones	- No grand challenges - Sensor selection
Conditions for success	- Same overall ambition - Trust and respect - Partner specific interests and goals	- Everybody is interested and has organization goals, which does not collide with the other goals - Klima 2050 was important to facilitate openness - United, overall goal	- Understand the problem at hand - Have a clear goal - Prioritize time - Respect	- Understand the problem - Klima 2050 as an arena

4.1 Key drivers and motivations

Our research found that the motive for participating in the pilot projects is twofold: firstly, all partners within the four pilot projects seem to have an aligned motivation and perspective of the pilot goal. Secondly, all parties have their unique motivation driven by personal and organizational interest. An interesting result from our research revealed that some of the key drivers for engaging in partnerships might be explained by the respective sectors being represented. First, we will outline the motives that are to be found within all of the projects. Then we will describe the motives that might be linked to the respective sectors represented in the projects, followed by our findings which shows the assumptions some of the interviewees had of the other partners.

4.1.1 Key drivers revolve around project goals

As briefly mentioned in the introduction earlier, the results from our research revealed that all projects were driven by an aligned motivation as well as that all partners in all four projects were motivated by personal and organizational interest connected to the overall goal. The main key driver behind participating in the projects was solving the problem at hand. To put it simply, we found that the overall motivation in *Project 1* was to create an early warning system, reducing the down-time of the road and making it safer. Meaning that all partners are motivated by solving a societal issue connected to climate change. Looking at *Project 2,* our findings show that the partners are motivated by solving the climate problem at hand, and the fact that they contribute for the benefit of society. In some ways, they are also motivated by the fact that they can implement the solution in other geographical areas. We also found that the overall motivation in both *Project 3* and *Project 4* was knowledge-creation, where *Project 4* went a step further; documenting the effects was a driving force because implementing the solution and intruding in public spaces will affect the citizens of the city. Hence, all solutions interfering with the public room have to be well-documented. Furthermore, documenting that the solution works as intended will prove the importance of stormwater management to society. This may imply that the public sector is driven

by the overall responsibility they have toward society, and utilizes the resources of the public sphere.

Looking at how personal and organizational interest affected the motivation in all four projects, our findings found that all projects were influenced by the personal involvement by each of the partners. Our findings suggest something similar for all four projects: personal or organizational specific key drivers were important for project progression. All partners in all projects had both personal and organizational motives and incentives beyond the overall project goal, this interest will be referred to as *self-interest* from now on – a term mentioned across all four projects. Self-interest refers to interests which are derived from personal or organization specific motivation, and are often driven by the wish to gain advantages.

Furthermore, in *Project 1* the public actors talk about the responsibility that public organizations have towards creating a solution that will benefit society. For the research partners, this societal responsibility is connected to the research's overall responsibility to publish and market this important research area; land-slides as a result of torrential rain. They achieve this because the location of *Project 1* is a famous tourist attraction, attracting a lot of public attention. A similar point of view is seen in the private partner in *Project 1* as well; Corporate Social Responsibility (CSR) is a motivation for participating as it creates positive publicity for the organization. This might indicate that the private partner is motivated to solve the societal problem because they are able to increase their reputation.

Similarly for *Project 2***,** our findings outlined that one of the private partners was motivated by two reasons; that there is an increased need for solutions in regard to road surface water, and that they act in accordance with their corporate social responsibility. This actor said that "The motivation is to develop new, better, and more environmentally friendly solutions." (*Interviewee #9*). Further, the other private actor stated that "Our organization's, and my motivation to engage in a research project is that we observe an increased need for it (the field of study), and a lack of knowledge within it." (*Interviewee #10*). By monitoring the system in

Project 2, there is a possibility to attain knowledge about the system functionality over time.

Another interesting finding that is specific to *Project 2* is connected to the rarity of the project contract: a contract which entails both construction and maintenance of the road for the next 20 years. Because of this all partners, and especially the partner responsible till the end of the contract period, are motivated and incentivized to develop the best solution, to reduce additional costs. This finding indicates that project partners may be driven by cost perspectives, which was also found in *Project 1* as well.

In *Project 3* our findings suggest that both partners were overall motivated by the same thing as outlined earlier; knowledge-creation. However, we found that the personal interest and that the underlying motivation behind the project of the two partners differed. The private actor was motivated by developing a product to sell, while the public partner was more motivated by gaining information for future implications: ”But this is about them wanting to create a product, while we were actually more interested in the information within the product.” (*Interviewee #12*). Furthermore, the public partner had a more long-term motivation associated with preventative solutions for climate related challenges connected to stormwater, such as avoiding damages, costs and disadvantages connected to stormwater.

Additionally, in *Project 3* the private partner explained the following when asked about their motivation: “And the reason was simply a recognition that climate change is a fact, and that the construction industry has to take responsibility for their share, and secondly we deliver climate adaptive products. Hence, we thought it would be sensible for us to join.” (*Interviewee #11*). This substantiates what the public partner said about key drivers, and that both in some ways were motivated by solving a climate problem, but only the private partner are driven by commercialization potential.

Our research found that the partners in *Project 4* were also motivated by personal interests; One of the partners was personally invested due to their interest in

research and their background as a PhD student. As for the other partner, the motive behind participating in *Project 4* was connected to the unique possibility Klima 2050 participation presented.

The results from our research found that the main key driver behind participating in the projects was solving the problem at hand. Furthermore, our findings suggest that personal or organization specific key drivers were important for project progression in all four projects. These could be acting in accordance with their corporate social responsibility or self-interest for instance. These findings indicate that the parties engage in partnership not only because of the benefit of society, but that the motives are linked to self-proclaimed reasons as well.

4.1.2 Interdependencies incentivize the project partners

Our findings show that the key drivers for participating in the projects are linked to the interdependent relationship among the partners. Firstly, there is a pattern present in all of the four projects that all partners are dependent on unique qualities and capabilities offered by each partner. Furthermore, as found in *Project 1* this dependency is connected to each partner's ability to engage and intervene in complex problems; hence without the partnership, the problem at hand might not be addressed at all. While it was not explicitly mentioned by the partners in *Project 3,* the findings indicate that the partners were dependent on each other's abilities to develop the best solution: "(...) when individuals come together, they are able to challenge their beliefs. In order to think innovatively, it is important to engage with other people." (*Interviewee 11*). This implies that coming together in a partnership with people with different backgrounds and skills spurs academic discussions and generates better results.

In *Project 1, Project 2* and *Project 4,* all participants agreed that collaboration is necessary because solving complex problems requires interdisciplinary collaboration which yields better results. In *Project 1* such dependencies were: analyzing data and internationalizing the research results. Similar dependencies were created in *Project 4*, where the partners needed each other in order to analyze the data and evaluate the effect of the solution created. Additionally, our findings

from *Project 4* show that Klima 2050 facilitated open discussions, implying that an arena which engages the partners will encourage the partners to seek out project partnerships. Furthermore, participating through this kind of arena may be a motive in itself, in order to enable knowledge creation. The findings from *Project 2* showed that the partners were resource-dependent. Furthermore, the findings showed that some of the partners in *Project 2* collaborate in order to show engagement in important matters and develop their network.

Additionally, our findings from *Project 3* shows that collaborating in this kind of partnership setting enables the possibility to understand what the customer wants. "You could say that getting an overview of important customer needs is a premise for this specific solution and problem." (*Interviewee #11*). Hence, engaging in the project provided insights on customer preferences making it easier to adapt the strategy. This implies that partnerships may function as an important source for understanding customer needs. Furthermore, partnerships may provide important insight and aspects of the needs and relationship of each other, which is difficult through traditional customer-supplier relationships.

Trying to understand the key drivers for solving the problems through collaborative relationships, our research found that while all partners within the projects were dependent on each other because of each partner's unique skills, capabilities or resources, the findings outlined that the dependency can be linked to the limitations of the partners as well. An example of this is seen in how research partners and educational institutes add another dimension to the partnership, which wouldn't have been present without these partners. This finding was observed in *Project 1*, *Project 2*, and *Project 4*, showing the importance of involving educational and research partners. Involving them in the partnership helps the projects with displaying the research to the world. An example was observed in *Project 2*; all partners said collaboration was important because of the dependency on research institutes and universities to enable knowledge-transfer to academic institutions; which is done through thesis's by master students. The implication of this interdependency is the value chain which is developed. A value chain is developed where these students bring empirical evidence and actualities back to school,

influencing the course literature. This influences the education of other students on relevant topics. And in the end students will graduate and bring this knowledge out of the academic context and into the work context. As a result of this value chain, the market and academic institution mutually affect, influence, and benefit each other, creating this interdependent relationship which proved important in three of the projects.

To summarize, we found that the key drivers for participating in the projects are connected to the interdependent relationship among the partners. We found that all parties within the projects are dependent on unique qualities and capabilities offered by each partner. Furthermore, our findings showed that collaborating in such partnership settings allows the parties to better understand what the customer wants. Although our findings showed that the partners were dependent on each other because of each partner's unique skills and capabilities, we found that the dependency can be linked to the limitations of the partners as well.

4.1.3 Findings which indicates sector-specific similarities

An interesting result from our study can be seen when comparing the answers across projects; some sector-specific patterns and similarities are to be observed. This might indicate that some of the key drivers are sector-specific. For instance, our research outlines that in all four projects the public partners and the research partners are more long-term oriented and key drivers can be connected with the desire to do good for the benefit of society. Looking at the responses generated by the private partners in all four projects, our findings indicate that their motive behind participating in the projects are related to business-related advantages, even if CSR is emphasized. Such advantages can be financial, like cost-optimization or non-financial, e.g. competitive advantage and improved reputation.

An example of this is found in *Project 1*, where the private actor said that cost-perspectives are definitely an important incentive to join a cross-sectoral partnership. Unlike the public partners and the research partner, the private actors were dependent on balancing the cost and profitability when engaging in the project. This was also found in *Project 2:* “The fact that we are several actors, means

that the expenses connected with research and development can be split by all of us. The result of collaborating is that we are all motivated by the project objective and working together is more cost and time-effective." (*Interviewee #10*). Implying that the private partners were profit-minded and driven by competitive advantages that might be an outcome of the project participation, which was a key driver observed in all four projects, not only *Project 1* and *Project 2*. Although this might be characteristic for the private partners, our findings showed that the public partners in *Project 2* were driven by cost-related factors as well; not in order to profit, but to optimize cost. Interviewee 8 discussed how return on investments (ROI) are important because of limited budgets. Further, how ROI results in the importance of documenting the effect of this solution, so that they can prove its potential.

An interesting observation from our study of key drivers can be linked to the limitations of the public sector. In *Project 2*, the public sector said they were motivated to solve the problem through partnership participation, because they were dependent on the research partner to conduct research at this large level.

