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A case study on exploration of complex problems through design-driven innovation in the public sector

This thesis is worth 30 study points

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Foreword

This master thesis marks the end of an era in our lives - we have completed a master's degree in Innovation and Technology management! Working on the master's thesis has required a lot of time and has led to late evenings and weekends spent reading articles, transcribing interviews, analysing content and writing, writing, writing. At times it has been tiring, sometimes frustrating, and it has sometimes seemed like an impossible task. Nevertheless - here we are! We have finished, we have delivered, we are done. It has been an incredibly educational experience, and we are grateful to have had the opportunity to immerse ourselves in something we think is exciting and not least important.

We feel incredibly privileged to have had the opportunity to acquire so much knowledge and to study together with our great lecturers and other fellow students through this master's program. We would like to send a special thank you to our supervisor, Jon Hovland Honerud. You have been an incredible support for us throughout this period - with good professional feedback and pep talks when we have needed it. After each session, we received a new boost in motivation and energy. We would also like to thank the informants who volunteered for our task; we would not have achieved this if you did not take the time to participate in our study.

Finally, we would like to thank family and friends for enduring the last six months with us. We greatly appreciate their support, motivating words and understanding in recent months. We promise that we will talk about other things than our master's thesis in the future.

Andrea Glimsholt & Håkon Fredriksen
Kongsberg, May 25th, 2022

Abstract

In this case study, we have examined how complex problems are explored through design-driven innovation in the public sector. The project is linked to a highly ambitious program aiming to transform the way money collection is handled. We have linked the design-driven process to findings in the project to give context to the challenges and opportunities the project experience throughout the diagnosis phase of the project. This case study is conducted in the diagnosis phase of the project '*Cross-sectoral management and development of coherent services - how do we succeed?*' owned by the Norwegian Tax Administration. The project is trying to find a solution on how the program can succeed with cross-sectorial management and development of coherent services

The research question:

How are complex problems explored through design-driven innovation in the public sector?

To answer the research question, we conducted a single-case study with a qualitative approach. Multiple observations were conducted throughout the exploration phase and interviewed seven highly relevant people from the project. Three people from the client side, two from the Norwegian Tax Administration and one from NAV. Three people from the supplier side, Rambøll Consulting, Halogen and Agenda Kaupang. Additionally, one person from Design and Architecture Norway (DOGA).

In the public sector, design-driven innovation is not a frequently used method to explore complex problems. The program needs to find a way to manage transformational activities. There is no common understanding of transformation in relation to the program or how transformation will impact the program. A common understanding of the problem context is necessary before involving end-users to be certain that the right problems are explored. Furthermore, complementary expertise between the involved actors is important when gathering information and analysing the problem area. Visualisation is used as a tool to facilitate cross-disciplinary conversations, and in discussions where the problem is difficult to talk about. The analysis of the data material resulted in a model with four main topics that are important when exploring complex problems through design-driven innovation in the public sector: Problem context, the collaboration between actors, visualisation, and the search for knowledge and perspectives.

Keywords: Innovation, Design-driven innovation, Open innovation, Exploration, Complex problems, public sector, Modernisation, Transformation, StimuLab

1. Introduction

The world is moving towards a green shift and one of the biggest challenges Norway faces in the time ahead is to adjust to a more robust and diverse economy. One that is less dependent on oil revenues to uphold the welfare state as we know it today (Organisation for Economic & Development, 2017, p. 19). Innovation is the key driver to comprehend the challenges the world faces, and innovation in the public sector can help create value for society (Savin-Baden & Major, 2013). Today's problems are becoming more complex, public organizations need to contain costs and maximize relevance, efficiency, impact, and sustainability of personal and tailored outcomes that address needs with a more coordinated approach.

The complex challenges of digitalisation cannot be solved individually by each sector. The Norwegian government has high ambitions to renew, simplify and improve the public sector to meet the expectations of a simpler everyday life for citizens and businesses, which does not only apply to Norway but to the whole world. To deliver on increased expectations from the citizens, co-creation and collaboration between public actors are essential to delivering value. In order to meet these expectations, the public sector needs to create more sustainable cross-sectoral solutions and use its expertise in the market (Ministry of Local Government and Regional Development, 2016).

The cross-sectorial digital strategy for the public sector 2019-2025 was published in 2019, where the vision is to have one public sector (Ministry of Local Government and Regional Development, 2019). Digitalisation of the public sector entails more than the use of new technology. It will transform both the public sector as a whole and individual organizations, meaning that the organizations will undergo radical changes. Organisations may need to be restructured, responsibility reorganized, regulations revised, and processes redesigned. One of the main goals of the digital strategy is that '*The public sector shall collaborate better on digital services and streamline the use of resources through enhanced coordination across administrative levels and sectors, and systematically realize benefits from digitalisation*' (Development, 2019, p. 4). The project this case study is based on, addresses this problem as they are trying to find a solution to cross-sectorial management and development of coherent services in the scope of money collection from the citizens.

The title of the project explored in this thesis is: '*Cross-sectoral management and development of coherent services - how do we succeed?*'. Also referred to as the project. The project is trying to find a solution on how the program 'Collection as part of the user's ecosystem', from now also called the program, can succeed with cross-sectorial management and development of coherent services through design-driven innovation. The problem area consists of many actors with different, and only partly corresponding transformative ambitions, leaving participants to define the project as complex. We are conducting our research on the first phase of the project, the diagnosis phase. We have followed the process where the supplier gathers and explore cross-disciplinary perspectives and knowledge. As well as preformed analysis of the perspectives and knowledge to work towards a common understanding of the problem.

This case study aims to give better insight into using design-driven innovation to explore complex problems in the public sector. We have linked the design-driven process to findings in the project to give context to the challenges and opportunities the project experiences.

Our research question:
How are complex problems explored through design-driven innovation in the public sector?

To answer the research question, we conducted a single-case study with a qualitative approach. Performed multiple observations throughout the exploration phase and interviewed seven highly relevant people from the project. Three people from the client side, two from the Norwegian Tax Administration and one from NAV. Three people from the supplier side, Rambøll Consulting, Halogen and Agenda Kaupang. Additionally, one person from Design and Architecture Norway (DOGA)

The analysis of the data material resulted in a model with four main topics that are important to consider when exploring complex problems through design-driven innovation in the public sector: Problem context, the collaboration between actors, visualisation, and the search for knowledge and perspectives. The program needs to find a way to manage transformational activities. There is no common understanding of transformation in relation to the program or how transformation will impact the program. A common understanding of the problem context is

necessary before involving end-users to be certain that the right problems are explored. Furthermore, complementary expertise between the involved actors is important when gathering information and analysing the problem area. Visualisation is used as a tool to facilitate cross-disciplinary conversations, and in discussions where the problem is difficult to talk about.

About the case:

This case study is conducted in the diagnosis phase of the project '*Cross-sectoral management and development of coherent services - how do we succeed?*' initiated by the program '*Collection as a part of the user's ecosystem',* which is owned by the Norwegian Tax Administration[1]. The project was initiated as a risk-reducing measure after the program had identified several challenges related to managing cross-sectorial initiatives and developing coherent services. The program 'Collection as part of the user's ecosystem' is a seven-year-long program with an investment cost of 4.7 billion NOK (Vista Analyse, 2020). The program started in January 2022 with seven ongoing projects, and they are going to ensure an efficient and holistic collection of money from the citizens of Norway. The program's ambitions are to transform the collection of money, and the vision is 'Collection just happens'. As it is today, the collection of money from the citizens in Norway is a complex process, and there are many actors involved in the ecosystem of collection of money across sectors (Digdir, 2020).

The project is owned by the Norwegian Tax Administration. The other leading collaborating organisations are The Ministry of Labour and Social Affairs and The Brønnøysund Register Centre (Digdir, 2022). Four suppliers were chosen for the project through public procurement; Rambøll Consulting is the contract owner and contributes with experts on public management. Halogen is a design company that contributes with experts in service design, policy design, and system design. Agenda Kaupang contributes to project management. Holte Consulting will contribute to quality assurance in the later stages. The data collected was conducted from the supplier's point of view, where Halogen has been our main contact, all in agreement with the contract partners and the project owner.

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[1] Public information will be referenced to give an overview of the project. In cases where public documents are not available, we will reference project documentation.

Implementing digital transformations is not the same as digitalising today's services and processes. Therefore, this project aims to find a solution to how the program can succeed with cross-sectorial management of modernisation and transformational initiatives when developing coherent services. The project has an innovative approach that will impact the program significantly if they succeed in finding a way to manage cross-sectorial initiatives and develop coherent services.

The project is organised as a StimuLab project, which means that the project needs to work within the design-driven framework created by StimuLab. StimuLab is an initiative by the Norwegian Digitalisation Agency, the Norwegian design (Digdir) and the architecture centre (DOGA) to stimulate public innovation and service design from the user's perspective. The StimuLab framework is design-driven and effectively drives interdisciplinary and user-centred innovation and continuous improvement. All StimuLab projects must follow the Triple Diamond framework (Figure 1), a method developed by Digdir and DOGA (The Norwegian Digitalisation Agency, 2022). Our research is conducted in the diagnosis phase of the project '*Cross-sectoral management and development of coherent services - how do we succeed?*'.
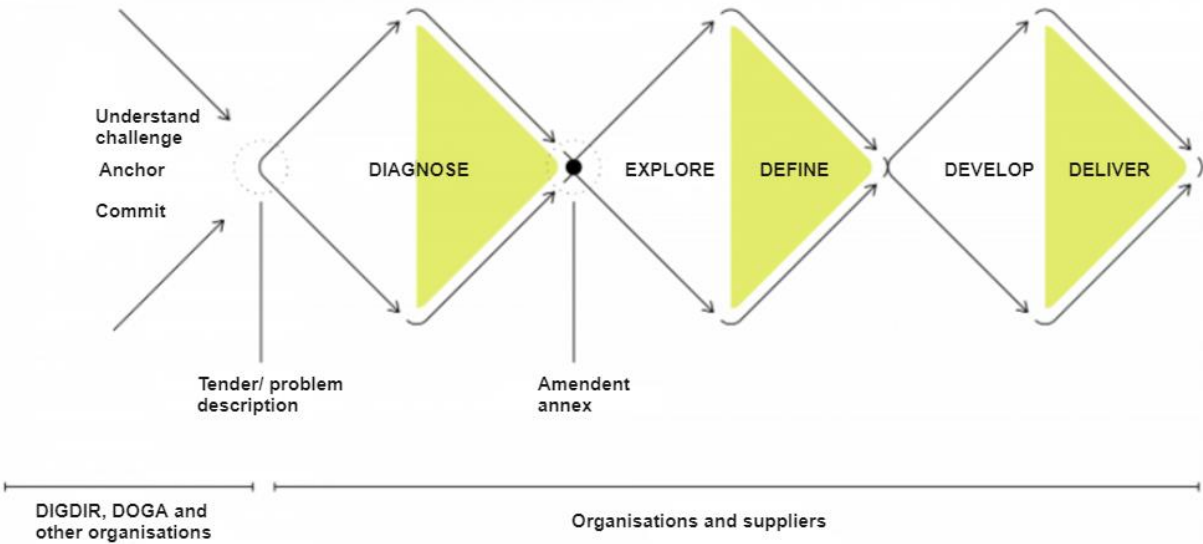
Figure 1: The Triple Diamond (The Norwegian Digitalisation Agency, 2020).

