Stine Sandvold Øien

Defining Back Stage Activities in Large-Scale Participatory Design

A Case Study of Implementing a Healthcare Platform

Master's thesis in Computer Science
Supervisor: Babak A. Farshchian
June 2020

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Abstract

The research conducted in this thesis studies the relationship between large-scale projects and the use of participatory design, and which role back stage activities have in this relationship.

The field of Participatory Design (PD) needs to follow the rapid change in the development of informational systems. The systems being developed today are more complex, with thousands of users and multiple stakeholders. The project handling the development needs to facilitate for user participation if choosing to use a PD approach to design. Large-scale PD projects have lead to an introduction of two concepts: front stage and back stage. Participation in front stage regards design, and participation in back stage is the organizational, political, and messy negotiations needed for a project to move forward. Participation in back stage activities is limited to stakeholders and managers, therefore threatening the users' right to participate in the system being developed. Large-scale PD projects expose a need for defined and understandable back stage activities to make the system's users participants. Another issue is the thousands of users going to participate. This issue has been tried solved by introducing communities with representatives taking the role as users. However, there is need for research on the management of the communities and how it works in large-scale PD projects.

A case study was conducted, looking into the Helseplattformen project as a large-scale project with strong similarities to PD projects. Through interviews, observations, and documents, it was gathered data on planned and conducted activities, flow of information, and the organizational aspects of the project. The aim was to identify and understand what the back stage activities were and how they were, or could have been, used to benefit the project.

The findings from the research show the back stage activities was identified as activities conducted because the main activity needed it. The back stage activities were characterized as belonging to a main activity, often done as a preparation or evaluation for the main activity, and aiming to maximize the profit of the project. The findings also showed little participation in the back stage, exposing the dynamic between participation and need for organizational work, and the size of the project. When the projects' size reaches a certain point, the participation stagnates and the need for organizational work keeps increasing—this being one of the results of several stakeholders and e more complex project structure. By investigating the multiple stakeholders and how they communicated and cooperated when it came to including the users in different activities, it reveled that stakeholders where working in parallel universes, each managing the user communities as they need.

Keywords: participatory design; back stage activity; large-scale project; management by community

Sammendrag

Forskningen utført i denne oppgaven studerer forholdet mellom storeskala prosjekter og bruken av deltakende design, og hvilken rolle 'back stage'-aktiviteter har i dette forholdet.

Feltet Deltakende Design (DD) må følge den raske endringen i utvikling av informasjonssystemer. Systemene som utvikles i dag er mer komplekse, med tusenvis av brukere og flere interessenter. Prosjektet som håndterer utviklingen må tilrettelegge for brukermedvirkning hvis de velger å bruke en DD-tilnærming til design. Storskala DD-prosjekter har ført til en introduksjon av to konsepter: 'front stage' og 'back stage'. Deltakelse i front stage angår design, og deltakelse i back stage er de organisatoriske, politiske og rotete forhandlingene som er nødvendige for at et prosjekt skal komme videre. Deltakelse i aktiviteter på 'back stage' er begrenset til interessenter og ledere, og truer derfor brukernes rett til å delta i systemet som utvikles. Storskala DD-prosjekter eksponerer et behov for definerte og forståelige 'back stage'-aktiviteter for å gjøre systemets brukere til deltakere. En annen sak er de tusenvis av brukere som skal delta. Dette problemet har blitt prøvd løst ved å introdusere samfunn med representanter som tar rollen som brukere. Imidlertid er det behov for forskning på ledelse av samfunnene og hvordan det fungerer i storeskala DD-prosjekter.

Det ble utført en casestudie der man så på Helseplattformen-prosjektet som et storskala prosjekt med tydelig likhet til DD-prosjekter. Gjennom intervjuer, observasjoner og dokumenter ble det samlet inn data om planlagte og gjennomførte aktiviteter, informasjonsflyt og de organisatoriske aspektene ved prosjektet. Målet var å identifisere og forstå hva 'back stage'-aktivitetene var og hvordan de ble brukt eller kunne ha vært brukt for å styrke prosjektet.

Funnene fra forskningen viser at 'back stage'-aktivitetene ble identifisert som aktiviteter som ble utført fordi hovedaktiviteten trengte det. 'Back stage'-aktivitetene ble karakterisert som å tilhøre en hovedaktivitet, ofte gjort som en forberedelse eller evaluering for hovedaktiviteten, og hadde som mål å maksimere gevinsten til prosjektet. Funnene viste også lav deltakelse 'back stage'. Dette eksponerte dynamikken mellom deltakelse og behov for organisatorisk arbeid, og størrelsen på prosjektet. Når prosjektenes størrelse når et bestemt punkt, stagnerer deltakelsen og behovet for organisasjonsarbeid øker. Dette er et resultat av at det er flere interessenter og en mer kompleks prosjektstruktur. Ved å studere interessentene og hvordan de kommuniserte og samarbeidet når det gjaldt å inkludere brukerne i forskjellige aktiviteter, viste det seg at interessentene jobbet i parallelle universer, og hver for seg administrerte samfunnene slik som de trenger de.

Nøkkelord: deltakende design; back stage aktivitet; storskala prosjekt; styring av samfunn

Preface

This paper is a master's thesis written in the spring semester of 2020 as my final delivery of the master's study in Computer Science at the Norwegian University of Science and Technology.

In the fall of 2019, I wrote a literature review on participatory design and large-scale projects introducing me to the back stage of participatory design. During this work, my supervisor, Babak A. Farshchian, suggested conducting a case study on the same object focusing on back stage activity.

The author would like to thank the supervisor of this thesis, Babak A. Farshchian, for his help, guidance, and support throughout the semester. He has been a knowledgeable partner in both conducting the research itself and with his knowledge and interest in the field.

Trondheim, June 3, 2020

Stine Sandvold Øien

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Abbreviations

Rehabilitation Centers	=	Opptreningsinstisusjon
Substance Abuse Treatment Center	=	Rusinstitusjon
Medical Specialist	=	Legespesialist
Community Mental Health Center	=	Distriktspsykiatrisk senter
Ambulance Service	=	Ambulansetjenesten
Hospitals	=	Sykehus (offentlig/privat)
Rural Health Service	=	Distriktsmedisinsk senter
Rural Hospitals	=	Sykestuer / transitenheter
Delivery Room	=	Fødestue
Hospice Care	=	Hospice
Regular General Practitioner (RGP)	=	Fastlegen
After-Hours Care	=	Legevakt
Health Center	=	Helsestasjon
Home-based Services	=	Hjemmebaserte tjenester
Drug Service	=	Rustilbud
Nursing Home	=	Sykehjem
Subject Matter Expert (SME)	=	Fagekspert
Champion	=	Fagkoordinator
Primary healthcare	=	Primærhelsetjenesten
Secondary healthcare	=	Spesialistheletjenesten
Option municipality	=	Opsjonskommune
Health authority	=	Helseforetak

1 Introduction

This chapter serves as a introduction to this master thesis. First section will be describing the purpose of and motivation behind this research. Second section will give an description of the problem, followed by the third section presenting the research questions. The fourth section will list the research's contribution to both the field and case. Finally, the last section describes the structure and content of the master thesis.

1.1 Background and motivation

Participatory Design (PD) has, from the start, been maturing as an area of research and as an evolving practice for user participation. During this process of maturing, PD has been applied both outside and inside of technology design. In this thesis, the focus lies on PD in connection to technology design. PD started as an approach to design where the users of the system being developed got to participate in its design process. From the 1960s and 70s, when the PD movement started, and up till today, there has been a dramatic change in the technology being developed. Today's systems are for bigger user groups, several organizations and stakeholders, and are required to offer a long list of functionalities. The settings that PD is used in have changed considerably since its creation, and although PD has matured and developed to follow this change, there is still some work left. Finding out what is missing to gain the benefits of PD in the development of large-scale systems is the primary motivation for this research — participating in the work of maturing PD to fit the information systems being developed today, to once again get the benefits of including the users in the design process.

The articles written by Bødker et al. (2017) and Bratteteig and Wagner (2016) have been the core articles for PD and back stage activities for this thesis. They introduced the concepts of front stage activities and back stage activities to define the challenges and possible solutions the PD projects have. As the systems being developed, get more complex and change alongside dimensions such as size, distance, and time, the ways of including the users turn. The front stage activities include the users in the work of design as PD was initially meant for. However, with large-scale systems, the need for participation in the political and organizational level with negotiations and analysis has emerged. So how do users take part in the back stage of a large-scale project? This study will be aiming to define some characteristics with back stage activities that benefit both the project and the users. In the work with back stage activities, the need for handling of the large user base presents itself, and the use of communities is seen as a solution. Research conducted by Islind et al. (2019) and Roland et al. (2017) have been the core articles for communities adding to the theoretical framework for this thesis. As users get split into communities and get each representative, the user base gets back to a size possible to handle and include. The study will ask questions about the management of the communities, and if the introduction of communities works against participation in back stage activities.

1.2 Scope

This case study will focus on the Helseplattformen project being conducted in Central Norway, a project consisting of several organizations, stakeholders, a third-party supplier and thousands of users. To concentrate the research and be able to go deep, rather then broad, a scope was set. This case study will focus on the subproject organizational development in Trondheim Kommune. The research will also be a snapshot of the state of the project from mid-January to, and including April.

1.3 Research questions

The purpose of this study is to develop a better understanding of the relationship between Participatory Design (PD) and development of large-scale information systems, and how back stage activities is a part of that relationship. To contribute to this understanding, there was defined two research questions and one sub-question:

RQ 1	What defines back stage activities in participatory design?
RQ 1.2	How do participation take place in back stage activities?
RQ 2	What defines the relationship between participatory design and scaling?

1.4 Contribution

This thesis will contribute to the topics of participatory design, large-scale projects and management by communities. The findings are presented through a case study on a large-scale project with strong similarities to PD projects. The research questions just defined will be answered, and hopefully the result will contribute to knowledge on what a back stage activity is and how it can be used to create a better system then the ones developed without PD.

1.5 Outline of thesis

Chapter 1: Introduction
This chapter is an introduction to the rest of the master thesis. The introduction includes sections concerning background and motivation, the scope of the thesis, research questions, contribution and the thesis outline.

Chapter 2: Background
The second chapter includes all necessary background theory to be able to conduct the case study and discuss the findings. The chapter has three sections: participatory design, back stage activities and managed communities.

Chapter 3: Case Description
This chapter presented the case being in focus for this research. The case description includes all information needed to understand the findings being presented in chapter 5.

Chapter 4: Method
The fourth chapter presents the strategies and methods used during the research. The chapter introduce a conceptual framework presenting all parts going into the research, resulting in a contribution. Following the conceptual framework is choice of research strategy, information about the pre-study, method used for data generation, information regrading the pandemic as it has affected the research, and lastly how the data was analysed.

Chapter 5: Findings
This chapter contains the findings of the case study.

Chapter 6: Discussion
The sixth chapter is the discussion of the findings in chapter 5 and some references done to chapter

2. The conclusion what will be drawn, will come from this chapter. The chapter will also contain a section on the limitations of the research.

Chapter 7: Contribution
The last chapter is the contribution the fields. This chapter will answer the research questions and present the contribution. The chapter will also contain a section on future work.

2 Background

This chapter will present relevant background theory to get a deeper understanding of how Participatory Design (PD) can be altered and used to fit the development of systems with thousands of end-users. The large-scale PD projects introduce some challenges on several dimensions, presented in Figure 1. The change in size of the project, distance between stakeholders, and the time that is needed from start to end of the project. The dimension of size comes with the multiple stakeholders, often several layers of hierarchy and a huge growth in end-users. The need for participation in the messy back stage of a project get more important the bigger size. The dimension of distance is looking at the growing distance between stakeholders when the project itself grows. If a large-scale project consist of several layers of hierarchy will there be some layers that often communicate, and some that maybe never communicate directly. The last dimension is the time. A larger project will take more time than the smaller once for many of the same reasons mentioned in explanation of the two other dimensions: number of end-users and stakeholders, several layers of hierarchy or a more complex multi-organizational chart. This chapter will look at existing research on PD and the three dimensions. The first section will be on PD in general and the dimension of time. Trying to create a better understanding of what PD is, how it is done and its issues. The second section will focus on of these issues, the lack of participation in back stage activities related to the dimension of size. Lastly, the dimension of distance will be in focus by looking at existing research on communities and management of them.

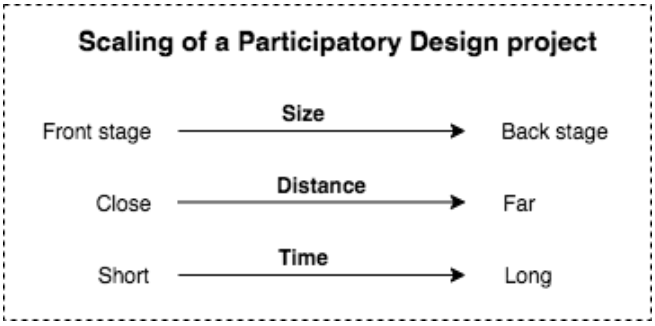

Figure 1: Conceptual framework of the dimensions of scaling in PD.

2.1 Participatory Design

Participatory Design (PD) traces back to the social, political, and civil rights movements in the 1960s and 70s. People in many Western societies demanded to be a part of the decision-making of different aspects of their lives. They were prepared to participate in collective action around shared interests and values. These demands gave Western societies the power to influence their lives. At the same time did some designers and design researchers start to investigate how this might relate to their practices, which made PD of information technology pioneer in Scandinavia as a part of the workplace democracy movement as a response to the transformation of workplaces driven by the introduction of computers. The aim was to provide people with better tools for doing their job, eventually enabling them to extend their skills while automating the tedious and repetitive parts of work. (Robertson and Simonsen, 2012)

Today, PD is an approach to design where stakeholders are involved in the development of the information technology they will be using in the future. Saad-Sulonen et al. (2018) defines the main purpose of PD to be exactly that, "to bring people who may be affected by the introduction of new technologies and systems together with researchers and designers to ensure their views, wants and concerns are accounted for in technology design". The thought is that by involving the users of the system in the process of developing it, the result would be close to what the users want and understand (Kensing and Blomberg, 1998). Robertson and Simonsen (2012) defines it as

> a process of investigating, understanding, reflecting upon, establishing, developing, and supporting mutual learning between multiple participants in collective 'reflection-in-action'. The participants typically undertake the two principal roles of users and designers where the designers strive to learn the realities of the users' situation while the users strive to articulate their desired aims and learn appropriate technological means to obtain them.

Emphasizing that

> at the heart of this [PD] tradition is an unshakable commirment to ensuring that those who will use information technologies play a critical role in their design. As such, the Participatory Design tradition is defined by a perspective that always looks forward to the shaping of future situations.

Here, Robertson and Simonsen (2012) are using Schön (1983) type of reflective practice 'reflection-in-action'. 'Reflection-in-action' being a process engaged in by an experienced and reflective design-practitioner, giving the end-users the possibility to effect what will influence their future life. "Perhaps the core principle of Participatory Design is that people have a basic right to make decisions about how they do their work and indeed any other activities where they might use technology" (Robertson and Wagner, 2012). Simonsen and Hertzum (2012) defines the role PD could play in this creation of possibilities:

> There is no doubt that PD has a lot to offer, for example with regard to the clarification of goals, formulation of needs, design of coherent visions for change, combining busines-soriented and socially sensitive approaches, initiating participation and partnerships with different stakeholders, using ethnographic analyses as part of the design process, establishing mutual learning processes with users from the work domains in question, conducting iterative experiments aiming at organizational change, managing stepwise implementation based on comprehensive evaluations, and providing a large toolbox of different practical techniques. PD is characterized by the aim of establishing mutual learning situations between users and designers.

All these definitions and explanations of what PD is and what it has to offer, emphasizes that PD is an approach to design where design should be a process and that users participate in every aspect of that process. Focusing on the whole process, PD should not get mixed with user-centered design, co-design, or such. This very problem get commented on by Bannon et al. (2018), saying that

> the label "participatory design" seems to have become synonymous with a more banal form of "user-centered" design, concentrating on local issues of usability and user satisfaction. This is a far cry from earlier work in the field, where Participatory Design not only sought to incorporate users in design, but also to intervene upon situations of conflict through developing more democratic processes.

Letting users participate in issues of usability, design of interface, and user satisfaction, will not make users a critical part of the process of design or, if dared said, a participant of the technological result at all. Going even further, Bødker et al. (2017) concludes in their article *Tying Knots: Participatory Infrastructuring at Work* that PD introduces activities and processes in which participants are not only engaged in designing technology, but in creating the structures, networks, and agreements that are crucial to create sustainable outcomes. Introducing the core and reason of back stage activities which is the focus of this thesis, and will be introduced further in section 2.2 Back stage activities.

One aspect of the dimension of distance in Figure 1 is mutual learning. Both Robertson and Simonsen (2012), Simonsen and Hertzum (2012), and other researchers (Kensing and Blomberg (1998); Bødker et al. (2017)), mention that the participants are separated into designers and users, and introduce the term 'mutual learning' as an important concept in PD. "Mutual learning is a way of finding common ground among participating designers and users" (Bødker et al., 2017). If the project is big enough the designers might never achieve mutual learning with the end-users, but rather with managers at the lower levels, representatives or such. Bratteteig and Wagner (2016) says that

> Participatory designers want to learn about users' problem definitions and ideas for solutions through the things they make; as part of 'mutual learning', which is seen as central to PD. The result depends on both the user to articulate their desired aims, but also the designers to understand what the users are communicating to them.

The tools and techniques PD offers, as informal as concepts readily accessible to users, promote a practice where researchers and designers can learn about users' work, where both technology and work organizations are in focus, and where users can take an active part in technology design (Kensing and Blomberg, 1998). Kensing and Blomberg (1998) also presents the use of interviews and questionnaires as a way of gaining a view of relations between technology and work across organizations, making it possible to gain insight into unarticulated aspects of the work and to develop shared views on the work. Brandt et al. (2012), in their research on tools and techniques, shares that a PD practice entails tools and techniques that combine telling, making, and enacting, and presents Figure 2. The figure shows that tools and techniques do not operate in isolation, but rather must form a coherent PD practice (Brandt et al., 2012) to remember and use the insights gained throughout the process. Telling activities are activities that help all participants to communicate and understand each other despite their different knowledge domains; This could be tools making it easier for a worker to tell what and how certain things could be done. Brandt et al. (2012) lists activities such as participatory prototyping, probes, and generative tools, when explaining making. Here, the participants are meant to make sense of the future or make something to easier see the future. When it comes to enacting, it is referred to activities where one or more people act out possible futures by trying things out in settings that are where future activities are likely to take place (Brandt et al., 2012). The activities within make, tell and enact facilitate for mutual learning, and make it easier for designers, researchers and users to understand each other.

As the definitions of PD says, the main focus is to make the end-users of the system a participant in the design process of developing it by use of different methods. Bratteteig et al. (2012) defines a PD method by using a definition provided by Andersen et al. (1990), who argues that a coherent method should include elements such as: *application area, perspective, and guidelines*. Bratteteig et al. (2012) follows up the definition with explanations of what each element is in the perspective of PD. *Application area* is what type of development activities the method is intended for, as the design of different systems may require different methods. As for this case, the *application area* is software development for the public healthcare service in Central Norway. The *perspective* in the view of PD is often how you look at design and information technology, especially in favor of user participation. The last element is the *guidelines*, which are recommendations for how to carry out the design process and also of highest interest in this case. "For Participatory Design methods this typically includes which type of users (and stakeholders in general) to include; how to involve users in core activities; how to resolve conflicting views on the functionality and/or form of the products" (Bratteteig et al., 2012). Andersen et al. (1990) separates *guidelines* in three: *techniques, tools and principles for organisation.*

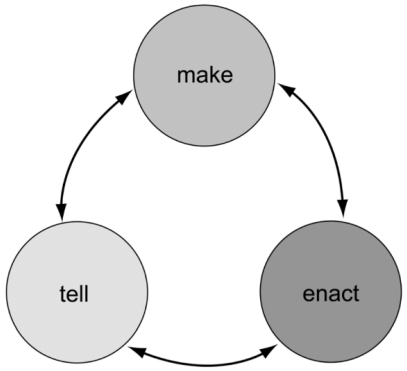

Figure 2: The tell-make-enact diagram (Brandt et al., 2012)

> The *techniques* typically explain how to go about carrying out specific activities, while the *tools* are concrete instruments supporting the techniques. [...] The third type of guideline is *principles for organisation*: how to distribute and coordinate work tasks in the design process, how to organise the planned set of interrelated activities, and who to involve in the design.