4.1.4 Assumptions about the other partners motivations

An interesting contribution to our findings was the fact that some of the informants shared their assumptions about their respective project partners. This could involve assumptions about how sectors in general behaved, or project specific assumptions explaining why they would participate in the partnership and what they might gain from doing so.

In *Project 2* the public sector explained their thoughts about what, in their opinion, the other partners could be motivated by. The public partner thought that all partners are motivated by their Klima 2050 involvement, and hence committed to *Project 2*. Furthermore, they believed that some partners are motivated by self-interest. For instance, the private sector is motivated by the possibility of attaining competitive advantage in terms of market potential, and aligning the project with their overall strategic goals.

Likewise, our findings from *Project 3* showed that the public partner assumed that the private partner was driven by business objectives: “For them (the private partner) this could become a product which can be delivered to other municipalities (…) And then this could become a product that they can sell.” (*Interviewee #12*). Hence, it is assumed that the private partner’s key drivers are business oriented, due to the fact that this product is connected to their field of study and that it might bring competitive advantages.

In *Project 4*, the research partner had some thoughts on what is motivating the other partners. In their opinion, the public partner and the private partner were motivated by knowledge-creation: a well-functioning solution will benefit the both of them. As for the private partner, it is assumed that they have competitive interests: “It is obvious that all these solutions require engineering services, and that is why the private partner is involved. This is how they generate income. I believe that both (private and public) partners are interested in making the solution well-known and well-documented, and gaining momentum.”. (*Interviewee #6*)

These findings imply that the partners have made up opinions of the other partners and have made assumptions before entering the partnership. This might affect how the partners adapted to each other and how they organized the partnership. Further, it could mean that the partners are more open to collaborate and able to understand the limitations and capabilities of each of the other partners, which in the end could affect the project performance.

4.2 Organizing and collaborating

4.2.1 Partnership organization

All participants within the four projects agreed upon how they would organize their respective projects. Furthermore, our findings show that the partners had an agreement regarding the role distribution and the division of responsibilities based on each other's skills and capabilities. Additionally, all four projects involved the participation of master students, who helped analyze data and publish the project

results. The interviewees across the four projects reported that the overall atmosphere in all projects was friendly and open-minded. These findings indicate that partnership organization might be related to the previously established relationship between the partners, and that the partnership foundation is based on trust.

Our findings show that all the partners within all projects agreed on the partnership organization. The roles and contributions of each partner were naturally divided in accordance with the stakeholder involvement and which contributions each partner was able to offer the partnership based on capabilities. Although this pattern appeared across all four projects, we found an additional factor affecting *Project 1*'s organization. Based on the input from the two partners in *Project 1*, allocating costs and deciding who was responsible for which costs was the most important before starting the project. Following the same pattern, allocating costs was more a formality and went by without any problems. Allocating costs fairly is dependent on each partner's role and stakeholder involvement. The public partner was the problem-owner, while the research partner was the project-organizer. The problem-owner was responsible for cost related to infrastructure, and one of the public actors was responsible for the cost related to the equipment for *Project 1*. The private partner contributed by paying their own hours; specifically contributed by supervising a master student. Although all partners agree on the work distribution, one of the partners reflects that they could have contributed more, but found it difficult because their capabilities are similar to one of the other partner's. The fact that cost proved to be an important part of the partnership organization in *Project 1* may be a result of the partnership dynamics; one partner mentioned that it is different working with a competing firm, in terms of who should take responsibility for what, more accurately who should be held responsible for which costs. Another interesting aspect of this finding may be related to how private firms are concerned with cost and benefit.

Moreover, the interviewees said that all partners in *Project 2* have worked together previously in a professional setting, which made it easier to divide the roles of the partners; roles and tasks were divided according to each partner's skills and

background. Since the public party of *Project 2* was the project owner, they were on that account responsible for establishing quality demand that in the end would lead to cost saving. On one hand, the private organization was the engineering company in this project. On the other hand, the research institute was responsible for making research possible, and was not involved in deciding the solution, only making recommendations in regards to where installments should be made. Also, the university was responsible for facilitating master students in writing their master thesis and PhDs, in regards to *Project 2*.

In *Project 3* it was the private sector that took the initiative of working together, and that there was no formal organization or divisions of roles. Similarly in *Project 4*, roles were naturally divided. The public partner was the problem owner and largest stakeholder, hence it was natural that they were the project decision-maker. The public actor came up with the pilot idea, mainly because the facility in the city was already built, hence it did not require much additional investments. The role of the research partner was installing the equipment and monitoring and documenting the effect of it. Both the public sector and the research institute are responsible for monitoring and supervising master students, in collaboration with an academic institution.

4.2.2 Meeting activity

In all four projects meeting activity was mostly arranged online. This is not only due to the Covid-19 situation, but because the partners across the four projects were geographically dispersed, which made it more convenient to meet online. All partners within all projects corresponded via mail, while some of the projects arranged field trips or physical meetings as well.

In *Project 1* the partners were able to conduct one crucial field trip early on in the process. This field trip created the foundation of the partnership; tasks were delegated, and the role of each partner was established. The meetings were in general described as productive, where the partners discussed practical solutions, practical clarifications and solved problems.

Our research found that both in *Project 2* and *Project 4* most of the meetings were arranged in the initiation phase. The interviewees from Project 2 stated that several of the meetings were about explaining the project and what it entails. During *Project 2*, all meetings were online, and many meetings involved discussions about solutions and specific tasks. Within *Project 4* meeting activity decreased after the solution was built two years ago. The meetings were productive, and involved problem solving.

Our research showed that meeting activity was particularly important in *Project 3*, because the partners experienced problems with formulating the problem and understanding what the project actually entailed. All partners in *Project 3* described the importance of their regular meetings. One of the actors said that they had meetings every other week, and that there were about 26 participants. The other actor on the other hand stated that in the fall of 2020, they attained a specific problem description, as well as had individual work groups working with their own problems. On top of this they said that they had spin-off groups. Furthermore, they had to spend three months finding the right people after the problem owner concretized their goal. In addition, they stated that the meetings consisted of mostly practical discussions about the problem at hand. They said that it is difficult to attain a "common picture" of their end goal when it is uncertain at this point in *Project 3*. It was also mentioned that they had work meetings with all partners in the project, where the participants were divided into work groups consisting of representatives from each partner.

4.2.3 Partnership culture

Our findings showed that all projects were characterized by a relaxed atmosphere. Furthermore, all projects were based on trust and respect, not rigid contracts. Almost all interviewees had prior work experience with the organizations of their project partners, which might be one of the reasons why it was easy to organize the roles and trust each other.

The research results from *Project 1* show that the partnership was mostly based on trust, a factor which affected the partnership culture; it facilitated open and informal discussions. A statement which outlines how the partnership was affected by trust: "As opposed to traditional contractual relationships, the partners were not bound by rigid contracts." (*Interviewee #4).*

Furthermore, the partnership within *Project 2* was well-coordinated and characterized by a casual and friendly tone. One interviewee specifically stated that "it was casual because of Klima 2050, which is rare in projects like these." (*Interviewee #9*) Other partners in *Project 2* said that the casual characteristic of the partnership enabled discussions. Furthermore, they said that all partners respected each other, and that the decision making was easy. This is due to the fact that many of the partners had met each other before, which made communication easier. In *Project 3* the findings showed that the culture is beneficial, because all participants are open for questions and discussions that may seem "dumb".

4.3 Results and effects

All four projects are at various stages, thus our findings may reveal outcomes at different levels. A factor that is frequently mentioned by all respective partners in all projects is the fact that all results have to become publicly available, which is a condition for partnering up with a public partner in Norway. Hence, none of the interviewees had any concerns when asked about the publication and availability of the results and data from the projects. All informants said that the data will be analyzed and made publicly available. Furthermore, our findings outlined that potential spin-off projects have been up for discussion in all four projects. However, none of the projects have made any specific plans in that regard. Our research also implies that the private partners, and in some ways the research institutions are dependent on project contexts to follow up on the pilot projects after Klima 2050 ends in 2023.

4.3.1 Results

If *Project 1* proves to be successful, meaning that the equipment works as predicted, the project owner can decide to buy the equipment permanently, and connect it to their large network of data. Moreover, a successful project at the location of *Project 1* will result in safer roads, and the potential implementation of the method for early warning systems on other exposed locations in Norway. The public actor in *Project 1* said that no matter what the research concludes, the data will provide societal benefits: "If it doesn't work, then I am able to draw conclusions from that as well. We have to be open-minded and be aware that the results may swing in either direction" (*Interviewee #4*). Likewise, if it is the perfect method for early warning systems, the project partners may apply it to other locations. Furthermore, if the project is successful, one of the public actors will be able to recommend further research within this field of study. This finding may be related to the motivations and key drivers in chapter 5.1, which showed that across all four projects, the motivation was to attain knowledge and learn more about the problem at hand.

After *Project 1* is completed in 2023, equipment will be removed, the data will be analyzed, and reports will be written by master students. Moreover, there will be three technical installments: one permanent, one mobile radar, and water measurement tools. Furthermore, if the innovative solution is successful, it will be used at other locations. Our research revealed that some of the partners experienced that the project progression has been moderate. According to one respondent, analyzing data takes time, hence they should have started earlier: "So, ideally, we should have started this pilot project 2-3 years earlier, because it takes time to establish it, but I believe that we will come pretty far with the project." (*Interviewee #1*)

Project 4 differs from the other projects, as the solution is built, the functionality has been documented for some time, and the results have been successful. An innovative solution has been created, and in the end, the public partner has a new and well-functioning facility, and the private partner is able to test it. Furthermore, monitoring the effect of the solution can be continued in the coming years if the public party and the university initiates it; maybe a thesis every fifth year.

Moreover, all partners in *Project 4* agreed that reports will be made after project completion and all data will become publicly available.

Likewise, the public partners in *Project 2* said that a report will be made by the research partner and all research will be made publicly available; ergo no patents. The public partners will be able to use the results no matter what conclusion is drawn, and follow up the solution the entire contract period. The follow-up plan of *Project 2* entails observation of the contamination level on the road. One of the public partners said that after project completion, the private partners have increased their level of knowledge, and most likely gained a competitive advantage.

One of the actors said that the solution in *Project 2* did not work as expected, which is a result in itself. The collected data will be made into reports and presentations, and in the end used to create a solution for the customers of their organization. They also emphasized that the solution created in *Project 2* should be bought and used in other locations. Another partner stated that when the solution has been used for 2-3 years, they will have enough data to summarize the findings and implement the results. Furthermore, their organization wishes to continue working on "absorption of contamination in the roadway".