The first diamond is the diagnosis phase, where the main objective is to explore and create a common understanding of the problem to ensure that the final solution is based on actual demands, not assumptions. To finish the diamond, the supplier creates an amendment annexe which describes the problem area, the common understanding of the problem, and the prioritized areas that gives direction to the rest of the project (The Norwegian Digitalisation Agency, 2020). We have conducted our research in the diagnosis phase. Figure 2 provides an overview of the diagnosis phase in the context of challenges within the program and is the result of collaboration between client and suppliers within the project.
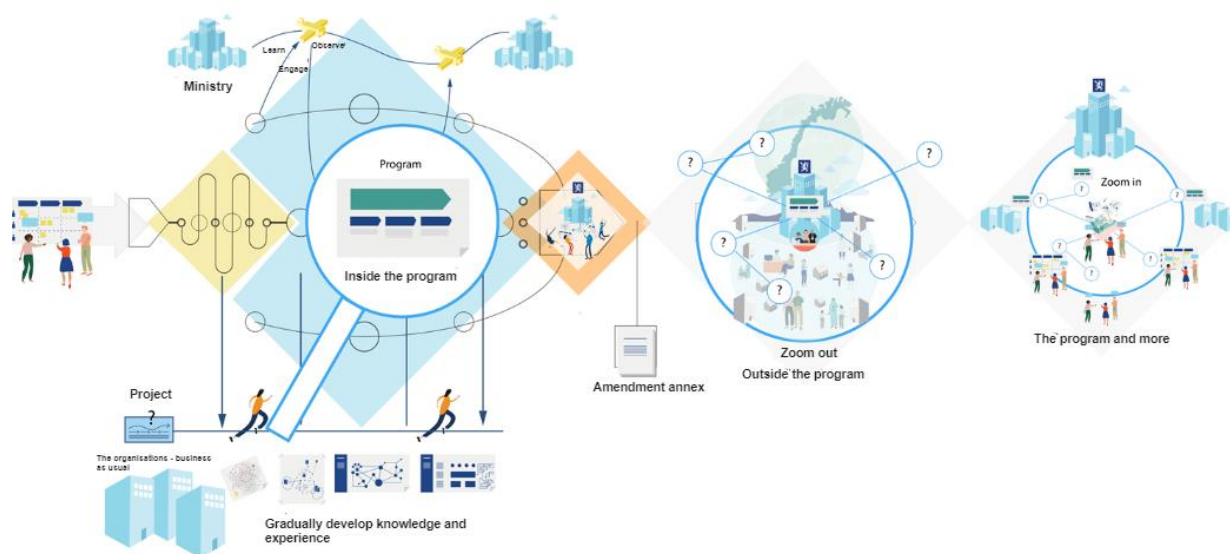
Figure 2: The diagnosis phase in the context of the program (Halogen, personal communication, 15. mars 2022).

The second diamond represents the explore and define phase. In this phase, the project experiments with solutions and tests concepts on a small scale to identify the best solution. The main driver is to see the problem from the user's perspective and their understanding of how economics, security, culture, ethics, sustainability, law and technology affect the problem (The Norwegian Digitalisation Agency, 2020).

The third diamond refers to the development and delivery phase, where the project continues the development of prototypes or simulations of the agreed solution. The solution is implemented at

the end of the diamond, or the outcome is used as a platform for further planning and financing (The Norwegian Digitalisation Agency, 2020).

1.2 The structure of the thesis

The thesis is divided into six chapters. Chapter two will present theory and literature relevant to innovation and exploration of complex problems. The concept of innovation will be explained with a focus on the search stage and the degree of novelty. Additionally, we will present two other innovation concepts; open innovation and design-driven innovation. The search is performed in an open innovation context, and in this section, we focus on knowledge flows and how knowledge can be applied to problem framing. For design-driven innovation, the process will be presented in addition to theoretical background on search in this context and relevant tools.

In chapter three, the research method will be described. Our methodological choices will be explained and reviewed, in addition to our assessment and ethical reflection related to the execution of our research. In chapter four, the main findings from our case study will be presented. The main findings are based on thematic analysis. The chapter is divided into sub-chapters that present the main themes we have identified: The need for a common understanding of the problem context, Collaboration between actors, innovation and the design-driven approach, and the search for new knowledge and perspectives.

Chapter five will discuss our findings related to the presented theory in chapter two to answer the research question. In addition to this, a model has been created based on the findings from this thesis. At the end of the chapter, reflections about further research will be presented. In chapter six, the conclusion will be presented with a summary of the thesis in addition to concluding thoughts.

2. Theory

According to several researchers, the collaborative mandate and how design-driven innovation is applied in the public sector are relatively unexplored in the existing literature (de Goey et al., 2017; Lewis et al., 2020; Mergel et al., 2019). Therefore, we have used the findings of our research as a source of information to identify the appropriate literature we believe is relevant to answering the research question.

In the first section, we will give context to innovation in the public, focusing on design-driven processes in the public sector, policy design, and the paradigm shift and their focus on innovation and end-user involvement. Furthermore, we will present theory on modernisation and transformation as this has been frequently discussed in the project.

In the second section, we will present theory on innovation to set the overall context focusing on the search stage. Modernisation and transformation of services have been discussed frequently in the project. Therefore, we discuss the degree of novelty and how this affects search behaviour. Secondly, we will present the theory of open innovation. The search is performed in an open innovation context where several actors collaborate and contribute with knowledge in the process of defining the problem. We will present theory on how knowledge flows occur in the context of open innovation and how tacit knowledge can be applied when framing the problem.

At the end of the chapter, we will present theory on design-driven innovation. The four stages of the process and the main activities will be described. In addition, we will present theory on the approach, how to obtain knowledge and the tools used in the process to a common problem definition.

2.1 Innovation in the public sector

In the last two decades, innovation has become a much-used word in the public sector (Hartley, 2005). Governments have increasingly turned to innovation to address complex problems, but it also presents significant challenges to bureaucratic procedures (Halvorsen et al., 2005; Lewis et al., ; Lewis et al., 2017). As a response to the increased focus on public innovation, design-led approaches have gained government attention as a tool for reframing policy issues, generating

and testing new solutions to public problems (Lewis et al., . According to Clarke and Craft (2019), there has not been much research on how design thinking impacts policymaking.

Bailey and Lloyd (2016) argue that the impact on policy design depends on how design thinking is operationalised in practice and will influence policymaking. Such as the exploration phase for problem identification or throughout the process. From a design thinking perspective, the policymaking is viewed as bottom-up approach to public problem solving with an approach to policymaking is an interlocking process of scoping, defining and reframing problems through learning by doing as it is an ongoing process with ideating, prototyping and testing solutions (Considine, 2012; Torjman, 2012). With the traditional policy model, policy options are developed to solve pre-determined problems by governments, where the course of action will most likely succeed in attending to their goals or aims (Howlett, 2014). The hierarchical structure in the public sector authorizes a minor group of influential decision-makers at a high level in the organization to define the problem or challenge and find an appropriate solution (Torfing, 2019). This differs from the mindset of design thinkers, where you first search for the central paradox of the problem and then iteratively work towards a solution after the core paradox is understood (Dorst, 2011).

According to Hartley (2005), there are three paradigm shifts in public administration: traditional public administration, new public management, and network governance (also called new public governance). These three shifts have a different view on innovation, improvement and the role of the citizens. In traditional public administration, the citizens are seen as clients, the focus is on some large-scale national and universal innovations where they take large step-change improvements initially, but there is not much room for continuous improvements. New public management focuses on innovation in an organisational form more than the content where improvements are performed in managerial processes and systems where the citizens have the role of customers. Network governance focuses on innovation at both central and local levels and aims for both transformational and continuous improvement in the front-line services. The citizens have the role of co-producers.

Modernisation sought to establish continuous improvement (Glennon et al., 2018). The Norwegian Government's action plan for modernisation 2005-2009 wanted to strengthen the work of modernising the public sector. Focusing on that, citizens and companies should experience that it is easy to relate to the public sector. *Modernisation is hard facts and new technology, but also initiative, will and warmth. When you can use online services and avoid visits to public offices, there is modernisation. It is also modernisation when the public sector overcomes agency boundaries and habitual thinking to provide the best possible support to those of us who need it most. Modernisation frees up resources for services that create security for welfare.* - Morten Andreas Meyer (The Ministry of Modernisation, 2005).

In contrast to transformation, modernisation is an intermediate category which embodies more gradual and less intensive attempts at reform and the persistence of strong elements of continuity (Bach, 1999). Digital transformation is a revision of the policies, processes, and services in order to create simpler user experiences for citizens and frontline workers (Mergel et al., 2018). Digital transformation in the private sector has changed the citizens' expectations of governments' ability to deliver high-value, real-time digital services. As a response, governments are changing their operational mode to improve public service delivery to be more efficient and effective in their designs and achieve objectives such as increased transparency, interoperability, or citizen satisfaction (Mergel et al., 2019). Furthermore, there is little systematic insight into how public administrators define digital transformation in their daily practice. Additionally, there is also little insight into how they are approaching digital transformation projects and their expected outcomes.

2.2 Innovation
Innovation takes place in different forms, and it can be new or improved processes, products, or services. There are a variety of different definitions of innovation in the existing literature. The Oslo Manual (OECD & Eurostat, 2018) defines innovation as *'An innovation is a new or improved product or process (or a combination thereof) that differs significantly from the unit's previous products or processes, and that has been made available to potential users (product) or brought into use by the unit (process)'.*

The degree of novelty characterizes how innovative the idea is, ranging from a low to a high level of novelty. Incremental innovation has a low degree of novelty and contains lower risk and cost than innovations with a high degree of novelty (Souto, 2015). Incremental innovations are minor improvements in existing products and operations that let the organizations operate more efficiently and deliver greater value to customers (O Reilly & Tushman, 2004). Radical innovation is innovation with a high degree of novelty, which breaks with what existed previously and results from non-obvious paths or ideas. The sum of incremental innovations can lead to radical innovation. For radical innovations, the path is unknown, and there is high uncertainty with limited knowledge available (Souto, 2015).

Innovation involves three key elements – searching for new ideas, selecting new ideas, and implementing new ideas (Bessant et al., 2014). We will focus on the search stage in this thesis. The degree of novelty demands different search behaviours, exploration or exploitation. Incremental innovation is about exploiting benefits from what the organization is already doing so they will use and develop things that are already known (Tidd & Bessant, 2018). Exploration is about searching in an unknown environment looking to 'do something different'. This kind of search is often linked to radical innovation and involves reorientations or long jumps that enable an organisation to attain knowledge and adopt new elements outside its domain (Tidd & Bessant, 2018).

2.3 Open innovation

Open innovation is defined by Lichtenthaler (2011, p. 77) as a '*systematically performing knowledge exploration, retention, and exploitation inside and outside an organization's boundaries throughout the innovation process*'.

Collaborative strategies facilitate the exchange of ideas, competencies, and knowledge between actors. This stimulates a mutual learning process that can improve the understanding of the problem (Roberts, 2000). Participants in collaborative innovation are public and private actors with relevant knowledge, ideas or resources, as well as people affected by the problem or solution (Torfing, 2019). While many public administration services have made significant progress, the full potential of digital adaptation remains untapped (Alvarenga et al., 2020).

Innovation is about translating knowledge into value (Tidd & Bessant, 2018). The awareness of distributed knowledge creation, usage across actors and the importance of accessing knowledge from specialized networks and markets has increased with the 'open innovation' paradigm (Arora et al., 2001). There are two open innovation perspectives for knowledge flows where all organisations, agents or individuals can be involved, inward and outward. Inward knowledge flows occur when an organisation acquires and absorbs externally sourced knowledge such as sourcing activities. Outward knowledge flows occur when a firm intentionally enables other organisations to use, combine or further develop its knowledge or ideas, such as licensing out technology or prototypes (OECD & Eurostat, 2018).

In innovation, the experience and knowledge of individuals are important sources of information. According to Ambrosini and Bowman (2001), knowledge is context-specific. The most common application of knowledge is problem-solving, with a relative formulated problem (Leonard & Sensiper, 1998). Knowledge can also be applied to problem finding, where creative problem framing allows for the possibility to look away from the obvious or usual answer in favour of asking an entirely new question (Leonard & Sensiper, 1998).

Problem framing and problem definition are part of the search stage where people share their knowledge, combine, and extend their knowledge. The innovation search is about detecting signals in the environment for potential change. It can be changed by new technological opportunities, new regulations or new requirements in the market. Understanding user needs has always been a critical determinant of innovation success (Tidd & Bessant, 2018, p. 82).

2.4 Design-driven innovation

In design-driven innovation, time is invested strategically in defining the right problem to solve and results in a designed solution that offers value and meaning for end-users. Design-driven innovation involves four stages: initiation, investigation, integration, and implementation. The first two stages focus on defining the right problem to solve, and the last stages focus on designing the right solution (Beausoleil, 2022).

Design-driven innovation focuses on the innovation of product meanings and is enabled by integrating knowledge of needs, technology development and product language (de Goey et al., 2017). According to Lewis et al. (), research on design-driven innovation has mainly focused on the business-to-consumer aspects, causing a lack of research about design-driven innovation in the public context.

Beausoleil (2022) argues that the main activities in the initiation stage are to initiate a project based on a problem hypothesis, create a project brief and research plan to investigate the assumed problem. The second stage is about investigating and validating needs associated with the problem hypothesis defined in the initiation stage through research, collection, and analysis of data to identify needs and the right problem to solve. In stage three, integration: insights and ideas are integrated into prototypes. The problem to be solved will be framed and reframed, and prototypes will be tested with external and internal stakeholders. In the last stage, implementation: designing, testing and implementing final prototypes will be conducted before designing and delivering the solution to the problem. The final activity in the implementation stage is to evaluate the solution to determine if the problem is solved or not.