2.1.1 The concept of time

This section introduces the concept of time and looks at the dimension of it in scaling of PD projects. While defining PD, a relationship to time gets developed. Saad-Sulonen et al. (2018) surveyed literature disclosing PD identifying two main temporaries that were deeply entrenched in PD: the future-oriented temporality, and the project-based temporality. The future-oriented temporality looks forward to the shaping of future situations' together with the future users of the designed technology like defined by Robertson and Simonsen (2012). This orientation of PD also defines two principal roles; users and designers, which collaborate to design and re-design the future based on the knowledge they have about the present (Saad-Sulonen et al., 2018). This will not be the focus of this thesis as the case in focus has more of an project-oriented temporality. However, the future-oriented temporality was more in focus in the pre-study Øien (2019). The project-oriented temporality looks at the strong relationship between time and phases: before, during, and after the design project. Looking at the time before the project (pre-project) as a time with no to little participation, ignoring how participants may have interfered with the shaping of conditions and questions being discussed in this phase (Saad-Sulonen et al., 2018). During the project (project time) is more often discussed in PD, as it is the time where the most common PD activities such as workshops, prototyping, and performance, take place (Saad-Sulonen et al., 2018). But even here, the focus is often limited to a single activity, and not on what happens between activities. And lastly, the phase after the project (post-project time). This phase often get forgot or left out in PD-projects as it is thought that the project is over when the system is implemented and in use. However, there have been researchers looking into this phase the last years, two of them focusing on sustainability (Iversen and Dindler, 2014) and outcome (Bratteteig and Wagner, 2016). With large-scale projects, the time of each phase will be longer as there is need for more work done in each phase.

2.1.2 Arenas for participation

Gaertner and Wagner (1996) analyse, based on two case-studies in Germany and Austria, the political and cultural regimes into which design and participation are embedded. They distinguished three arenas [1] for participation:

- **Arena A:** Designing Systems - A specific system are designed, and new organizational forms are created (Gaertner and Wagner, 1996)
- **Arena B:** Designing Organisational Frameworks for Action - Where "'breakdowns' or violations of agreements are diagnosed, and hitherto stable patterns of organizational functioning questioned and redesigned" (Gaertner and Wagner, 1996)
- **Arena C:** Designing the Industrial Relations Context - Where the "general legal and political framework is negotiated which defines the relations between the various industrial partners and sets norms for a whole range of work-related issues" (Gaertner and Wagner, 1996)

They argue that to distinguish between those three arenas might help discuss participation. Gaertner and Wagner (1996) says that "stimulating projects in arena A often do not cross the line to arena B, thereby limiting their influence within an organisation". The separation between the individual system in arena A and the national system in arena C, view the same discussion that is going on in the PD field concerning front stage and back stage. The arenas seems to be a part of the dimension of size

[1] "An arena denotes a location - the geographical and cultural terrain actors occupy, use and shape. It refers simultaneously to the physically distributed locus of an actors' or community's actions and to what these actors do in it, what it is a space for, at which times it is available and used, and how it is furnished. An arena may not be homogeneous. It may contain a variety of zones that are separated by visible and invisible closures; like a private house which serves as a locale for a large array of social interactions; but the various rooms are zoned for different uses at different times" (Gaertner and Wagner, 1996)

seen in Figure 1. The front stage representing arena A, back stage representing arena C, and arena B in between. Kensing and Blomberg (1998) comments that

> concerns have been voiced that too few PD projects are engaged at the organizational or company level (Arena B) and that the PD community may have lost sight of the importance of participating at the national legal and political level (Arena C)

referring to research done by Gaertner and Wagner (1996), Bjerknes and Bratteteig (1995), Beck (1995) and Greenbaum (1995).

2.2 Back stage activities

This section will focus on the scaling in size of PD projects. As seen in Figure 1, are the dimension of size illustrating the growing need to go from front stage to back stage when scaling PD projects. There is still important to conduct front stage activities, but the need for back stage activities get more notable. There is not a lot of research done on back stage and back stage activities as experienced in the pre-study to this case study (see section 4.3 Pre-study), so this case study aims to fill this void and see if their is possible to define what a back stage activity is or some characteristics. To do this the work of gathering relevant existing research will focus on the issues with PD and the criticism of it, and how this can be solved by integrating the users earlier in the project and in the back stage of it. To start this work it could be useful of a clear separation of what back stage and front stage is Figure 3 shows the most important characteristics for each of them based on knowledge from the pre-study. From experience, from writing the pre-study and this case study, there is a fine line separating them apart despite their huge differences seen when presented side by side. Trying to remember the differences seen in Figure 3 would hopefully make it easier to keep the focus on the back stage of PD. Starting of the section with a review of research touching the back stage of PD, and ending the section

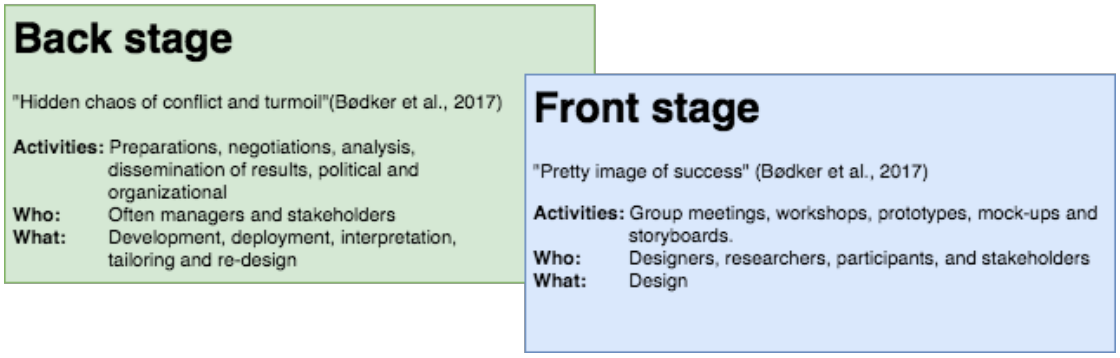

Figure 3: Differences between front stage and back stage.

with a collection of different aspects of PD and how this could take part in back stage activities.

Kensing and Blomberg (1998) shares in their article *Participatory Design: Issues and Concerns* that "PD researchers explore conditions for user participation in the design and introduction of computer-based systems at work", and describe three main issues dealt with by PD researcher: The politics of design; the nature of participation; and the methods, tools, and techniques used in PD (Kensing and Blomberg, 1998). As understood from Kensing and Blomberg (1998) does researcher not only conduct activities for users to participate in, but also the conditions for the user participation. These conditions seems to have changed with time, size and internal distances in the projects. According the literature discussed so far in this chapter, does PD have some issues when it comes to the messy, uncertain, and complex aspect of PD and development. In PD, the goal is to let the users participate through what this paper will call activities, which is a collection of all methods, tools, techniques,

decisions, and such. Bødker et al. (2017) did in their research separate activities in two: front stage and back stage. "The front stage is the pretty image of success, whereas the back stage is the often hidden chaos of conflict and turmoil" (Bødker et al., 2017). Front stage activities being the well-known activities such as group meetings, workshops, prototypes, mock-ups, storyboard and alike, where designers, researchers, participants, and stakeholders come together to work on the object of design (Bødker et al., 2017; Iversen and Dindler, 2014), and back stage activities being the activities that unfold between the front stage activities (Bødker et al., 2017), dissemination of results, and political engagement (Iversen and Dindler, 2014). Bødker et al. (2017) defines the back stage of PD as the "preparations, negotiations, and political work that fundamentally shapes the set-up and outcomes of the entire process" and specify that it "orients us to the activities and the processes that tie together particular design activities, such as workshops and meetings". Bødker et al. (2017) possibly being the first researchers to use and define back stage in PD in-depth, do refer to Star (2002) saying: "In some instances, this means going back stage, in Erving Goffman's terms, and recovering the mess obscured by the boring sameness of the information represented. It is often in such back stage work that important requirements are discovered", here Star (2002) mentioning Goffman (1959) idea of front stage and back stage in sociology. Kensing and Blomberg (1998) looked at *how* and *why* workers participated in participatory design projects, and found it to be two highly opposite reasons - which could be seen as an early discovery of back stage and front stage in PD:

> At one end of the spectrum, worker participation is limited to providing designers with access to workers' skills and experiences. The workers have little or no control over the design process or its outcome. Here projects are initiated at the behest of managers or design professionals. Workers are asked to participate in those aspects of the project where their input is viewed as valuable (e.g. description of current work practices and testing/evaluation of technology) but left out of most technology-related decisions. [...] At the other end of the spectrum workers participate, not only because their skills and experience are considered valuable, but also because their interests in the design outcome are acknowledged and supported. Worker participation is considered central to the value and therefore the success of the project. Here workers participate in negotiations over how projects are organized and what outcomes are desired. They take an active part in (1) the analysis of needs and possibilities, (2) the evaluation and selection of technology components, (3) the design and prototyping of new technologies, and (4) the organizational implementation.

The latter end of the spectrum matches the definitions of back stage activities, making it possible to put this in the PD toolbox for the messy and chaotic methods, tools, and techniques. In the work of trying to define and characterize back stage activities, the four parts presented by Kensing and Blomberg (1998) will be the base going forward. Through all these parts, there will be drawn parallels to Bratteteig and Wagner (2016) view on design as "creating choices, selecting among them, concertizing choices and evaluation the choices" (Bratteteig and Wagner, 2016). In the lack of existing definition and characteristics of back stage activities, the parts will try to look at challenges and issues and what a back stage activity can do to solve of ease this issue. The activity does not yet exist, but the need for it is present.

2.2.1 Analysis of needs and possibilities

Needs and possibilities are part of the foundation when it comes to new systems. What do we need? Which needs do we have to meet in order to succeed? What are the possibilities? This could be as early as choosing a supplier, how much money should go in, what should be written in a contract or if the system should be an app or website. To analyse needs and possibilities, they need to exist, and this is were Bratteteig and Wagner (2016) comments on the importance of participation in creating choices. Bratteteig and Wagner (2016) seeks to demonstrate in their case study that users do not have to participate in *all* aspects of a design project for it to have a participatory result, but that a

participatory design result is not possible without users having contributed to creating choices. The ones that do the work today, before the new system is implemented, are the people that know most about how it gets done (Robertson and Wagner, 2012). This is also why they should get to participate in making the choices as well as taking them. Robertson and Wagner (2012) asks, "does a design method, tool or process include participants' evaluations not just of what is being designed but of the design process itself, including the opportunities for and process of participation?". Looking back at the first generation of PD, we remember that the main goal was to give power to the workers. The primary assumption was that if workers built up knowledge of the relation between technology and work, formulated their goals, and developed strategies for giving voice to their interest, the workers would get control over their working conditions (Kensing and Blomberg, 1998). Is this not what we once again are trying to achieve? Bratteteig and Wagner (2016) introduces decision-making as a framework of interest when it comes to creating choices, commenting on the interdependencies between decisions, and how a decision can frame the whole design process, including other decisions. This meaning that decisions taken early on in the design process could have a much more significant effect then what may be visible at first sight (Bratteteig and Wagner, 2016). Having that in mind, including participants in the decision-making from the very beginning of the design process, maybe more critical than first thought. There is a need for a back stage activity that make users participants in the creation of choices by analysing needs and possibilities.

2.2.2 Evaluation and selection of technology components

When it comes to users taking an active part in the evaluation and selection of technology components, it's unavoidable not to talk about 'mutual learning'. Bratteteig et al. (2012) share that "the notion of 'mutual learning' is grounded in the fact that users know most about the activities into which the system will be embedded (they constitute the 'domain' experts)", and follows up with that "mutual learning implies that designers learn about the use context from the users, but also that the users learn about the technical possibilities from the designers: the mutuality here makes Participatory Design different from other design methods". As mentioned earlier in this chapter, is 'mutual learning' seen as one of the most crucial concepts in PD, and it's important to remember the 'mutual' part of it to ensure the best result. Users can not take an active part in the evaluation and selection of technology components if they do not understand the technology, its possibilities, limitations, and complexity. "Hence the users find themselves responsible for design of a technical solution that will change people's work conditions. Having power implies having responsibility. The sharing of power to make decisions in design presupposes mutual trust and respect" (Bratteteig et al., 2012). The power Bratteteig et al. (2012) talks about can not be given to users that do not understand the technology, hence the importance of 'mutual' in 'mutual learning'. Bratteteig and Wagner (2016) looks at how the selection of choices were done in four different cases and comments that "we also see that diverging perspectives between participants were handled in different and not necessarily inclusive ways". This was for different reasons in each of the different cases, but as an example did one of the cases show that the technical decisions as to how to implement the vision were taken by the designer team and the possibilities for non-engineers to participate on these decisions were somewhat limited (Bratteteig and Wagner, 2016). Activities to gain mutual understand of each other is possible through front stage activities, such as the once Beck (1995) define with the help of telling, making and enacting. But that is only making the users fit to select, and not including them in evaluation of them. Before users gets presented with choices, there have been preparations in forms of creating and evaluating the choices. The users view on a technological component can challenge the stakeholders to think differently. Some kind of brain-storming activity could be a start when it comes to trying to define a back stage activity covering this part.

2.2.3 Design and prototyping of new technologies

Design and prototyping of new technologies could be looked at as a way of concretizing the technology components chosen. Blomberg and Karasti (2012), in their research on ethnography and PD, they share that "in most of the early Participatory Design projects, designers relied on users as the ultimate experts of the work context who provided knowledge of relevant workplace skills, experiences and interests to the design processes". Here, once again, the fear of PD becoming synonymous with user-centered design, usability, and user satisfaction and such as Bannon et al. (2018) comments on, rises.

> While users may contribute substantially to opening up choices for design through various techniques of collaboratively imagining potential futures, the (technical) implementation of design ideas may be much more difficult for users to contribute to. While users may not be able to engage in the technical development itself, PD encourages forms of expression and concretization that are easier to master, such as building mock-ups and enacting scenarios of use. (Bratteteig and Wagner, 2016)

Here going for the enact and tell part of Figure 2, which helps participants without a background in technology to communicate what they want, wish for or dream of. However, Bratteteig and Wagner (2016) also discover in the four cases "that users can contribute in their own language of sketches and drawings, as well as with their own experience with computational artifacts. But participation can also be limited to having users select surface features in an already decided-on design". This is important to remember in the work with design and prototyping using PD. They should be a part of the process that goes in to the first rounds of design, not get invited to join the last of it an hope that goes for participation. Users, even if mutual learning is achieved, could challenge the way designers or stakeholders are thinking. The users needs to be included in the meetings or activities that most likely already exist.

2.2.4 Organizational implementation

The last part Kensing and Blomberg (1998) listed as important for users to be an active part of, is organizational implementation. Pilemalm and Timpka (2008) presents a problem laying on the users, not designers, when it comes to the more organizational work:

> Additional identified problems included obstacles in gaining access to and motivating users to participate, and in the collaborative process itself where studies have shown that full-user participation when it comes to, e.g., project initiation and information flow analysis, is neither effective nor appreciated by the users. They tend to want to leave these issues to the expertise and focus on information needs.

Bratteteig and Wagner (2016) states that "Participatory Design (PD) is an approach to the design of IT where the designers invite future users to participate in all phases of the design process", talking about participation as power to influence and decision-making. By inviting future users to participate in all phases of the design, the end product will be formed to fit its users - making the users critical parts of the result. The process will provide knowledge that will improve the design, ease the introduction of the new information technology and influence future working conditions/changes that will affect them (Bratteteig and Wagner, 2016). So, Kensing and Blomberg (1998), Pilemalm and Timpka (2008) and Bratteteig and Wagner (2016) agree on the part of including users in the whole design process, but Pilemalm and Timpka (2008) does present an important challenge when it comes to the motivation of the users. Do they want to participate in the messy, complex, and organizational process of the development? And if not, what is the gain of having users participate in a process they do not want to participate in? Bannon et al. (2018) comments that

> Today's Information Technology domains are more heterogeneous and less defined. In many of these new contexts, it is difficult to bring socio-technical conflicts into the open,

> whereby stakeholders are empowered to participate. As a result, power and agency seem to have gravitated away from end-users and other stakeholders toward larger institutional players—large corporations, government and multinational agencies.

If no end-users are motivated to participate, the role of the participant has to go to the next possible and motivated role. In Bannon et al. (2018) case, stakeholders higher in the hierarchy. Bratteteig and Wagner (2016) comments that PD "focuses mostly on those aspects of design work that involve collaboration with users, emphasizing how to collaborate across professions and disciplines in terms of methods and techniques", despite PD's interest of understanding how to practice participation in the whole design process. If this is the case, is not PD a synonym for user-centered design? Bødker et al. (2017), in their research on participatory infrastructuring [2], presents that invisible or less participative work on the different levels of hierarchy such as surveys, meetings, phone calls, or delivering keynote speeches, may be important back stage work. This work could be seen as the organizational work and therefore are often places on the people having higher roles in the organization.

2.3 Managed Communities

This section will take a look at the dimension of distance, see Figure 1, in scaling of a PD project. The distance between the stakeholders, and the distance between stakeholders and users, have a scaling from close to far. There are several different ways of including the users in the design process, and it's several different parts of a PD project the users can participate in. Research done on the back stage of PD shows that there is more to participation than just user interfaces and functionalities. Especially in the development of large-scale information systems such as a new EPR system (Electronic Patient Record system which is the focus of this case study), the inclusion of users in every step of the design process is vital. "Large-scale information system design also raises the issue of who should participate in such projects. These systems touch many people throughout an organisation who have different relations to the system" (Blomberg and Karasti, 2012). Simonsen and Hertzum (2012) comments on the same issue:

> Large-scale information-systems projects are characterized by involving a number of different actors spanning different organizations and different organizational levels. Thus, a second major challenge is to manage and align the motivations and interests of this multitude of stakeholders. Traditionally, the focus of PD projects is restricted to the relation between designer and end-users.

From the first generation of PD, it is known that PD was the solution to a political disagreement between managers and workers within a single workplace (Simonsen and Hertzum, 2012). The users were in these cases, limited to the workplace and was because of that homogeneous user groups. "Meanwhile, contemporary organizations, in general, as well as health service organizations, move away from traditional codetermination, displaying heterogeneity, multiple hierarchic levels, and horizontal interest groups" (Pilemalm and Timpka, 2008). In trying to understand how users participate in large-scale information system projects that use PD, one of the four classifications of PD developed by Roland et al. (2017), *Community PD*, shared some interesting finds. By reviewing literature and the use of Kensing and Blomberg (1998) three main aspects listed at the start of section 2.2 Back stage activities, Roland et al. (2017) find key characteristics with community PD:

- **Politics of design:** "The broader community negotiates generic features. Local adaptations meet specific needs without involvement from the core development team" (Roland et al., 2017)
- **Nature of participation:** "Power users and domain experts represent end users in meetings and workshops. The focus is on appropriation of the existing software access diverse uses and settings. Core developers make final generic product decisions" (Roland et al., 2017)

[2] Participatory infrastructure, were the topic of the research done as a pre-study to this master thesis. To read more, see Øien (2019).