The outcome of *Project 3* is not entirely sure yet, but it will differ from the intended project objective. Both partners had different motivations for participating and were therefore expecting different outcomes. On one hand, the public partner will not have an actual product after *Project 3* finishes, but they will have the knowledge on how they can develop a solution in the future. This was in many ways in accordance with their key drivers for participating in the project. On the other hand, the private partner will have both knowledge and insights, which can be applied in other projects as well. This implies that the results from such collaborative projects may be applied and used differently depending on what the partners choose to do with the information at hand. Furthermore, it implies that working towards climate adaptive solutions is not only about creating a product, but becoming more knowledgeable.

Trying to understand if some of the partners found it difficult to publish all data generated in the projects, our findings showed that none of the respondents in any of the projects had any concerns about that. We were especially interested in the opinion of private partners, because of sensitive and competitive information. The private partner in *Project 1* was asked if it is a problem that everything will be made public available, he said: "No, in this project, we are mostly interested in the knowledge generated in *Project 1*." (*Interviewee #5*). Additionally, they said that it might have been different if *Project 1* was about creating a product, which would provide the need for a discussion of patents and other factors. On the other side we have *Project 2*, where the research partner states that the most important thing about *Project 2* is documenting the results, which could help implement the solution in other locations.

4.3.2 Spin-off activities

As found in all four projects, spin-off activities may be limited by some of the partners ability to initiate and engage without academic momentum and funding. In *Project 1*, after project completion, the public actors can continue working if needed, while the research institute and private partner are more dependent on an actual project context to continue their work. In *Project 1* the research partners wish to continue working at the location after project completion, but it requires funding and academic momentum. The private partner said that after project completion, they are of course interested in a spin-off project, if they are hired as a consultant. The private partner could continue working in the research context as well, but it will depend on cost-benefit: "It will of course depend on management to decide how much it has cost us and how much we have gained for participating. Maybe they decide the payoff is too small." (*Interviewee #5*). Likewise, one of the partners in *Project 3* said that they wish to conduct workshops with the Klima 2050 partners, and plan potential spin-off projects as well.

In addition, one of the partners in *Project 3* said that after the project completion, they would want to create a tool themselves. In addition, they stated that this data they will have gathered by then, will be made publicly available, so that everybody can use the information created in *Project 3*. For *Project 4* spin-off project is an

option, but according to one of the actors that will depend upon some key personas to organize.

4.4 Challenges

Our findings found that none of the four projects experienced any significant challenges when collaborating across sectors, implying that the partnership has been affected by some of the factors mentioned earlier, e.g. the fact that they knew each other beforehand and trusted each other. However, some of the project partners found it difficult to prioritize time, while others experienced challenges which were not connected to the partnership itself, but connected to external or organizational specific circumstances. Even though our findings did not outline any problems or challenges of significance, the research reflects the project's partners' thoughts of challenges that could occur based on their previous experience.

4.4.1 Circumstantial challenges

When researching if any tensions or challenges appeared in the four projects, our findings were generally conclusive; seemingly all projects have so far managed to collaborate cross-sectoral and cross-organizational. As our research showed when investigating partnership organization, every project is characterized by a trustful culture and relaxed atmosphere, as found in chapter 4.2.

Our findings showed that some of the challenges across projects can be linked to circumstantial conditions. An example was found in *Project 1,* where one of the challenges mentioned by all partners were connected to external conditions which had nothing to do with the partnership itself. For instance, the delay of important equipment, resulting in slow progression. Additionally, one interviewee in *Project 1* said that there was some frustration due to authorial area restrictions of the road.

One interviewee in *Project 1* seemingly did not experience any challenges. However, another claimed that “There were many meetings with academic discussions, but no conflict at all. In other words, there were only clarifications.” (*Interviewee #2*) One informant in *Project 1* reflects that the partnership agreement

of Klima 2050 has some limitations: “What could eventually have been a barrier, is that the partners are a little bound to stay in the partnership in Klima 2050. We do not have an opportunity to include other consultant firms for instance.” (*Interviewee #1*). They emphasize that it was not a problem, but the possibility to contact other consulting firms could have been beneficial for *Project 1*. Another partner said that an indirect challenge was the reorganization of the public organization.

Lastly, when researching circumstantial challenges, we found that one of the actors in *Project 4* believed that finding the right type of sensor and making the right decision was the biggest challenge for them. Moreover, one of the partners in *Project 2* said that there were no collaborative challenges, but it was difficult installing some of the equipment. One of the reasons that the installment did not become a partnership problem, was that it did not require any large expenses.

4.4.2 Communication and problem definition

Our findings revealed three challenges which may be connected to communicative factors; terminology differences, problem formulation, and communicating inter-organizational in general.

One partner in *Project 1* said that in a cross-sector partnership, it is more difficult to arrange meetings across organizations, opposed to internally in an organization, which made it difficult to communicate project progression and keep everyone up to speed. In *Project 1* specifically, the interviewee stated that in his opinion, they should have arranged more meetings, which would have made it easier to update each other on progression. In general, it can be difficult coordinating tasks and dividing roles when there are too many partners.

Moreover, different understandings of words and terminology were a factor present in one of the projects. In *Project 3* one of the collaborative challenges was that they used different terminology depending on what academic background the participants came from. In other words, communicating and understanding the terminology of each sector was a challenge. Communication challenges were also

found in *Project 2*, not in terms of terminology, but making sure that all the right people get the right information.

Furthermore, *Project 3* experienced clarity problems in connection to the problem statement and building the best solution. One interviewee in *Project 3* said that one of the challenges they faced was developing the best solution. This is because they had to think about balancing what is more important in the solution; how specific should the solution be. The same interviewee in *Project 3* also said that one of the challenges was that there were many meetings at times, and too much talking without doing anything in practice, but in the end this proved to be what made the project successful. The other interviewee in *Project 3* claimed that one of the challenges in this pilot project was to try to get a common understanding of the overall picture; this is demanding due to different mindsets. In addition, they believed that another challenge was that there was slow progression in this project. This was due to the fact that the participants did not have this project as a fulltime job, as well as the fact that there was a lack of clear goals and milestones within *Project 3*.

4.4.3 Allocating time and implementing solutions

Our findings also suggest that prioritizing time and implementing the solutions created through the projects was difficult for some of the project partners. For instance in *Project 1,* the pilot project is one small part of the partners organization's business: "I don't even work with it every week. Hence, prioritizing time is one of the challenges" (*Interviewee #4*). In *Project 2,* it is commonly held that time is an issue. According to one interviewee it is because their workday does not revolve around the project only. Accordingly, it is also hard to coordinate and balance the work of *Project 2* and Klima 2050. Furthermore, one of the largest challenges for the public partners according to one of the interviewees is implementing the solution internally in the public organization.

4.4.4 Challenges connected to different working methodology

Lastly, the research partner in *Project 2* said that one of the most challenging aspects of working with commercial partners are the different methods of working. The research partner felt it was important that they under no circumstances were delaying or interrupting the project especially because of the large investments made in *Project 2*. One instance in particular was the installment of some equipment. When asked about the thought process under this installment: "Primarily because we engage in a big commercial project, that is dependent on progress. And we have no desire to delay or destroy anything that has already been done" (*Interviewee #6*).

4.4.5 Potential partnership challenges

Our research revealed that some of the interviewees had thoughts and reflections on either the other partners within their projects, or about the sectors represented within their partnerships. Moreover, some of the partners reflected what could become potential challenges in cross-sector partnerships. These findings proved relevant for our study, as it reflects some of the characteristics of the cross-sectoral partnership.

One of the public parties in *Project 1* stated that: "Despite it not being a challenge in *Project 1*, my experience is that you have to learn the terminology of the other partners. We knew each other and did not struggle with it." (*Interviewee #3*). Furthermore, in *Project 2* all partners reflected what could be potential challenges in partnerships in general. For example, two of the partners in *Project 2* reflect that it would have been challenging if the entrepreneur was not a partner of Klima 2050.

Moreover, Interviewee #10 in *Project 2* said there were no challenges at all, not personally, internally, or in the collaborative partnership. Although, they reflected that it would be difficult to collaborate if the parties were holding back important documents. Of course, this was only a reflective side note, not an actual problem in *Project 2*. Additionally, this informant said that in advance of the partnership initiation, their organization had expectations of how it would be to collaborate with

a research partner, which helped eliminate potential challenges. They said it is different working with the research partner in *Project 2*, because they are more careful and slow-working: "The (research institute) and (academic institution) (…) are more careful and comprehensive. They devote more time to analysis before making decisions, where we are relatively rapid in doing so – sometimes too rapid." (*Interviewee #10).*

4.4.6 Summary of challenges

To summarize, our research revealed that none of the projects experienced any critical challenges when collaborating across sectors, which implies that the partnership collaboration went as desired. All four projects managed to collaborate cross-sectoral as well as cross-organizational. Our findings showed that when investigating partnership organization, every project is characterized by a trustful culture and relaxed atmosphere. However, some of the projects pointed out that time, different methods of working, different understanding of terminology and clarity problems in connection to the problem statement were some of the factors that proved to be some of the difficulties the parties encountered when collaborating in their respective projects.

4.5 Conditions for success

The research conducted in this study shows that all partners in the four respective projects felt that a united goal was critical for the success of their partnerships. Some interviewees in both *Project 1* and *Project 4* believed that the clarification of expectations was a factor to succeed, while some informants in *Project 3* stated that the willingness to prioritize time to the project was essential. Furthermore, factors such as trust, respect and openness were factors that were recurring by the informants in *Project 1, Project 2,* and *Project 3.* Additionally, understanding the problem at hand was mentioned by one of the partners in *Project 3.* Another success factor that was mentioned by several partners in both *Project 1* and *Project 2* was self-interest. Based on our findings, this indicates that the opinions of the

interviewees reflects a Norwegian way of living, where trust is the basis of the partnerships.

4.5.1 Clear and united vision of project goal

Our findings show that all four projects mentioned having a united goal as a critical success factor. Moreover, our studies indicate that having a united goal may be linked to developing a shared understanding of the project problem as found in two of the projects.

Additionally, having an overall goal to work towards being one of the main conditions to succeed in their respective partnership, was found to be a shared belief by all parties across all four projects. However, the respective definitions of "overall goal" differed across the four projects. Amongst were "united goal", "clear goal", "well-defined and distinct goal". Additionally, *Project 2, Project 3* and *Project 4* all stated that to have an understanding of the purpose of the partnership and the problem at hand was a crucial factor for succeeding in their partnership. In addition, one of the actors in *Project 2* stated that all people involved have to be motivated to solve the project. Moreover, it was stated that to understand the problem at hand in *Project 3* one needs to spend enough time defining what the problem is. This actor also emphasized that another condition for success was to gain all knowledge needed for developing the best solution.

4.5.2 Self-interest affects partnership performance

Our research also indicates that in addition to having a united overall goal, project partners within *Project 1* and *Project 2* defined self-interest as an important factor for succeeding in a partnership; interests which are derived from personal or organization specific motivation, which are often driven by the wish to gain advantages. Self-interest, according to actors in *Project 2*, is key for motivating the partners to perform according to high standards and in the end succeeding. In other words, everybody has to have an internal goal and gain from participating in the partnership. Furthermore, some of the actors within *Project 1* expressed that self-

interest is more than an organizational specific goal; it is genuine and personal interest in the project.