Design thinking is part of design-driven innovation (Auernhammer & Roth, 2021). Design thinking as an approach has gained traction from governments worldwide to address complex problems (Clarke & Craft, 2019). Brown and Katz (2011) define design thinking as innovation centred around the user. Design thinking uses knowledge brokering, problem reframing, co-creation, and visualisation in problem-solving. Knowledge brokering facilitates the transfer and exchange of knowledge, utilising information and expertise from previous, sometimes unrelated projects and approaching the project in an innovative way (Calabretta & Gemser, 2015). In comparison, problem reframing suggests changing the perspective on the problem to look at alternative solutions that have not been considered to date (Dorst, 2011). At the same time, co-creation focus on involving project stakeholders throughout the project to ensure that their needs are taken into the assessment when considering the solution (Stickdorn et al., 2011).

Several tools are used in design to facilitate a dialogue regarding the problem area. Visualization is used in design-driven innovation to make it clearer for all involved parties how to

communicate and co-create with the involved actors to extract knowledge and give new insight that can bring forth other perspectives. Furthermore, storytelling and storyboards are used for sharing new concepts and situating a new service within a narrative context. Presenting the context allows the receiver to follow details more closely. Generally, stories are illustrative, symbolic, and easily memorable for the receiver. Storytelling is frequently combined with storyboards, where a series of drawings and illustrations are presented to visualize a process, service or event (Tschimmel, 2012).

The project we are studying is an example of how design-driven innovation is used for problem framing in the public sector. Although some literature on innovation and open innovation is well developed, we have seen that there is no clear-cut framework for this application of design-driven innovation. Accordingly, we have sought to develop our understanding rather through a methodological approach that is empirically driven, aiming for emergent insights. In the following chapter, we will explain the methodological approach to this study.

3. Methodology

In this chapter we present and discuss our research approach, data collection method, data analysis techniques, quality of research and ethical considerations. The purpose is to clarify the methodological choices that we have made and explain how it is related to the research question that this thesis aims to answer.

3.1 Research approach

To investigate our research question, '*How are complex problems explored through design-driven innovation in the public sector?*' we have chosen a qualitative single exploratory case study with an inductive approach. We got access to a design-driven project in the public sector, an area where it is little existing research. Due to the lack of existing research, we had to use the case as a source of information. The reason for choosing a single case study was to gain an "in-depth" understanding of the topic that allows for a better understanding of the context (Yin, 2009). Moreover, the type of case study is interpretive, where we have defined categories based on our findings for the research topic and then found relevant theory to emphasise our findings. The inductive approach is considered a suitable approach due to the lack of previous research (Kovács & Spens, 2005; Merriam, 1998). It allows for understanding the research problem by analysing the collected data and how the participants view the world (Thomas, 2006). Furthermore, it allows small sample sizes to establish different views of the phenomena. Having a small sample size gives each actor more time, leading to the generation of rich data and an in-depth understanding of the topic (Liu, 2016).

3.2 Data collection method

Data has been collected through multiple techniques; document analysis, observations, and interviews aligned with the research approach. Our thesis utilises both primary and secondary data to answer the research question.

Document analysis

Several types of documents were analysed during the data collection. Through the project, we accessed project documentation such as documentation from the offer phase, power point

presentations produced by the suppliers and used both internally and externally towards the client, and the amendment annexe, which was submitted to StimuLab as a result of the diagnosis phase. We also went through several visual documents, such as the visual interview guide and several models that explain the complexity of the problem in the case context. The relevance of going through these documents was to get a better understanding of the context within the case. Moreover, we analysed public documents accessed through governmental websites, such as policy strategies, information about StimuLab and the concept selection study (Johannessen et al., 2021).

Observation

Since the beginning of January, we have observed the project and attended multiple project meetings and workshops. The aim was to get a better understanding of the problem, context and observe throughout the process in the diagnosis phase. Field notes were written during observation as records of events. Our role during the observations was as a passive participants with minimal involvement (Angrosino & Rosenberg, 2011). By observing the project dynamics and interactions, we obtained knowledge and understanding of their worldview, which corresponds with our research aim (Savin-Baden & Major, 2013, p. 184). We followed the suppliers as outsiders looking in. We were invited to observe on several occasions in different settings. All observations were conducted online on Microsoft Teams video conferences, except for one workshop related to a 'show and tell' where the whole group of suppliers attended at Agenda Kaupang's offices. An overview of all observations is provided in Table 1. Moreover, we participated in relevant project meetings with the client, supplier conducted interviews with the end-users, and several workshops where the suppliers discussed their findings and analysed newly gained knowledge from the interviews. This approach is valid to gain a better understanding of how complex problems are explored with a design-driven approach to work towards a common problem definition.

Table 1: List of observations

No.	Observations	Date	Duration (min)	Note
1	Show and Tell (no.1) StimuLab Cross-sectoral management and development	11.01.2022	90:00	Online
2	Core team knowledge base StimuLab	26.01.2022	60:00	Online
3	Interview with the Directorate of Labor and Welfare and the Directorate of Labor and Social Affairs	09.02.2022	90:00	Online
4	Working meeting with suppliers	09.02.2022	90:00	Online
5	Core group StimuLab cross-sectoral management	01.03.2022	90:00	Online
6	StimuLab project meeting (both core teams)	03.03.2022	1:20:00	Online
7	Show and Tell (no.2) StimuLab Cross-sectoral management and development of coherent services	15.03.2022	90:00	Physical

Interviews

According to Fontana and Frey (2000), an interview is a powerful tool to gain understanding of in-depth topics and the understanding of the participants being interviewed. We conducted seven individual interviews and one group interview with the suppliers. The interviews were conducted online with the tools Zoom and Microsoft Teams, where most of the interviews lasted around 45-55 minutes. An overview of all interviews is provided in Table 2.

The group interview was conducted early in the process, where the aim was to get a better understanding of the projects and relevant themes connected to the exploration of the problem. Due to a lack of theory within this field, we decided to have a broad interview guide to ensure we got information on several themes identified under the observations. We conducted interviews with three people from the client, three people from the supplier and one person from DOGA, which is responsible for the StimuLab methodology. A detailed overview of the informant's background and experience is provided in Table 3. All interviews were semi-structured, which allowed us to gain in-depth understanding of the exploration of the problem within the design-driven approach.

Furthermore, the semi-structured interviews allowed us to add questions to respond to the participant's reactions and comments during the interview (Bryman, 2016). The interviews were structured with open general questions about the topic at the beginning of the interview, and additional questions related to the general questions were asked throughout the interview (Cope, 2011). The interview guides are attached in Appendix 1.

Table 2: List over interviews

Interviews	Date	Duration (min)	Note
Group interview 1-3	03.02.2022	55:07	Video interview
Informant 2	14.03.2022	30:04	Video interview
Informant 3	17.03.2022	57:42	Video interview
Informant 1 (no.1)	16.03.2022	50:33	Video interview
Informant 1 (no.2)	23.03.2022	32:56	Video interview
Informant 4	23.03.2022	54:10	Video interview
Informant 5	12.04.2022	44:10	Video interview
Informant 6	27.04.2022	46:17	Video interview
Informant 7	28.04.2022	37:23	Video interview

Sampling method

The sampling method used is non-probability sampling with a purposive approach (Savin-Baden & Major, 2013; Toepoel et al., 2016). Non-probability sampling with a purposive approach was chosen because there are a limited number of people involved in the project. We wanted to acquire information-rich responses from the most relevant people within the project. In our case study, we got access to project members from both the client and supplier. This gave us multiple perspectives. The different project members have diverse backgrounds and experience from different public organisations and private companies. The experience and background of the informants are presented in Table 3.

Table 3: Information about the informants in the project

Actor	Background and experience
Supplier	Lead designer in the project and hold a master's degree s in industrial design. Have worked on several StimuLab projects and have extensive knowledge of service design and system design.
DOGA	Designer with extensive experience in design and innovation, in addition to strategic and tactical use of design in cross-sectorial initiatives.
Supplier	Project owner from the supplier side with extensive knowledge about management, the public sector and the establishment of collaboration surrounding digitalisation. Has worked at department level in the public sector for many years before going to the private sector. Has worked on several StimuLab projects
Supplier	Project manager with an academic background as a social economist and holds a master's degree in management. Has been working on directorate and department level for several years.
Client	Project manager from the client-side with a master's degree in public management and leadership and additional subjects on innovation. Worked in the public sector on agency level and private sector with diverse roles on both strategic- and project level. Has extensive knowledge about organizational management and management systems. First involvement in a StimuLab project.
Client	Advisor in the project and holds the position as an information architect with an academic background in informatics with additional courses in law and management. Has not been involved in a StimuLab project before.
Client	Business developer and responsible for cross-sectorial collaboration in the program management team. Has the role of an advisor in the project and has extensive knowledge in the management and development of cross-sectoral projects. Has a technical background with a bachelor in system science with additional economic courses. Has been involved in previous StimuLab projects.

3.3 Data analysis techniques

We got consent from the informants to record the interviews, and all interviews were transcribed and uploaded into NVivo, where thematic analysis was used for identifying, analysing, and reporting patterns in the data (Braun & Clarke, 2006, p. 79). The reason for choosing a thematic approach is that it gives an accessible and theoretically flexible method for analysing the qualitative data we collected (Braun & Clarke, 2006, p. 77). After each interview, we conducted two separate thematic analyses to see what themes emerged from the interviews. After doing this individually, we compared the themes we had identified and discussed which themes were relevant or not. We then identified four main themes with several underlying themes. There have

been several revisions to make sure we focus on the most important findings. During the interviews, there came new themes that we added. After conducting and transcribing the interviews, we agreed on the final themes and codes. The themes and codes are presented in Table 4. From this, we were able to see that our observations were similar and aligned, increasing the quality of the findings (Braun & Clarke, 2006).

Table 4: Emerging Themes and Codes

Themes	Codes
The need for a common understanding of the problem context	The initial need was to modernise services, not to transform how money collection is handled
	The complexity of the problem
	The need for a common understanding of the problem context between the client and supplier before continuing working in the diagnosis phase
	There is no common agreement on what transformation is
Collaboration between the actors	Cross sectorial collaboration
	Expertise and professional collaboration between the supplier and client
	Trust between the client and supplier
Innovation and the design-driven approach	StimuLab as a tool for innovation in the public sector
	Client involvement and how that affected the design-driven process
	Visualisation as a tool for communication and facilitating multidisciplinary discussions
	Matureness
The search for new knowledge and perspectives	Gathering cross disciplinary perspectives to explore the problem
	Obtain, analyse and sharing of knowledge
	Challenges with presenting findings to the client's project team The problem definition

3.4 Quality of research

Our chosen philosophical position for this research project is constructivism. According to Raskin (2002, p. 4), '*constructivism is based upon the notion that reality is a product of one's own creation and suggests that all knowledge is a computation of humanmade constructions*'. I.e. meanings are created by social actors as they interact with the world; social actors engage with the world around them and learn through their understandings of historical and social perspectives; and meaning is created socially through the interaction of human beings (Crotty, 1998). Such an approach is fitting since there is a lack of research within this research field. By interviewing actors participating in the project, we will obtain their perspectives and understandings on the subject (Savin-Baden & Major, 2013, p. 184).

To establish our research's quality and trustworthiness, will we discuss credibility, confirmability, and transformability (Lincoln & Guba, 1985; Yin, 2009).

Credibility

To achieve credibility in our work, we spent considerable time collecting and evaluating existing research before utilising it, conducting a feasibility study and consulting with our supervisor and our contact person at the supplier (Kovács & Spens, 2005, p. 137; Lincoln & Guba, 1985).

The interview guides are discussed between us, the students, and then discussed with our supervisor to strengthen the reliability. Since the interviews are designed purposefully for each actor, the interviews conducted cannot be generalized on their own and needs to be described as a whole to get the full picture.

Interviews are subject to bias as the quality of the questions and the participant greatly affects the outcome (Savin-Baden & Major, 2013). Yin (2009) argues that some participants may provide information they think the researcher wants to hear rather than provide accurate information. To overcome these challenges, we conducted semi-structured interviews with open-ended questions and separate interviews. And to the answers they gave us, we did not give any confirmation if we agreed or disagreed.