- **Methods, tools and techniques:** "Documented case studies and best practices concerning software appropriation circulate through workshops, newsletters and online resources. Inter-contextual workshops, online forums and social media facilitate feedback from user representatives and the wider community of users" (Roland et al., 2017)

They present the nature of participation to be through power users and domain experts taking the role as representatives for communities of thousands of users. This being a possible solution to the issue just described by Blomberg and Karasti (2012), having representatives from each of the communities with differing relations to the system to participate on behalf of its community. DeSalvo et al. (2012), while thinking broadly about the meaning of community, consider community in three ways: in relation to geography, in relation to identity, and in relation to interests and practice. Islind et al. (2019) defines communities as groups having a specific background and common way of communication, and separates the communities by boundaries such as organizational, social, and/or cultural distance. As to finding a way to make thousands of users participate in the design process, communities are making that possible. But, Islind et al. (2019) does present the importance of crossing these communities to get a deeper understanding of the mechanisms that tie the groups together or separate them. Introducing another point of view on communities and their management is Pollock et al. (2007): "if the software is truly designed to travel, then it seems that the suppliers must avoid dealing with individual users". Pollock et al. (2007) is discussing software that embodies characteristics common across many users, and by that having suppliers of software using the same software packages for different users. This is then presenting the issue with individual users. By shifting the design from individual to community, the developers could move the software package from the private domain of each user site, where only particular needs could be articulated, to a public setting, where a community or generic requirements could be forged (Pollock et al., 2007).

3 Case Description

This chapter is a description of the case studied in this master thesis. As the Norwegian healthcare system and project Helseplattformen is unique and complex, consisting of different actors, organizations, departments, and employees, this description aims to give a simplifies, but correct, overview of it all. The case description will focus on the actors, organizations, departments, and employees of interest in this case, leaving the rest for other researchers and case studies. The first sections will present the Norwegian healthcare system based on Trondheim Kommune and its hospital St. Olav HF. Next, will be an introduction of project Helseplattformen and how it is put together and organized. Having the knowledge of both the Norwegian healthcare system and project Helseplattformen, it is easier to explain the area of concern (ref. Figure 13). When the real-world problematic situation and area of concern (ref. Figure 13) is understood, the case description will try to connect this to the conceptual framing (ref. Figure 13) and look into the participatory part of the development of Helseplattformen and the related activities.

3.1 Electronic Patient Records

This case study of Helseplattformen is about the introduction of an Electronic Patient Record (EPR) system, researching the participation in the development of such system. EPR is an information system for digitized patient records. The records contain all of the patients used healthcare services. An EPR system shares information with all the other health care providers, such as laboratories and specialists (National Coordinator for Health Information Technology, 2019). The EPR follows the patient, letting the healthcare providers get a full overview, and the patient doesn't need to re-tell information shared with other providers - it's all in the record. An EPR system also stands out in comparison to Electronic Medical Records (EMR), as it lets patients themselves access and manage the record (National Coordinator for Health Information Technology, 2019).

In Norway, activities surrounding the development of an EPR system for General Practitioners (GPs) began in the mid-1970s, intending to get more time with the patient and less time spent on paperwork. In 1980, the first EPR system got implemented and used by GPs in Belsfjord, Norway (Norsk forening for allmennmedisin, 2015). At the same time, and from this point on, the search and development of a satisfactory EPR system kept going. Different occupations, cities, and groups of people began to either develop their own systems or implement systems used in other countries. The lack of rules and standards resulted in different practices in different places, across Norway as a country, and within cities (Norsk forening for allmennmedisin, 2015).

3.2 Analysis of the Norwegian healthcare system

Norwegian healthcare system is complex in the sense of how Norway is divided into counties and municipalities. Norway consist, in 2020, of 11 counties and 356 municipalities (Kartverket, 2020). Each of these municipalities could be looked at as their own organizations with the right to do and use what they think is best for their municipality when it comes to primary healthcare. This has resulted in the use of different systems in different counties and municipalities, which causes a mismatch when it comes to communication and sharing of information between all theses organizations and systems. Figure 4 shows the framework of Norwegians health service, separated into primary and secondary healthcare. The primary healthcare services are the municipalities' responsibility, and the regional health authorities (Health North, Health Central Norway, Health West, and Health South-East) are responsible for providing secondary healthcare services for the population in their health region. All of the services seen in Figure 4 could be looked at as individual organizations within

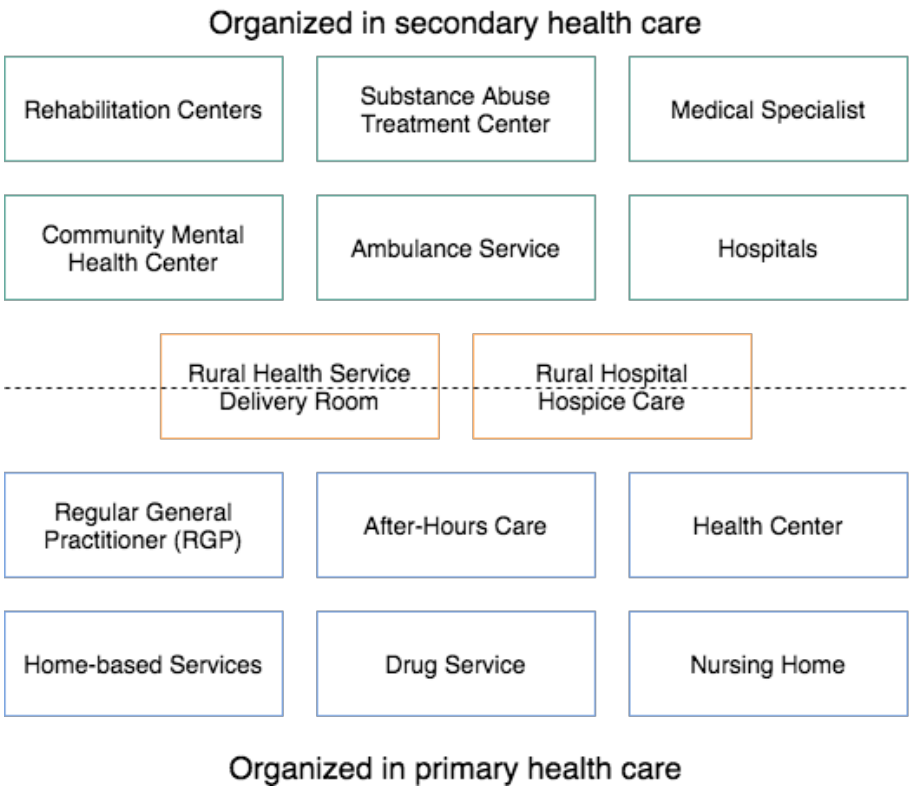

Figure 4: Framework of the health service in Norway (Helse- og omsorgsdepartementet, 2014)

their municipality and regional health authority. Todays Information and Communication Technology (ICT) used in Norwegian healthcare is mainly living within each organization. It supports patient care across businesses and healthcare levels, or necessary interaction between health and other service areas such as NAV, school, child welfare, and PPT, to a small extent. Today's patients' health information is stored within the individual service provider with whom the patient has been in contact, and sharing across the board is cumbersome and time-consuming. Looking at Figure 5, which shows the use of

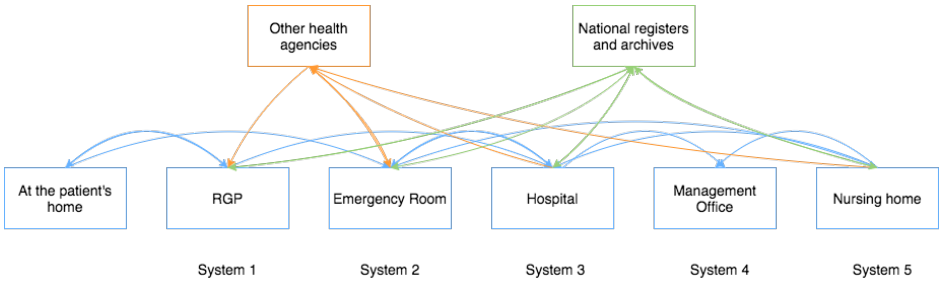

Figure 5: Flow of information with today's solution (Walstad, 2019)

different systems, the communications between the organizations and healthcare levels, as well as the flow of information between them, it is easy to understand the statement about cumbersome and time-consuming sharing and collaboration. Figure 5 shows just a small part of the picture, looking at Figure 4 we can see the whole healthcare in Norway. In cases where the patient is in several establishments, there is no complete overview of the patient's completed and planned treatments, and few solutions

are available to exchange a joint treatment plan (Direktoratet for e-helse, 2020). The lack of sharing of information and communication can contribute to malpractice, patient injuries, and unnecessary reports and treatment. The current situation results in lower productivity by spending much time asking for missing information and time loss for the patient related to repeating information and going through the same test and reports several times. (Direktoratet for e-helse, 2020)

3.2.1 Gerica / Lifecare

Gerica is the EPR system currently used in healthcare in several municipalities in Norway, Trondheim Kommune being one. It was a pilot in 2002 and got implemented in Trondheim Kommune in 2003. Gerica is made up of a basic module that contains core functionality such as EPR, case management, functionality for action plans and worklist, medicines, calculation of remuneration and billing, handling of aids, IPLOS reporting (official Norwegian register by Helsedirektoratet) and more. In addition to basic functionality, several additional modules have been developed over many years, going under Lifecare. Tieto, the software company delivering Gerica and Lifecare, informs that Lifecare modules are modern solutions with more focus on process support and usability.

Tieto shares that Gerica is used by many different occupational groups and for different work processes. During the development of functionalities, they have emphasized this through features and screens. For example, the nursing home doctors need to get the best possible overview of the situation of the individual resident and have gotten a medical module to show compiled data, get various alerts and filtration to get an overview of e.g., CPS, drug review and more. For the home service, there has been developed a mobile solution called Lifecare Mobile Care (LMP). The system and all of its functionality is the same standardized application for all municipalities and is not tailor-made.

3.3 Helseplattformen

To sum up, the problem presented is a lack of communication and the sharing of information between all services and organizations the system consists of. To solve this problem, it has been decided to develop a new digital platform for all hospitals and municipalities in Central Norway, making a standard solution for primary healthcare, secondary healthcare, GPs, and contract specialists. Central Norway consists of two counties: Trøndelag and Møre og Romsdal. This new digital platform is called Helseplattformen. This will for the patients and citizens of Norway look like a website where all information related to their health and communication with Norwegian healthcare service will be stored and handled. For the employees in the healthcare sector, this is a system to store all patients' medical records to easier get an overview of what each patient has been through—making it possible for both a patients GP and for example occupational therapists to get and share important information.

The healthcare system in Norway, with a focus on Central Norway, is with the information presented, under a profound technological change. As seen in Figure 6, the Helseplattformen project start in 2012, and have since then been retching milestones towards the start of development in 2019. The process of developing the digital platform, that Helseplattformen is going to be, has started and is estimated to finish in October 2021 (Helseplattformen, 2019d). As seen in Figure 7, the project has reached Q1 and Q2 of 2020 "Development, testing and training". Helseplattformen aims to introduce one common electronic medical record for each patient at hospitals and municipalities, who follows the patient in all meetings with the healthcare system. The national objective is "Én innbygger - én journal" which translates to "One citizen - one record". Replacing all of today's systems with one common Electronic Patient Record (EPR) system makes it possible to follow the patient through the whole healthcare system, having one login for the whole EPR, one database and a unified user interface (UI). Helseplattformen will exist of 13 modules, supporting all the different aspects of a patients need in meeting with Norwegian healthcare (Walstad, 2019). The modules being:

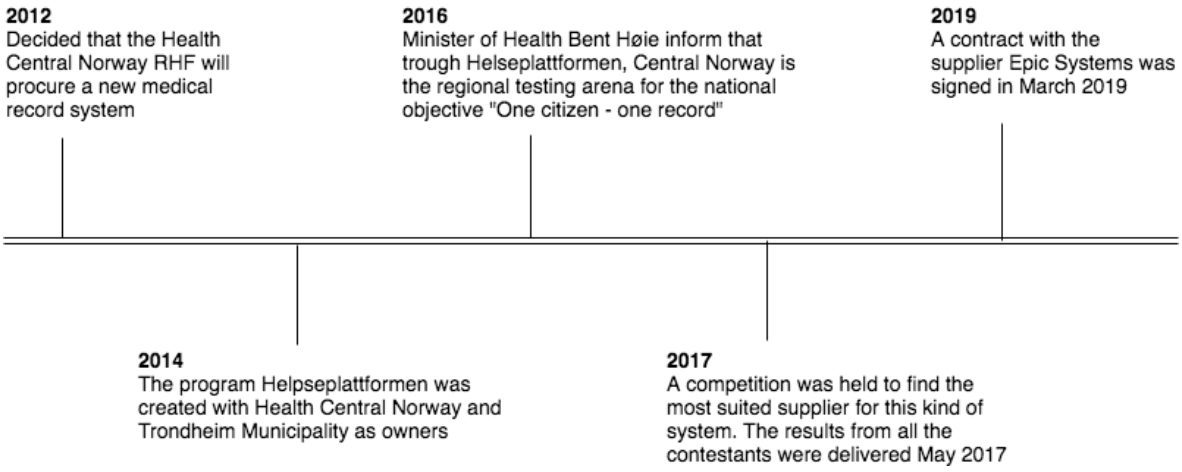

Figure 6: Timeline of project Helseplattformen

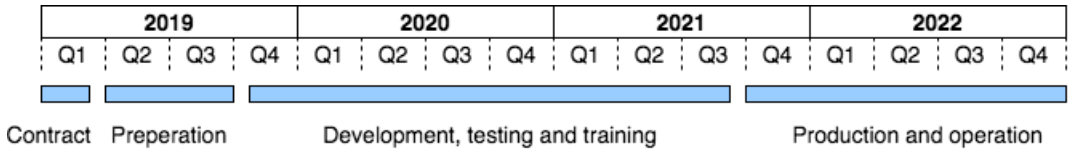

Figure 7: Simplified timeline of implementation of Helseplattformen (Walstad, 2019)

- Inpatient
- Ambulatory
- Pop Health & Analytics
- Access & Rev Cycle
- Health Plans
- Clinician mobile
- Patient Portals
- Interoperability
- Post-Acute & Social Care
- Telemedicine
- Research
- Education
- Specialities

The stakeholders for Helseplattformen are many: patients, doctors, specialists, municipalities, hospitals, and even Norway as a nation of welfare (Helseplattformen, 2019b). The complexity of Helseplattformen grows, the more it is discussed, and a whole nation is its stakeholder. Almost 400 health and ICT employees from Central Norway have participated in 101 workshops to prepare a requirements specification for the new solution. They all wish for a better and more efficient tool to use at work, and that the citizens of Central Norway have access to their records and opportunity to influence their treatment process, more then they have today (Helseplattformen, 2019c).

3.3.1 Helseplattformen AS

At the website of Helseplattformen it says:

> The company Helseplattformen AS was established on March 1, 2019, and is responsible for contract follow-up with the selected supplier Epic Systems Corporation and implementation of the implementation project. It's facilitated for several owners in the company when

municipalities in the region trigger option municipalities to use the solution. On August 29, 2019, the Trondheim City Council decided that Trondheim Kommune should take ownership in Helseplattformen.

Helseplattformen AS currently has two owners: Helse Midt-Norge RHF and Trondheim Kommune, and has worked together in the procurement project. Helse Midt-Norge RHF is responsible for the secondary healthcare in Central Norway, seen in Figure 4. The other municipalities in Trøndelag and Møre og Romsdal, and Bindal in Nordland, are included in the work through option [opsjon] agreements (Helseplattformen, 2020b). In a joint document between Helseplattformen AS, Helse Midt-Norge RHF and Trondheim Kommune describing decision-making structure, roles, and responsibility it is said that the board of Helseplattformen AS have four main tasks:

- Proper management of the organizations operations
- Strategy and goals
- Organization and management
- Supervision of the organizations daily operations and business

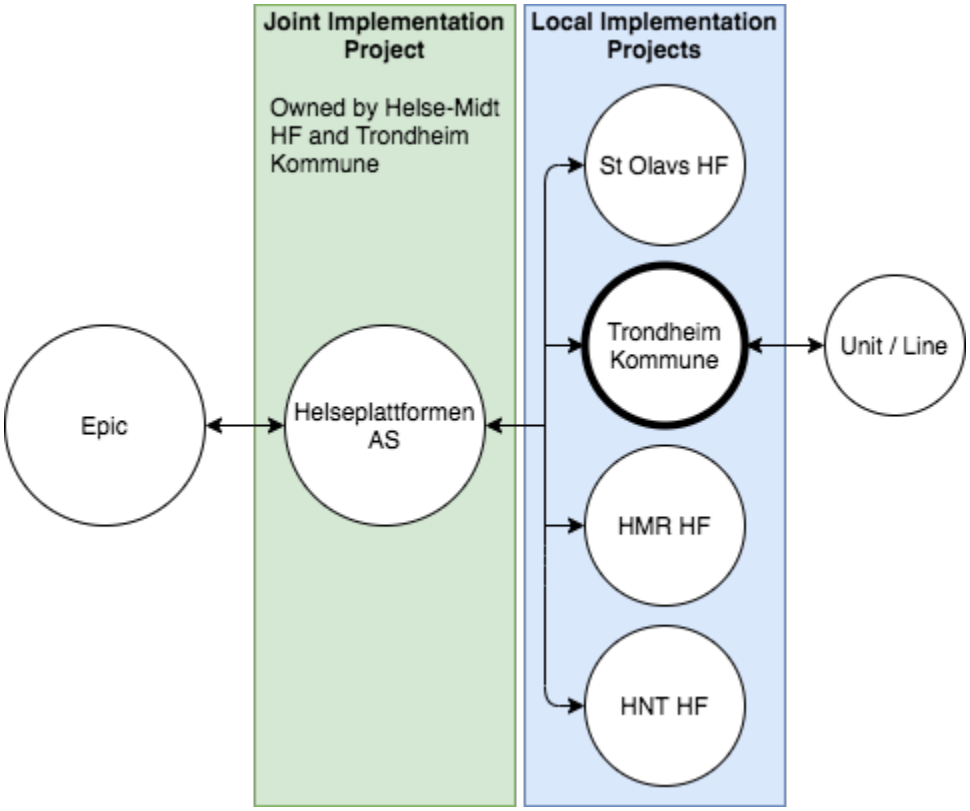

Figure 8: Simplified view on the components and relations in project Helseplattformen

Figure 8 shows how Helseplattformen AS is meant to work as a connection between Epic, the supplier, and the three organizations St Olavs HF, Trondheim Kommune and Helse Møre og Romsdal (HMR) HF. There is established two implementation project, one joint and three local. The joint implementation project is the main activities in the project Helseplattformen (2019b), while the local implementation projects are activities related to the implementation of Helseplattformen in each organization. This case will mainly look at the local implementation project in Trondheim Kommune

marked with a bold circle in Figure 8, more about this project in section 3.3.3 Local implementation project.