4.5.3 Inter-relational factors affect project performance

Researching how the projects may succeed and which factors affect partnership performance, our research suggests that some success factors are related to what may be defined as inter-relational factors. These factors may be related to both the successful partnership organization and project strategy. Furthermore, such inter-relational factors revolve around building trust and an open partnership, and moreover it involves altruistic conditions.

As found in our empirical evidence, these inter-relational recurring conditions for success were found in *Project 1, Project 2* and *Project 3*. Examples are: Trust, openness and respect (*Project 1),* trust and openness (*Project 2)* and openness, patience and respect (*Project 3).* Actors in *Project 1, Project 2* and *Project 3* mentioned that trust and openness are two of the most important factors for success. By trust, the partner refers to trusting the involved parties, while openness is about not being afraid of sharing information. Openness was outlined as crucial for project success in *Project 2*. Moreover, it is debated that it could become a barrier if this factor is absent: if the parties are not willing to share the results and findings with the rest of the group; it could endanger the end-result of the project.

In addition, in *Project 1* we found that trust was about trusting the level of competence of the involved parties. Furthermore, according to interviewee #2 trust is about trusting the commitment of each partner; trusting that the partners can deliver what they promise.

Investigating respect as a condition for success as mentioned by actors in *Project 1* and *Project 3* , our research found that the partners emphasize that respecting the partner's field of study is important in a partnership. Moreover, respect revolved around having mutual respect for each other. Lastly, one of the partners in *Project 3* described patience as one of the conditions for success, elaborating that having

patience meant asking questions, and that the partners spend enough time answering them.

Our findings also found that inter-relational conditions were connected to the partners relationship with each other. In *Project 1* getting to know each other on an institutional and personal level was crucial for succeeding. Another partner in *Project 1* stated that a good relationship among the parties is an important relational factor. Another actor from *Project 1* elaborated that the partners have to have good chemistry, be solution oriented and have a team-motivator.

As mentioned in the introductory paragraph, our findings found that altoristic conditions affected project performance as well. In *Project 1*, one actor said that the people involved have to possess sympathetic and altoristic characteristics: "desire to do good for the sake of social benefit" (*Interviewee #1*). Digging deeper into what personal characteristics affect the project and partnership performance, our findings from *Project 1* found that the parties involved need to have a curious personality, meaning a desire to innovate and create a new solution. Lastly, our study revealed that the parties involved in the projects have to be willing to prioritize time, which in *Project 3* was mentioned as a condition for success, which implies that prioritizing time may be linked to some of the challenges found earlier in our research.

Summarizing, inter-relational factors such as trust, openness, and respect were important for project performance. Affecting the inter-relational factors were altruistic characteristics, which defined the personalities of the project partners. Moreover, these findings indicate that if these conditions for success are present in the partnerships, the projects are more likely to become more successful.

4.5.4 Previous acquaintance may affect partnership ethos

Clarifying expectations was mentioned as a condition to succeed by informants in *Project 1* and *Project 4.* The factor is often mentioned in relation to the connection and experience the partners have in previous work relations. When asked, all parties in *Project 1* are used to working cross-sectoral with each other, and many of them have met each other beforehand. One of the actors says that previous relations and experience with the other partners in *Project 1* made it easier to arrange the partnership; "They get a clarification of what we are able to do, and we get a clarification of what their expectations are (...). But it was largely done here, because we knew of each other beforehand. Thus, the initiation phase had been skipped to a certain extent." (*Interviewee #3*). This finding implies that having previous acquaintances or knowing each other beforehand may be an important factor when organizing the projects. Furthermore, it may influence the partnership ethos, hence affecting trust, openness, respect and patience.

4.5.5 Organizing the partnership was important for succeeding

The findings revealed that organizing the partnership was a condition for success, and was important for the joint goal formulation and partnership roles. Partnership organization included factors like understanding limitations of each partner and what they can contribute with, what each partner's motives are, and having one project leader. Moreover, our studies of *Project 1* found that excellent organization is about the involved parties having autonomy in their respective organizations; the autonomy to quickly make decisions and act upon them.

Our research from *Project 1* found that it was important to understand how each partner could contribute to the partnership, which was conducted by clarifying expectations, amongst other factors. Our study also revealed that one of the partners in *Project 1* found it important to clarify the need for expectations of their role in the project, especially because their contribution was minimal compared to the other partners' involvement. This partner adds that communicating and clarifying expectations is easier if all parties have an academic background; elaborating that having this means having a unified way of thinking. Moreover, one other partner in

Project 1 debated that expectations revolve around the awareness of each partner's ambition level; what are the goals of each partner and what are they expecting to gain from the project. Furthermore, the research partner in *Project 4* pointed out that one of the conditions for success was that both parties were aware of and agreed upon the clarification of expectations in the form of a two-page description of the pilot.

When investigating which factors affected and enabled the possibility to clarify expectations, one of the actors from *Project 1* said that understanding the limitations of each partner's field of study was crucial, and that it was a skill developed through this previous acquaintance. This implies that previous acquaintance affected both partnership organization and partnership ethos. Furthermore, our research found that this factor made it easier to understand what to expect from each party.

While project organization was identified as an important condition for success, our study outlined that a success factor for partnership organization was connected to identifying a project leader. This was found in both *Project 1* and *Project 2*, e.g. in *Project 1,* the partners had a designated key-person motivating the team and driving the group forward. Our studies found that two of the interviewees in *Project 2* brought up a leading role as an important factor for success. One of the partners said that it was crucial that one party had to take the project responsibility, and in *Project 2* that was the project owner. Furthermore, they said it was important because the project owner is responsible for setting the requirements and deciding how the end result will look like: "It is in many ways the ones in charge, they decide the guidelines on how the cooperation relationship should be." (*Interviewee #9*). This point of view was supported by one of the other partners in *Project 2* as well, which said that there is not only a need for one organization taking control, but one person.

Moreover, Klima 2050 participation was also mentioned as an important factor for succeeding. Being part of Klima 2050 is a factor that influences the organization of the pilot project, as identified by partners in both *Project 1* and *Project 2*, and *Project 4.* Klima 2050 enables casual discussions of scientific problems, making it

easier to collaborate and organize the roles and tasks. Moreover, two of the partners in *Project 2* said that Klima 2050 was an arena which already involved cross-sectoral organizations, and that this was crucial for success in *Project 2*. Another partner had a similar opinion; that Klima 2050 was an important factor for the partnership because it facilitated openness. Lastly, one of the actors in *Project 4* emphasized that the fact that Klima 2050 facilitated conversations and discussions regularly contributed to the project being successful.

Lastly, our research revealed some key success factors found in *Project 1*; factors which were defined as organizational barriers if not present. Such factors include organizational factors such as keeping deadlines, being informed, and having excellent and effective information flow.

4.5.6 Summary of conditions of success

Overall our findings implies that many of the conditions for success are linked together. For instance, organizing the partnership was identified as a condition for success, which may be linked to the findings that identified trust, and previous acquaintance as factors which affected project performance. Furthermore, our research identified that having an aligned goal to work towards was one of the main conditions to succeed in the respective partnerships. Moreover, self-interest was a critical condition for success, identified in several of the projects. Our findings indicate that the factors “aligned goal” and “self-interest” were linked to the factor; clarifying expectations, which was enabled both by previous acquaintance and Klima 2050 participation.

4.6 Summary of findings

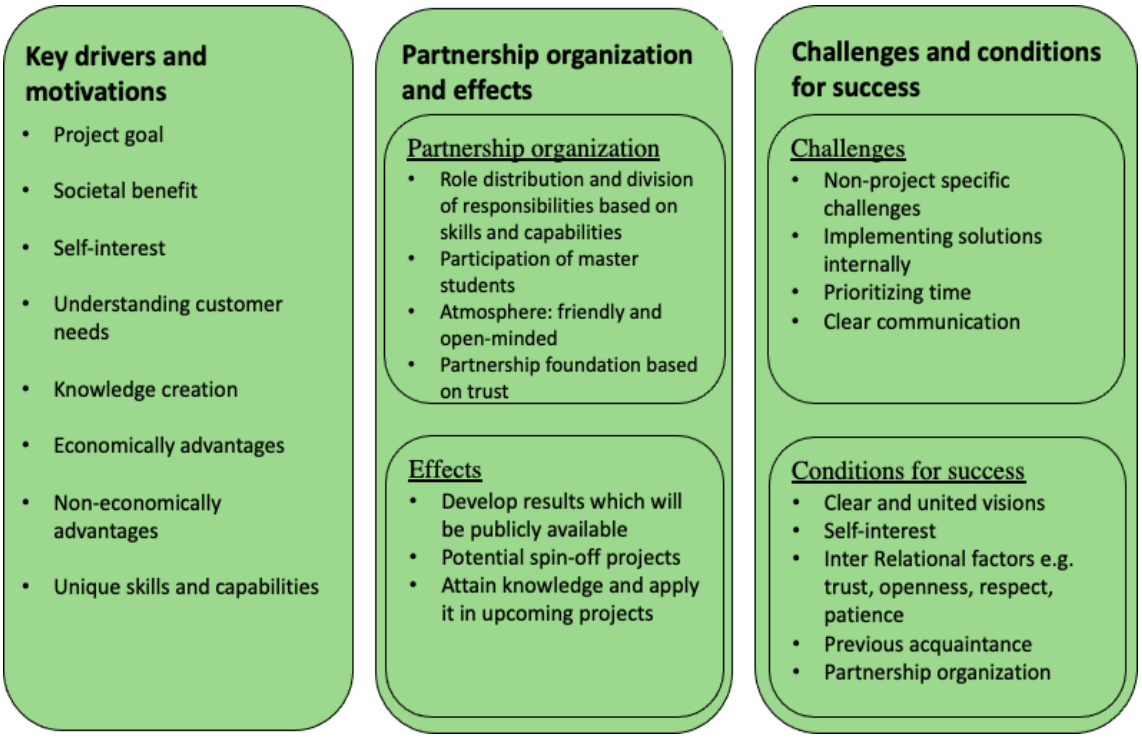
Based on our study of four projects involving cross-sectoral partnerships we were able to elaborate on **Figure 1** created in 3.0 Theoretical foundations. In general, our research found that there were many similarities across the four projects, especially in terms of key drivers, challenges and conditions for success, moreover that the findings of each of these three characteristics may be related to each other. For instance, our findings showed that all projects were driven by the overall goal,

which proved to be an important condition for success in all projects as well. Furthermore, we found the conditions for success were related to partnership organization, previous acquaintance and inter-relational aspects. Our results from the research of challenges found that according to our interviewees across all projects, seemingly no significant challenges were present. Moreover, the challenges discovered through our study revolved around organizational-specific problems experienced by individual partners within the four projects.