We used thematical analyses to highlight emerging themes that confirmed observations during meetings and interviews (Savin-Baden & Major, 2013). The thesis was then sent to the supplier to see if they had anything to comment on the thesis regarding theories used, findings and quotes. Their feedback was that they recognised themselves in our findings.

Confirmability

To increase our research's conformability, we conducted data source triangulation on transcribed interviews and field notes taken during observations in meetings and interviews. Doing separated analyses, then coming together to compare and discuss themes that have emerged, finalize defining and naming of themes, and produce a final report to increase the credibility and confirmation of our findings (Lincoln & Guba, 1985).

Further, we have described our approach and how we have conducted and analysed findings. Our research findings and procedures were documented through meeting minutes, field notes and transcribing interviews, allowing someone outside the research to follow, audit, and critique the research process (Sandelowski, 1986).

Transferability

In our view, our context and selection are transferable to other design-driven projects involving actors from the public and private sectors exploring complex problems. As we examine a specific case in a specific context, this may imply that the findings cannot be transferred easily to the population as a whole. Nevertheless, we believe that we have identified several topics that can be transferred to other contexts.

3.5 Ethical considerations

In this thesis, we have used primary data and secondary data to answer our research question. Primary data is what we have collected ourselves and then analysed. Our primary data were collected through seven semi-structured interviews and one group interview in addition to observation. The collected data is thus new, and the points are directed towards our research question specifically. By direct contact between us and the source, we, as researchers, have

control over the data and the analysis. One can thus assess the quality of the collected primary data (Blaikie, 2018).

Secondary data acquired in our master thesis is from public documents and project documentation. The use of secondary data has two purposes. Firstly, to gain a better understanding of the context of the project and, secondly, to draw parallels to our research. The use of secondary data can be both cost- and time-saving, but it will often not provide sufficient information to the research question we seek to answer. Therefore we have considered it critically (Blaikie, 2018).

Consent Procedures and research ethics

Prior to primary data collection, approval was obtained from the Norwegian centre for research data (NSD), attached in Appendix 3. Additionally, we signed a cooperation agreement with Halogen, the company of our primary contact. The primary contact invited us to several meetings and helped us get in contact with other people in the project to collect information. All participants got an information letter and consent form before the interviews. They got information about the research aim and what it meant for them to participate in our research.

There are several ethical considerations that we have reflected around. First is the consent of all participants that are involved in this research. In the cases where we observed workshops and focus groups conducted by the supplier, we have a contract with them about using the data. In these cases, we introduced ourselves, why we were there, and what we will do, and informed about the observation will be anonymized (Bonner & Tolhurst, 2002). When we conducted individual interviews, we informed the participants that the session would be voice-recorded, which may have influenced their answers. However, we found it essential to be able to go back and analyse their answers as accurate as possible. All participants have given their consent to the voice recording and the use of citations in this thesis. The consent form was sent by e-mail to the participants before the interviews. It regulates; how the data will be handled and used, confidentiality and the risk involved in participating (Savin-Baden & Major, 2013, p. 324).

The anonymity of the participants is protected by not disclosing their names in the data collection, analysis, and findings. In cases where there was a high probability for the participants to recognise each other statements. The statement in question has been presented to the individual, asking if we can publish it (Arifin, 2018). The choice to not mark the quotations with names or disclose the identity of the participants was the possibility of recognising the participants. That was a dilemma, but we experienced that the image still, through the analysis, becomes specific and clear. Furthermore, all interviews after the initial group interview have been conducted separately. The voice recordings have not been shared outside the research team consisting of us, the students, and will be deleted when the thesis has been delivered in June 2022.

4 Main findings

In this chapter will present our main findings from the diagnosis phase. The findings are categorised into four main topics presented in Table 5.

Table 5: Main findings and overall description

Main findings	Description
The need for a common understanding of the problem context	A common understanding of the problem context of the client and supplier was necessary to move forward with the project. The problem is complex, and the client needed to be sure that they had a common starting point before moving further. Moreover, there is no common understanding of transformation in relation to the context.
Collaboration between actors	Early collaboration between the public actors, the client-supplier collaboration, the importance of extensive expertise and knowledge, and trust between the actors will be presented
Innovation and the design-driven approach	StimuLab is an initiative that stimulates public innovation. We will present findings on how client involvement affected the design-driven process, the matureness that has happed in the project as they move forward, and the role visualization had in understanding the problem.
The search for new knowledge and perspectives	The gathering of cross-disciplinary perspectives to explore the problem is important to ensure the right problem is being investigated. Moreover, we will present our findings on how the obtention, analysis and sharing of knowledge were conducted within the design-driven framework in order to investigate the problem. We will also present findings on the challenges faced when presenting findings to the client, the result of the process and the problem definition.

In the next sections, the four main topics described in table 5 is broken down into subtopics. In each section a table with selected quotes from interviews will be presented first before we elaborate on each subtopic. Our findings are based on interviews, observations and findings generated by the supplier. In cases where secondary data generated by the supplier is described, references will be provided.

4.1 The need for a common understanding of the problem context

In this section we will present our findings related to the need for a common understanding of the problem context. The findings are related to the problem hypothesis and the need of a common understanding, between the client and supplier, of the problem area that will be explored in the diagnosis phase.

Table 6: Emerging themes for the main finding, The need for a common understanding of the problem context

Emerging Themes	Quotes
The initial need was to modernise services, not to transform how money collection is handled	*'It all started with the need for modernisation of the systems... The size of the estimated work of what we wanted to develop went over the limit of the Ministry of Finance's quality assurance scheme. And we got social goals in our laps... So, this brought transformation to the table.'* – Person 5
The complexity of the problem	'*No one has succeeded with continuous services and interdisciplinary governance'* - Person 5
The need for a common understanding of the problem context between the client and supplier before continuing working in the diagnosis phase	*'...they (the suppliers) came in with their understanding, which we probably did not strongly disagree with, but we did not agree. So that we used the first little diamond, to create common understanding and put them into context because we do not think they could have delivered well without relating to the context.'* – Person 5
	'*The problem description is solid from my point of view. Most of what we wrote has been strengthened throughout the conversations we had*' – Person 4
There is no common agreement on what transformation is	'*No, I do not think we have a common understanding of the term transformation...'* – Person 3
	'*There is a different conceptual language in the different organizations, and not least internally in the organization... So, I do not know where the gap is largest, to be completely honest.'* - Person 5

The initial need was to modernise services, not to transform

The initial need for the program was to modernise the existing solutions for money collection, where seven solutions will become one to meet user expectations and increase efficiency. The size of the estimated cost for the modernisation activities was beyond the limit of the Ministry of Finance's quality assurance scheme. It resulted in incorporating social goals to get the program

approved. Combined with ongoing initiatives within one of the organisations that will be partly outdated before the program is finished, turned everything around for the client. The program has a total cost of 4.5 billion NOK and a seven-year timeline, so the client needs to be sure that the solution is sustainable and relevant. All this considered, transformation was brought to the table.

If this were a program with modernisation activities, the program structure that is already set could be used. Because of the transformational the program structure needs to adapt to facilitates these activities. The quality assurance of the concept selection study states that the concept chosen is immature (Vista Analyse, 2020).

The complexity of the problem

The program, 'Money collection as a part of the user ecosystem' is defined as an ambiguous program aiming to transform the whole ecosystem concerning the collection of money. One of the problems identified by the program and what the StimuLab- project is working on is how the program can succeed with cross-sectorial management and the development of coherent services.

There are especially two focus areas that have been discussed within the project. The first is how to manage transformation, and the second is how to manage a program across sectors, focusing on the ecosystem of money collection. There are multiple actors involved in the program. One of the informants stated that so far, no one has succeeded with continuous services and interdisciplinary governance within the public sector in Norway.

Furthermore, defining the problem and achieving a common understanding of what the problem area is, has been demanding. The program shall transform the whole process of money collection, which is ambitious. Transformation is not concrete, and it is hard to describe. When discussing transformation, it is important that the people involved have the same understanding of transformation. The conceptual language is different both within the organisations and across organisations which makes reaching a common understanding troublesome. One of the informants' states that instead of spending time to completely agree on the problem definition, they should come to an agreement that this is complex, and they need to understand it well enough to move further into the next phase of the StimuLab.

The need for a common understanding of the problem context between the client and supplier before continuing working in the diagnosis phase.

Several suppliers submitted their offers and problem description. The client realized that all suppliers had little knowledge about the problem context. The experienced lack of knowledge regarding the context from the suppliers resulted in an extra diamond within the diagnosis phase. The pre-diamond was created to give room for important discussions about the problem context to ensure the suppliers and the client had a common understanding and agreed on the entry for exploring the problem.

The extra diamond was a time-consuming activity, but all participants agreed that this was necessary to move forward. There are different opinions about the problem description that the suppliers delivered. The Client is clear about the lack of context and that the suppliers would not have been able to deliver on the project without this knowledge. On the other side, the suppliers believe that the project description is solid, and that the issue may be related to a different understanding of the formulation used in the project description. Our findings suggest that communication and how you present the work are important.

There is no common agreement on what transformation is

There have been many discussions about transformation, modernisation, and where the border goes between them in the project. All the informants agree on what modernisation is. They describe it as digitalisation, what the projects they deliver as a part of their daily work today and incremental changes to the product. The suppliers' findings also state that there is a common understanding of what modernisation is among the people they interviewed from the program.

Our findings show that there is not a common understanding when it comes to transformation. The overall description is similar for all participants. They describe transformation as something that changes the organisation, the way they work, processes and services, and radical changes. Nevertheless, when we go in-depth and relate transformation to the context of what transformation means for the program, the ecosystem, users in the centre, and coherent services. There is not a common understanding.

The project has spent a significant amount of time discussing the degree of transformation and where modernisation stop, and transformation begin. The informants have described this as a demanding discussion. One of the informants' states that these discussions do not provide any value to how they can create value around modernisation and transformation. Another informant stated that, in theory, they should have started with the discussion about transformation first. However, based on experience, this would not help because it is through the practical situations that they build their understanding.

The suppliers found that the program's ambition to deliver digital transformation is committed differently within the program and its stakeholders. The suppliers state that one of their findings is that transformation is a vision, while the program is steered towards a more traditional modernisation. The program management is the most ambitious and expresses hope and plans for the vision of transformation. Moreover, the organisations have a somewhat more hesitant attitude and are concerned with specific challenges to be solved. The projects are most uncertain whether they can contribute to transformation and points out that their resources are already tied up. The ministries are dismissive or passive and express that if transformative activities are to occur, it must not be at the expense of other activities, deliveries, and gains already agreed upon.

4.2 Collaboration between the actors

This section presents our findings related to the collaboration between actors. We will present findings related to the collaboration between the public actors, and the client-supplier collaboration. Selected quotes from each topic are presented in Table 7.

Table 7: Emerging themes for the main finding, collaboration between actors

Emerging Themes	Quotes
Cross sectorial collaboration	*'A part of the reason why the diagnosis phase has been good is that they (the suppliers) is competent in the problem area.., and the process and method' – Person 7*
Expertise and professional collaboration between the supplier and client	*'We were looking for complementary competence... And for me, it is one of the most important things that contribute to us getting a better understanding of the problem.' – Person 5*
	'We contribute with different experiences and represent different areas of expertise, and it is important to mention that I think the result has

	been very different if there was just design perspective that we contributed with' – Person 3
	'The professional interaction with the project team is important because we have many blind spots. We are aware that are many things that we do not know, and the clients are one of the most professional development environments in the public sector, and they carry a lot of experience and knowledge. We work closely with the strong professional resources, so to be relevant, we need to understand what they can...' – Person 4
	'What I thought was nice was that one can run the process together to understand the problem. That you really start together on a task and mature in understanding the task and the challenge we are actually going to solve, even though we have a perception that when we enter the project, it is not certain that we see everything alone in the way we have applied to StimuLab on our mindset and to have our own vision enriched. Being challenged on how we look at the problem and what others think about it and come in with new knowledge. I think has been a good part of the process.' – Person 6
Trust between the client and supplier	*'.. In the other StimuLab project I worked with, the client trusted us more than in this StimuLab.' – Person 3*
	'...One of the success factors is that we trust and believe in the process' – Person 5

Cross sectorial collaboration

The client stated that the organisations collaborated from the beginning of the process with the development of concept selection study, and this has been important to get a better understanding of the problem area. The suppliers retrieved multiple findings on cross-sectoral collaboration within the program. The overall finding is that collaboration is central but is not given much attention. The program has defined a relatively traditional collaboration. Just a few people link the possibilities of collaboration to provide innovation beyond what is planned in their organisation. Most of the information points out that there is no equal collaboration, and the Tax Administration has the natural leadership role. This is not necessarily perceived as negative. There are pending expectations of the Tax Administration's role as a change agent for transformation and facilitator for collaboration.