According to Helseplattformen AS the anticipated purpose of Helseplattformen is summarized in 11 targets of impact (Helseplattformen, 2020a):

- Higher quality of treatment and fewer patient injuries
- Access to continuously updated clinical knowledge based on best practice
- Easy access to your own journal and greater opportunity to influence you own course of treatment
- Better interaction in and between primary and specialist health services
- Better data an information for research and innovation
- Increased efficiency and better use of resources
- Better management information as a basis for quality and improvement work in daily operations
- Reduces time spent on documentation and exploration for health information
- Satisfy national requirements and standards
- The inhabitants of Central Norway will be given the opportunity to live longer in their own housing
- Reduced need for public services by providing services through generic processes to ensure a comprehensive functional assessment

Trondheim Kommune presents that these targets root from the increasing need for health and welfare services and that independence to a greater extent are expected by the citizens. As well as the increased need for healthcare, the digitization of citizen dialogue and new technological opportunities and expectations have increased. The interest in the digitization of health and welfare services is high from both citizens, R&D, and suppliers, which makes it important to react and work with the new demands from Norway's citizens.

Many of the targets above concern saving time and being efficient. Looking forward, there are few years til that will be highly necessary for the health and welfare services to help all those who need it. From 2008 to 2018, the population's age composition showed that there were 164,000 more Norwegians in the age of 60-79. During the same period did the number of places in nursing homes stay the same, and the number of households with 24-hour staffing increase by approximately 4,000 (Wettergreen et al., 2019).

3.3.2 Joint implementation project

As now known, Helseplattformen AS has the responsibility to complete the implementation project for the new EPR system in hospitals and municipalities in Central Norway. In Figure 8, it is possible to see the scope of the joint implementation project, which is only for Helseplattformen AS. This joint implementation project is separated into seven subprojects with different focus:

This case study is looking into the local implementation project in Trondheim Kommune. As the joint implementation project has the responsibility of completing and implementing Helseplattformen as a product suitable for Norway, does the local implementation project has a responsibility to implement Helseplattformen the best way possible in their county or municipality, as well as to collect and presenting necessary data for Epic and the joint implementation project from their organization. More about the local implementation project in section 3.3.3 Local implementation project.

Subproject	Focus
Information Management	Responsibility for how information is managed in the solution and for maintaining the connection between all information elements across the application
Applications	Responsible for developing and adapting clinical content and functionality in the applications in the medical record solution
Application Support	Responsible for migration, integration, technical platform and Identity and Access Management (IAM)
Training	Responsible for offering relevant and tailored training that provide end-users with skills in dealing with their everyday lives with the use of Helseplattformen
Reporting	Responsible for the development of good and adequate solutions for both internal and external reporting
Development and requirements follow-up	Responsible for developing new functionality and following up on requirements in the contract
Test	Responsible for selecting, planning, organizing and conducting various tests connected to the introduction of the new medical record system

Table 1: Subprojects in the joint implementation project and their focuses (Helseplattformen, 2018)

3.3.3 Local implementation project

The local implementation projects are limited to each area Helseplattformen will be implemented. As seen in Figure 8, there are local implementation projects in Trondheim Kommune, St. Olav HF, Helse Møre og Romsdal HF, and Helse Nord-Trøndelag HF. Each of these projects have their own project organization with a leader, subject matter experts, champions and executive level clinical leaders, and focus on the implementation of Helseplattformen in their area. In addition to running their area and local implementation, there is facilitated for teamwork and cooperation between the local implementation projects and Helseplattformen As through weekly meetings for updates, tips, and advice. These projects have the responsibility to complete all local implementation activities to Go-Live (release) fall 2021. As said earlier, this case study is about the local implementation project in Trondheim Kommune, which get introduced in-depth in section 3.4 Local implementation project in Trondheim Kommune.

3.3.4 Epic Systems Corporation

Epic, for short, is an American healthcare software company that develops, manufactures, hosts, supports, and sells an electronic medical record [3] (EMR) software application. Epic offers a broad specter of health-related software like systems for physicians, nurses, radiologists and other specialists, health portal for patients, billing systems, and much more (Epic, 2020). Several leading hospitals, health institutions, and educational institutions in the United States use the technology. It is being introduced in the Netherlands, Australia, the United Kingdom, Denmark, and Finland, among others (Helseplattformen, 2019a).

Epics system and software consist of a "foundation" built around the patient and the treatment the patient receives in all meetings with health professionals. They comment that their "foundation" - the

[3] "Electronic medical records (EMRs) are digital versions of the paper charts in clinician offices, clinics, and hospitals" (National Coordinator for Health Information Technology, 2019)

standard platform - is constantly evolving, based on new guidelines internationally and "best practice" experiences from the disciplines. Modules for specialized disciplines have a common database and are thus an integral part of the whole. By subject areas are meant, for example, emergency medicine, anesthesia, rheumatology, neurology, cancer medicine, and more. Also, specialized work surfaces are used in the solution, which is adapted to user groups such as home nursing, outpatient clinics, nurses at the bedside, and more alike. Applications for patient management, bedside management, scheduling, and municipal case management ensure communication between the various areas. All courses of treatment that the patient receives are documented in the same place, in one record. Doctors can place diagnoses and orders, and the nurses can document test answers and nursing measures, in the same solution (Epic, 2020). The work surface and access are adapted to the individual's service needs and role in the medical record. With proper rules for what should be visible and not in the daily work process, the work surface should still be neat, relevant, and easy to find (Helseplattformen, 2019a).

As just introduced, does Epic have a system mainly for hospitals. Working with municipalities adds new needs and features, making Trondheim Kommune and the rest of Central Norway's municipalities a vital source of data and information for development. There is a wish from both Epic and stakeholders of Helseplattformen to not move too far away from the "foundation" and start creating solutions only for Helseplattformen. Epic offers service and maintenance for the "foundation" and mainly for the system that is used by every customer, leaving the customer with the responsibility to maintain the solution specially developed for them. Being an American company, the software and its features are primarily designed for the US market. Epic has encountered some cultural and technical challenges in the UK and Denmark, while the introduction has gone better in the Netherlands. Hertzum and Ellingsen (2019) looks at the preparations done for Epic in Norway compared with the UK and Denmark, where the UK had a troubled start, and Denmark did still 18 months after implementation are struggling. The cases in the UK and Denmark were not as complicated as the development and implementation of Helseplattformen is for Norway, as they were restricted to hospitals. This is an aspect the researchers comment on as new knowledge after their research: "Norwegian preparations are in a state of considerable uncertainty, caused by high complexity, double pressures, and the need for simultaneously adapting Epic and many clinical work processes" (Hertzum and Ellingsen, 2019). By double pressure, they are talking about the Norwegian top managers being worried by the tight deadlines enforced by Epic, and at the same time, emphasizing the importance of widespread user participation to create ownership and get the functionality right (Hertzum and Ellingsen, 2019). Another finding they did, was that "the documented experiences from the UK and Danish implementations of Epic identify more challenges than solutions and are therefore not straightforward to learn from" (Hertzum and Ellingsen, 2019).

3.4 Local implementation project in Trondheim Kommune

In the context of the larger implementation project described so far, this case study focuses on the local implementation project in Trondheim, and the subproject related to organization development. The project is organized with one project manager and five subprojects covering the professional arenas and activities, each subproject having its own subproject manager. Table 2 gives an overview of each subproject in the local implementation project in Trondheim Kommune. This research will focus on the organization development subproject, looking into the activities and work done related to readiness, training, and profit realization.

3.4.1 Subproject: Organization development

This section will introduce the subproject organization development and its activities. To explain why the activities are in the focus of this research, the project needs to be seen as a participatory design (PD) project. Emphasizing the fact that Epic, Helseplattformen AS, or Trondheim Kommune have

Subproject	Focus
Organization Development	Responsible for readiness, training and profit realization
Health and Care	These two subprojects are responsible for the academic content of health and care in the primary healthcare service
Information and Communication Technology (ICT)	Responsible for ensuring that the municipality conducts necessary activities in the technical area so that the new solution can function as intended in Trondheim Kommune
Data	Responsible for ensuring the necessary needs within analysis, management data, research and reporting for the municipality is met

Table 2: Subprojects for the local implementation project in Trondheim Kommune and their focuses.

never said that they use the PD approach in the development of this project, there is possible to see strong similarities between a PD project and the Helseplattformen project. Table 3 shows the strongest characteristics of a PD project found in existing research presented in chapter 2 Background and what the Helseplattformen project are doing. With such similarities, does this research choose to look at the Helseplattformen project as a PD project. The subproject is responsible for making the organization

PD characteristics	Helseplattformen project
User participation	User are included in the development as a reaction to poorly developed and implemented EPR systems by Epic in other countries
Activities for participation	Several activities invite SMEs and super users to participate in the development and implementation through different activities
Decision-making	Subject Matter Experts (SME) are invited to participate in activities where decisions need to be made
Mutual learning	Epic and the healthcare system in Norway meet to learn from each other and ensure that the result fits its customer. Epic learns how the Norwegian healthcare system works, and Helseplattformen AS learns what is possible in the development of Helseplattformen

Table 3: Similarities between PD projects and the Helseplattformen project.

ready to use and utilize Helseplattformen. This involves building knowledge, skills, and attitudes towards the new solution that meets the organization's ambitions and desired effects. As shown in Figure 8, does Trondheim Kommune have a connection to the lines which have the responsibility for activities for preparation and get assistance from the local implementation project to complete these activities. The lines are organizations within healthcare that are not hired in the project. They have their tasks, work, and shifts that they have to do both before, during, and after Helseplattformen is implemented. This makes it essential for Trondheim Kommune to plan activities for the lines that do not disrupt their everyday work. The subproject Organization development has split its work into three areas: readiness, training, and profit realization. With a focus on activities done within this subproject, there is attempted to give an overview, and a short presentation of the activities planned and introduces in the detailed project planes for each of the three areas, as seen in Table 4. For profit realization, it's listed the areas strategic goals, as these were the one in introduces as activities interviewing the champion for profit realization.

Activities planed for subproject Organization Development in Trondheim Kommune

Activity	Area	Description
Maturity analysis	Readiness	Plan and conduct maturity analysis related to ICT and change management
Organizational change measures	Readiness	Ensuring that the need for changes in the project, line organization, or in collaboration with other actors get identified, coordinated and followed up.
Skills development for managers	Readiness	Develop a training program for managers to strengthen the leaders' ability to handle the actual change process and the consequences the introduction of Helseplattformen will have for affected units in Trondheim Kommune
Review, change and update of current routines	Readiness	Ensure connection between processes and routines in the municipality's quality system "Kvaliteket" and Helseplattformen
Program for preparation	Readiness	Ensure that all stakeholders are well prepares based on their role and needs
Learning culture	Training	Assisting affected entities in developing and stabilizing a culture of learning that ensures proper use of the solution over time
Super User organization	Training	Building and developing a stable super user organization in terms of capacity and knowledge, identifying super users, leading super users and super user coordinators
Super User training	Training	Implement super user training in line with prepared leading strategy and developed training material
Organization and implementation of end-user training	Training	Organizing and conducting end-user training in line with a prepared learning strategy and developed training material, and in collaboration with the operating organization and Helseplattformen AS
User-friendly system for employees	Profit Realization	Employees in the municipal health service should experience better quality, decision support and easier access to health information.
Medication management	Profit Realization	Employees and patients should experience increased patient safety and better quality of drug handling through a real-time unified list and decision support in prescribing
Citizen involvement	Profit Realization	The Citizens Portal should give the patient easier access to their health information, increased opportunity to register their information and communicate with the health services
Logistics	Profit Realization	Standardization, information sharing and easier access to health information should give employees in the municipal health service more time for patient care

Continuation of Table 4

Activity	Main Direction	Description
Medical distance monitoring	Profit Realization	More patients will receive follow-up at home through the resident portal through increased use of video consultation, information and distributed training, self-registration and remote monitoring
Interaction	Profit Realization	Increased quality of interaction in and between primary and specialist health services
Information management (advanced use of data)	Profit Realization	Better customized management information for service development and prioritization of resources
Research (advanced use of data)	Profit Realization	Increased research activity in the primary health service and the possibility of comparing data across municipalities to research projects

Table 4: Activities planed for subproject Organization Development in Trondheim Kommune.

As the activities have different relations to time, some have already started, some are done, and some are ongoing. The upcoming information will be separated into the three areas. The activities and goal of each area will be explained based on each of there detailed project plan, and the different actors and communities participating and being a part of the activities introduced.

Readiness

Readiness as an area of activities concerned with employees of Trondheim Kommune being ready for the new system. There is work done to identify, prepare, and conduct needs for both employees and managers to understand the change to come. Table 4 lists five main activities for this area, where the focus lies on gathering information for the area of training to use. Most of these activities are developed in cooperation with the joint implementation project and St. Olavs HF. They are conducted as a way of collecting data and information from the employees working in the line organizations. For example, does the mutuality analysis gather data and information on the readiness of the future users of Helseplattformen and gets developed by Trondheim Kommune, St. Olavs HF, and the joint implementation project. As well as with the program for preparation, where Trondheim Kommune, Helseplattformen AS and St. Olavs HF are planning specific activities for preparation and dissemination of knowledge for stakeholders to take part of. Figure 9 shows the separation between participants as communities

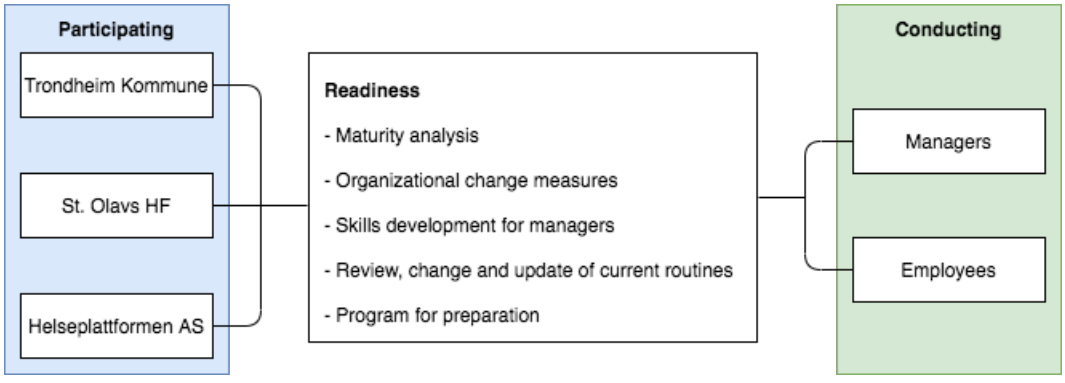

Figure 9: Activities and actors in the area of readiness.

and actors participating in the development and work with the activities, and the communities that

conduct the activities. In the case of readiness, managers and employees conduct the activities to give information and data to the participants so that they can use this in their further work.

Training

Training is an area of activities focusing on training and teaching the future users of Helseplattformen how to use the new system. Table 4 list the four activities for this area, as seen in Figure 10. The activities in this area focus on creating a good learning environment, and does so with the help of the five participants listed in Figure 10 and the information gathered through readiness activities. In the detailed project plan for training, it says that Helseplattformen AS and the lines are responsible for developing the content for training. Taking a look at the activities planned as well, does Trondheim Kommune, super users, and the manager team affect the way this is done. In this area, there are the end-users, lines, and super users who take part in these activities, but end-users do not play as participants by the first look of it.

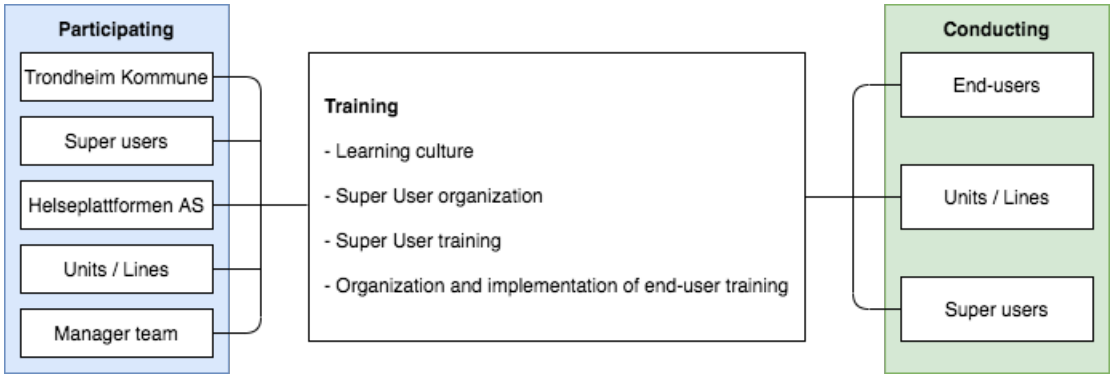

Figure 10: Activities and actors in the area of training.

Profit realization

The last area of activities is the one ensuring profit. This is is not defined as activities like the other two areas since the realization of profit is related to strategic targets of profit. As seen in Figure 11 are several communities and actors participating in the work with profit realization. As an example, on an activity started, is a quality assurance of functionality and Key Performance Indicator (KPI) to ensure profit on each of the strategic targets of profit. In this activity, Subject Matter Experts (SME) participate to ensure this, together with the other participants.

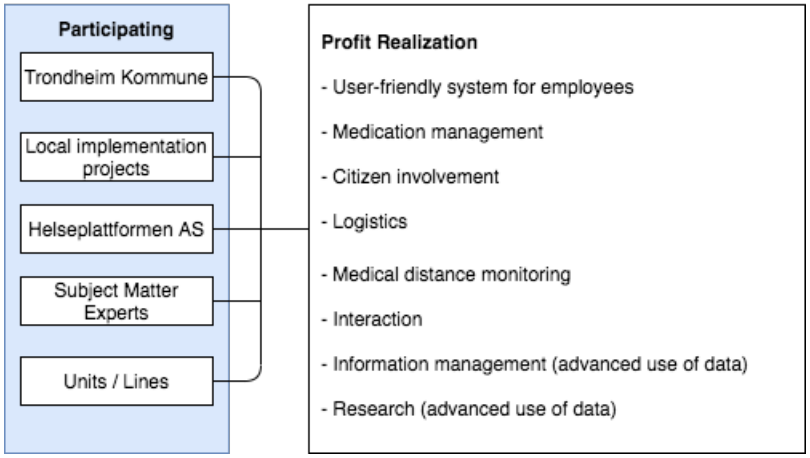

Figure 11: Activities and actors in the area of profit realization.

4 Method

This chapter will present the method used to gather, read and analyse data and literature. First giving an overview of the situation with help of an conceptual framework developed by Mathiassen (2017), then introducing the pre-study done in 2019 as a gateway leading to this master thesis and at the last discussing the choice of the case study approach with its data collection methods.

4.1 Conceptual framework

The framework used in this research process is developed by Mathiassen (2017), and is a guide for moving from a real-world problem to an research publication. This approach to research methodology "can help researchers make sense of and manage this process by designing the key components of a study, designing the resulting publication, and iteratively revising these two designs in light of the problem setting and the relevant literature" (Mathiassen, 2017). Figure 12 shows the generic structure of an engaged scholarship study consisting of different components and relationships: The research questions (RQ) should be formed by a real-world problematic situation (P) and a related area of concern in literature(A); addressing the RQ means generating and analysing empirical data drawing on a chosen methods (M) and on a conceptual framework (F); all this leading to a contribution (C) in P, A, F and possibly M (Mathiassen, 2017). To create the conceptual framework seen in Figure 13, the generic structure showed in Figure 12 and the pre-study done last semester, see section 4.3 Pre-study was used as an base. A and P is the same as in the pre-study, while the conceptual framing and method have changed.