However, we outlined that even though the characteristics of all of the four projects were similar, there were some minor differences. Examples of this can be found in partnership organization and outcomes. We found that *Project 1* was characterized by slow progression, which was also seen as a challenge by the partners in this project, which is revealed in both the findings of project outcomes, partnership organization and challenges. On the contrary, our research revealed that the outcomes of *Project 4* differed from the other projects, as this project *was* the project that has come the furthest of the four, where the solution was built two years ago. *Project 4* showed actual results from the project, while the three others outline interim effects of the projects, and potential future outcomes.

Elaborating on the findings, we have shown the key characteristics of cross-sector partnerships in the four projects. This will find the base for our discussion where we will be able to compare the **Figure 1** from 3.0 Theoretical foundation to our findings.

Figure 2: *The characteristics contemplated from our cross-case analysis.*



5.0 Discussion

In this section we will discuss the findings in relation to the theoretical grounding of this thesis, and we will do so by answering our overall research question; *"What characterizes cross-sectoral partnerships set up to deal with climate adaptation?"*, and the three sub-questions: 1) *Why do actors participate in cross-sector partnership?, 2) What do the partners do and what are the effects of the partnerships?, and 3) How do the partners deal with challenges and how do they succeed?*

In the process of understanding the characteristics of cross-sectoral partnerships our empirical research found that the key drivers and motivation for participating in cross-sector partnerships are similar to what previous literature has suggested. However, contrary to the theoretical foundation our thesis builds upon, our research also outlined factors which provide deeper insights on specific motives and benefits of collaborating. Moreover, our empirical study revealed some interesting contradictions from previous research; seemingly none of the projects experienced

any significant challenges when collaborating across sectors. Based on this analysis, our discussion will build upon the **Figure 2** derived from findings, and debate it up against the **Figure 1** from the theoretical groundwork. Moreover, the discussion will look into the findings which suggest that some of the characteristics might be reasoned with sector-specific arguments as outlined in the theory.

5.1 Why actors participate in CSP

5.1.1 Overall goal

Throughout our study we identified that across the four cases there was a general agreement among the partners, regardless of sectors, that the overall goal was a key driver for partnership participation. Hence, solving a climate problem for the benefit of society was the motivation for joining the CSP. This complies with Doh et. al's (2019) argument that CSPs are key to deal with grand environmental challenges, and that CSPs are an arena to pursue multiple shared goals across sectors. Furthermore, our findings found that the partners across all four projects collaborated because the problem at hand required interdisciplinary and cross-sectoral collaboration as discussed by Trist et. al (1983) and that the partners were dependent on each other as van Tulder & Keen (2018) suggested. Lastly, our study identified that across the four projects, a complementing key driver was found to be what we identified as self-interest; both personal and organizational motives and incentives beyond the overall project goal. This driver is similar to how Doh et. al (2019) describes competing interests between sectors and how literature outlines that organizations might pursue multiple goals (Doh et al., 2019). However, in our study these "competing interests" were not competing – but complementing interests.

5.1.2 Complementing key drivers

The complementing key drivers of the overall goal outlined in our study is referred to as self-interest, which is linked to both personal and organizational motives. These complementing key-drivers were identified across all four projects, and our analysis of the findings indicate that some of these factors may be linked to the sectors represented across the four projects. These findings can be linked to the idea of environmental entrepreneurship presented by Dean and McMullen (2007).

Competitive advantage

Environmental entrepreneurship can incentivize and motivate private actors to participate in cross-sector partnerships. Our data shows that the private sector actors were motivated by competitive advantages, such as exploiting economic opportunities that are present in environmentally relevant market failures (Dean & McMullen, 2007);(Doh et al., 2019). Similar to previous management research ((Meek et al., 2010; York & Venkataraman, 2010;(Doh et al., 2019), our findings showed that all partners in the four projects were motivated by self-interest and one of them debated: “Yes, it is actually human nature. Everybody asks the question: what's in it for me?” (*Interviewee #2*). When considering the private actors specifically, we found that the motivations were in line with Lenox and Yorks (2011) and Doh et. als (2019) assumption that private actors are profit-minded. On that note, our findings suggest that the private sector is very much customer-oriented, and constantly looking to optimize solutions for their customers. For the private sector, the challenges surrounding stormwater management, presents the opportunity to be more knowledgeable and develop innovative solutions, while in the long run be able to develop solutions that could be commercialized and sold to their customers.

As literature suggests, some of the motives behind CSP can be linked to non-economic benefits (Smith et. al. 1995). This link was found for private sector representatives' motivation to achieve competitive advantage and publicity. Especially through publicity, private sector representatives debated the importance of showing active involvement in solving climate problems through Klima 2050 participation. Moreover, the private partners across the four projects were interested

in the business potential of the partnership as well. Both these non-economic and economic motives might indicate that private actors are dependent on benefits to participate. Although, we will debate that this business minded approach provides an important dimension to the partnerships and might contribute to pushing the projects towards success.

Societal benefit motivates public and research representatives

Similarly, our study revealed that partners representing research stated that they see a commercialization potential in stormwater management challenges, which can be linked to environmental entrepreneurship. This indicates that they are concerned about commercialization potential, not necessarily driven by competitive advantage objectives, but to diffuse knowledge. By commercializing solutions, research actors could encourage the society of scientists to study and develop even better solutions for tackling the societal problems at hand. Dean & McMullen's (2007) way of viewing environmental challenges strongly differentiates from the public sector's motives found in our study. The partners representing the public sector were more long-term oriented and did not aim to solve the problem for the benefit of themselves, but for the benefit of society; developing preventative measures that in the end will solve the challenges connected with stormwater management. It can be debated if this motive is two-fold: on one side the public sector acts according to what is expected of them as a government representative, and on the other side they are long-term oriented in order to reduce costs related to climate change. Our findings suggest that public actors are motivated to develop innovative solutions, implement them and transfer knowledge, all in order to act preventively and reduce costs in the long run.

Knowledge creation was a key driver within all projects

We found that across the pilot projects and across sectors, the collaboration was motivated by the assumption that it would provide knowledge as mentioned by Phillips et.al. (2000). Although, this was found when the participants were asked about the motivation why participating in the partnership. Both the key drivers and why the partners are dependent on each other to collaborate are very much linked

together. Our findings suggest that leveraging each other's capabilities also revolves around knowledge creation and knowledge transfer.

As outlined in our study, the partners representing the private sector wish to commercialize and the public partners across the projects have a desire to implement the solutions. These findings can be related to the wish of achieving systemic change, which can only be achieved when actors come together in cross-sector partnerships (Clarke and Crane 2018; Senge et.al. 2007). Opposed to what is found by Clarke & Crane (2018) and Senge et. al. (2007), our findings revealed that systemic change was not a motive in itself, rather a positive effect if it were to occur. Moreover, the key drivers for participating in CSP was rather to attain knowledge, which was a key-driver for partners across all four projects. Looking at our findings, the partners representing the private sector across the four projects have some resemblances which substantiates that some key drivers and motives might be sector-specific. One example from our study was that the private actors across the four projects were motivated by CSR and the pressure to redeem their corporate actions, as suggested by Selsky & Parker (2005). The literature (e.g Selsky & Parker, 2005) differentiate between public, private and NGO. Our study on the other hand differentiated between public, private and research institutes. In other words, our findings are able to enhance this research by shedding light on the characteristics of the research partners. NGOs are motivated by demand for efficiency and liability (Selsky & Parker, 2005), while our findings show that the research institutes across the four projects are motivated by CSR, because research institutes are obliged to serve the community and improve existing solutions. In the end we debate that CSR might be a force that drives systemic change, and the wish to improve and innovate a system of solutions. In relation to stormwater management, systemic change as a motivating power would encourage all sectors to innovate solutions that could set the ground for future norms, but as contemplated through our study, none of the partners across the four projects revealed this as a key driver. Looking at our findings, it might be related to the project objectives of all four projects; every project’s goal is to create innovative solutions in order to improve different aspects of current solutions. Although, our studies revealed that in order to improve the solutions, the main priority was to study the solutions

already created and analyze the data. Hence, it can be debated that knowledge creation was the main objective.

On the other hand, research suggests that the public sector is motivated to give more benefits and services, while simultaneously being less invasive and more transparent (Selsky and Parker, 2005). Our findings from the public sector motives can be viewed in a similar manner: if the overall motive is to create systemic change, the public sector is driven by the desire and responsibility to provide services and benefits for society in the long run. Furthermore, our findings show that the public sector is motivated by documenting the effect of the solutions, in order to illuminate the importance of stormwater management and reduce risks associated with it.

Interdependent capabilities

As identified in our findings all partners across the projects were part of a CSP because it was simply not possible to solve such grand challenges alone, just as addressed by Trist (1983). Meaning that each sector was limited by internal factors. For instance, we see a clear connection with the limiting power of geographical borders, mentioned by Senge et. al (2007). Public sectors are often restricted to the specific geographical border of their municipality or county. Moreover, the public sector finds it difficult to be truly innovative (Urwin & Jordan, 2008), which might be connected to their limited power to implement and create solutions alone. This was also the case in our empirical setting. Our findings showed that the public partners in some of the projects find it hard to implement the solutions in other locations than the project location. By involving partners from the private sector and research institutes, the solutions have several arenas to be promoted through. All sectors combined could therefore more easily distribute the solutions across Norway, and enable knowledge distribution.

The project partners in our empirical setting combined resources and leveraged on differential cost advantages between the public and private sector. We saw that an interdependent relationship was very related to the resources, skills and equipment each sector possessed. Specifically, the public partner across the projects provided

access to land or areas in which the pilot project could occur. Meanwhile, the partners from the private sector and research institutes leveraged on each other's special equipment. The public sector has an especially huge source of funding and many of the informants said that they would not be able to conduct innovative research projects at this stage without a financial contributor. In the same way, we see a resemblance between how NGOs are described in the literature (Doh et. al., 2019), and how research institutes appear in our empirical setting. NGOs often influence and complement policies. Our research found that research institutes work in similar ways, as they contribute by setting the agenda for important societal matters and distribute information about stormwater management to society. Elaborating on this, the public actors across the projects said that they could also promote these issues on their own, but the level of importance would not be the same without the research institutes' influence.

5.2 What do the partners do and what are the effects

Our findings suggest that the outcomes each project is able to generate depends on the project itself. Furthermore, our research implies that the goal in three of these projects is not necessarily to create a product or specific solution, but rather to attain knowledge and apply it in upcoming projects. None of the projects showed any particular interest in commercializing the solutions, because the solutions are not easily applicable at other locations. Investigating how the projects are able to make an impact, we found that all projects worked towards achieving the project goal and that hopefully the solutions would impact their field of study. However, these findings are based on current project progression, and the project participants' thoughts on project outcomes.