Expertise and professional collaboration between the supplier and client

All participants in the projects are experienced within their field and bring different perspectives and experiences that contribute to the problem framing. The client states that they looked for highly skilled professionals with complementary competence when selecting the suppliers, and this has been one of the most critical factors contributing to getting a better understanding of how the program can manage and develop cross-sectorial coherent services. One of the informants from the supplier team describes the client as one of the most professional development environments in the public sector with a lot of knowledge and experience. The client and supplier complement each other and contribute with domain knowledge covering each other's blind spots.

Trust between the client and supplier

The lack of mutual trust between the client and the suppliers generated much uncertainty. The client stated directly to the suppliers that they had no trust in the supplier after they submitted problem description. Therefore, they had to work to win their trust as
the client did not fully agree with the problem description. The supplier spent around a month gaining the client's trust and working towards a common starting point instead of starting to work on the actual diagnosis. All the iterations, the dialogue, and the close involvement of the client were necessary to move forward. Without this, the project would have stranded. The client states that one of the success factors is that they trust and believe in the design-driven process.

The main findings under this section related to collaboration between actors and how early collaboration helped better understand the problem area. Getting the information onto the table at an early stage will allow making more use of all the participant's experiences within their different fields. In addition, having different experts contributes to more perspectives and helps cover blindspots. However, the suppliers lost the client's trust when they delivered a problem description that the client did not recognise, leading to a month of working towards a common starting point instead of starting to work on the actual diagnosis. After many iterations, dialogue and close involvement of the client, the trust was regained.

4.3 Innovation and the design-driven approach

In this section we present our findings related to innovation and the design-driven approach. We will present findings on the role StimuLab has as a tool for innovation in the public sector, how client involvement affected the design-driven process, the importance of visualisation when discussing complex problems, and how the client and supplier matured on the problem area through the project. Selected quotes for each topic are presented in Table 8.

Table 8: Emerging themes for the main finding, innovation and the design-driven approach

Emerging Themes	Quotes
StimuLab as a tool for innovation in the public sector	*'...I have great faith in these types of projects and incentives such as StimuLab where you can get funds to carry out projects that investigate new areas...' – Person 7* *'...it motivates to address the issue in a different way... I think there have also been many StimuLab projects that have been successful and that have created discussions and put innovation in a way on the agenda, there is probably a lot that can do differently as well, but I think it is a very good contribution to public administration...' – Person 3*
Client involvement and how that affected the design-driven process	*'What I miss is that we could have had control and run a proper process that we believe it should be, then I think we had come to more people who actually co-create with the customer. I feel we discuss and have conversations, but we do not co-create enough' – Person 1* *'I believe that in many ways, we have understood the theory. We realize the approach to design; we realize that we should explore. So, we realize all this - but to do it in practice – oh dear, that's really two different worlds. We wish so much to do it, we wish so much to deliver – and that's where it crashed. We are struggling to really free us enough to be really great on this new way of working.' – Person 5*
Visualisation as a tool for communication and facilitating multidisciplinary discussions	*'It is probably useful to understand that the visualization as a tool to achieving a more multidisciplinary conversation... that is perhaps the most important thing... it is the process of working with visualization together, that allows for a different type of conversation and the experience now is that contribute to the multidisciplinary conversation which is so extremely important for the topic of transformation. There are so many shifts to click into place across very many different subjects.'- Person 1* *'I think that visualization is very valuable for some of these things that have been relevant in the context here have been understood... I experienced that it led to a lot of aha experiences where people*

		might see that the image was even more complicated than what they thought, or we had not been aware of. I think this has played a very big role and has led to the problem being explored in a good way...' – Person 7
Matureness		*'What I thought was nice was that you can run the process together to understand the problem. That you really start together and mature your understanding of the assignment and the challenge we are actually going to solve. Even though we have a perception when we enter the project, it is not certain that we see everything alone, the way we have applied StimuLab to our mindset and enriched our own vision. Being challenged on how we look at the problem and what others think about it and come in with new knowledge, I think has been a good part of the process.' – Person 6*

StimuLab as a tool for innovation in the public sector

All informants agree that StimuLab has a positive impact on innovation in the public sector in Norway. One of the informants' states that StimuLab has somewhat put innovation on the agenda and is a good contribution to public administration. There are no current data on the impact StimuLab has on the organisations after the projects have ended. However, one of the informants stated that StimuLab had contributed to the increased demand for service design and system design in public administration. One of the challenges experienced in StimuLab, in general, is the understanding of innovation. It is described as a big word in which there is a lack of language, experience, and awareness around project development and exploration of problems.

There are findings that the process from the offer stage to the StimuLab and diagnosis stage is not optimal and can be improved. The StimuLab framework gives room for innovation, but at the same time, it is demanding for the suppliers to tailor the framework to fit the program.

Furthermore, both the client and the suppliers state that the transition from the offer phase to the diagnosis phase was painful. The informants believed that one more meeting or some more dialogue in the offer phase could have avoided much noise in the diagnosis phase so the client could provide more feedback and context into the problem area.

The client is very experienced and has much knowledge about the context, but they are not comfortable or used to working in design-driven processes where there is a loose aim on management and a little bit messy. The client states that they understand the theory but find it hard to do it in practice and struggle to free themself enough on this new working method. One of the informants thinks that it would be beneficial to add or formalize a joint training in the method for the clients that have not been in StimuLab projects earlier. The reason is that the design-driven approach is new to the client. The design-driven process is not the same as a regular design process, as many are familiar with. The suppliers believe that if the client got more information about how the design-driven process work, this may remove some of the extra noise, unrest and scepticism that occurred in the diagnosis phase.

Client involvement and how that affected the design-driven process

The client's need for involvement and anchoring has influenced the design-driven process. The suppliers have described the client as one of the most active and involved clients they have worked with during a StimuLab project. The case is highly relevant, and the project's outcome can significantly impact the program if they decide to go further with the solution in phase three of the project. The problem area is complex with many moving parts, and it is stated by the supplier that there are several upsides to their strong involvement, such as they are very clear if there is something they do not agree with and taking initiative. On the other hand, the supplier states that it is demanding that they are connected to a project under such a prestigious program.

The supplier states that the innovation project spans many directions, and they shall somehow follow the management procedures that are already set by the program. In addition, there are many stakeholders at different levels in the public hierarchy, which make communication more difficult as they need to find the right formulations that work in different contexts. Furthermore, it is stated by the suppliers that it is hard to be the one in the middle that tries to gather people when you need to adjust to different settings due to people's positions and interests.

There has not been much room for co-creation in the diagnosis phase, as most of the phase was about anchoring and reassuring the client. One of the informants from the supplier misses that they could be in control and run a proper process as they believe it should be run. There have been many discussions and conversations, but there is not enough co-creation.

Visualisation as a tool for communication and facilitating multidisciplinary discussions

Visualisation has been used to achieve a more multidisciplinary conversation both in communications between the suppliers, with the client project group, and with the people interviewed within the program. The supplier stated that the most important thing with the visualisation is the multidisciplinary conversation that can arise new models. The program has already many models and graphical representations in its existing material. However, working with visualization allows for a different type of conversation, and the supplier's experience is that the contribution to the multidisciplinary conversation is significant for the topic of transformation. There are many shifts to click into place across very many different disciplines.

The suppliers interviewed 17 groups of people connected to the program and used a visual interview guide to facilitate conversations and obtain knowledge. The suppliers believe the visual model had an essential role in the interviews as the topics discussed are difficult to talk about. Furthermore, it is pointed out that it is essential to put the informants into what they have worked with during this project and distance them a bit from what they usually talk about.

We have observed two workshops where the supplier discusses findings after interviewing people from the program. When discussing the findings, they simultaneously adjust information into the visual model as they analyse the obtained knowledge.

When it comes to client communication, the client stated that visualisation is the key to moving forward. In the beginning, the suppliers presented their findings from the interviews in visual models only. When they got more insight into the problem, the visualisation became more complex, leading to misunderstandings and confusion. Therefore, it was necessary to add more text and bullet points in the presentation when they talked with the client. The visualisation is beneficial in conversations as they can point to a specific part of the model and make sure they talk about the same thing. They are trying to put words on something that may not exist, which is demanding. The visualisation is a high-level image, and due to the complexity, it was not enough to just lay a generic process on top. This resulted in the need to go even further down in the problem context and really understand what is inside and what the client understands.

Matureness

The design-driven method practised in StimuLab was new to the client, and suppliers state that their impression is that they had fully imagined the implication of being in a program that is so strict in terms of measurements and control. The methodology used in the StimuLab breaks with traditional program and project methodology as it is more open and flexible with a flat administrative structure. The design-driven methodology in StimuLab was a completely different way of working compared to what the client used too, and it took some time to adjust. The StimuLab should be design-driven, and one of the informants' states that the client is used to working with design, but in a different way than what is in StimuLab.

Both the client and the supplier stated that the client was not comfortable with the process. The design-driven approach focuses on creativity, and for the client, there is a new approach to investigating the problem. In the process, the client is not in control, and all the bits and pieces are fluid as they move within the process. One of the informants stated that one of the success factors to succeed with the StimuLab is that the client accepts another methodology where there is a loose end and not every detail is known.

One of the informants perceived that the client was trying to move toward a traditional investigation phase. They tend to work differently, but the expected outcome of the diagnosis phase is the same type of delivery if conducted in a more traditional investigation. The supplier and the customer do not always go in the same direction when diagnosing the problem. The client has gradually matured on the StimuLab process and became more open to this way of working during the project. The dynamics within the group changed eventually, and the client has been super eager at times and responded as the supplier wanted for the design-driven process.

4.4 The search for new knowledge and perspectives

In this section, we present our findings related to the search the new knowledge and perspectives. We present findings on how knowledge and perspectives were obtained, analysed, and presented to the client. Selected quotes from each theme will be presented in Table 9.

Table 9: Emerging themes for the main finding, the search for new knowledge and perspectives

Emerging Themes	Quotes
Gathering cross disciplinary perspectives to explore the problem	*'I believed it was crucial to ensure access to all informants. If not, they (the suppliers) will be working on something other than our problems. And if we do things that do not stand the light of day, then we also need to be told about it. Because I think we do that, it is okay to bring it to daylight...'* – Person 5
Obtain, analyse and sharing of knowledge	*'...And playing on each other's competence and experience which makes me think that it has lifted both the understanding and the discussions...'* – Person 3
	'... I think we have started a number of thought processes in those we have interviewed. Some of them have said directly that there are things they can take back as well. And maybe we've brought up themes that they may not have thought about very explicitly before...' – Person 4
Challenges with presenting findings to the client's project team	*'It is really difficult that we should not be concrete enough, precise enough and detailed enough. But it has also been very useful. My experience is that this is good for us, and it is through practice we need to learn it'* – Person 5
	'.. what might have been challenging in the presentation of it is allowed to aggregate the findings enough without having to go down exactly who said what, it was perhaps a challenge I was a little unprepared that it would be a matter'..'someone might have been more concerned with on pointing actual errors coming while we have been more concerned that it is what we have heard through others, so we might have a huge source of error even while you know you again in the main findings' – Person 4
The problem definition	*'I believe that we have a common problem understanding in the project group'* – Person 4
	'I do not think there were any new perspectives during the diagnosis phase. What good is that they (the suppliers) communicated the perspectives in a better way than we did' -Person 5

Gathering cross disciplinary perspectives to explore the problem

For the client, it was important with access to many perspectives to ensure that the focus is on the actual problem. The suppliers conducted 17 group interviews distributed over two ministries, two steering groups, the program management and four of the projects within the program. The client stated that they had a strong opinion about the problem area. However, providing access to the suppliers was essential to identify if there were other problems they did not know about. The supplier stated that it is crucial to explore the problem to be sure what the negative consequences are, and when you decide on a solution, it is a decision one is able to stand comfortable by.

Obtain, analyse and sharing of knowledge

The main activities in the diagnosis phase is obtaining, analysing, and sharing knowledge. There are several iterations, and this process is a loop where new knowledge is obtained, analysed, and shared throughout the process. There have been three ways the supplier team has gathered information and knowledge from informants within the program, the client project team and the extended group of suppliers.