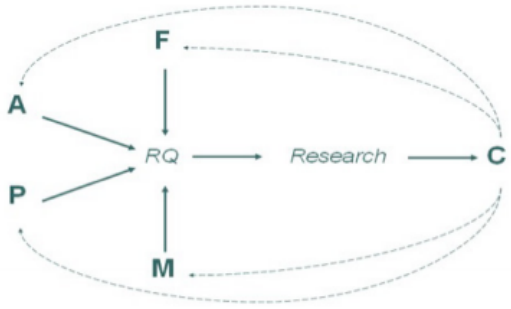

Figure 12: A generic structure of engaged scholarship study (Mathiassen, 2017)

Figure 13 is separated into the same components as Mathiassen (2017) presents in his generic structure seen in Figure 12, and has been a guide during the writing of this thesis. Starting of this thesis with chapter 1 Introduction and 2 Background, both A and F in Figure 13 gets presented and discussed. Looking at what the literature is saying with the framing chosen. If discovered that the framing got to wide, the F got updated to look at a more specific part of literature. The next chapter, chapter 3 Case Description, explains and give an overview of the real-world problematic situation, P. Here, it is possible to start to see the connection between A, F and P. After chapter 3 Case Description, this chapter, chapter 4 Method, describing the method used to find answers to P is up. Explaining and discussing the use of case study, different methods of data generation and such. The last three chapters, chapter 5 Findings, chapter 6 Discussion and chapter 7 Conclusion, is the chapters going from RQ to C seen in 13.

4.2 Research Strategy

A case study focuses on one instance of the 'thing' that is to be investigated, in this case a development project. The aim is to obtain a rich, detailed insight into the 'life' of that case and its complex relationships and processes (Oates, 2006). Oates (2006) characterize a case study by the following points, here connected to this specific research:

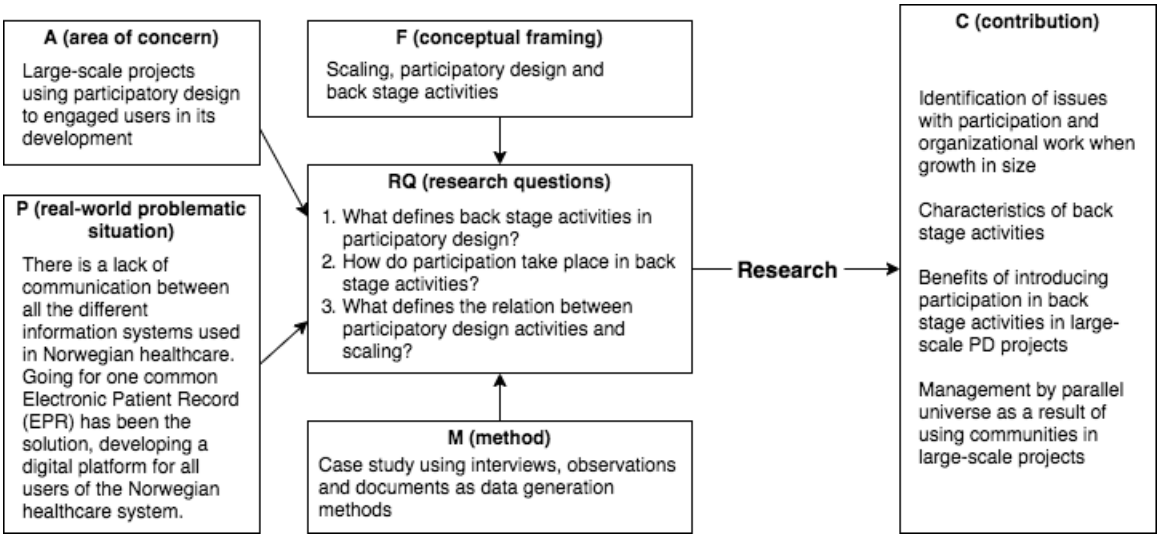

Figure 13: Conceptual framework

- Focus on depth rather then breath: focus on one instance of the phenomenon under investigation.
- Natural setting: the case existed prior to the research and will continue after the research is done. The instance is examined in its natural settings without being disrupted.
- Holistic study: investigating the complexity of relationships and process
- Multiple sources and methods: uses qualitative data obtained via interviews, observations and documents.

Yin (2003), as cited in Oates (2006), suggests three basic types of case studies: exploratory, descriptive and explanatory. This is an exploratory study used to help understand a research problem. The literature is limited on the chosen topic, so a real-life instance is investigated, in order to identify the topics to be covered (Oates, 2006). The exploratory case study makes it possible to work out a base for the interview guide to be used during the semi-structured interviews. The case study is also a short-term, contemporary study examining what is occurring in the case *now*, asking people what is going on (Oates, 2006). This case would be really interesting to look at from a longitudinal point of view, as the project has an delivery date and it would be possible to review the result of participation in the development of it. Being a master thesis, the *now*-picture is enough, encouraging other researchers to do a longitudinal study.

4.3 Pre-study

The narrative literature review conducted the fall of 2019 created a understanding of the field that Participatory Design live in. Focusing on finding and discussing existing research on the area and framing mentioned in Section 4.1 makes it possible to tackle the practical problem and dig deeper in this master thesis. The pre-study showed that the existing research on participatory design, infrastructure, and digital platform is never-ending, but that the field is missing in-depth research on the collaboration between them as seen in Figure 14. While trying to answer the research question *How do user participation and infrastructure translate to a digital platform?*, the discovery of backstage activities in participatory design emerged. Looking at the qualification of participants and the need of participation at higher levels then workshops, prototyping and design of user interface.

The narrative literature review concludes with:

> *How do user participation and infrastructure translate to a digital platform?*
> The research done on this translation is limited. There is a disagreement when it comes to deciding which of the infrastructure and platforms that cultivate the other. However, there is a connection between them and there is a big change for the organizations that will be outsourcing their IT department and making a third-party team of developers a part of their organizational map. Facilitating both frontstage and backstage participants will also be difficult. The frontstage will be the same, often going for a separation where each periphery is developed using PD. Backstage activities, having a big effect on the infrastructure and organizational drift, will be rare. The third-party developers are offering a generic core which they want to do limited work change to, and the organization has accepted and bought this deal, making as close to impossible to implement functionality that is unique to one of the buyers of the generic kernel. It may seem like the backstage activities, which makes it possible to do participatory infrastructure, is dying.

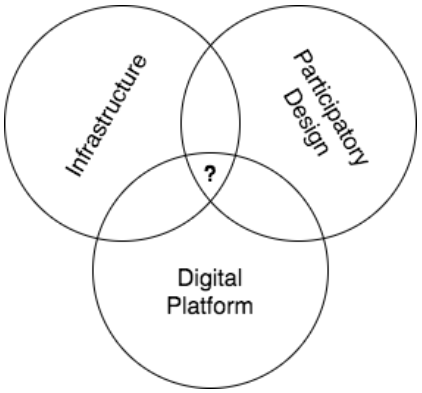

Figure 14: Venn diagram showing the missing in-depth research on the collaboration between participatory design, infrastructure and digital platforms.

Some of the discussion done resulting in this conclusion, got placed in a table, see Table 5. It visualizes the differences between participatory design and participatory infrastructure separated into different factors. Its just an start, as there probably would emerge more factors at the research on this field is growing.

Factor	**Participatory Design**	**Participatory Infrastructure**
Role	Visualize infrastructure	Develop infrastructure
Decision-making	Smaller groups of participants	Larger groups of participants
User base	Homogeneous and in the same scope	Heterogeneous, complex and extended in various scopes
Main activities	Front stage	Back stage
Needed knowledge	Domain	Organizational, technical and domains
Life of activities	horizontal string of activities to configure and build with the same overlapping sets of actors	longitudinal network of activities in which people and technologies are brought together and changed
Area of focus	Involvement, user interface and workflow	Development, deployment, interpretation, tailoring and re-design

Table 5: Translation from PD to PI (Øien, 2019)

4.4 Data generation methods

This case is studied in depth, using several data generation methods: interviews, observations and documents, which will be discussed further in the upcoming sections.

4.4.1 Interview

Interviews are a much-used method for data generation in case studies, giving the researcher a chance to have a conversation with someone of interest having the right to control both the agenda and the proceedings and ask most of the questions (Oates, 2006). Conducting semi-structured interviews makes it possible for the interviewees to speak with more detail on the issues raised, and introduce issues of their own that they think relevant for the theme. It also makes it possible for the researcher to refocus the questions, or prompts for more information if something of interest or novel emerges (Baskarada, 2014). This type of interview is used where the primary purpose is to *discover*, rather then *checking*.

Interviewee	**Fictitious name**	**Role**	**Employment**
Interviewee 1	Carl	Subproject Manager	Trondheim Kommune
Interviewee 2	Martin	Researcher	NTNU
Interviewee 3	Pete	Professional Coordinator	Trondheim Kommune
Interviewee 4	Sofia	Professional Coordinator	Trondheim Kommune
Interviewee 5	Lisa	Professional Coordinator	Trondheim Kommune

Table 6: Interviewees, their fictitious name, role and place of employment.

Table 6 shows the number of interviewees and their role in the project. Carl suggested to interview Pete, Sofia and Lisa for in-depth information on the different topics mentioned. Each interview used the same interview guide as a base and formed, removed and/or added questions as seen in Figure 15. This iterative interview process made it possible to adapt to the new information gathered in interviews and documents. All interviews were audio recorded with permission from the interviewee, making it possible to transcribe, code and analyse the interview afterwards. Baskarada (2014) argues that recording may make interviewees uncomfortable as well as introduce transcription and analysis related complications if the recording device malfunctions and the researcher have not taken notes. As the case study is being undertaken as part of a master thesis, full interview transcripts is expected. To ensure that there would be a backup if such event would happen, there were written simple notes during the interviews. Because of Covid-19, see Section 4.5, all interview sessions were done through Skype, some with video but mostly only audio, removing the nonverbal communication and context of the interview. Seitz (2016) presents four main obstacles doing interviews via Skype; dropped calls and pauses, inaudible segments, inability to read body language and nonverbal cues, and loss of intimacy.

Obstacle	**Handling**
Dropped calls and pauses	Testing out Skype ahead of time with test object
Inaudible segments	Sending an informing e-mail with a invitation to the Skype meeting
Inability to read body language and nonverbal cues	Listen closely to the tone of the voice
Loss of intimacy	Starting the interview with small talk to get comfortable

Table 7: Obstacles during Skype interviews.

Table 7 shows the obstacles and the way each of them got handled. To ensure that there would not be any dropped calls or pauses, the whole process of sending an invitation, starting the call, and recording was tested out with a test object. Having this tested made the start and conduction of each interview pain-free and professional. The next obstacle got handled by sending an informative e-mail to the interviewee the day before the interview, informing about the theme of the interview, how it will be conducted and that it will go via Skype. The reason for the interview getting conducted via Skype being Covid-19, see 4.5, also means that all interviewees are effect by this as well. They all have moved their workplace to their homes and are having all their meetings and communication via applications such as Skype. This has made them acquainted with the quality of audio and how to speak to get

understood, as well as there were asked reassuring questions if unsure or lagging audio. The third obstacle was the most difficult to handle. Losing the possibility to read emotions and body language makes it difficult to know how much more to ask or what to ask. Seitz (2016) suggests listening closely to the tone of the interviewee's voice. The last obstacle presents a problem with intimacy and the research topic. Research has shown that the quality of a Skype interview gets affected by the research topic, aim and interview questions, where more personal questions may pose more difficulty over Skype due to the loss of personal connection and intimacy compared to in-person interviews (Seitz, 2016). As this research looks into a less sensitive topic, this does not affect the interview as much, as stated by Seitz (2016) and experienced during the interviews.

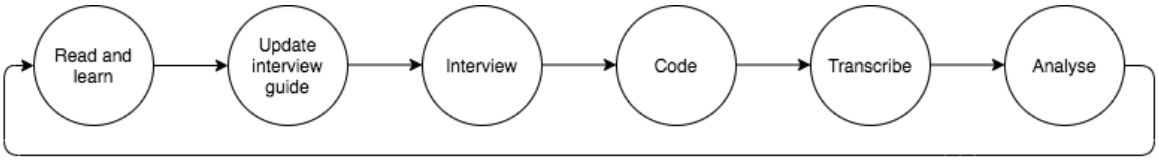

Figure 15: Iterative process for interviews

4.4.2 Documents

Already existing documents, also called found documents, has been another source of data. Found documents are documents already existing prior to the research, such as documents found in most organizations: production schedules, job descriptions, project plans, and so on (Oates, 2006). Table 8 shows a list of documents found and used in this research, all on an access controlled Google Drive. Access was granted by signing a Non Disclosure Agreement. In addition to the documents listed in Table 8 have there been used some contemporaneously found in different folders on the Google Drive, not related to a specific activity known for this research. These have been used to better understand how the project is working and to support some of the founds done in the main documents. As a researcher and outsider when it comes to the healthcare service in Norway, have there been quite difficult to get a grip of how it all is tied together, what the roles and work done is relevant for the project itself and where to find the information needed to understand how the Norwegian healthcare service is built.

4.4.3 Observation

Observations were performed to get an deeper understanding of the activities and flow of information. The observations ended after one and a half week due to Covid-19, see Section4.5. The data generated from that short time have been used as background information and support during the interviews, as well as confirmation or contraction to data gathered through documents.

The observation done were both *covert* and *overt*. Spending time and sharing workplace made it possible to do an *covert* research following the flow of people, information and work. In *covert* research, any people being observed do not know, making it possible to observe situations without people putting on an act. This could create an ethical problem, but using it to understand the workflow of an department, not gather personal or sensitive information, as well as many of theme knew that I were a researcher but not observing right at that moment. Joining in on some meetings there were conducted *overt* research where everyone knew they are being observed. I were working under an Non Disclosure Agreement and introducing myself, making it possible for everyone to ask questions or hold back information, as well as me leaving out sensitive data.

Title	Source	Description
Maturity Analysis	Trondheim Kommune	Presentation for the municipalities which will eventually buy into Helseplattformen AS and use Helseplattformen, about the maturity analysis.
IT target for the health and welfare area 2018-2019	Trondheim Kommune	Presentation of todays situation, trends and guides, and a description of desired future.
Description Gerica	Tieto	Information about Gerica as a system used in the health care system in Norway
Project Plan	Trondheim Kommune	Project plan for the local introduction project in Trondheim Kommune
Sub Project Organizational Development	Trondheim Kommune	Project plan for sub project organizational development
Project Plan Change and Maturing	Trondheim Kommune	Project plan for one of the three main directions within sub project Organizational Development; Change and Maturing.
Project Plan Training	Trondheim Kommune	Project plan for one of the three main direction within sub project Organizational Development; Training
Project Plan Benefit Realization	Trondheim Kommune	Project plan for one of the three main direction within sub project Organizational Development; Benefit Realization
Presentation Municipalities	Trondheim Kommune	Presentation for the municipalities conduction maturity analysis
Profit Plan - strategic targets of profit	Trondheim Kommune	Spreadsheet of prioritised area, primary target, subgoals, KPIs, level of ambition, and more. Being discussed, filled out and used in the work done with profit realization
Helseplattformen decision-making structure, roles and responsibility	Helseplattformen AS, Helse Midt-Norge RHF and Trondheim Kommune	Document presenting the structures of decision-making between Helseplattformen AS, Helse Midt-Norge RHF and Trondheim Kommune
Stakeholder analysis Trondheim Kommune	Trondheim Kommune	Spreadsheet of stakeholders, groups of stakeholders and ways of contact
Note - Meeting with leader team	Trondheim Kommune	Note describing who should participate in the unit meetings and what the agenda should be

Table 8: Documents included in the analysis

Activity	Location	Instances	Duration
Leader Meeting	Town Hall in Trondheim	1	2 hours
Planning meeting for sub project Organizational Development	Trondheim Kommune	1	4 hours
Office hours	Trondheim Kommune	3	6 hours
PlatVel Meeting	Trondheim Kommune	4	1 hour

Table 9: Observations

4.5 Pandemic

December 2019, a outbreak of a virus started in the Wuhan metropolitan city of Hubei province in China. The virus, Covid-19, was identified by Chinese health authorities on January 7, 2020. The disease spreads between humans and spread from China to large parts of the world, leading to WHO declaring a pandemic in March 2020. (Folkehelseinstitutet, 2020)

On a press conference March 12, 2020, Norways prime minister Erna Solberg, stated "Today, the Norwegian government comes with the strongest and most radical measures we have had in Norway in peacetime. It is absolutely necessary" (Regjeringen, 2020). The Directorate of Health decided to close kindergartens, schools and educational institutions. This applied from 18:00 on Thursday 12 March and is still a fact for the universities (Helsedirektoratet, 2020).

4.6 Analysis

This section will present the data analysis methods used for this research. Being a case study and having interviews as the main method of data generation, the next step was to do an qualitative data analyses, starting of with preparation of data.

4.6.1 Data preparation

Audio recordings from the interviews were stored on NICE-1 and transcribed in NVivo. NICE-1 is NTNU's file storage area when needing shielding of data[4]. To maintain the anonymity of the participant of the research their names and other sensitive data was kept out of the transcription and NVivio. A note connecting the interview and the interviewee was stored on NICE-1. The research being exploratory, the interviews were transcribed in their entirety as the entire dialogue could be relevant for the research.

4.6.2 Data analysis

Having all data on written form, the next step was to analyse. As seen in Figure 15 did each interview go through transcribing, coding and a simple analyse by itself when it was fresh in mind. This was done to, later on, remember the initial thoughts and discussions rising from each interview by itself and in the context of accumulated knowledge at that specific time. The first step of the analysis was done by looking at the written notes, were it was written down some comments and questions that appeared during the interviews. These comments got seen in relation to the codes appearing in the interview. When all interviews were done and all data, including observations, documents, and audio recorded interviews were on written form, the comprehensive analyses started. This was done as a theme analysis based on Oates (2006), with an inductive approach, meaning that the data were coded into categories where the categories were observed in the data, such as those used by the interviewees or authors of the documents (Oates, 2006). Although the categories were found in the data itself, theoretical grounding from the literature review, see section 4.3, did have an impact on the analysis meaning a light deductive approach was used in the background as well. Ryan and Bernard (2003) presents and discuss several techniques for discovering themes in analysis of qualitative data. Two of the techniques are repetition and transition. Repetition is when topics occur and reoccurs (Ryan and Bernard, 2003). This approach got used when the the feeling of coding data to the same codes several times appeared. The approach of transition got visible when transcribing the interviews in NVivo. For each natural pause or change of theme, a new section in the transcription got made. This made it easier to see the themes and code. As another aspect of the inductive approach, there was also created

[4]To read more visit https://innsida.ntnu.no/wiki/-/wiki/English/NICE-1.

a folder for activities, where all activities mentioned by name got their own code and places in. This was done to see connections between activities, but also to see is different roles in the project worked within their activities or crossed the boundaries set up by the organization. Table 10 shows the folders as themes, and the codes in the activity-folder:

Themes	**Code**
Readiness	Change Management
	Change Log
	Dissemination of Knowledge
	Maturity Analysis
Training	Training Network
	Training Culture
	Training Plans
	End-User Training
	Super User Training
	Super User Organization
Profit Realization	Profit Realization
Other	Afterskiing
	Workmeetings
	Coffee Machine Talk

Table 10: Folders and codes for activities emerging from the data.

The second step of the analysis was to refine the codes. Some codes were too large and needed to be broken down into separate codes, and others occurred rarely and got combined with other codes. This process got the number of codes from 35 to 25, which are the codes seen in Table 11. After that, it was time to look for categories and inter-connections between these codes. NVivo makes it possible to drag and drop codes in and out of different folders. These folders ended up as the categories seen in Table 11.

As the last step of the analysis, a review of codes and categories was done based on the four themes in Table 10. This was done because of the choice of presenting the data the same way in chapter 5 Findings. It was seen as the best way to show all connections, differences, issues and profits of this case from a researchers point of view. Connecting the different interviewees to the different themes and see how the same codes belongs to several themes.