Partnership organization

Partnership organization and partnership structure involve decisions regarding governance, roles, and responsibilities (Babiak & Thibault, 2009). All of the projects in our study were well-organized and had clear roles. What is special about all four partnerships is that there were few meetings debating the role of each partner and a deliberate plan for partnership roles. This is special because it differs from previous literature (Clarke & Fuller, 2010). The roles were naturally divided,

depending on which partner was the project owner, the capabilities of each partner, and lastly how involved they were in Klima 2050. Factors which might affect why no partnership clarification were necessary could be trust, respect and previous relations – factors mentioned in every pilot project.

Although there were few meetings regarding the clarifications of the partner roles, the purpose of all pilot projects, as well as the partner role, were formally described in the Klima 2050 documents. In two of the pilot projects we found that this was a crucial phase of the partnership, because it set the grounds for the partnerships. Additionally, our empirical evidence shows the important role Klima 2050 served for all four pilot projects. In advance of the Klima 2050 launch, the program spent hours defining the meaning behind Klima 2050 and what a pilot project actually is, hence some of the organizing work was governed by Klima 2050, and not the pilot projects. Moreover, our interviewees said that it would have been more difficult to organize the partnerships if these clarifications were not organized by Klima 2050 beforehand.

Potential effects

Challenges connected with stormwater require solutions that will prevent damage to society, and it was in every project's interest to create such solutions through the pilot projects. For many of the informants, it was not about creating a product or an end solution but to become more knowledgeable. The literature suggests that there can be outcomes and impacts of CSP (van Tulder, 2016). If the result of the partnership was to achieve systemic or institutional change, the goal had to be long-term and every partner had to be willing to learn and modify transitional institutions (Matos-Castanö et.al., 2014). Our research outlined that the project goal was not necessarily to achieve systemic change, but to attain knowledge in order to develop solutions which can be implemented in other locations in the future. Elaborating on this, some of the interviewees said that the invented solution might eventually become the normative solution for stormwater management; in other words, systemic change. An important consideration which limits the opportunity to achieve this is that solutions connected to stormwater management require local adaptive measures, hence the solutions are not easily transferable. A result of this

was that the desired outcome of the projects revolved around analyzing and publishing data, resulting in the creation of knowledge.

As the projects are not completed yet, it is not possible to say anything about the actual outcomes and effects of the CSP. It is only possible to discuss potential effects of the partnership. Matos-Castanö et. al. (2014) argue that long-term orientedness and the willingness to attain knowledge are key factors for achieving systemic change, which we will debate by looking into our empirical setting. Our findings showed that some of the partners were long-term oriented, and all were willing to learn and attain knowledge. Specifically, our research institutes and the public sector were long-term oriented, while the private sector was more short-term focused. This might indicate that the project itself was not long-term oriented, hence systemic change might not be possible at all. On the other hand, the partners did take a stand of joining the Klima 2050 initiative, which in itself proves a long-term commitment to solving climate-adaptive challenges. Furthemore, spin-off projects have been discussed in all four projects, indicating that at least some of the project partners are interested in extending the projects and hold a long-term oriented goal. The fact that the pattern in our study suggests that the private sector is short-term oriented, is because they are dependent on an actual project setting for conducting R&D. Furthemore, it seems like the business oriented aspect of private partners affect how they plan their projects. In some ways, research institutes are also dependent on this because they need funding to conduct research, which is often provided by the public sector (Doh et al., 2019).

5.3 How do the partners succeed and how do the partners deal with challenges?

5.3.1 Challenges

The empirical evidence provided by this multiple case study revealed that none of the partnerships experienced any severe challenges collaborating across sectors – an interesting finding compared to previous literature. For instance *The paradox of stakeholder involvement* (Günzel-Jensen & Rask, 2021) suggest that cross-sector collaboration could create overconfidence into an environmental entrepreneur's business idea. As found in the pilot projects, private actors have environmental entrepreneurial tendencies, which according to literature could create tensions between stakeholders. In one of the projects, we found that the progression of the project was quite slow. Although the delays, according to the interviewees, were due to circumstantial and external reasons, it is interesting to look into how it might be connected with the flexibility-stakeholder tensions as Günzel-Jensen & Rask (2021) found. One of the interviewees pointed out that *Project 1* should have started two years earlier, indicating that they might have overconfidence in their own abilities, which according to Günzel-Jensen & Rask (2021) can lead to overestimating the success. A factor affecting this might also be the fact that the partners knew each other from previous acquaintance, which could lead to overestimation of performance. Although it was not outlined through our interviewees, it is interesting to look into how these previous acquaintances might affect the project success.

Trying to understand why collaborating across the four projects did not incur significant challenges, we will discuss if it may be linked to the foundation of the Norwegian model. A model which is grounded in trust – a characteristic of Norwegian relationships and partnerships in general. Evidence from our interviews showed that the participants trusted each other, but when asked if this could be confused with overconfidence with the partners, all said no. Of course, there could be many reasons why, but it is natural to link it to the previous relations the organizations and informants have with each other. One informant named it a

"value chain". A value chain where the sectors are mutually dependent on each other and familiar with each other.

Another consideration that has to be debated is the fact that three of the pilot projects did not develop an actual product, which according to the private sector might have caused some tensions in regard to patents and ownership after project completion. Additionally, one premise of collaboration with the public sector in Norway is that all data and product information are created for the sake of public benefits, meaning all pilot partners knew that entering the partnership would mean publishing all results.

According to managerial research CSP's experience with partnership structure and strategy is important for partnership success (Babiak & Thibault, 2009). Viewing the results from our research, none of the four pilot partnerships experienced any severe challenges with the structure or strategy. Trying to understand why, we asked everyone if this was due to the partnership organization and if they had specifically clarified the partnership expectations beforehand as suggested by literature (Doh et al., 2019). On the contrary, none of the pilot projects seemed to have any formal discussion of partnership expectations. The roles were naturally divided and organized, and every partner agreed on the strategy and project goal.

The absence of partnership challenges might be reasoned with conditions for partnership success as outlined by Clarke & Fuller (2010); having a deliberate strategic plan and shared ideology is crucial for succeeding. As found in our empirical setting, all actors across the four projects agreed upon the project objective and had formulated a strategic plan. The implication of this argument might reveal how the partners manage to avoid the challenges. Moreover, the challenges outlined by Babiak & Thibault (2009) were avoided because the partners across the four projects had dealt with governance, roles, and duties guiding the partnership. Furthermore, we argue that the ability to organize the partnership and lack of significant challenges may be linked to the characteristics of the partnerships in this empirical setting. Especially trust, respect and previous acquaintances.

However, in one of the pilot partnerships, we found that the private sector felt they could have taken more responsibility or contributed even more. This might indicate that even though the majority of the partners agreed on the governance, roles and duties as suggested by Biabiak & Thibault (2009), ambivalent feelings in regard to the partnership structure might occur. Although this was outlined in our study, the interviewee did not find it particularly challenging for the partnership, rather "it" was connected to how the projects were financed. In one case the private sector contributed by billing their own hours, while the other partners were more financially invested and involved in both Klima 2050 and the pilot projects, and naturally had a significant role in the partnership. This might indicate that when it comes down to making decisions about governance and contributions to the partnerships, the private actors might be more concerned with leveraging on the resource complementarities across the sectors, which could provide cost advantages for the involved sectors (Doh et al., 2019) and might provide cost savings (Buckley & Casson, 1998).

Moreover, the non-existing challenges could be linked to collective governance (Doh et al., 2019), for instance the partners across the projects had established leadership positions. In every case, all partners agreed that the pilot owner was the one in charge and had the final word in every decision making process. According to our study, none of the partners in any of the cases experienced any ambivalent feelings in regard to pilot owners taking the lead. What might be affecting this "perfect" establishment, could be the shared ideology among the projects, which is an important factor for avoiding challenges according to Clarke & Fuller (2010): every partner was committed to the project goal and eager to solve the problem at hand.

Although our findings did not suggest any significant challenges among the partners, we found that in two of the cases the partners experienced challenges internally within their organization. These challenges were connected to the physical implementation of the solutions created in the pilot projects. This finding is very interesting, and suggests that actors might be restricted by the geographical borders mentioned in literature (Senge et. al., 2007). For instance, the jurisdiction

of the public sectors in general limits the potential of these innovative solutions created in the pilot projects, because there are many barriers when trying to implement them within a national system.

An interesting observation from our findings, shows that the lack of partnership challenges could maybe be related to the value chain mentioned earlier. In one of the pilot projects, one of the actors said that people in Norway expect that governmental institutions collaborate on a day-to-day basis. Furthermore, it is expected that they are coordinated and take advantage of each other's expertise. The reason why this finding is interesting is that much of the existing literature is based on empirical settings from that of the US or Australia: countries with very different governmental systems. In the USA for instance, the trustworthiness of the public sector is often questioned by the public at large, resulting in loss of governance power. The private sector is often more present in projects and drives the project forward, while in Norway the public sector functions as a driving force for systemic change. Moreover, R&D in Norway is often arranged via public partners or large research institutions set out to deal with these specific matters. Furthermore, R&D projects are not driven by competitiveness, as seen in many American settings; where the partners' goal is at large surrounded by economic incentives. A recent empirical example was illustrated during Covid-19. The U.S demand for clinical masks was skyrocketing, and given the less regulated free-market of medical products and services, these masks were sold way over market price.

Collaboration vs. competition is also a balancing force of partnership initiation (Babiak & Thibault, 2009). The assumption with CSP is often that private actors are involved in order to achieve competitive advantage, but why did this not become a problem in any of the cases? Our findings surely suggest that all private actors were motivated by competitive advantages, but on the contrary did not affect the project in a negative way. This is very much related to our findings, which showed that the presence of self-interest was crucial for success; every actor has to be personally invested in the partnership and feel that it will benefit themselves, not just society as a whole. Of course, it is also interesting to relate this finding with every actor's desire to gain knowledge and link it to the conditions for success

"openness". If all partners thought only of competitive advantage, it could encourage them to withhold information or data which was relevant for the project success. Hence, it was in no one's best interest to keep secrets.