As mentioned, the group interviews were not conducted with a traditional interview guide. The client and suppliers collaborated to develop a visual interview guide and main topics, which the suppliers used to obtain information during the interviews. It was decided that the suppliers should be doing the interviews, and the gathered knowledge should be anonymised not to compromise results. According to the suppliers, the informants thought it was easier to talk about the problem with visual support. Moreover, knowledge was obtained from the client project team. They upheld information about the context and constantly brought in new reflections and information during the process.

The obtained knowledge was analysed by the suppliers. By utilising domain knowledge and knowledge about the context, experience, and understanding they identified patterns to structure information from the interviews. One of the informants states that it is difficult to compose one source of knowledge when working on complex problems. You need to compose multiple sources of knowledge and then merge, analyse, and bring them into a co-creating exercise.

No perspective is truer than another because all perspectives are actual experiences and observations that show slightly different things. Should one perspective be favoured over another, it will significantly impact their chosen solution. They try to keep many perspectives relevant during the process because it may be valuable in avoiding the truth, conclusion, or solution until later.

Challenges with presenting findings to the client's project team

The client and suppliers had weekly project meetings during the diagnosis phase where among other things, the findings and the analysis were presented. The suppliers presented the findings at an aggregated level with visual models and storytelling as tools for communication. In the beginning, visual models with storytelling were presented. However, as the models became more complex, it was difficult for the client to follow the reasoning. Therefore, the supplier team combined visualisation with textual findings to make it easier to communicate their findings.

Furthermore, the client wanted to get more details about the findings presented by the suppliers and challenged them on what they had identified and from whom they got the information. The suppliers state that it has been demanding to communicate aggregated knowledge without being able to go into all the details. The suppliers described this as a challenging experience that they were unprepared for. Their experience was that the clients were more concerned about pointing out errors, and the supplier team were focusing the storied told by the informants. The suppliers admit that they can be a source of error, and it may be things that are incorrect. Based on feedback from the clients, they adjusted these errors during the process. At the same time, they did not think that the errors were of any significance to the findings.

The problem definition

We found that there tend to be some degree of disagreement among the clients about whether new perspectives arise during the diagnostic phase or not. Two of the three informants stated that no new perspectives were identified during the diagnosis phase. They stated that they were relieved that the suppliers found the same things they had seen and understood the current situation. They were also impressed with how the suppliers had formulated and presented their findings and believed they presented them better than what they would have done.

Both the client and the supplier believe that they have a common understanding of the problem definition that they can use as a reference point to add value to the next phase. The next phase shall experiment with solutions and testing concepts on a small scale to find the best solution for the opportunities agreed upon in the first diamond. There is still a need to find a common co-creation practice, as there has not been much room for activity in the diagnosis phase.

One of the informants stated it had been challenging that they started to explore the problem area simultaneity with the program's start. On the other hand, it is an advantage that the StimuLab was initiated so early in the program, allowing them to adjust now instead of changing something five years into the program.

5. Discussion

In this chapter we will discuss our main findings in relation to the study's research question:

How are complex problems explored through design-driven innovation in the public sector?

Will discuss the following topics: innovation in the public sector and design-driven innovation, problem context, collaboration between actors, visualisation and the search for knowledge and perspectives.

5.1 Innovation in the public sector and design-driven innovation

In this section, we will discuss our findings on innovation in the public sector and design-driven innovation. Moreover, will discuss the degree of novelty of innovation and how this affects the search strategy. In addition, we discuss how transformation activities affect the program and the impact on program management. We also discuss our overall findings on design-driven innovation in relation to the project and the public sector. At the end of the section, a model with four important key topics related to the research question is presented and used for further discussion (Figure 3).

The initial need for the program 'Collection as part of the user's ecosystem' was to modernise solutions across sectors and bundle seven solutions into one. The modernisation of the systems is a complicated process. However, it can be defined as innovations with a low degree of novelty, as incremental innovations allow organisations to operate more efficiently and deliver greater value to the citizens (O Reilly & Tushman, 2004). The complexity of the problem increased when transformation became a part of the program. If the program succeeds in transforming how the collection of money is handled, this can be defined as a radical innovation with a high degree of novelty that breaks what existed previously (Souto, 2015).

Prior to initiating the StimuLab-project, the client tried to find a solution on how the program could succeed with cross-sectorial management and the development of coherent services. If the project succeeds, a new policy design will be available for the program. The already implemented cross-sectorial program structure is rigged for managing modernisation activities and for collaboration between actors. However, the program is not currently capable of

managing transformational activities. The program needs to be able to manage modernisation and transformation projects. Transformational activities are undefined and require a higher amount of effort of the organisations and the employees. Organisations need to change their operating model to be able to handle transformation (Mergel et al., 2019). Transformational activities need to have another approach to management and exploration of the unknown. The program needs to manage projects in an unstructured environment with room for innovation and testing of new ideas.

Design-thinking and design-driven approaches have gained attention from governments to address complex problems (Lewis et al., 2020). StimuLab is one of the Norwegian government's initiatives to increase innovation in the public sector through design-driven innovation. All informants agree that the design-driven approach to solving complex problems contributes to innovation in the public sector. In general, understanding innovation is challenging for the public actors who participate in the StimuLab initiatives. Often, the participants lack experience with innovation. With traditionally policy models, the problem is often pre-determined by governments or identified by influential decision-makers in the organisation (Howlett, 2014; Torfing, 2019).

In design-driven innovation, time is strategically invested in defining the right problem to solve. The approach to exploring the problems is 'bottom-up', where the end-users are involved in the process and share their knowledge and perspectives. This is aligned with the paradigm 'network governance', where the end-users are involved as co-producers. The program aims at transformational and continuous improvement of their services (Hartley, 2005). The search strategy for radical innovation differs from incremental innovation as you explore new ideas in an unknown environment to find something fundamentally different from what exists (Tidd & Bessant, 2018).

The public actors had no prior experience working within a design-driven framework. The client found it challenging with the loose aim of management and the unstructured approach. They struggled to free themselves and embrace a new way of exploring the problem area. The design-driven approach to explore problems differs from a traditional design process that the clients

have experience with. Leading to extra noise, unrest, and scepticism. The design-driven framework can be perceived as unstructured when used in a more rigid framework. The project had many moving parts at once, and at the same time, the project needed to follow the management procedures already set by the program. The design-driven process breaks with the more traditional program and project methodology as it is more open and flexible with a flat administrative structure.

As a result of the analysis, four key areas have been identified as important when exploring complex problems with design-driven innovation in the public sector; problem context, the collaboration between actors, the search for new knowledge and perspectives and visualisation. Base on this a model has been created, as shown in Figure 3.
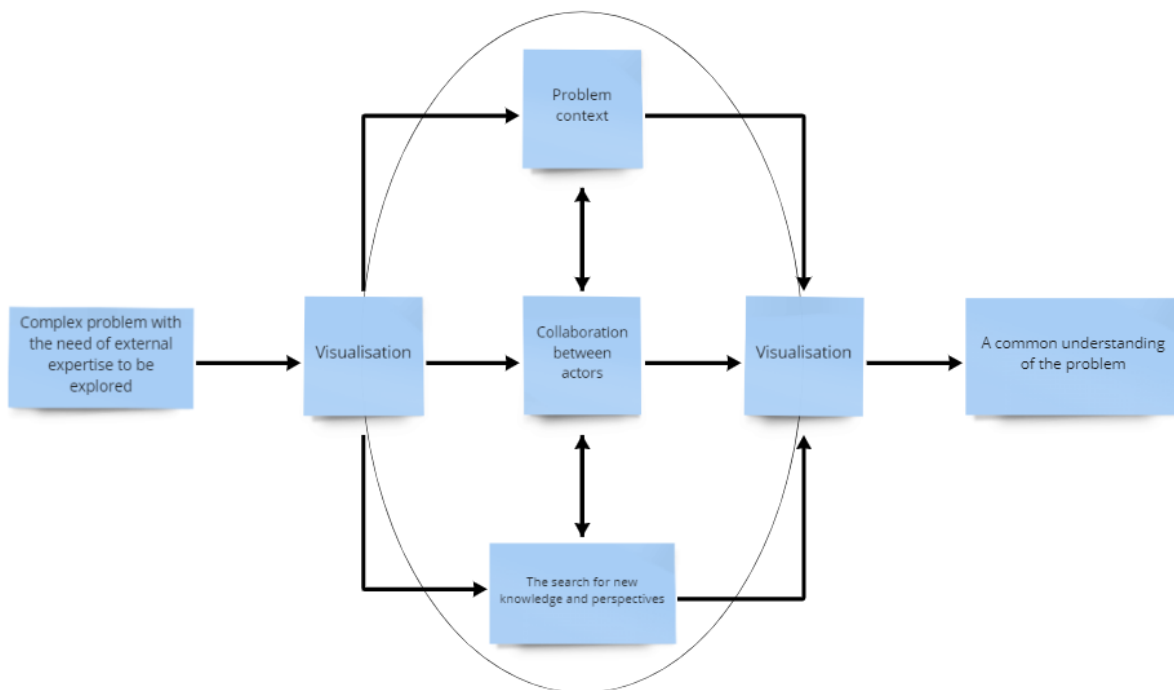

Figure 3: Key areas for exploring complex problems through design-driven innovation in the public sector

5.2 Problem context

Several problems related to transformation and modernisation were discussed throughout the project. A lot of time was spent defining the concepts of modernisation and transformation, and how these can be managed. Secondly, there were multiple discussions on where the line between transformation and modernisation goes and what the ambition of transformational activities implies for the program. All informants share the same understanding of modernisation. Modernisation is more about facts, investigating the problem area, creating a plan and execute on the plan. Transformation, on the other hand, is harder to grasp around. The overall understanding of transformation is the same. When they try to connect transformation to the context of the program and start discussing details, there is no common understanding which has led to many discussions and frustration. As one of the informants pointed out, transformation became relevant due to exceeding the founding for modernisation. There are no gains associated with transformational activities in the program.

The challenges related to transformation do not seem to be caused by cross-sectoral collaboration and diverse backgrounds, as it is a problem within the individual organisations as well. Analysing different project and program documentation, such as the concept selection study and the documentation from the procurement process, can be a source of misunderstanding. Different terms are used for modernisation and transformation. They mix up digitalisation, modernisation, and transformation, which may be confusing.

Understanding the problem context is essential in order to explore the problem area. The client had a strong opinion about what the problem was after conducting initial research. Furthermore, the client was concerned that the supplier had misinterpreted the context after describing their understanding of the problem. The perceived lack of understanding of the problem context was a risk the client was not ready to take before providing access to end-users involved in the program. Therefore, a mutual starting point between client and supplier was necessary. This was a time-consuming process that required multiple interactions. The client spent time giving context to the supplier, so they were sure that the right problem was investigated. At the same time, the suppliers introduced the design-driven approach. The suppliers believed the problem description and understanding was solid, and this was strengthened throughout the conversations

in the diagnosis phase. Based on this, we could assume that the use of different terms and how the problem description written can be a source of the confusion.

5.3 Collaboration between actors

Complementary expertise is important when exploring complex problems. The client contributed with knowledge about the context, while the supplier contributed with a variety of senior expertise in the field of design and the public sector. To explore complex problems through the design-driven process, expertise in design alone is not sufficient. Additional domain knowledge about the public sector is necessary to get an understanding of the problem and be able to analyse the information obtained from the people within the program. The complementary expertise has been paramount for validating and strengthening the participants understanding. Knowledge has been shared, combined, and discussed, both the supplier and client brought valuable perspectives into the discussions. The utilisation of knowledge from external suppliers is defined by OECD and Eurostat (2018) as inward knowledge flows.

The suppliers have broad experience and knowledge in their respective domains. However, the client partly disagreed with the supplier's initial problem description and was clear that they did not have enough knowledge about the context. A result of this was that the client did not trust the suppliers early in the process. The clients were strongly involved in the work, and the suppliers spent much time reassuring and anchoring findings and analysis toward the client. Through extensive communication with the suppliers in the process, the client started to trust the suppliers. The three organisations represented by the client had collaborated before the program started. The deep understanding of the context and the challenges the program faces provided valuable insights into the exploration phase. The client has strong ownership of the problem area. Collaboration is essential in open and design-driven innovation. Collaborative strategies facilitate the exchange of ideas, competencies, and knowledge between actors (Roberts, 2000). However, there was little room for co-creation, which is a central part of the design-driven process, due to the time spent on client communication.