Category	**Code**
Conflict	Challenges
Decision-making	Qualification
	Trust
	Participation
Community	Silo
	Ownership
	Scaling
Roles	Stakeholders
	Ownership
	Leaders
	Maturing
	Stressed
	Superusers
Coordination	Mapping
	Change
	Activities
	Preparation
	Time
	Uncertain
	Information Flow
Cooperation / Collaboration	Motivation
	Learning
	Communication
	Trust

Table 11: Theme analysis

5 Findings

This chapter will present the findings from this case study. The findings are collected through interviews, observations and documents, and then been analysed. The conceptual framing of this case study, as presented in section 4.1 Conceptual framework in chapter 4 Method, is Participatory Design (PD) and its activities separated into front stage and back stage. As understood by reading existing research on PD, does the field lack defined characteristics of back stage activities, and a clear separation and relation between front stage activities and back stage activities. In the work of participating to this part within PD the findings are split into activities, to easier see what each activity is about, who is participating and if participation is a part of it. First, looking at the activities separated into three different types of activities, which is the same separation as subproject organization development in Trondheim Kommune has: readiness, training and profit realization. The activities seen in Table 12 are the same as the ones presented in Table 4 in chapter 3 Case Description. Lastly, presenting three ways of working of significant interest to the PD field. It is necessary to remind the reader that this case study looks at an ongoing project, where plans change, work gets finished, or activities have not started. This is only a snapshot of the project.

Activity	**Type of activity**
Maturity analysis	Readiness
Organizational change measures	Readiness
Skills development for managers	Readiness
Review, change and update of current routines	Readiness
Program for preparation	Readiness
Learning culture	Training
Super User organization	Training
Super User training	Training
Organization and implementation of end-user training	Training
User-friendly system for employees	Profit Realization
Medication management	Profit Realization
Citizen involvement	Profit Realization
Logistics	Profit Realization
Medical distance monitoring	Profit Realization
Interaction	Profit Realization
Information management (advanced use of data)	Profit Realization
Research (advanced use of data)	Profit Realization

Table 12: Activities separated into types.

5.1 Readiness

There are five activities related to readiness that get presented in the project plan. The activity getting the most attention overall is the maturity analysis. The Project Plan informs that this activity is about planning and conducting maturity analysis as a digital surveys. The plan presents two different areas the maturity analysis focus on: *Ability to change and understanding of change* and *Information and Communication Technology (ICT) competence*, where the former is completed by managers at all levels and the latter by both managers at all levels and all employees affected by the project. The digital surveys are prepared under the guidance of the joint implementation project, in collaboration with the

hospitals and Trondheim Kommune. The surveys are designed as questbacks [5] with about 25 to 30 questions answered on a scale from 1 to 5, and is sent out from the joint implementation project to all users of Helseplattformen. Although the survey is sent out from the joint implementation project, it is sent in each municipality's name to the employees of that municipality. The municipality itself will decide the time and frequency of conduction. In the presentation done for the municipalities about maturity analysis, there is said that "a maturity analysis will provide greater insight into the maturity of one's organization and thus an understanding of future needs for change and training". Figure 16 shows the process of this activity as presented to the municipalities. The first three steps are related to the survey; then, it's analyzed and put in a report which is sent to both the lines and Helseplattformen AS. The lines are by themselves responsible for incorporating the findings from the analysis and implementing measures. The project manager for training uses the report as a basis for further work. Carl, the subproject manager for organization development in Trondheim Kommune,

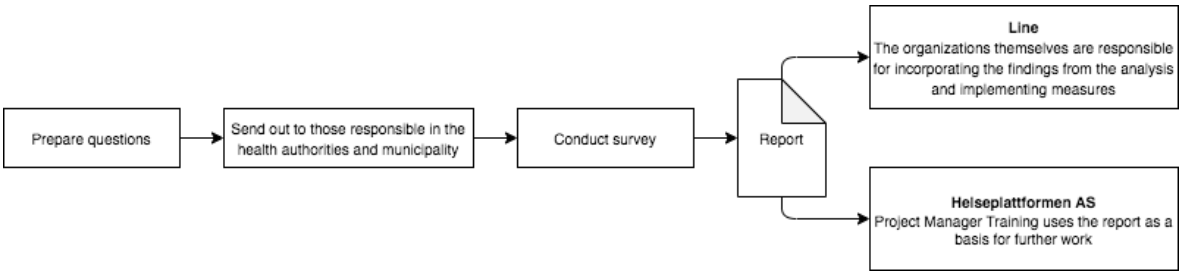

Figure 16: Process for maturity analysis

informs that one round of each of the maturity analyses have already been conducted: spring last year for the leaders and fall last year for the employees. He explains that there are about 30 questions in these surveys. The first round was 26 questions, and the next will be 30 were the additional four questions will ask about how they work in their unit together as employees and with the super users, and their own needs. The answers, Carl says, ends up on the table to two analysts, and "they come up with a summary and analysis that we then discuss". He answers the question about where the results of the analysis ends and where this discussion happens, with:

> This enters the project manager's meeting, and then the results go to the municipal manager's meeting and the organizational development team. Processing and understanding of the result starts with the two analysts looking at this from an academic standpoint. Then we come up with our reasoning, and then we present this into the organizational development team and the municipal council meeting.

The Subproject Manager shares an example from the first survey relating ICT competence, where the feedback shows that users are a little unsure where to find information about Helseplattformen: "Our reaction to this is that we tighten up the communication and points very clearly to the channels we have. We build up Google+". By Google+, he is talking about the Google+ site developed by the management in the local implementation project in Trondheim Kommune to inform employees about the project's implementation.

Carl continues with activities related to the dissemination of knowledge, where the goal is for every employee to understand Helseplattformen. He says that they wish to come to a point in 2021 were every employee knows the concept: "They won't have to go to classes to know what Helseplattformen is. You should be able to log on and off without sitting in a large classroom - you should have learned this in advance", and comments on the connection between readiness and training. This is a challenge Sofia, champion for training, comments on. She is wondering how substitutes will do in meeting with the new system. Carl lists several activities to make employees acquainted with Helseplattformen: "e-learning, nano learning, training leading super users, establish local learning through sandbox where

[5] Platform for feedback, to read more visit https://www.questback.com/

all employees play in the time before Go-Live", without going further in on each activity as this is work for later.

Pete, the champion for readiness, informs that his role in readiness and the field of readiness itself is quite new. He says he has been part of the activities for readiness not described in any plan: information going into unit meetings and networks, been teaching on subject meeting out on the units, and been a part of the super user gathering, and the list goes on. Ending with:

> While it may not be described as a readiness activity in a previous plan, it is part of an activity that allows people to become more aware of and enable them to both understand and eventually know the content and thoughts around Helseplattformen

Asking about who is participating in all these meetings and activities, and how the communication with Helseplattformen AS is conducted, creates an understanding of the complexity of Helseplattformen. Pete answers on the latter that it all depends on who you are working with and why. It's always a contact person. This is also something that has been observed throughout different documents: full names and contact information. Pete also informs that all contact with Epic goes through Helseplattformen AS. Helseplattformen AS has their representatives present in the different meetings, and Trondheim Kommune theirs, and Helseplattformen AS gather and sends this information over to Epic.

5.2 Training

Super users are a concept introduces by Epic. They describe super users as the "go-to" people in their department. "They must be approachable, knowledgeable, and responsible members of the staff. Often, super users are most successful when their roles match those of the end-users being supported". A note dealing with founding of training for superusers suggest that the training should include a short presentation of Helseplattformen, a lawyer talking about their duty to record, training in conduction of the training plan for Gerica, and a inspiring post from a unit that have come far in the conduction of the training plans. In the fall of 2019, there was conducted a super user gathering with the focus on giving the chosen user users the information and knowledge they need to take the role of super user as Epic has described. The presentation on this gathering informed that the super users should cooperate with the leaders to develop a systematic and good learning culture, participate in contributing to good quality training on their unit, have knowledge of good recording and what characterizes a good learning culture, and transfer knowledge of use and utilization of the professional system to all employees - with different needs. The presentation emphasizes that "it's important that super users are not responsible for the training, but should be a supporter". When asking about the super users and typical decisions done in meetings and activities related to them, both Carl, the subproject manager, and Sofia, the champion for training, they both take an organizational approach answering. Their focus is on reducing the load on the unit/lines, which Pete, champion for readiness, also introduced when talking about workmeetings, which will be mentioned further in section 5.4.1 Workmeetings. Sofia talks about finding a suitable time for the activities, such as the super user gathering:

> We, office workers, can go to a gathering without it being a problem, but the super users have shifts and must be taken out of regular production when they are going to gatherings. Therefore, it is essential that when we do activities entailing that they have to do something about their shift, it's anchored with the line when it has consequences for the operation.

She informs that this is something they talk a lot of, being mindful of how much they load those on the lines. Being careful of taking them out of regular production, by placing the activities on times they already are out. She gives a example of the leader meetings being matched with meeting they already are attending on the units. Carl shares a similar example where meeting with units have both readiness, training, and profit realization on the agenda. "We need to coordinate so that we act in harmony in front of the units". Carl also comments on the relation to Helseplattformen AS and Epic in the training of super users. He informs that the super user training will be facilitated for, together with

Helseplattformen AS, but that Trondheim Kommune is up and running with the super user training one year before Helseplattformen AS has started. They have a plan for August, December and going into 2021:

> The closer we get to the end of the year, the closer the super user training will be linked to what Epic and Helseplattformen AS has of a program. We have 100% content at the start, and at the end, Epic and Helseplattformen AS have 100% content.

Asking why they started one year in advance, he answers:

> It was because we believe that this should always be a central dimension in the learning culture we should have. Experience shows that the organization needs quite a long time to stabilize a rhythm on a busy day, where there is always something burning.

Next, looking at the learning culture and training plans, the Project Plan Training presents planned ways to give employees of Trondheim Kommune sufficient expertise to use Helseplattformen. It's about 8500 employees in Trondheim Kommune, and it's composed of unskilled, skilled, inexperienced, experienced, young, old, and many more. Carl talks about this when introducing the activity of learning culture:

> We work with learning culture as having training plans for each employee, managers, department leaders, to follow up and clarify needs in appraisals, organizing internal education, new systems, not only on medical records but other areas such as mental health and wound care as well. We work with learning culture and believe that if all units have a structure on it, it will be very good for the future.

To get a better picture of what the learning culture activity is about, the related documents shows that it is mainly meetings with the units and as commented on earlier in this sections, the training of super users so they can share knowledge about Helseplattformen with their coworkers. Focusing on the unit meetings done in 2020, they have all a short contemporaneously with the information of who participated, and answers to three cases focusing on todays training at the unit, superusers at the units and planning of subject days. Both who is participating in the unit meetings, and the cases in focus have been decided in a leader meeting with the leaders of the local implementation project in Trondheim. The notes from this meeting lists the agenda the unit meetings should have, and a list of who should participate from the project itself and the units. From the units it says that the unit manager, department manager and superusers should attend the meeting, and from the project itself there is a list of names that could conduct the meeting.

When asked which activity stands out within training, the champion of training, Sofia, answers the systematic and continuous work with training. "To systematize the work on training, facilitate training on the units, and focus a good learning culture. This is undoubtedly the maturation work that we believe is important as a preparation for the transition to Helseplattformen". Asking Sofia about how they work with, and systematization of, learning culture is done, she says:

> What we do, among other things, is that we go out on meetings on each unit with the leader teams and go through how they work with training today, such as the Gerica plans and drug management plans. We have a dialogue about how the focus is on training, properly system usage, documentation requirements, and how to make this even better.

She explains that the meetings are not discussing what the training should contain, but how to facilitate for it and work with it. Discussing when the training should be, having in mind that the training is for employees having their everyday workday running around between tasks. Sofia has not been in these meetings herself. However, she has participated in the preparations: "It's mainly a conversation with them and awareness related to the requirements to documentation, facilitate for training and safeguard documentation obligations". Participating in these meetings is mainly the leaders of the units. However, there have also been resource users and super users involved as ambassadors on the units with specific information about Helseplattformen. Carl gives an example of a conduction of a

meeting with one unit: "we asked for a meeting with the leaders and the super users. Then we talked about three things: one was about learning culture, how to activate super users, how they had done this, what they thought about it, and how to do it. And we talked about how we should plan the fall subject days that are part of our readiness work. We talked about the benefit we are going to make". He follows by informing that if anything gets decided in such meetings or other activities related to training plans for super users, the decision always goes by the organization development team and the municipal manager group so that the decision is partly anchored before conducting the activity. The existing training plans in existing systems such as the Gerica plan, have the purpose of start training systematically with training, for employees and those "in the back" as Sofia put it. Carl, the subproject manager, clarifies that the training plans are developed for all roles defined in the system. Trondheim Kommune has conducted a role analysis to find these roles which are specific to each service area. Each of these roles should have a training plan where the content is developed by Helseplattformen AS. He comments that "This is a symbiosis between them and us, which we must find the form of". Asking Sofia where the information gathered in these kinds of meetings and activities ends up and are dealt with, she answers:

> It depends on what it is. After the previous round of meetings with the leader team on the units, we made kind of a report that was shared with the municipal managers, the municipal director, and the steering group. We haven't done anything similar to the super user gathering. The information is probably mainly shared in meetings. No clear feedback in the form of reports.

Asking about the flow of information in work with training, Sofia introduce work groups and a training network started by Helseplattformen AS. In these work groups and the training network, representatives from Helseplattformen AS, St. Olavs HF, health authorities, Trondheim Kommune, and option municipalities cooperate on finding solutions to different tasks related to training. The meetings are lead by Helseplattformen AS. One task discussed in the training network has been how much of the end-user training should be held in classrooms, and how to enable other training activities.

5.3 Profit Realization

The Project Plan for Profit Realization presents that the work done on profit realization should secure documentation and realization of profit.

> The profit targets are formulated as business goals - with a focus on how Helseplattformen will support Trondheim Kommune strategic goals within the health service. Helseplattformen will be a necessary prerequisite for achieving the profit goals. However, to succeed, it requires organizational development, culture building, and changes in the way we work, are needed.

profit realization does not have, in the same way as readiness and training, clearly defined activities. The champion for profit realization, Lisa, inform that

> The whole pillar of Helseplattformen is that the 11 targets of impact must be met, and that is what we in the profit project are working towards - verifying that we achieve them. It is very closely linked to everything that goes on in the project, especially concerning the involvement of the lines, maturation, and anchoring out to the line. If there is no change, new ways of working, learning process, or optimization of the solution, we will not get any benefits.

The 11 targets of impact mentioned is listed in chapter 3 Case Description. To reach these, there have been developed eight strategic targets of profit for the introduction of Helseplattformen. These are the ones listed in Table 12, and are chosen as targets it is possible to get an early, which Lisa defines as three years, profit from. She explains how they got to these eight targets:

> To define the targets, we probably had half a year of lots of workshops involving managers, Subject Matter Experts (SME), user committees, and all the option municipalities. We got 500 winnings and created a profit model that categorized, analyzed, and picked the most important.

She talks about activities as meetings with different focuses, having one kind of activity this month, and another the next. It is these eight targets the work of profit realization is about. The next type of meeting, or activity, if you like, are multidisciplinary meetings. When asking what they are working on right now, Lisa answers that they are having multidisciplinary meetings to define subgoals for eight of the eight main goals. These are meetings where Epic, Helseplattformen AS, SME's, herself, and others with relevant knowledge participate in defining and understanding the target of focus for that meeting. They discuss how to reach their primary target, measure it, and have a discussion going back and forth between them. As an example found in the document "Profit Plan - strategic targets of profit", under the main target of usability, there are eight subgoals, one being "Reduction in information duplication", and the KPI are done as questions in the maturity analysis. Carl, the subproject manager, introduces the next step in profit realization to find KPIs and measurement indicators. He defines this as the work of identifying the measurements they want. "This could be measurements we have today, but it can also be measurements we can't get from today's system". Lisa introduces this as finding the baselines to have something to measure up against and takes an example with usability, as mentioned earlier: "To find a baseline in usability, we have some questions in the maturity analysis that is due out in November".

5.4 Ways of working

All activities have so far been defined by Epic, Helseplattformen AS, or by Trondheim Kommune themselves in the Project Plan before brought to life. During interviews and observation, there is still possible to find routines and activities that are work-related and not defined by anyone or in any plan. The activities are provided a name either by the interviewees or the researcher.

5.4.1 Workmeetings

Workmeetings are meetings replacing or adding to already planned activities. They emerge when the ones responsible for conducting the meeting feel and think that there is a more efficient way of doing it. Pete, the champion for readiness, is the interviewee mentioning these kinds of meetings. He ends the interview with "readiness is so much more than what is described in the project plans; it is all those little drips". He informs that they are working on a new and updated version of the project plan and says that activities such as workmeetings will not fit into the plan but will still be used by the teams when suitable. That workmeetings is a form of activities that is suitable for use in many settings, such as activities for profit realization, training, super users, and more. As an example, there is brought up role analysis, which has been explained in section 5.2 Training. The process of going out on every unit and department to find and define all roles seemed tedious. Trondheim Kommune decided to do this as workmeeting were they invited employees from each unit and department and thereby gathered more employees at the same time. Pete tells there are two reasons for this, firstly they don't have to facilitate, find contact information, and make appointments, and secondly, they would like to make the job least troublesome for the units/lines and of utmost utility for Helseplattformen AS. On a question about who is participating in these kinds of meetings the answer is vague, and a answer heard before by other interviewees in different settings: "This has varied". In the example with the role analysis, he says that there have been mostly unit managers or consultants with a broad knowledge of the employees and the actual role performance. To present the versatility of workmeetings, he brings up another example where there was a need for an overview of all visit types, appointments, and relevant employees, as a spreadsheet. This was supposed to be done by the units by themself, but got conducted

as a workmeeting at Trondheim Kommune instead. In this case, the participants of the workmeetings were SME for each unit, unit managers, or employees of the unit with a broad knowledge of their subject and the organizational work in their unit. Pete adds that "some of them may have a role as a member of a subject group, super user, or resource person, but it has not been a requirement to join. The most important is expert knowledge on their subject and understanding of their organization and unit". Pete sums up the profit of workmeetings like this:

> There is something about gathering people in the same room. Talk about the same things. It is an experience transfer. And then we see that although these are the same services that are offered, it does not have to be executed the same way. There is some skills development in that too.

Pete explains that he experience that many of the representatives from each unit learn something at these kinds of meeting, and others don't see the convenience of it. He accentuates that this will always be when different people with different views on life come together. Generally, the units decide who is participating as a representative for them. This is an active choice done by Trondheim Kommune to let the unit managers send a representative based on the shifts to not make unnecessary collisions. Pete does also informs that in some cases, they have asked for specific persons that they know deliver.

5.4.2 Afterskiing

Afterskiing are meetings happening after the actual formal meeting has taken place. It is Martin, the researcher from NTNU, who introduces this activity the first time. He discusses and describe afterskiing as a place

> where even more decisions are taken, or you get more clarity in what the others think, what to go for, and how to relate. Then the discussion gets twisted in a political direction. Then they are suddenly on politics, but they are there to discuss health practices. But then I think, "Is this that stupid?". Isn't this good in our democratic system that PD touches politics? Or should they stay away from it?

Pete, the champion for readiness, comments on the same thing without naming it Afterskiing. When talking about the flow of information, he says that "we contribute where we can, and then there is probably a lot that has happened in formal meetings, but also in the informal". He emphasizes that the informal meetings is a supplement for the formal ones. In observation of the Leader Meeting at Town Hall in Trondheim, there was planned a shared lunch at their workplace afterward. After the meeting and during the walk over to the workplace, there was as if the meeting was still going, but in a more personal matter. There was a mix of personal conversation about weekend plans, personal meanings about the project as a whole, and some continued discussing matters of the meeting itself. This was also an observation done when sharing an office. In pauses and after the formal meeting was done, the participants started to share their personal meanings, discussing possible solutions, and taking the role of a politician. Observing a light, friendly, and fun tone in these afterskiing meetings.

