Cand.soc. / MSc in Social Science

Master’s thesis

How can different actors align meaning, values and philosophy in the implementation of welfare technology, in the cooperation between industry and municipalities?

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Resume

This study explores how the implementation of welfare technology takes place in a private - public innovation process. To meet the growing number of elderly, new and modern methods is an important part of the local health and care services in Norway. The study has its focus on what happens in the interaction between the actors involved in a pilot project called Trygge Spor (Safe Tracks) carried out by SINTEF and five municipalities. SINTEF is Scandinavia's largest independent research organization (www.sintef.no) ¹ The purpose of this study is to conclude whether the industry and municipalities, based on different meaning, values and philosophies, is optimally functioning with respect to the organizational challenges related to the implementation of welfare technology.

The project involves testing out Global Positioning System (GPS) with fifty-five users living in their own home over a time period of six months. An important part of the project Trygge Spor is to evaluate the effect of the use of GPS in relation to the user, their relatives and staff in the care sector. A report develop by the Norwegian Health Directorate stresses that the aim behind the implementation of welfare technology is to give the elderly a better opportunity for taking care of themselves and their own health (NOU 2011:11)² Based on this report, one can argue that welfare technology can create a better standard of living for the elderly living in their own home as well as providing security for both themselves and their relatives.

I want to go more in depth to find out people’s attitude toward the use of future welfare technology. This will be explored by focusing on four sub questions which I have addressed to answer my research question. In this paper I suggest that a useful way of understanding and assessing organizational change around welfare technology is through examining the shared cognitive assumptions that people have about welfare technology and its role in their organization.

¹ http://www.sintef.no/trygge-spor
² NOU: Norges offentlige utredninger (2011) “Innovasjon I Omsorg”
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There were five municipalities who attended the project in cooperation with SINTEF in January, and I would like to thank all of them who contributed to my data analysis.

Two of the five municipalities in this project were informants during my research, and I thank the informants for all their time and knowledge; you let me get the opportunity to get your experiences from the pilot project.

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1 INTRODUCTION

1.1 Topic
The topic that I have chosen to investigate has social significance and is relevant because of the increasing growth of elderly and the future challenges it involves. One of the challenges consists of the demographic challenge. Within 2030 there is expected to be a significant increase in the population of elderly which will result in a growth in the number of people with age-related diseases such as dementia and heart failure. This will raise the demand for public health care services. Another incentive for implementing welfare technology includes the social challenges we are faced with in today’s society; the life expectancy has increased; we have more and different requirements than the previous generation; and we see the need for economic savings related to the elderly care. The background for my master thesis and the subject I have chosen is based on my own motivation and interest related to the elderly care. My personal experience of having worked at Hovseterhjemmet for six years has sparked a special interest in how the welfare system in Norway works. Hovseterhjemmet is an institution for elderly located in Oslo and I have been working there since 2007. My position I had during those years was as a nursing assistant at a closed unit for elderly with dementia. Welfare technology, such as sensor technology and GPS (Global Positioning System) can provide elderly with the opportunity to continue to stay longer in their own home. GPS is a satellite-based tracking technology used outside to find geographical position and it works primarily outdoors (www.sintef.no)

Arguably, welfare technology may have the potential of improving quality and increasing productivity in social services.

The report by NOU 2011:11 ”Innovasjon I omsorg” (Innovation in care) defines welfare technology as a technological assistants with the purpose of creating increased safety; safety in general; social participation; mobility; physical and cultural activity; and strengthens the individual's ability to be able to take care of themselves even though they have illnesses or reduced social, mental or


4 Trygge Spor: “GPS-løsninger og tilhørende støttesystemer for personer med demens Innovasjonsprosjekt i offentlige sektor” (2011-2012) SINTEF
physical function ability (Innovasjon I Omsorg). A pilot project created and led by SINTEF, which is Scandinavia’s largest independent research organization allowed me to fully understand how GPS worked in the field, and how the actors involved experienced challenges and opportunities related to the use of GPS. Trygge Spor (Safe Tracks) is a public innovation projects funded of Oslofjord Fund. The project has been organized through a pilot study in 2011 and a major study in 2012 and carried out in the cooperation with five municipalities. The municipalities have worked together to develop knowledge about the use of GPS. The main actors in this paper are representatives from municipalities and industries who are directly or indirectly involved in the process of implementing welfare technology. I have also explored other actors involved. This includes public organizations such as the Norwegian Health Directorate and Data Authority; research councils such as NOVA and SINTEF, and care workers who have experience from working with elderly in both institutions, nursing homes and in their private homes.

I have also explored other actors who are not directly involved in the interplay of welfare technology, but who are relevant, in my opinion, to my research. Examples of these actors are Professor Ole Hanseth at the University in Oslo, who has knowledge about innovation in public organizations, and Professor Rolf Rønning who has written the book “Omsorg som vare” (Care as a commodity). Rønning contributed with his knowledge related to care for elderly in Norway.

Technology will in many ways have consequences on the health care organization because of the rapid development in society today. Mainly, I have examined the overall welfare technology, but also used GPS as the main focus for my research.