5.4 Visualisation

Visualisation has been a central tool when communicating and discussing complex problems and the overall context. Complexity is challenging to talk about, and transformation is an unfamiliar and abstract term that is hard to describe, especially in relation to the program. Moreover, visualisation has been used as a tool to get a common understanding of the starting point and the problem. Visualisation is a tool for facilitating multidisciplinary conversations. It is the facilitation of these multidisciplinary conversations that is important, not the visualisation itself.

The supplier and client co-create a visual interview guide used in the interviews with the end-users. Visualisation is utilised to assist the informants in talking about the problem area and extracting their knowledge. Leonard and Sensiper (1998) argue that facilitating a creative process to gather knowledge allows one to look away from the obvious answer by approaching the informants by asking different questions. The interviews were not organised with a standard questionnaire. The visual model was used as a tool to facilitate conversations. Several perspectives were gathered to get a better understanding of the actual problem. The feedback from the end-users was that this was new to them, and it was easier to talk about the problem due to the complexity compared to a traditional interview.

Visualisation has been used as a tool for communicating findings and analysis from the interviews to the client. Tschimmel (2012) argues that visualisation in design-driven innovation seeks to make it clearer for all involved parties how to communicate and co-create with involved actors to extract knowledge. The visualisations contribute to the dialogue to secure that all participants talk about the same thing. Combination of visualisation and storytelling works up to a certain point. The complexity of the problem area made it difficult for the client to follow because the visualisation model got more complex during the project. Therefore, visualisation and storytelling were not enough, and it was necessary to add additional textual findings. To help the client to follow the progress and newly obtained perspectives. It is important to facilitate a good experience for those that are involved, and co-creation on visual models contribute to this. Even dough, additional text was needed to ensure understanding, both the client and the supplier stated that the visualisation was crucial to get a better understanding of the findings and progress in the project.

5.5 The search for new knowledge and perspectives

The early involvement of end-users is essential to deliver an innovation that creates value for the users. By involving the users in the problem framing stage of the project, the client can be more confident that they focus on the actual problem when experimenting with different solutions. The project got access to key people in various roles, involved in the program and project. The reason for this was to ensure they had enough information about the problem so they could take an informed decision on the problem areas they need to work on within the next phase of the project. Therefore, it aligns with Torfing's (2019) reflections that the participants in collaborative innovation shall be people with relevant knowledge affected by the problem. The bottom-up approach to gathering cross-disciplinary perspectives early in the process is a time-consuming activity that the framework in design-driven innovation facilitates.

People responsible for the exploration activities need extensive experience and knowledge about the environment and context related to the problem area. It is not enough to have competence in design to explore complex problems. The design-driven process facilitates cross-disciplinary discussions. Our findings show that if the problem area is complex, the end-users find it hard to relate to and talk about the problem area as it is unfamiliar. This makes information gathering very demanding.

The analysis of the obtained knowledge and perspectives was performed simultaneously with the interviews. The interviews generated increased knowledge about the problem area, and the supplier's used knowledge and experience from their domain to structure the information and find logic and correlations between the stories told by the informants. It is important to keep as many perspectives as possible relevant throughout the process so that conclusions are not drawn too early in the process. Furthermore, all perspectives should be treated as relevant as there are actual experiences and perspectives where some are more valid than others. In cases where certain statements or perspectives are favoured, this will greatly impact the chosen solution. Diversity among the end-users is important to retrieve different perspectives related to the problem area.

The client was active throughout the process as they got weekly updates from the suppliers on findings and initial analysis. The client brought valuable knowledge into the discussions that the suppliers incorporated into their analysis. The problem area matured on the involved actors during the process, and the client's involvement was important so they could follow the reasoning and agree on the path forward into the next phase of the project. During the project, the client became more open to the design-driven approach. However, findings show that they try to move wards a traditional investigation phase on several occasions. The client would like details about the findings, but when exploring the problem area, details about the findings are not focus. The findings need to be on an aggregated level in order to see the big picture and corelations between the different perspectives obtained by the end users.

The clients and suppliers believe they have a common problem understanding they can use as a reference point to the activities in the next phase. Spending time to completely agree on a problem definition is not necessary, it is more important to come to an agreement that this is complex, and they need to understand it well enough.

6. Conclusion

In this case study we have examined how complex problems has been explored trough design-driven innovation in the public sector. The project is linked to a highly ambitious program aiming to transform the way money collection is handled. We have linked the design-driven process to findings in the project to give context to the challenges and opportunities the project experiences throughout the diagnosis phase of the project.

In the public sector, design-driven innovation is not a frequently used method to explore complex problems. The public actors find the framework challenging as it differs from their working methods. Furthermore, the loose aim of management and flexible approach collides with the strict structure of the program.

The program is not structured to manage transformational activities. Much time has been spent to discuss modernisation and transformation. There is a common understanding of what modernisation is and how this implicates the management of the program. On the other hand, transformation is unfamiliar and difficult to describe and relate to the program. This applies to all organisations, and it does not seem to be caused by cross-sectoral collaboration and diverse backgrounds, as it is a problem within the individual organisations as well. A lot of time was spent on finding a common starting point and a common understanding of the problem context, before involving participants from the program and retrieve their perspectives. This was a necessary activity to becomme more certain that the right problem was explored.

Complementary expertise has been paramount for validating and strengthening the actors understanding. To explore complex problems through the design-driven process, expertise in design alone, is not sufficient. The suppliers contributed with additional domain knowledge about the public sector which was necessary to get an understanding of the problem and be able to analyse the information obtained from the persons within the program. Visualisation has been a central tool when communicating and discussing complex problems and the overall context. Visualisation has been used to facilitate multidisciplinary conversations and help the participants to talk about complexity. The early involvement of end-users is essential to deliver an innovation that creates value for the users. By involving the users in the problem framing stage of the

project, the client can be more confident that they focus on the actual problem when experimenting with different solutions.

The analysis of the data material resulted in a model with four main topics that are important when exploring complex problems through design-driven innovation in the public sector: Problem context, the collaboration between actors, visualisation, and the search for knowledge and perspectives.

We believe there are some findings that had an impact on the execution of the diagnosis phase. First, the project started simultaneously as the program. Secondly, when working with complex problems it would be beneficial with several interactions in the procurement phase to avoid spending time on alignment and context in the diagnosis phase. Thirdly, it would be beneficial if the actors that have worked within the design-driven framework got training in the method to prepare them for the approach in the diagnosis phase.

Suggestions for further research

We have discovered several topics that need further studies. This study is based on a case study where the aim is to find a solution on how the client can manage cross-sectorial management and the development of coherent services. As there is little existing research on design-driven innovation in the public sector, it had been interesting to conduct further research on the two remaining phases of the project to get a better understanding of the whole design-driven process.

Furthermore, it would be interesting to conduct further research on the implementation and effects of the suggested solution from the project in the program. Moreover, it would be interesting to know if the suggested solution can be applied to other sectors that need to manage cross-sectorial initiatives and develop coherent services.

At last, it would be interesting to conduct research on previous StimuLab projects, the effects and results StimuLab has on the organisation after the projects are finished and measure if StimuLab has an impact on public innovation.

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Appendix

Appendix 1: Interview guides

Appendix 2: Information letter and consent form

Appendix 3: Approval from NSD

Interview guide – Group interview

1. Hva er deres rolle i prosjektet?
2. Hva opplever dere at problemet som skal løses er?
3. Dere har tidligere nevnt at dere måtte gå tilbake å jobbe mer med problembeskrivelsen, hva var årsaken til dette?
4. Er det noe som har utviklet seg etter dere har jobbet i diagnosefasen? På hvilken måte?
5. Opplever dere at dere som leverandører har en omforent problemforståelse?
6. Opplever dere at kunden har en omforent problemforståelse?
7. Hvordan jobber dere med å etablere en felles problemforståelse?
   a. Strategi, metode og verktøy?
8. Er det noe i eller utenfor prosjektet som dere opplever som utfordrende?
9. Hvordan vet dere at prosjektet har oppnådd en felles problemforståelse?
10. Er det noe mer dere ønsker å få sagt, noe vi burde vite om eller dere vil spørre om før vi avslutter?

Interview guide – DOGA

1. Kan du fortelle litt om din bakgrunn og rolle i StimuLab?
2. Vi har forstått at ett av målene til StimuLab er å øke virksomhetens innovasjonskapasitet og kompetanse i stat og kommune. Hvilken effekt ser dere av de virksomhetene som har kjørt StimuLab?
3. Hva er grunnen til at prosjekter som får støtte fra StimuLab, må forplikte seg til å følge en innovativ arbeidsmetode dere kaller "Den Triple Diamanten"? (*https://www.digdir.no/stimulab/stimulabs-metode-den-triple-diamanten/788*)
4. Hva er din forståelse av felles problemforståelse?
5. Hvilke faktorer mener du burde være til stede for å skape felles problemforståelse?
6. Opplever du at de StimuLab prosjektene får en felles problemforståelse etter diagnosefasen?
7. I StimuLaben - Fremtidens Innkreving, var det behov for flere diamanter i diagnosefasen. Kjenner du til dette?
   a. Først en forankringsdiamant hvor det ble sikret at oppdragsgiver og leverandør hadde samme forståelse av oppdraget. Opplever du at dette er et behov i flere StimuLab prosjekter? Hvis ja, kan du utdype?
   b. Det var også et behov for å forankre funn og koble på kunde i større grad før endringsbilaget ferdigstilles. Har dette vært et behov i flere StimuLab prosjekter?
8. Hva tenker du er de største fordelene av å kjøre StimuLab prosjekter?
9. Hva tenker du er de største utfordringene med å kjøre StimuLab prosjekter?
10. Har du noen erfaringer hvor det ikke har blitt enighet i diagnosefasen?
11. Er det noe mer du ønsker å legge til?

Interview guide – Supplier

1. Kan du fortelle litt om din bakgrunn, hvor mange Stimulab prosjekter du har vært involvert i tidligere og rolle i Fremtidens Innkreving?
2. Dere er nå ferdig med diagnosefasen i prosjektet, hva er din opplevelse av prosessen?
    a. Hva er de viktigste funnene dere har gjort i diagnosefasen?
    b. Har dere møtt på noen utfordringer i diagnosefasen? I så fall, hvilke?
    c. Dere har tidligere nevnt at det har vært en modningsprosess gjennom diagnosefasen. Kan du utdype dette?
    d. Antall involverte fra leverandørsiden ble nedskalert i prosjektet. Hva var grunnen til dette? Mener du at dette hadde noen konsekvenser for arbeidet i diagnosefasen?
3. Dere har tidligere nevnt at den faglige samhandlingen er viktig for å forstå problemet. Kan du utdype dette, og hvorfor er det viktig?
4. Visualisering er en stor del av StimuLab prosessen. Hvilken funksjon tenker du at dette har hatt i diagnosefasen?
    a. I hvilken grad mener du at dette er med på å utforske problemet?
    b. I hvilken grad mener du at dette er med på å forankre problemforståelsen?
5. Vi har forstått det slik at diagnosefasen skal resultere i en felles forankret problemforståelse for det videre arbeidet. Hva er din forståelse av felles forankret problemforståelse?
    a. Hvilken funksjon mener du at en felles forankret problemforståelse har i tidligfasen av prosjektet?
    b. Oppfatter du at fremtidens innkreving har en felles forankret problemforståelse for det videre arbeidet?
6. Det har vært mye snakk om transformasjon og modernisering i prosjektet. Hva legger du i disse begrepene?
    a. Opplever du at de involverte i prosjektet har en felles begrepsforståelse?
    b. Oppfatter du at programmet dreier seg om transformasjon, modernisering eller en kombinasjon av disse?
7. Hva mener du er viktig for å lykkes med styring og ledelse av programmet?
    a. Oppfatter du at programmet er rigget for å lykkes med transformasjon?
8. Hvordan opplever du arbeidsmetodikken i StimuLab -prosjektet Fremtidens innkreving?
    a. Mener du at metodikken fungerer? Og hvorfor?
    b. Hva mener du er de viktigste suksessfaktorene for å lykkes med arbeidet i diagnosefasen i Stimulab prosjekter?
    c. Hvor avgjørende er gode relasjoner med kunden for å lykkes i diagnosefasen?
    d. Hva mener du er de største fallgruvene man kan møte i diagnosefasen?
9. Opplever du at arbeidsmetodikken som StimuLab prosjektene jobber etter øker innovasjonsgraden i offentlig sektor? Og hvorfor?
10. Avslutningsvis, er det noe mer du ønsker å tilføye?