5.4.3 Coffee machine talk and open office space

Coffee machine talks and the power of a open office space were activities first observed when having office hours at Trondheim Kommune. The open office space made it possible to hear conversations that not was with you, but you could participate in or had something to supply to. For example, it could be asked a question from one person to another, and they started a discussion to find the answer. However, after a while, if listening, some other person understood what was discussed and had an answer, he or she joined the conversation with his or her knowledge or possible new information. The same observations were done nearby the coffee machine. If people met at the coffee machine, there

would be different kinds of conversations started, depending on who was there at that time. If they had been in the same meeting it could be conversations around what the meeting was about as discussed in section 5.4.2 Afterskiing, there could be personal conversations about their personal lives, or there could be shared a work-related problem one of them were having. Pete, the champion for Readiness, shares in his interview that there is a loose structure at their workplace, where people come and go as they wish, and with a lot of cooperation. He says the information is going in loops because they are at the same place and can pick up the information they need around them. Lisa, the champion of profit realization, mentioned the benefits of knowing the people you work with and choosing to know them. She thinks this is different from person to person: she wants to know her colleges and choose to do that before and in between meetings:

> It is essential to me that I know the municipal health service from before. If I have questions about something, I know who to call and who is responsible for it. I think it is essential regardless of the job.

Sofia, the champion of training, is the one interviewee only working 20% on the project and says that she needs to account for that it's not possible to participate and have the complete knowledge of everything. While Peter is sharing the positive effects of an open office space, he also talks about the silos they have been working in and now are leaving behind and cooperating across because of the open office space: "I find that the silo mindset is fading away simply because there are so many connections and that there now are more people who are aware of several areas". Knowing what is happening in other areas as well as your own is something Carl, the subproject manager, comments on as well: "it will probably be a meeting or two too much, but it is better than working side by side without seeing each other".

6 Discussion

This chapter will be a discussion of the findings presented in chapter 5 Findings. The aim is to contribute to answering the research questions by discussing the findings and either challenging or support the literature presented in chapter 2 Background. The chapter will also contain some recommendations for the use of participatory design in large-scale development projects, and discussions about definitions of back stage activities. The chapter splits into three parts: participatory design in large-scale projects, back stage activity, and management by community. The first part will focus on the relation between size and participation, discussing how the project size affects the possibilities to participate. The second part discusses the creation of communities and the role they play when the project grows in size. The last part is looking at the activities in the Helseplattformen project, and discussing the participation taking place in them. Table 13 summarize the main messages from each section. Lastly, the research limitations will be addressed.

Section	**Main message**
Participatory design in large-scale projects	- The size of a PD project effects both how much participation there is, and the need for organizational work, initiating a translation from participation to organizational work when the size gets big enough - Back stage activities are a possible solution to working across the individual project arena, the company arena and the national arena - Projects with long time frames need to address the possible pitfalls that comes with it
Management by communities	- Communities are essential to enable user participation in large-scale PD projects, but their representatives need to be seen as users not teachers for their communities - Stakeholders are creating parallel universes by managing the communities in isolation, without communication or cooperation with the other stakeholders and their universe
Back stage activity	- Back stage activities are strongly linked to the front stage activities, restricting participation in large-scale PD project if there is only front stage activities being conducted - Dependencies to personal networks in order to work efficient and get the needed information, limits the growth of the project - User participation in back stage activities is limited by the stakeholders fear to overload the users involved in everyday production at the units - Activities including all users, not just the representatives from each community, is a way of teaching the users about the new system, not participating in developing it - A lot of activities in large-scale PD project removed the mutual part of mutual learning, creating a environment for just learning by itself and accepting the change that is coming - Activities including the users as attenders often have potential to be back stage activities by including the users

Table 13: Simple overview of sections and main messages in the discussion.

6.1 Participatory design in large-scale projects

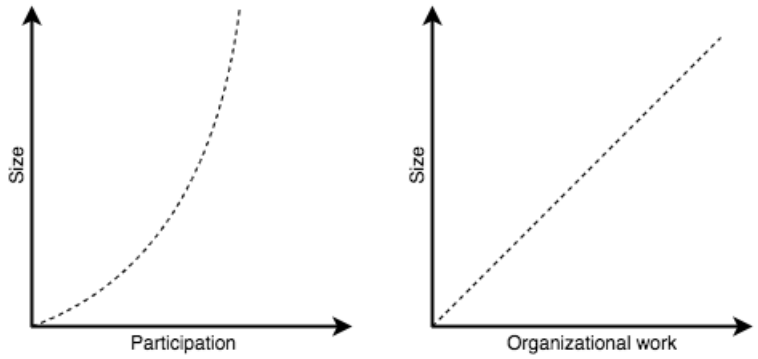

Figure 17: Diagrams for growth in size, participation and organizational work.

The challenges the field of Participatory Design (PD) have gone through the last years seems to be related to the rapid change in development and use of ICT. ICT is getting more involved in the form of the number of users, functionality, and stakeholders, while PD is used in the same way as the projects were smaller and mainly for a homogeneous user group. This case study shows that there is still a mismatch between what PD can do for a project and what the project needs to be considered a result of user participation. The Helseplattformen project consists of multiple organizations, thousands of different users wanting to use the system in hundreds of different ways, and an American supplier that is still learning about the Norwegian healthcare system that is going to implement and use the EPR-system they are selling. The complexity of developing Helseplattformen shows to require as much of a focus on organization and structure, as user participation in front stage and back stage activities. Trying to find the easiest way to transfer from the old to the new system have been the main focus of this snapshot of the project. Knowing that on of the reasons Helseplattformen AS was created was to handle the organizational part, shows that the focus on organizational structure and work has been in the center in the earlier stages of the project as well. A discovery regarding user participation is the work the employees at the local implementation project in Trondheim Kommune does. Yes, they are planning activities, creating choices, choosing who is to conduct the activities, which is the opposite of what Bratteteig and Wagner (2016) recommend. But the main focus of their work is to organize so that participants and users, such as employees at the units and lines, don't get overloaded by work someone else could have done. A lot of the work, activities, and meetings happening at Trondheim Kommune is about how to best conduct activities that do need the employers working on the units. This could imply that the growth in size reduces participation because of the need for organization. Figure 17 presents how it would seem that the relationship between size and participation change as the input change. It is important to mention that, as seen from Figure 17, the participation does not suddenly stop or end when the project reaches a certain size. The participation reaches a stage where it has to be done in other and new ways to have an effect on the system being developed, but that does not mean that the project stops including user participation the way they already are. So the stagnation in participation could be seen as a result of needing complex organization of stakeholders, roles and users. As seen in Figure 17 shows the relationship between a projects size and need for organization. The need for organizational work is not stopping or making the same turn as participation, it is getting more essential the bigger the size of the project.

Gaertner and Wagner (1996) distinguished three arenas for participation, and the limitations that come if the three arenas are kept isolated from each other. Data shows that the Helseplattformen project certainly has participation in A out of the three arenas: (A) the individual project arena, (B) the company arena, and (C) the national arena. Users in the form of Subject Matter Experts

(SMEs) and super users have been participating through requirements from their unit, and giving information on workflow, roles and tasks at their unit. The participation in arena A is limited to each unit in Trondheim Kommune. Arena B is about designing an organizational framework. In the Helseplattformen project, this is the joint and local implementation projects. Leader meetings, planning meetings and most of the meetings at Trondheim Kommune having champions or managers attending, are breaking down and evaluate the work they are doing and if redesign is needed. However, there is no users present in this meetings if Trondheim Kommune don't see it at necessary. Resulting in arena B being without participation from users. This is the same when looking at arena C, the national arena where the political and legal framework is negotiated. Most of the work at this level is handled by Helseplattformen AS and Epic. Helseplattformen AS was created just for this task, defining and dealing with relations between owners of the project, Epic, and the option multiplicities. Arena C has not been a focus for this research and the evaluation of if there is participation at this arena is strictly taken on data showing that the communication between Helseplattformen AS and the organization development subproject is mostly about how, which and when regarding different activities. Looking at the Helseplattformen project and participation in these arenas show that the participation is limited to one arena.This supports the diagrams seen in Figure 17. Participation in arena A could be done by conducting classic front stage activities, which have been done here. Have there been introduced some back stage activities the participation would have started to cross the line to arena C and benefited from that by having defined the relations between the stakeholders and set the norms to be used in the issues to come. Crossing the line over to arena C would also help flatten the curve in the left diagram seen in figure 17. However, taking a step back to create an overview of the situation, there are meetings arranged by Helseplattformen AS including SMEs. These meetings could be seen as work across arena A, B and C. As Helseplattformen AS not have been in focus for this research, and there is no data from such meetings, it is difficult to review the benefits from these activities.

Another essential aspect of large-scale project is time. The Helseplattformen project is using a project-based temporality as Saad-Sulonen et al. (2018) identifies it, and are today in the pre-project phase. As seen in the findings, there is a common understanding that a lot of activities and challenges will get better with time. The whole concept of readiness is based on time, and they are trying to ensure the benefits of time by starting even earlier than initially planned. A possible interpretation is that time is their safety net, and that by time it would get easier. With this way of thinking, the pitfall is that the activities they see as dependent on time will be left for time to do its thing. It is to early to know if this way of thinking is a success or failure. The relation they have to time could be seen as liquid and changing. When the timeline is so far away, there is challenging to get a relation to it at know when the time has run out for certain activities. All the activities studied for this research are a part of the pre-project phase, and having seen from data how they work with time, there is a chance that the pre-project phase gets expanded and will go in parallel with both the project time phase and post-project phase.

6.2 Management by communities

Helseplattformen has, as mentioned in the previous section, thousands of users. Most research done on PD and back stage is concerning how to facilitate participation and what to participate in, but what happens when the user base gets too big? *Who* is going to participate? Understandably, thousands of users can't participate in the development of Helseplattformen, so to enable user participation, there is chosen a representative to play the role as hundreds of users form the different domains. Helseplattformen AS has, in cooperation with Epic, created roles such as super users and Subject Matter Experts (SME), which are employees working on the units. Data shows that the introduction of communities has in this project been essential to be able to include the users in the development. Inviting SMEs and super users to participate is easier, then organizing to several thousands to meet. SMEs does also have employment in the project, making it easier for the project to require 5 hours a week to participate

in the development of Helseplattformen because it won't affect the regular production at their unit. A possible outcome of this have been regular participation and representation of the communities in chosen activities. The level of participation will be discussed later. Reviewing the choice to employ SMEs in the project to be able to use their time without effect on the regular production could be a solution to Pilemalm and Timpka (2008) problem regarding gaining access to and motivate users to participate. The participation is now a job where the users chose, or got recommended, to apply. However, having communities and motivated representatives does not automatically result in a user participation. The SMEs and super users is the new and more manageable user group, but the data shows that they are not always being used in that way. The case study shows, as far as the work with super users and SMEs have come (spring 2020), that they most of the time are being used to make the implementation of Helseplattformen easier than to participate in the development of it.

The communities get managed through activities and have their representatives in the form of SME or super user present. The concept of super users got introduces by Epic, and the concept of SMEs is introduced by Helseplattformen AS. The activities are conducted by Epic, Helseplattformen AS, and Trondheim Kommune. The findings show that the management of the super user is mainly done by Epic; it is they who define their role in the project. Trondheim Kommune does the work when it comes to organization of the activities they will be participating in. The information presented at these activities is profoundly affected by Epic. Trondheim Kommune started the work of hiring people to be super users one year in advance, although the super users are Epic's concept. The community of super users are first under management of Trondheim Kommune and then Epic. As to the SMEs, they are used in different activities related to various stakeholders. Some activities conducted by Helseplattformen AS and some by Trondheim Kommune. The data is showing that although the stakeholders communicate, there is not much cooperation when it comes to doing activities together. Each stakeholder includes the users where needed for them. The stakeholders have their own planes as well as the shared, creating parallels of management. A possible interpretation is that there are parallel universes of management of communities, and one main universe where they merge in and out from. This would imply that much work is done in silos and not shared, leading to experiences in one universe not being shared with the others. This could be a discovery changing the way management of communities are done, focusing on the bigger picture and creating a universe for cooperation, not competition. To be able to discuss this further it needs more data and a deeper background check, which the research don't have. Leaving the work of discovering or disprove the management of communities as parallel universe.

6.3 Back stage activity

As the existing research on back stage activities is limited and there are few to none definitions of what a back stage activity is, this research aims to find some common characteristics by looking at some of the activities in the Helseplattformen project. The most important characteristics to an activity in general is the *who*, *what* and *why*. These are the questions this section will try to find the answers to.

First, trying to understand who is participating in these kinds of activities. As seen in the findings, there has been challenging to get a clear understanding of *who* is participating in the different activities. There are few minutes from the activities in focus; of interest is the unit meetings. There are also minutes from a leader meeting discussing a template for the unit meetings, including information on the roles that should attend the unit meetings and agenda for the meeting. What has been described right here is preparation for the planned activity and has the potential to be a back stage activity. However, the findings show that the leader meeting does not have any users attending, only managers from Trondheim Kommune. What gets decided in the leader meeting will strongly affect the unit meetings and limit the user participation. Even knowing that the findings show that super users were on the list of roles to attend the unit meeting, the interpretation is that participation in the unit meeting itself is not enough when the meeting defining the unit meeting's content has been conducted without user participation. This would imply that participation in the large-scale project is restricted,

as the users only participate in front stage activities, which have been defined by back stage activities.

As an outsider, observer, and interviewer, there has been challenging to get an overview of the project, who to ask about what, and who are to see in what activity. This could imply that the project has gotten so big that each person knows someone, and a personal network within the project is essential to be able to do a good job. As the finding shows, there seems to be no uncertainty or lack of overview for the employees at Trondheim Kommune themselves. They know who to ask, who's responsible, and what activity to attend to get an answer. However, the findings do also show that, when asked who is attending different activities, the answer is too many or various from time to time. These findings are on the opposite side of the same aspect, both knowing and not knowing who is participating. The difference could be seen as there is a good overview of the project in Trondheim Kommune. However, when the activities include Helseplattformen AS, Epic, St. Olavs HF, or the units, they only know the stakeholders or users were represented but not much more. Each of the champions could, in the form of roles and communities, say who were participating in the activities belonging to their field. Asking about activities that are not their responsibility leads to a reference to the responsible champion or person for that activity. This dependency on personal networks could later on in the project create some trouble, as new people will come in, and some will be replaced. Creating a development dependent on personal networks will limit the flow of information, knowledge, and participation.

Something else the data shows is the continuous work with not overloading the users who are involved in everyday operations at the municipality. There could be done two interpretations of this, both that users are left out of participation in the project by purpose and that larger projects require too much time and energy for users to participate in it all. Both the interpretations would imply that there is no participation in the back stage of large PD projects, either because the management chooses to, or because it is not possible. The *who* of back stage activities seems to be through communities strictly managed by stakeholders. This is especially in activities done before, and after the activity in focus, such as the work with the template for unit meetings or analysis of strategic targets of profit, the users are left entirely out. The users are included when the stakeholders seem to see the benefit of having them there. A large-scale PD project having the users in regular production at work, also keeps the users themselves from having time to think about participation in the new product being developed.

Lastly, in trying to understand *who* is participating, the activities, including all users, need to be discussed. There are activities that all users, not only the representatives, are participating. The data shows that these activities are about gathering information about the situation as it is today, or informing them about what is coming. These activities are used to create a picture of what is happening outside of the project, for the users, related to the project. Implying that it is not an activity for participation or even development; this is an activity done to see what the users need to learn about the new system.

The second part of an activity is *what*. What are they doing in the different activities, and what should a back stage activity focus on? The findings show that in the activities related to readiness, the aim was to fill the gaps of information and knowledge about Helseplattformen the employees and users had. They had activities that gave feedback on what knowledge and information the users were missing to understand Helseplattformen better, to then find a way to provide them with this information. This would imply that the mutual learning has made a transition to just learning by itself. However, reviewing some of the workmeetings where SMEs are attending and sharing needed information about different themes, the mutual in mutual learning are slightly introduces again. It is not possible for Epic to develop a system without having data on what they need to develop. Mutual learning is vital for PD to see the need and use of including users in other and later activities in the design process. If the users never get to learn the designer how they work, where the bottlenecks are, and what a new system can do for them, the designers will create something they think will solve all these problems without knowing if it really does. The data also showed that the unit meetings, both those conducted as workmeetings and those out on the units, focus on what the units were doing in terms of learning culture, super users, and the themes important for the managers that wrote the agenda. A form for

gathering information to know how the units are thinking and preparing for the changes to come. A possible interpretation from this is that there is not enough time to include participation in all activities throughout such a large project. If all unit meeting had been an activity for participation, the snowball would have gotten big before reaching those implementing the suggestions, if it had reached them at all. In large-scale projects, there will be several layers of stakeholders or a more significant amount of users, making initially small and straightforward activities time consuming and complicated. The choice to gather information to understand how the process of developing a learning culture is working at the unit, gives the managers at Trondheim Kommune a better understanding of what of the activities and work they do to facilitate a good learning culture makes a difference. This implies that the work with learning culture is not a back stage activity and not an activity for participation. The users are heard, and the units can share their frustrations, but as seen from the data, it does not participate in any way to the result itself, only the process of accepting it. This relation to readiness and mutual learning could also be seen in the activities dealing with super users. The data shows that the project focus on informing and learning recruited super users to be good and knowledgeable users of Helseplattformen before the project gets out to the users themselves. As a part of making Central Norway ready for Helseplattformen and easing the transition. They are invited to join the unit meetings, but the agenda only asks how the work with super users, training, and training culture is working. This opens up for interpretation regarding the need for learning in parallel with participation. The need for users willing to accept and learn the system without being participants, remembering Pilemalm and Timpka (2008) discussing the issues of finding motivated users and that some users tend to want to leave these issues to the experts.

The data clearly shows that there is a gap between participation and planned activities. The discrepancy could be seen as the project managers doing too much of the planning without knowing this is where the users should participate. All that is happening between the planned activities, such as writing agendas, finding out who is attending, organizing, analysing the output of the activity and reflections, is happening without users knowing. However, this is a lot of what is seen done by the local implementation project in Trondheim Kommune. And the data shows it is done to reduce the load on the units and lines. The solution was buying out users from their regular work and employ them as SMEs, but they are still not participating in the work done between activities. The findings show that they are used as domain experts, and therefore are included in the activities Epic, Helseplattformen AS, or Trondheim Kommune sees as important to have users present. Here introducing the same interpretation as just discussed, users are participating where stakeholders see it as necessary. It is also necessary to look at the activities related to training. The initial thought when the theme of training got introduces was concerning the preparation of the activities that would go as training activities. If users were a part of defining, preparing, and analysing the activities, this could certainly go as a back stage activity. The data shows that the activities, such as developing training plans and planning super user gatherings, are including users as objects of training, not as participants of development. Epic hands over information about what is essential to include in the super user gatherings, and Trondheim Kommune creates the presentation, adds information to fit the Norwegian situation, find time and place for conduction. An interpretation from these findings is that there are no inputs from a users viewpoint in preparation for these activities. As the first generations of PD taught us: it is the workers who sit on the domain knowledge. They could have valuable input in the planning and preparation of both the training plans and super user gathering. Knowing what to focus on, what is well known, and where the uncertainty is laying for most of the users. This would imply that if users were included to a higher degree in the activities of training plans and super users gathering, the activities would have been back stage activities.