The empirical basis for this study is the need for innovative solutions in the elderly care with focus on welfare technology. The Hagen selection, who wrote the report “Innovation in care” led by Kåre Hagen, emphasize challenges facing society in relation to the elderly, such as strong growth in the number of elderly and lack of manpower or care workers. These challenges will increase the populations need for health care services. The Hagen selection describes that we must orient health-, care- and welfare services differently than we do today in order to meet these challenges. In addition, they also point out that there is a need for a systematic innovation in local government in this area (NOU 2011:11 Innovasjon I Omsorg). The Norwegian society is facing major challenges related to demographic changes; chronic diseases; and reduced care workers. Another incentive for

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5 NOU: Norges offentlige utredninger (2011) “Innovasjon I Omsorg”
implementing welfare technology in the elderly care is the big costs in nursing homes. Each resident at a Norwegian nursing home costs the society about 880,000 Norwegian kroners per year, almost four times more than the costs per elderly who receives home care services. There are consequently reasons to believe that the government would benefit financially if the elderly can stay longer in their homes. Tomorrow’s generation of elderly differs from the elderly today. Their expectations and motivation for being independent and being able to live longer in their own homes is probably higher than the elderly today, because of the technology and greater opportunities available in today’s society. The knowledge of future elders related to the use of technology could also be an incentive for implementing welfare technology. In addition, most people want to be able to take care of themselves as long as possible in their own homes. Furthermore, research and innovation is essential to address the challenges this implementation contains.

1.2 Problem statement
The decreased level of health care workers and the increased number of elderly will consequently raise a strong need for more and better suited health care services for the Norwegian population. New technology can contribute to improve quality and increase productivity in social services (www.sintef.no)

GPS can locate where a person is, while sensors for instance, can give a notification to the home care services that a person in their own house has fallen or hurt themselves. Through observation, benefits and challenges related to the use of GPS have come to light. The benefit with GPS is that people with reduced memory can walk outside and feel safe at the same time, as long as they carry a GPS. This can contribute to more mobility for the elderly, increase their physical health because of activities and at the same time making them able to stay longer in their own homes. This can contribute to that the elderly can be free to move, and consequently increase their physical health because of activities, and that they can stay longer in their own home. However, there are also some barriers related to GPS. One of them is how to ensure that the actors involved speak the same language. This involves the end user (the elderly); the care workers; the relatives; the researcher; the suppliers; the municipalities; and the government. Another challenge is that the person that uses a GPS may feel monitored because the GPS locates where a person is. One can assume that the most important variable for successful implementation of welfare technology is

7 Finansavisen, 18th of June 2012, SSB figures KOSTRA base
8 http://www.sintef.no/trygge-spor
common interest and agenda among the actors involved. In every modern society there might be a significant challenge to find an appropriate balance between investing in 1) research and 2) opportunities to develop new and social beneficial knowledge and technology. In research or technology one can argue that the different actors in the process of implementing welfare technology in the Norwegian Society would have different agendas and interests. It is also a major challenge to identify which methods, assessments and values that are essential in a research process. Ethical reflections must be included in any part of a functioning research process. I will investigate these different interests in depth. SINTEF’s input to the government argues that global challenges require technology shifts and new knowledge. Many stakeholders believe that it is not possible to ensure a sustainable development to address these major global challenges facing society.

1.3 Research Question
My focus will be on the various actors involved in the process of implementing welfare technology and each actor’s attitude, assumptions and opinion in the interplay. The main question is how welfare technology is created and implemented in such a process.

Research Question:
“How can different actors align meaning, values and philosophy in the implementation of welfare technology, in the cooperation between industry and municipalities”?

I have chosen to address four sub questions which I developed during my research.

1) What is the relationship between organization and technology in the process?
2) What is the nature of conflicts between the municipalities’ welfare technological visions and other involved actors' visions?
3) How do regulations on public procurement affect the interactions between players?
4) How are users involved and represented in the process?

1.4 Method
This master thesis is aimed towards different stakeholders who are engaged in the interplay of implementing welfare technology. The study will provide knowledge within two agencies; namely representatives from industries and representatives from municipalities. Throughout the process of mapping actors involved, I will try to understand their shared beliefs and common understanding of welfare technology. Shared beliefs are important in the sense that it must be facilitated for the
various actors to collaborate on innovation. The key actors involved in such interaction may have a better starting point for a successful implementation of welfare technology if they have the same understanding of welfare technology. During my research I used Sensemaking, Technological Frames, and Institutional Theory as a theoretical framework for my master paper. Sensemaking is relevant because it allows me to get an understanding of how the actors make sense of welfare technology. In other words, I am using Sensemaking to explore the actor’s behavior towards welfare technology and how they act in the interplay of the implementation of welfare technology. During my research I chose to address Technological Frames which gave me the opportunity to provide an overview based on the actors underlying assumptions, meanings and expectations related to welfare technology. In this way, the actors can interact with technology by making sense of it. This theoretical framework also addresses the challenges identified among the actors, and allowed me to investigate the process of creating shared understanding across different stakeholders. Based on my semi-structured interviews, which take the following structure grounded on Technological Frames by Orlikowski and Gash, I have gathered information from different actors and empirically collected data during a close interaction with SINTEF. With this framework is allows me to look at patterns of shared meaning around a specific organizational issue – the development and use of welfare technology. And this exploration will further lead us on to congruence or incongruence where I will discuss my final findings. Institutional Theory is the third theoretical framework I chose to address which allows me to map how the actors experience institutional pressure (as political pressures and institutional constraints). By implementing Institutional Theory combined with Sensemaking, this will probably give med a richer interpretation of the implementation of welfare technology by linking macro with micro levels. One can argue that the different actors involved in this process, may have different agendas and interests of how and why they would implement welfare technology in the elderly care. Hence, it would be interesting to investigate what these different interests are. I have therefore focused on shared frames within each group (for example within the municipalities) and differences in frames across groups.