5.3.2 Conditions for success

Shared ideology

Aligned with what previous research has suggested (Clarke & Fuller, 2010), our findings show the importance of collaborative strategic management, such as shared ideology. Our study showed that this process was not deliberate, as opposed to how Clarke and Fuller (2010) suggested collaborative strategic management should be executed. The project strategy and the partnership organization across the four projects occurred naturally and, in general, the partnerships did not involve formal discussions about management. Based on our study, we found that there are several factors which affected how this was possible. Starting off, Klima 2050 was outlined as an important contributor to partnership organizations, because the initiative governed important aspects of the pilot projects. Elaborating on Clarke & Fuller (2010) research on the importance of having a shared ideology, we will dig deeper into how this was crucial for the partners in our empirical setting. Across the four cases, we found that shared ideology was related to the willingness and motivation to reach the project goal. Contrary to what Doh et al. (2019) claims; the specific interests of each of the partners may conflict, some of the actors across the projects said such interests are an important condition for success. We referred to these interests as self-interest, which in our study motivated and incentivized the project partners to participate. Further, our study revealed that some of the interviewees claimed self-interest to be a critical success factor for project success.

Furthermore, the findings show that strategic planning is about thoroughly defining the problem, and communicating a clear goal as contemplated by Clarke & Fuller (2010) and Doh et al. (2019). Another factor, mentioned across several projects, was the importance of partner organization governed by a team leader, which we in chapter 5.3.1 linked to the absence of challenges across the projects. What's interesting in our findings was that these roles and factors for success were not necessarily discussed by the partners, it rather developed naturally. So, how could

the projects in our empirical setting manage having successful partnerships without discussing a deliberate strategic plan?

Trust was established through previous relations

Our findings suggest that a condition affecting the well-functioning organization in all pilot projects was their previous relations to the respective partners. The actors across the four projects emphasized these previous relations, which might indicate that these previous relations is a key success factor. Such acquaintances were not outlined in the theoretical grounding of this thesis, which is why it is interesting to discuss how it affected the projects. The implications of these previous relations are: all sectors and partners are used to working together, and respect each other. Furthermore, their level of trust for the competence of each of the partners was very high. As previously debated, some public agencies are monopolists within one field of expertise, which appeared obvious in our findings. One informant stated that "when working with X you know that the quality of data and expertise is at its best. They are the best in the country". This factor will of course make the choice of roles easy, when dividing the roles depending on the level of competencies and organization specific capabilities.

This might be an indication as to why the collaborations within the partnerships have gone by without any severe challenges so far. We can link this to the other conditions for success mentioned by several of the partners across the projects, which are *trust*, *respect*, and *openness*. Doh et al. (2019) discussed how trust is critical for effective alliances, which is in line with our findings. Many of the interviewed representatives mentioned that these factors had to be present if the partnership were to be successful. Strangely, there were, according to the interviewees, no discussions or distrust across the projects between any of the participants, and they did not spend any time developing or debating these factors. Trust was just naturally developed in the partnerships.

Trust is, as contemplated earlier, the essence of the Norwegian model and attitude of conducting business partnerships. For instance, the public sector is an established and trustworthy agency, which is used to collaborating with both private actors and

research institutes in their day-to-day business. For instance, some of the expertise in Norway is located in the government itself: road and rail work is governed by the public, and meteorological weather data is centralized in the Norwegian government. The result is that there are no competitive conditions present within these fields of expertise. This might have changed if it had been in the US, for instance. Furthermore, this entails that the private sector has to deliver services or collaborate with the same institutions. Meaning that an interdependent relationship was already established before the pilot partnership initiation. Every partner trusted the level of competence and skills of the other partners, and believed that the intentions of the partnership was aligned with their own.

As mentioned, openness was also a condition for success. Meaning that every partner had to be willing to share critical information with the project participants. Literature suggests that it might be hard for competing private firms to open up and share information. Competition versus collaboration might introduce challenges to the partnerships, which is why Babiak & Thibault (2009) suggest that partnerships are more likely to succeed in dyadic forms. This was not the case in our study, as the partners emphasized the importance of openness, and continuously enforced this mentality. Although, lack of openness was mentioned as a potential barrier by the private sector itself in our findings, which indicate that Babiak & Thibault (2009) research is applicable for our empirical setting. Competition between partners in CSPs is a potential threat for project success, but can be managed through openness and trust.

5.4 Concluding thoughts of discussion

Our study has revealed that the key drivers and motivation in our empirical setting is similar to what theory suggests are incentives to join partnerships. For instance, our study revealed that project partners joined forces because they were dependent on each other, as suggested by Trist (1983), Senge et al. (2007), among others. Furthermore, we saw that the partners across the four projects were driven by self-interest and these drivers may be linked to sector-specific characteristics. We debated that the public sector's responsibility towards society was a key-driver, while privat actors are driven by business-objective incentives. Moreover, we

debated that opposed to what Doh et. al (2019) outlined regarding conflicting goals and interests, our study found it vital for project success. We referred to these sector-specific interests as *self-interest*. Opposed to what previous literature suggests (eg. Babiak & Thibault, 2009), our empirical setting did not show any severe challenges in the partnerships. We can link this finding with the Norwegian model – a model built on trust. Moreover, it is interesting to look at some of the minor challenges mentioned across the four projects, and debate if some of them might be linked to overestimation of the partnership performance as outlined by Günzel-Jensen & Rask (2021).

6.0 Conclusion

We sat out to investigate various attributes affecting cross-sectoral partnerships so that we are able to answer the research question; "*What characterizes cross-sector partnerships set up to deal with climate adaptation?*" Further, to answer the research question we elaborated with three sub-questions:

1. *Why do actors participate in cross-sector partnerships?*
2. *What do the partners do and what are the effects of the partnerships?*
3. *How do the partners deal with challenges and how do they succeed?*

On one hand, we found that across the four projects there were many similarities regarding the key drivers, challenges, and conditions for success. For instance, all partners were motivated by the overall project goal and sector-specific interests, referred to as *self-interests.* Further, they collaborated because they were dependent on each other's capabilities and resources.

On the other hand, our findings indicated that there were some differences regarding the characteristics of the four pilot projects. This was especially evident when looking into the effects and challenges of the partnerships. Although our study did not reveal any significant challenges, we found that some of the projects experienced difficulties with formulating the project's objective and other projects experienced slow progression. The findings outlined that these challenges affect or

may affect the project outcome. For instance, the objective of *Project 3* was to create an actual product. Due to the challenges with formulating the problem statement and slow progression overall, the project objective is now out of reach, but there are still some effects to be observed: the partnership enabled the accumulation of knowledge which will prove useful for future projects. Contrary, our research found that working in CSPs may provide actual outcomes as well. In *Project 4*, the project objective was accomplished and the project partners described it as successful.

Further, the conditions for success across the four projects were overall aligned. Our findings suggest that the conditions for success are characterized by trust, openness, and respect. Moreover, having a previous acquaintance with the partners was argued to be a key success factor across the four projects, and is a factor which affected many of the other characteristics outlined in our findings.

6.1 Implications

The foundations of our study was built upon the assumption that cross-sector partnerships are a useful means of solving grand challenges (Doh et al., 2019; Selsky & Parker, 2005). Moreover, we sought out to provide empirical evidence of collaboration between private and public actors, empirical evidence which is needed according to Tompkins & Eakin (2013) and Doh et al. (2019). The implications of our study is that CSP is indeed useful in solving climate challenges, but more importantly our empirical evidence provides useful information about why actors participate in CSP, what they do and how they do it. By understanding these characteristics, it might be possible to avoid pitfalls in future projects. Previous literature (Doh et al., 2019) have found that conflicting interests might provoke challenges, while it rather functioned as key drivers and conditions for success in our study. The implication of our thesis shows that by fostering trust, respect, and openness the partners might avoid such pitfalls and challenges. Moreover, our findings implies that partners collaborate because they are dependent on each other's resources and capabilities, which is the core idea of CSP. Further, our findings imply that successful partnerships might be related to partnership selection. Moreover, suggesting that an initiative like Klima 2050 might affect the

partnership in several ways, especially in terms of partnership selection, and partnership organization. Klima 2050 is useful for encouraging actors to partner up and solve grand challenges. Furthermore, it facilitates open discussions and brings sectors together, which might make the choice of project partner easier.

6.2 Limitations and future research

Limitations

As the empirical setting of our study was built upon volunteer partnerships, the evidence from our study might be limited and not transferable to all settings. In particular, we have studied Norwegian organizations, where the government and the private industry are more tightly wound together than in other countries. Additionally, our research is within one specific field of study – climate adaptation, which might limit the possibility to transfer the findings to other empirical settings.

Moreover, we can say that there is a disadvantage regarding our case study method, because it introduces limitations e.g. the incapacity to generalize the results that we acquired from conclusions connected to our empirical setting. Hence, it does not permit generic conclusions. To do so, we would have needed significantly more time to collect our data, in addition to a more clear methodology.

Another limitation in our study is connected to us choosing these specific four pilot projects out of sixteen. The reasoning for doing so is that these four projects were already started, as opposed to several of the other projects. Although this was a criterion for project selection, it limited our findings as we were only able to study the interim effects of the projects. Furthermore, since all projects are under the Klima 2050 label, it can be argued that this is biased. This is because this initiative is voluntary and requires that the projects consist of cross-sector partners, which is some of the motivation behind the Klima 2050 initiative.

Future research

It would be interesting to follow up the four projects after Klima 2050 ends in 2023, and look into the actual effects of the CSP, and if the characteristics in these four projects still holds. Moreover, it might be interesting to conduct a quantitative study within Klima 2050 to test if our findings provide robustness and if the findings are similar to what our multiple case study revealed. A quantitative study could be arranged by conducting a survey of the partners across all 16 pilot projects of Klima 2050. Expanding on this, it is also possible to conduct a single case study of the one project we did not select for our multiple case study.

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Appendices

Appendix 1: The search process regarding the literature study

Search Method	**Search Phrase**	**Findings**
Recommended by supervisor		Clarke, A., & Fuller, M. (2010). Collaborative strategic management: Strategy formulation and implementation by multi-organizational cross-sector social partnerships. *Journal of Business Ethics, 94*(1), 85-101.
Cited article by Clarke and Fuller (2010)	"Inter-Organizational Relationships in Local and Regional Development Partnerships"	Geddes, M. (2008). Inter-organizational relationships in local and regional development partnerships. In *The Oxford handbook of inter-organizational relations.*
Cited by Geddes, M. (2008)	"The Oxford Handbook of Inter-Organizational Relations"	This search phrase was inserted into both Google Scholar and BIs library, without managing to find the whole book. Hence, not used in our paper.
Phrase searching	"Cross sectoral partnerships"	Cairns, B., & Harris, M. (2011). Local cross-sector partnerships: Tackling the challenges collaboratively. Nonprofit Management and Leadership, 21(3), 311-324. **Not used in our paper.**
Phrase searching	"Cross sector partnerships"	Selsky, J. W., & Parker, B. (2005). Cross-sector partnerships to address social issues: Challenges to theory and practice.