The last part of an activity, as defined in this research, is *why*—the motivation and reason behind an activity. The first thing that comes to mind in the development of such a large project is the benefit of replacing today's system and the profit the bigger picture will create. As seen in the work with profit realization, there are created goals and targets that the project aims to reach to ensure profit. Including the users in such activities could create a more accurate picture of reality. The data does show that the users were included in the work of defining strategic targets of profit for the

work of introducing Helseplattformen, but that the work afterward with categorizing, analysing, and choosing the eight "most important" was done by Trondheim Kommune. The users got included in the creation of the choices but left out on the selection, concertizing, and evaluation. Another finding is the inclusion of users in the multidisciplinary meetings in work with profit realization, where it gets commented on the need for people with relevant knowledge. With the multidisciplinary meetings, many choices have already been made, and the agenda is set. It is the situation with the unit meetings all over again.

Looking at the activities of profit realization as a whole, the original question *why* gets important. It is for defining and ensuring profit, but does it give the project anything other then a detailed checklist and something to submit if asked to present what they have achieved? Is it done because it is a requirement from the public sector, or is it done because it adds to the project and way of working? This is not possible to answer without following the project for longer, as the first targets and goals just have been defined, and not had affected the process as of today. A possible interpretation is that as the eight strategic targets are defined in parallel with the project, are the target affecting the project or the project affecting the choices of target? Are the work with profit realization taking more then it gives?

6.4 Limitations

This section will address the limitations of this research. Some limitations have already presented themselves but will be presented once more to the research's total limit. There have been mainly three limitations concerning the number of hours done observing, the Skype interviews, and the time frame of the project.

First, the number of hours observing where limited to a total of 13 hours. Ideally, more hours would provide a deeper understanding of how the work within Trondheim Kommune is done. Understanding the flow of information, how they communicate, and where choices are taken. If not used as data by itself, it would support the findings and understanding of other data. Observation would also create knowledge about the Norwegian healthcare system, which was new for the researcher. Having more experience in the Norwegian healthcare service would have helped to earlier on understanding the information found in documents first in the process, and created a more efficient use of time.

Second, the Skype interviews as a replacement for face-to-face interviews. Losing the possibility to read emotions and body language creates room for interpretation, which does not belong to the gathering of data. As a consequence, this may have lead to answers said by the interviewee in one way and interpreted another by the researcher. As it was known for the researcher how a Skype interview could affect the data, there were done actions to prevent or handle the obstacles, as seen in Table 7 in Chapter 4 Method. A possible addition to the work done to prevent the pitfalls of Skype interviews would have been to inform the interviewee of the importance of body language and nonverbal cues, so they have that in mind during the interview.

Finally, the short time frame. The project looked at in this case study is of considerable size, making this case study researching only a snapshot of the project. The research steps in this study was conducted from mid-January until and including April. May was used to write the finale report. Four months in the Helseplattformen project is not even a whole phase of it. The short time frame created a rush to understand how it all works, and made the research focus on the activities that have just been conducted or was in process. A possible consequence would be a loss of understanding of how the life of a activity is, always reviewing snapshots. Having a longer time frame would make it possible to look at the work results in the early phases.

7 Conclusion

This chapter will first present answers to the research questions presented in chapter 1 Introduction as a conclusion for this research. Lastly it will look at possible future work to be done.

7.1 Conclusion by research questions

The research presented in this thesis have been a qualitative study with the aim to investigate the place to back stage activities in large-scale projects. The motivation was to better equip large-scale project that wants to use the participatory design approach to design, making back stage activities as understandable as front stage activities is.

RQ 1 What defines back stage activities in participatory design?
This research shows that back stage activities can not be looked at the same way a front stage activity have been in the field of Participatory Design (PD). The data supports Bødker et al. (2017) definition of back stage activities being the activities unfolding between the front stage activities. Through interviews focusing on the activities presented in the different project plans, there was the activities mentioned just to give context such as preparation, analysis, planning, evaluations and discussion that shown to be the back stage activities. The main activities put in the project plans were sounded by back stage activities, both before and after them. It seems reasonable to say that a back stage activity belongs to a main activity, but not the other way around. It is a on-to-many relationship, where a main activity have many back stage activities, but the back stage activity only belong to one main activity. The aim of a back stage activity is to find the best, simplest and most beneficial way of conducting its main activity. Another characteristic seen in the back stage activities is that they are often conducted as meetings, not workshops, prototyping or group meetings. The meetings could be said to have a checklist of all parts that needs to be done, decided, evaluated or analysed in connection to a specific main activity. This could be deciding if the super user gathering should be done as one big group, or in smaller groups. And from there find the time and place for the activity. Another characteristic with back stage activities is the motivation behind them. The research shows that the motivation for back stage activities is to profit from the result. The back stage activities are conducted to support and make the main activities better fit for the setting they will be conducted in. The back stage activities are the main activities support system, helping to maximize the profit for conducting them. What turned out to be the most difficult part of defining the back stage activities, was the *who* of the definition. The case study did not include users in the back stage activities, reasoning it with trying to not overload the units and lines. However, now looking at back stage activities in direct relation to main activities that user do participate in, there is need for them to participate in the related back stage activities. This will create a deeper understanding of the reason for the activities and the main goal of it. To summarize, the back stage activity is defined by the main activity it belongs to, by the aim to maximize profit and as being a support system for the main activities.

RQ 1.2 How do participation take place in back stage activities?
This thesis supports existing research in the way of agreeing that participation do need to be a part of back stage activities. This case shows that back stage activities are being conducted no matter what. It could be that the once attending the back stage activities does not know it is a important activity to include user is or they leave the users out on purpose, either for their own sake or because it is easier that way. The research show that there is not meant as a insult to the users, and that they are no actively being left out, but either way, they are. There is no data on how participation take place in back stage activities, however, there is defines what a back stage activity is and from their possible to imply who participation could take place. As back stage activities got defined as mainly meetings,

user should attend them. And as a recommendation, the research implies that back stage activities belongs to a main activity. Having a set of user for each main activity, participating in all back stage activities connected to that main activity, could give great benefits.

RQ 2 What defines the relationship between participatory design and scaling?
This thesis shows to strengthen existing research on what is happening along the three dimensions size, distance and time in scaling of a PD project. The distance between stakeholders increase, and in this case the scaling even created a new stakeholder to fill the gap between existing stakeholders. The dimension of time changes from shot to long as it gets introduces several user and stakeholders. The research also shows that the relationship between users and stakeholders, and time gets more difficult to get a hold of. The more the project scale, the more liquid does time get. This dimension and the dimension of size, going from front stage to back stage as the project scale, result in a discovery regarding organizational work. As the PD project scale in size, distance and time, the project needs to introduce organizational work. The participation will start to stagnate and most of the work will be organizational. This is also time consuming, adding to the dimension of time. To answer the research question: the relationship between PD and scaling could be vied by size, distance and time, and when the size gets big enough, it will introduce organizational work and possible new stakeholders, increasing the scaling along the dimensions of distance and time.

7.2 Future work

The findings from this research is just the start when it comes to defining and understanding the importance of back stage activities in the field of PD. The study have shows to support a lot of the initial research done on back stage, but also exposed some new founds that would be interesting to investigate. This section will, based on the findings of this thesis, discuss and recommend arenas or subject that can be investigated further. There will be suggested three subjects of founds that would be of real interest to investigate further.

Parallel universes in scaling of PD projects
The founds in this thesis shows that management of communities could be in need of organization. Due to multiple stakeholders including the representatives of the communities in their work, there seems to be introduces parallel universes of management of communities. Participation, work and founds are limited to its universe, if not merged into the main universe and shared with others. This discovery could be interesting to investigate further, to see if this applies to other large-scale PD projects.

Relationship between organizational work, participation and size
Research introduce a relationship between organizational work, participation and project size. When the project reaches a certain size, the participation stagnates and the organizational work needed keep increasing. This translation from focus on participation to focus on organizational work would be interesting to explore deeper. A early hypothesis is that the organizational work could be done as back stage activities.

Participation by clusters in back stage activities
The discovery of a back stage activity belonging to a main activity introduces many thoughts of possibilities and wondering. The findings shows that a characteristic with back stage activities is the on-to-many relationship with its main activity. This would make it easier to understand what a back stage activity in large-scale PD projects are, and therefore where the users should be included. This discovery could be real interesting to apply to other case studies, to see if the stakeholders easier understand where to include the users and what effect it have on the result.

8 Attachment

Translation of quotations

Norwegian	English
De kommer med en oppsummering og analyse som vi da diskuterer.	They come up with a summary and analysis that we then discuss.
Denne kommer inn i prosjektledermøte, og så går resultatene til kommunalsjefsmøte og orgutviklingsteamet. Bearbeidingen og forståelse av resultatet starter med at de to analytikerne ser på dette fra et faglig ståsted, analysefaglig. Så kommer vi med vårt resonnement og så presenterer vi dette inn i orgutviligsteamet og kommunalsjefsmøte.	This enters the project manager's meeting, and then the results go to the municipal manager's meeting and the organizational development team. Processing and understanding of the result starts with the two analysts looking at this from an academic standpoint. Then we come up with our reasoning, and then we present this into the organizational development team and the municipal council meeting.
Vår reaksjon på dette er at vi strammer opp dette med kommunikasjon og peker veldig tydelig på de kanalene vi har. Bygger opp Google Pluss.	Our reaction to this is that we tighten up the communication and points very clearly to the channels we have. We build up Google Plus.
De skal slippe å gå på kurs for å vite hva HP er for noe. Du skal kunne logge deg på og av uten å sitte i et stort klasserom, det skal du ha lært på forhånd.	They won't have to go to classes to know what Helsepalttformen is. You should be able to log on and off without sitting in a large classroom - you should have learned this in advance.
e-læring, nanolæring, lære opp ledende superbrukere i forkant, etablere lokal læring gjennom sandbox hvor folk kan leke seg i tiden før.	e-learning, nano learning, training leading super users, establish local learning through sandbox where all employees play in the time before Go-Live
Selv om det kanskje ikke er beskrevet som en modningsaktivitet i en plan fra tidligere, er det en del av en aktivitet som gjør at folk får mer kjennskap til og satt i stand til å både forstå og etterhvert kjenne innhold og tanker rundt.	While it may not be described as a readiness activity in a previous plan, it is part of an activity that allows people to become more aware of and enable them to both understand and eventually know the content and thoughts around Helseplattformen.
For oss kontorarbeidere kan dra på samling uten at dette har noe å si, men superbrukerne har vakter og må tas ut av normal produksjon når de skal på samling. Derfor er det veldig viktig at når vi gjør aktiviteter som medfører at de må gjøre noe med turnusen sin eller at de må ut av noen vakter, er det kjempeviktig at vi har forankring i linja når at det får konsekvenser for driften.	We, office workers, can go to a gathering without it being a problem, but the super users have shifts and must be taken out of regular production when they are going to gatherings. Therefore, it is essential that when we do activities entailing that they have to do something about their shift, it's anchored with the line when it has consequences for the operation.
Vi er nødt til å koordinere slik at vi opptrer samstemt ovenfor enhetene.	We need to coordinate so that we act in harmony in front of the units

Continuation of Table 14

Norwegian	English
Jo nærmere vi kommer årsskifte, jo tettere vil superbrukeropplæringen være knyttet til det Epic har av program og HP kommer med. Vi har 100% innhold på starte og på slutten er det Epic og HP som har 100% innhold.	The closer we get to the end of the year, the closer the super user training will be linked to what Epic and Helseplattformen AS has of a program. We have 100% content at the start, and at the end, Epic and Helseplattformen AS have 100% content.
Det var fordi vi tror at det skal være til evig tid en sentral dimensjon i læringskulturen vi skal ha. Derfor, erfaringsvis, så trenger organisasjonen ganske lang tid på å stabilisere en rytme i en travel hverdag hvor det hele tiden er noe som brenner.	It was because we believe that this should always be a central dimension in the learning culture we should have. Experience shows that the organization needs quite a long time to stabilize a rhythm on a busy day, where there is always something burning.
Vi jobber med læringskultur i forhold til det å ha opplæringsplaner for hver enkelt medarbeider, ledere, avdelingsledere, for å følge opp og avklare behov i medarbeidersamtaler, organisere internundervisning, nye system, ikke bare på journalsystemer men andre områder som psykisk helse og sårsteill også. Vi jobber med læringskultur og tror at hvis alle enheter har en struktur på det vil det være veldig bra for fremtiden.	We work with learning culture as having training plans for each employee, managers, department leaders, to follow up and clarify needs in appraisals, organizing internal education, new systems, not only on medical records but other areas such as mental health and wound care as well. We work with learning culture and believe that if all units have a structure on it, it will be very good for the future.
Det som står frem er det at vi har jobbet me då systematisere arbeidet med opplæring og at vi jobber med dette kontinuerlig. Det å systematisere arbeidet med opplæring og legge til rette for opplæring ute på enhetene, og å ha fokus på dette med en god opplæringskultur. Det er vel den modningsarbeidet vi mener er viktig som en foreredeelse frem mot løftet til Helseplattformen.	To systematize the work on training, facilitate training on the units, and focus a good training culture. This is undoubtedly the maturation work that we believe is important as a preparation for the transition to Helseplattformen.
Det vi blant annet har gjort er at vi drar ut på møter med lederteamene, går gjennom hvordan de jobber med det som er av opplæring i dag. Blant annet gerica-planene og legemiddelshåndteringsplanene og ha en dialog rundt hvordan fokuset er på opplæring, riktig systembruk, dokumentasjonsplikten og hvordan man kan legge til rette for dette enda bedre.	What we do, among other things, is that we go out on meetings on each unit with the leader teams and go through how they work with training today, such as the Gerica plans and drug management plans. We have a dialogue about how the focus is on training, properly system usage, documentation requirements, and how to make this even better.
Det er my en samtale med de og bevisstgjøring knyttet til krav til dokumentasjonsplikt, krav til å legge til rette for opplæring for å ivareta dokumentasjonsplikten.	It's mainly a conversation with them and awareness related to the requirements to documentation, facilitate for training and safeguard documentation obligations

Continuation of Table 14

Norwegian	English
Da ba vi om møte med lederne og superbrukerne. Da snakket vi om tre ting. Det ene var opplæringskultur og hvordan de skulle aktivere superbrukere og hvordan de hadde gjorte og hva de tenkte rundt det, hvordan de kunne gjøre det. Og vi snakket om hvordan vi skulle planlegge høsten fagdager som er en del av endrings- og modningsarbeidet vårt. Vi snakket om gevinstene vi skal hente ut.	Then we asked for a meeting with the leaders and the super users. Then we talked about three things: one was about training culture, how to activate super users, how they had done this, what they thought about it, and how to do it. And we talked about how we should plan the fall subject days that are part of our readiness work. We talked about the benefit we are going to make.
Dette er en symbiose mellom dem og oss, som vi må finne formen på.	This is a symbiosis between them and us, which we must find the form of.
Det spørs litt hva det er for noe. Etter vi hadde forrige runde med møter med lederteam laget vi en slags rapport som ble delt med kommunalsjefene og kommunaldirektør og styringsgruppen. Vi har ikke gjort noe tilsvarene for superbukersamlingen. Informasjonen blir vel hovedsakelig delt i møter. Ikke noe mye tydelige tilbakemeldinger i rapportform.	It depends on what it is. After the previous round of meetings with the leader team on the units, we made kind of a report that was shared with the municipal managers, the municipal director, and the steering group. We haven't done anything similar to the super user gathering. The information is probably mainly shared in meetings. No clear feedback in the form of reports.
Hele grunnpilaren til HP er at man skal ivareta de 11 effektmålene, og det er det vi, gevinstprosjektet, arbeider etter. Å verifisere at vi oppnår de. Det er veldig tett linket opp mot alt som foregår i prosjektet, spesielt i forhold til linjeinvilvering, modning og forankring ut til linjen. Om det ikke ser noe endringsarbeid, man jobber på en ny måte, lærer seg det, optimaliserer løsningen, får vi heller ingen gevinster.	The whole pillar of Helseplattformen is that the 11 targets of impact must be met, and that is what we in the profit project are working towards - verifying that we achieve them. It is very closely linked to everything that goes on in the project, especially concerning the involvement of the lines, maturation, and anchoring out to the line. If there is no change, new ways of working, learning process, or optimization of the solution, we will not get any benefits.
For å komme fram til målene hadde vi sikkert et halvt år med masse workshops som involverte ledere, fageksperter, brukerutvalg og alle opsjonskommunene. Vi fikk inn 500 gevinster og laget en gevinstmodell som katigoriserte og analysert og plukket ut de viktigste.	To define the targets, we probably had half a year of lots of workshops involving managers, Subject Matter Experts (SME), user committees, and all the option municipalities. We got 500 winnings and created a profit model that categorized, analyzed, and picked the most important.
Dette kan være målinger vi har i dag, men det kan også være målinger vi ikke får til i dagens system.	This could be measurements we have today, but it can also be measurements we can't get from today's system
For å finne baseline innen brukervennlighet skal vi ha noen spørsmål i modenhetsanalysen som går ut i november.	To find a baseline in usability, we have some questions in the maturity analysis that is due out in November.
Det med endring og modning er så mye mer enn det som er beskrevet i prosjektplanene, det er alle de der små dryppene.	Readiness is so much more than what is described in the project plans; it is all those little drips.
Dette har variert.	This has varied

Continuation of Table 14

Norwegian	English
Noen av de kan ha en rolle som medlem av fag-gruppe, superbruker eller ressursperson, men det har på en måte ikke ligget som noe krav for å være med. Det viktigste er fagkunnskap og kjennskap til egen organisasjon og egen enhet.	Some of them may have a role as a member of a professional group, super user, or resource person, but it has not been a requirement to join. The most important is expert knowledge on their subject and understanding of their organization and unit.
Det er noe med å samle en del folk i samme rom. Snakke om de samme tingene. Det er en erfaringsoverføring. Og så ser vi at selv om det er de samme tjenestene som ytes, trenger det ikke å gjøres helt likt. Det er noe kompetanseutvikling i det også.	There is something about gathering people in the same room. Talk about the same things. It is an experience transfer. And then we see that although these are the same services that are offered, it does not have to be executed the same way. There is some skills development in that too.
Hvor det egentlig blir enda mer besluttet eller man får mer klarhet i hva de andre synes og hva man skal gå for og hvordan man ska forholde seg. Da blir diskusjonen vridd i en politisk retning. Da er de plutselig på politikk, og de er jo der for å diskutere helsepraksis. Men så tenker jeg egentlig "er dette egentlig så dumt?" er ikke dette bra i vårt demokratiske system av PD faktisk går på politikk eller ska de holde seg unna det?	where even more decisions are taken, or you get more clarity in what the others think, what to go for, and how to relate. Then the discussion gets twisted in a political direction. Then they are suddenly on politics, but they are there to discuss health practices. But then I think, "Is this that stupid?". Isn't this good in our democratic system that PD touches politics? Or should they stay away from it?
Vi bidrar der vi kan og så er det nok veldig mye som har skjedd i formelle møter, men også litt i det uformelle.	We contribute where we can, and then there is probably a lot that has happened in formal meetings, but also in the informal.
Det er veldig viktig for meg at jeg kjenner kommunehelsetjenesten fra før. Om jeg har spørsmål noe, vet jeg hvem jeg skal ringe og har ansvar for det. Jeg tror det er essensielt uansett jobb.	It is very important to me that I know the municipal health service from before. If I have questions about something, I know who to call and who is responsible for it. I think it is essential regardless of the job.
Jeg opplever at den silo-tankegangen er litt mindre rett og slett fordi det er så mye sammenhenger og at det er flere nå som har koll på flere områder.	I find that the silo mindset is fading away simply because there are so many connections and that there now are more people who are aware of several areas.
Det blir sikkert et møte for mye og for mange, men det er likere enn å jobbe på siden av hverandre uten å se hverandre.	It will probably be a meeting or two too much, but it is better than working side by side without seeing each other.

Table 14: Norwegian to English translation of quotations.

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