Interview guide – Client

1. Kan du fortelle litt om din bakgrunn og rolle i StimuLab-prosjektet? Har du vært involvert i tidligere StimuLab-prosjekter?
2. Dere er nå ferdig med diagnosefasen i prosjektet, hva er din opplevelse av prosessen?
   a. Opplever du at det har kommet frem perspektiver som dere ikke var kjent med tidligere?
   b. Er det noe du synes har vært utfordrende i diagnosefasen?
   c. Hva mener du er de viktigste suksessfaktorene for å lykkes med arbeidet i diagnosefasen?
   d. Hva mener du er de største fallgruvene man kan møte i diagnosefasen?
3. Hvor viktig har involvering og samhandling med leverandørene vært for å få en bedre forståelse for problemet? Hvordan sikrer dere godt faglig samarbeid med leverandørene?
4. Visualisering er en stor del av StimuLab prosessen. Hvilken funksjon tenker du at dette har hatt i diagnosefasen?
   a. I hvilken grad mener du at dette er med på å utforske problemet?
   b. I hvilken grad mener du at dette er med på å forankre problemforståelsen?
5. Vi har forstått det slik at diagnosefasen skal resultere i en felles forankret problemforståelse for det videre arbeidet.
   a. Hvilken funksjon mener du at en felles forankret problemforståelse har i tidligfasen av prosjektet?
   b. Oppfatter du at fremtidens innkreving har en felles forankret problemforståelse for det videre arbeidet?
6. Det har vært mye snakk om transformasjon og modernisering i prosjektet. Hva legger du i disse begrepene?
   a. Opplever du at de involverte i prosjektet har en felles begrepsforståelse?
   b. Oppfatter du at programmet dreier seg om transformasjon, modernisering eller en kombinasjon av disse?
7. Hva mener du er viktig for å lykkes med styring og ledelse av programmet?
   a. Oppfatter du at programmet er rigget for å lykkes med transformasjon?
8. Opplever du at metodikken som praktiseres i StimuLab- prosjektene øker innovasjonsgraden i offentlig sektor?
9. Avslutningsvis, er det noe mer du ønsker å tilføye?

Vil du delta i datainnsamling til masterprosjektet:
Etablering av felles problemforståelse i komplekse innovative prosjekter i offentlig sektor

Dette er et spørsmål til deg om å delta i et forskningsprosjekt hvor formålet er å studere hvordan man etablerer en felles problemforståelse mellom flere aktører i et komplekst innovativt prosjekt i offentlig sektor. I dette skrivet gir vi deg informasjon om målene for prosjektet og hva deltakelse vil innebære for deg.

Formål

Vi ønsker i denne oppgaven å se nærmere på hvordan man etablerer en felles problemforståelse mellom flere aktører i etableringsfasen til et komplekst prosjekt i offentlig sektor, med utgangspunkt i StimuLab-prosjektet "fremtidens innkreving". For dette formålet ønsker vi å studere prosessen og de tema som identifiseres som viktige for å etablere en felles problemforståelse.

Denne masteroppgaven er en del av studiet ITM5000 Innovation and technology management ved Universitetet i Sørøst-Norge og vil gjennomføres i perioden februar 2022 til juni 2022.

Hvem er ansvarlig for forskningsprosjektet?

Universitetet i Sørøst-Norge er ansvarlig for prosjektet, veileder er Jon H Honerud, se kontaktinformasjon under.

Hvorfor får du spørsmål om å delta?

Du er valgt ut som deltaker i denne studien da du har en rolle i arbeidet med «fremtidens innkreving». Vi har valgt å gjøre et strategisk utvalg fra de forskjellige leverandørene som er med i prosjektet, samt utvalgte personer fra oppdragsgiver.

Hva innebærer det for deg å delta?

Det vil gjennomføres tre typer datainnsamlinger. Innledende intervjuer, deltakende observasjoner og forskningsintervjuer.

Ved begge intervjuformer gjelder følgende:

- Avtale tid og sted
- Omfanget kan variere, normalt 45-60 minutter
- Opptak av intervjuet på ekstern frakoblet enhet. Opptaket slettes etter notater er renskrevet.
- Kodenøkkel benyttes for anonymisering og lagres analogt
- Der det er potensial for indirekte gjenkjenning, vil vi kontakte deg for eksplisitt godkjenning og evt sitatsjekk.

Ved deltakende observasjon gjelder følgende:

- Kodenøkkel benyttes for anonymisering og lagres analogt og sikret.
- Opptak av møtet på ekstern, frakoblet enhet. Opptaket slettes etter notater er renskrevet.
- Der det er potensial for indirekte gjenkjenning i sitater eller gjengivelser, vil vi kontakte deg for eksplisitt godkjenning og evt sitatsjekk.

Det er frivillig å delta
Det er frivillig å delta i prosjektet. Hvis du velger å delta, kan du når som helst trekke samtykket tilbake uten å oppgi noen grunn. Alle dine personopplysninger vil da bli slettet. Det vil ikke ha noen negative konsekvenser for deg hvis du ikke vil delta eller senere velger å trekke deg.

Ditt personvern – hvordan vi oppbevarer og bruker dine opplysninger
Vi vil bare bruke opplysningene om deg til formålene vi har fortalt om i dette skrivet. Vi behandler opplysningene konfidensielt og i samsvar med personvernregelverket.

Det er kun de to studentene som vil ha tilgang til personopplysninger. Navnet og kontaktopplysningene dine vil erstattes med en kode som lagres på egen analog navneliste/kodenøkkel adskilt fra øvrige data. Opptak vil lagres på en ekstern diktafon som kun studentene har tilgang til. Veileder vil få tilgang til anonymiserte notater.

Hva skjer med opplysningene dine når vi avslutter forskningsprosjektet?
Opplysningene anonymiseres når prosjektet avsluttes/oppgaven er godkjent, noe som etter planen er 1. juli. Koblingsnøkler og opptak vil bli slettet ved prosjektslutt. Anonymiserte notater som gir teoretisk mulighet for indirekte identifisering vil også slettes ved prosjektslutt.

Hva gir oss rett til å behandle personopplysninger om deg?
Vi behandler opplysninger om deg basert på ditt samtykke.

På oppdrag fra Universitetet i Sørøst-Norge har Personverntjenester vurdert at behandlingen av personopplysninger i dette prosjektet er i samsvar med personvernregelverket.

Dine rettigheter

Så lenge du kan identifiseres i datamaterialet, har du rett til:

- innsyn i hvilke opplysninger vi behandler om deg, og å få utlevert en kopi av opplysningene
- å få rettet opplysninger om deg som er feil eller misvisende
- å få slettet personopplysninger om deg
- å sende klage til Datatilsynet om behandlingen av dine personopplysninger

Hvis du har spørsmål til studien, eller ønsker å vite mer om eller benytte deg av dine rettigheter, ta kontakt med:
- Universitetet i Sørøst-Norge ved førsteamanuensis Jon Hovland Honerud, jho@usn.no
- Håkon Fredriksen, fredriksen.haakon@gmail.com
- Andrea Glimsholt, andrea.renstroem@gmail.com
- Vårt personvernombud: Paal Are Solberg, paal.a.solberg@usn.no, USN Personvernombud

Hvis du har spørsmål knyttet til Personverntjenester sin vurdering av prosjektet, kan du ta kontakt med:
- Personverntjenester på epost (personverntjenester@sikt.no) eller på telefon: 53 21 15 00.

Med vennlig hilsen

Andrea Glimsholt og Håkon Fredriksen

Samtykkeerklæring

Jeg har mottatt og forstått informasjon om prosjektet *Etablering av felles problemforståelse i komplekse innovative prosjekter i offentlig sektor*, og har fått anledning til å stille spørsmål. Jeg samtykker til:

- ☐ å delta i intervju
- ☐ å delta ved observasjon
- ☐ at studentene kan kontakte meg for eventuelt å innhente særlig samtykke til publisering av sitater som kan være indirekte identifiserende

Jeg samtykker til at mine opplysninger behandles frem til prosjektet er avsluttet

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(Signert av prosjektdeltaker, dato)

NSD NORSK SENTER FOR FORSKNINGSDATA

Vurdering

Referansenummer

928009

Prosjekttittel

Felles Innkreving

Behandlingsansvarlig institusjon

Universitetet i Sørøst-Norge / Handelshøyskolen / Institutt for industriell økonomi, strategi og statsvitenskap

Prosjektansvarlig (vitenskapelig ansatt/veileder eller stipendiat)

Jon Hovland Honerud, jho@usn.no, tlf: 93008791

Type prosjekt

Studentprosjekt, masterstudium

Kontaktinformasjon, student

Håkon Fredriksen, fredriksen.haakon@gmail.com, tlf: 92457120

Prosjektperiode

21.01.2022 - 01.07.2022

Vurdering (1)

11.02.2022 – Vurdert

Det er vår vurdering at behandlingen av personopplysninger i prosjektet vil være i samsvar med personvernlovgivningen så fremt den gjennomføres i tråd med det som er dokumentert i meldeskjemaet med vedlegg, og eventuelt i meldingsdialogen mellom innmelder og Personverntjenester. Behandlingen kan starte.

TYPE OPPLYSNINGER OG VARIGHET

Prosjektet vil behandle alminnelige kategorier av personopplysninger frem til den datoen som er oppgitt i meldeskjemaet.

LOVLIG GRUNNLAG
Prosjektet vil innhente samtykke fra de registrerte til behandlingen av personopplysninger. Vår vurdering er at prosjektet legger opp til et samtykke i samsvar med kravene i art. 4 og 7, ved at det er en frivillig, spesifikk, informert og utvetydig bekreftelse som kan dokumenteres, og som den registrerte kan trekke tilbake.

Lovlig grunnlag for behandlingen vil dermed være den registrertes samtykke, jf. personvernforordningen art. 6 nr. 1 bokstav a.

PERSONVERNPRINSIPPER
Personverntjenester vurderer at den planlagte behandlingen av personopplysninger vil følge prinsippene i personvernforordningen om:

lovlighet, rettferdighet og åpenhet (art. 5.1 a), ved at de registrerte får tilfredsstillende informasjon om og samtykker til behandlingen

formålsbegrensning (art. 5.1 b), ved at personopplysninger samles inn for spesifikke, uttrykkelig angitte og berettigede formål, og ikke behandles til nye, uforenlige formål

dataminimering (art. 5.1 c), ved at det kun behandles opplysninger som er adekvate, relevante og nødvendigefor formålet med prosjektet

lagringsbegrensning (art. 5.1 e), ved at personopplysningene ikke lagres lengre enn nødvendig for å oppfylleformålet

DE REGISTRERTES RETTIGHETER
Så lenge de registrerte kan identifiseres i datamaterialet vil de ha følgende rettigheter: innsyn (art. 15), retting (art. 16), sletting (art. 17), begrensning (art. 18), og dataportabilitet (art. 20).

Personverntjenester vurderer at informasjonen om behandlingen som de registrerte vil motta oppfyller lovens krav til form og innhold, jf. art. 12.1 og art. 13.

Vi minner om at hvis en registrert tar kontakt om sine rettigheter, har behandlingsansvarlig institusjon plikt til å svare innen en måned.

FØLG DIN INSTITUSJONS RETNINGSLINJER
Personverntjenester legger til grunn at behandlingen oppfyller kravene i personvernforordningen om riktighet (art. 5.1 d), integritet og konfidensialitet (art. 5.1. f) og sikkerhet (art. 32).

Ved bruk av databehandler (spørreskjemaleverandør, skylagring eller videosamtale) må behandlingen oppfylle kravene til bruk av databehandler, jf. art 28 og 29. Bruk leverandører som din institusjon har avtale med.

For å forsikre dere om at kravene oppfylles, må dere følge interne retningslinjer og/eller rådføre dere med behandlingsansvarlig institusjon.

MELD VESENTLIGE ENDRINGER
Dersom det skjer vesentlige endringer i behandlingen av personopplysninger, kan det være nødvendig å melde dette til oss ved å oppdatere meldeskjemaet. Før du melder inn en endring, oppfordrer vi deg til å lese om hvilke type endringer det er nødvendig å melde:
https://www.nsd.no/personverntjenester/fylle-ut-meldeskjema-forpersonopplysninger/melde-endringer-i-meldeskjema

Du må vente på svar fra oss før endringen gjennomføres.

OPPFØLGING AV PROSJEKTET
Personverntjenester vil følge opp ved planlagt avslutning for å avklare om behandlingen av personopplysningene er avsluttet.

Lykke til med prosjektet!