		Journal of management, 31(6), 849-873. Van Tulder, R., Seitanidi, M. M., Crane, A., & Brammer, S. (2016). Enhancing the impact of cross-sector partnerships. *Journal of Business Ethics*, 135(1), 1-17. Cairns, B., & Harris, M. (2011). Local cross-sector partnerships: Tackling the challenges collaboratively. Nonprofit *Management and Leadership*, 21(3), 311-324. Clarke, A., & Crane, A. (2018). Cross-sector partnerships for systemic change: Systematized literature review and agenda for further research. *Journal of Business Ethics*, 150(2), 303-313. Van Tulder, R., & Keen, N. (2018). Capturing collaborative challenges: Designing complexity-sensitive theories of change for cross-sector partnerships. *Journal of Business Ethics*, 150(2), 315-332.
Phrase searching based on the articles read so far	"Systemic Change cross sector"	Clarke, A., & Crane, A. (2018). Cross-sector partnerships for systemic change: Systematized literature review and

		agenda for further research. *Journal of Business Ethics*, 150(2), 303-313. Senge, P. M., Lichtenstein, B. B., Kaeufer, K., Bradbury, H., & Carroll, J. S. (2007). Collaborating for systemic change. *MIT Sloan management review*, 48(2), 44.
Phrase searching based on Senge et al. (2007)	"Systemic change construction industry"	No relevant findings.
Phrase searching based on Senge et al. (2007)	"Systemic change AND construction industry"	The findings were not from the journals we required.
Phrase searching based on Senge et al. (2007)	"Systemic change"	Senge, P. M., Lichtenstein, B. B., Kaeufer, K., Bradbury, H., & Carroll, J. S. (2007). Collaborating for systemic change. *MIT Sloan management review*, 48(2), 44. Van Tulder, R., & Keen, N. (2018). Capturing collaborative challenges: Designing complexity-sensitive theories of change for cross-sector partnerships. *Journal of Business Ethics*, 150(2), 315-332.
Cited by an article	"Stadtler"	Stadtler, L., & Probst, G. (2012). How broker organizations can facilitate public–private partnerships for development. *European Management Journal*,

		30(1), 32-46.
Phrase searching	"Impact cross sector partnerships"	Van Tulder, R., Seitanidi, M. M., Crane, A., & Brammer, S. (2016). Enhancing the impact of cross-sector partnerships. *Journal of Business Ethics*, 135(1), 1-17. Van Tulder, R., & Keen, N. (2018). Capturing collaborative challenges: Designing complexity-sensitive theories of change for cross-sector partnerships. *Journal of Business Ethics*, 150(2), 315-332. Clarke, A., & Crane, A. (2018). Cross-sector partnerships for systemic change: Systematized literature review and agenda for further research. *Journal of Business Ethics*, 150(2), 303-313.
Phrase searching	"CSP AND systemic change"	Van Tulder, R., & Keen, N. (2018). Capturing collaborative challenges: Designing complexity-sensitive theories of change for cross-sector partnerships. *Journal of Business Ethics*, 150(2), 315-332.
Phrase searching	"Cross sector partnership AND systemic change"	Clarke, A., & Crane, A. (2018). Cross-sector partnerships for systemic change: Systematized literature review and agenda for further research. *Journal of Business Ethics*, 150(2),

		303-313. Senge, P. M., Lichtenstein, B. B., Kaeufer, K., Bradbury, H., & Carroll, J. S. (2007). Collaborating for systemic change. *MIT Sloan management review*, 48(2), 44. Dentoni, D., Bitzer, V., & Schouten, G. (2018). Harnessing wicked problems in multi-stakeholder partnerships. *Journal of Business Ethics*, 150(2), 333-356.
Phrase searching	"Cross sector partnership AND benefits for government"	Selsky, J. W., & Parker, B. (2005). Cross-sector partnerships to address social issues: Challenges to theory and practice. *Journal of management*, 31(6), 849-873. Cairns, B., & Harris, M. (2011). Local cross-sector partnerships: Tackling the challenges collaboratively. *Nonprofit Management and Leadership*, 21(3), 311-324.
Phrase searching	"Collaborative strategy"	Clarke, A., & Fuller, M. (2010). Collaborative strategic management: Strategy formulation and implementation by multi-organizational cross-sector social partnerships. *Journal of Business Ethics*, 94(1), 85-101.
Phrase searching	"Collaborative strategy public benefits"	McGuire, M. (2006). Collaborative public

		management: Assessing what we know and how we know it. *Public administration review*, 66, 33-43. **Not used in this paper.** Sørensen, E., & Torfing, J. (2012). Introduction: Collaborative innovation in the public sector. *The Innovation Journa*l, 17(1), 1. **We did not gain access to this book.**
Phase search to find more information about Torfing et.al. (2012)	"Introduction: Collaborative innovation in the public sector"	Torfing, J. (2019). Collaborative innovation in the public sector: the argument. *Public Management Review*, 21(1), 1-11.
Phrase searching	"Climate adaptation in construction industry"	Lisø, K. R., Kvande, T., & Time, B. (2017). Climate adaptation framework for moisture-resilient buildings in Norway. *Energy Procedia*, 132, 628-633. **Did not use this article in our paper.**
Phase searching	"Lisø climate adaption"	Lisø, K. R. (2006). Integrated approach to risk management of future climate change impacts. *Building Research & Information*, 34(1), 1-10.
Phrase searching	"Risk reduction through climate adaptation of buildings and infrastructure"	**Did not find articles of relevance.**
Cited by van Tulder & Crane (2016)	"Barnes and Brown (2011)" "Barnes and Brown: the ideal partnership".	Barnes, A., & Brown, G. W. (2011). The Idea of Partnership within the Millennium Development Goals: context,

		instrumentality and the normative demands of partnership. T*hird world quarterly*, 32(1), 165-180.
Cited by van Tulder & Keen (2018)	"Waddock 2015"	Waddell, S., Waddock, S., Cornell, S., Dentoni, D., McLachlan, M., & Meszoely, G. (2015). Large systems change: An emerging field of transformation and transitions. *Journal of Corporate Citizenship*, (58), 5-30. Waddock, S., Meszoely, G. M., Waddell, S., & Dentoni, D. (2015). The complexity of wicked problems in large scale change. *Journal of Organizational Change Management.*
Cited by Clarke & Crane (2016)	"Unpacking the path-dependent process of institutional change for PPPs" "Maintenance of cross-sector partnerships: The role of frames in sustained collaboration"	Matos-Castaño, J., Mahalingam, A., & Dewulf, G. (2014). Unpacking the path-dependent process of institutional change for PPPs. *Australian journal of public administration*, 73(1), 47-66. Klitsie, E. J., Ansari, S., & Volberda, H. W. (2018). Maintenance of cross-sector partnerships: The role of frames in sustained collaboration. *Journal of Business Ethics*, 150(2), 401-423.
Recommended by		Trist, E. (1983). Referent

supervisor		organizations and the development of inter-organizational domains. *Human Relations*, 36(3) (pp. 269-284). Phillips, N., Lawrence, T. B., & Hardy, C. (2000). Inter-organizational collaboration and the dynamics of institutional fields. *Journal of management studies*, 37(1), no-no. Doh, J. P., Tashman, P., & Benischke, M. H. (2019). Adapting to grand environmental challenges through collective entrepreneurship. *Academy of Management Perspectives*, 33(4), 450-468. Günzel-Jensen, F., & Rask, M. (2021). Combating climate change through collaborations? Lessons learnt from one of the biggest failures in environmental entrepreneurship. Journal of Cleaner Production, 278, 123941.
Phrase searching	"Interorganizational collaboration"	**Many of the articles we found online mentioned interorganizational theory, hence we looked at the relevance for it in our paper. Did not use this in our paper.**

Cited by Doh et al. (2019)	”Does public policy support or undermine climate change adaptation? Exploring policy interplay across different scales of governance”	Urwin, K., & Jordan, A. (2008). Does public policy support or undermine climate change adaptation? Exploring policy interplay across different scales of governance. *Global environmental change*, 18(1), 180-191.

Appendix 2 – Interview guide in both English and Norwegian

English

Background questions

- Can you shortly tell us about your motivation for being part of this project and how you got involved?

Questions about the pilot project and the partnership

- What is the project about and what kind of problem are the partners trying to solve?
  - How far are you from solving the problem? (about progression)

- Which partners are involved and which sectors are they from?

- Why were these exact partners selected to participate/ or why did you select these partners and not others?
  - Have you worked with them before?

- Why is it necessary to solve the problem through a collaborative partnership/ why are you dependent on the other partners? (In other words, we want to learn more about the motivation behind solving the problem through a collaborative partnership)

- How would you describe the partnership?
  - How is it organized?
  - How is the work and the responsibilities distributed across the partnership (the roles of each partner)?
  - What is your division's responsibility?
  - How do you collaborate and communicate?

- Are there any challenges working interdisciplinary across sectors?

- What are important factors and conditions for succeeding?

- Have there been any events delaying the project?

- What will happen to the data when the project is completed?
    - Is there a possibility for conflicts in the aftermath of Klima 250?

- How far are you from reaching the project objective?

Norwegian

Bakgrunnsspørsmål

- Kan du kort fortelle oss om din motivasjon for å være med i dette prosjektet, og hvordan du ble involvert? (Spørre om både klima 2050 og selve prosjektet)

Spørsmål om pilotprosjektet og partnerskapet

- Hva handler prosjektet om og hvilket problem(er) prøver partnerne å løse?
    - Hvor langt unna er dere fra å løse problemet? (om progresjonen)

- Hvilket partnere er involvert, og hvilken sektor kommer de fra?

- Hvorfor er akkurat disse partnerne valgt ut til å delta i prosjektet/hvorfor valgte dere disse partnerne og ikke andre partnere?
    - Har du jobbet med noen av dem tidligere?

- Hvorfor er det nødvendig å løse problemet gjennom samarbeid (collaborative partnership), og hvorfor er dere avhengige av de andre partnerne?
  (Med andre ord; vi ønsker å lære mer om deres motivasjon bak det å løse problemet gjennom samarbeid)

- Hvordan vil du beskrive deres partnerskap?

- Hvordan er partnerskapet organisert?
- Hvordan er jobben og ansvaret fordelt i partnerskapet (altså rollene til hver partner)?
- Hva er ansvaret til din avdeling?
- Hvordan samarbeider dere, og hvordan kommuniserer dere?
- Den praktiske gjennomføringen?
- Hvor ofte møtes man?
- Formalitet eller praktisk løsning? (gjør de faktisk noe sammen)

- Er det noen utfordringer knyttet til det å jobbe på tvers av sektorene?

- Hva er viktige faktorer og forutsetninger for å lykkes i et slikt partnerskap?

- Har det vært noen hendelser som har forsinket prosjektet eller deler ved prosjektet?

- Når prosjektet er ferdig, hva skjer med dataene og informasjonen?
  - Kan det oppstå konflikt i forhold til dette etter Klima 2050 er ferdig?

- Hvor langt har dere kommet? Og tror du at dere rekker å komme i mål før Klima 2050 er ferdig?