1.5 Structure
The next chapter will guide the reader through the theoretical framework I have chosen to address in my master thesis. This section will describe the theory, why it’s relevant and how it is supposed to be applied in the chapter of analysis. The third chapter focuses on the setting of my study with the presentation of SINTEF, the project Trygge Spor (Safe Tracks) and my own role. This chapter
will present methods and reflects my work, both in the pre-phase prior to the interviews and the actual work in the field. It shows the structure of my interview schedules, and I also explain why I chose to address semi-structured interviews. The reader can expect to get insight on how my research was conducted, structured and processed in terms of collection of data. *Chapter four* is a case description to prepare the reader for the analysis in chapter five, with facts based on the situation in Norway today related to the elderly care. The *fifth chapter* guides the reader through the analysis process. This chapter presents my findings from the in depth interviews I have completed, and demonstrates my observational findings during the process of Trygge Spor. Finally, chapter five will respectively provide the results from the analysis of my research question and I will link the findings to the theoretical concepts I presented earlier (chapter 2). *Chapter six* consists mainly of discussion, as well as findings and perspectives. Based on the findings and analysis I will discuss some relevant questions to complete the research study. Under different sections, I will criticize and comment on my choices during the writing of this paper. I reflect on what the different choices means for my paper, and go more in depth on my working process. *The seventh, and last, chapter* includes the conclusion. This section will summarize my findings, theory and method. The chapter ends with a perspective drawing and suggestions for further research.
2 THEORETICAL PERSPECTIVE AND FOUNDATION

In my thesis, I have examined the elderly care in Norway and the consequences of the growth of elderly and its challenges. These challenges raise questions related to new and more sustainable solutions within welfare technology. The aim of this chapter is to establish a theoretical framework for my research that can support my analysis and hopefully contribute to answer my research question. This research paper focuses on how various types of actors act in the interplay of implementing welfare technology in the health care sector in Norway. The intention of this research paper is to explore the interplay and the involved challenges related to the implementation and the interactions across the stakeholders. Tracking technology or tracking devices are associated with Global Positioning System (GPS). GPS is a satellite-based tracking device used outside to find geographical position (www.sintef.no)\(^9\). I have chosen to allow other types of welfare technology in my studies, in addition to GPS, such as sensor technology. In this chapter I will provide the reader with the function of the theory; how to connect different theory; as well as solutions and problems related to the theory. I will elaborate on why the theory is relevant and discuss the perspectives from the different theories.

2.1 Theoretical Foundation

There is no right or wrong theoretical framework when examining my topic, since every topic can be looked at from a numerous of different perspectives. My research question explores how actors align meanings, values and philosophies in the implementation of welfare technology, in the cooperation between industry and municipalities. To answer this research question, I have examined the attitudes of different actors in relation to the implementation of welfare technology, and I am interested to find out if there are differences and similarities between the attitudes of municipalities and suppliers. Therefore I have addressed Sensemaking, Technological Frames, and Institutional Theory as theoretical frameworks for my paper. I have addressed Sensemaking as an overall perspective in relation to technological frames, and this will function as the domain theory throughout this paper. Weick E., Sutcliffe M., & Obstfeld David (2005), argues that Sensemaking stress how identity (who we think we are) is being shaped when we enact and interpret. I link Sensemaking to the exploration of attitudes among the actors considering the implementation of

\(^9\)http://www.sintef.no/upload/Konsern/Trygge%20spor%20rapport_enkle%20side%20lav%20oppl%20sning%20(2).pdf
welfare technology, and this will hopefully help me to understand how identity constructs the perspective of someone. Furthermore, the theoretically framework of Orlikowski and Gash on Technological Frames will hopefully contribute to explore the actor’s assumptions and expectations towards the implementation of welfare technology. The increase in the elderly population forces many to think towards new directions, and therefore I will address Institutional Theory to explore whether there are institutional pressures among the actors. I will now go more in depth on how I have applied the different theories to answer my four sub questions which I presented in the previous chapter.

Firstly, I have addressed a theoretical framework about Sensemaking. The theoretical framework of Weick, Sutcliffe and Obstfeld (2005) will hopefully provide the research a particular perspective when examining this topic and will especially be useful when answering the sub question number one, namely; what is the relationship between organization and technology in the process? This is mainly because Sensemaking explores how identity constructs the perspective of someone, and is linked to how actors align assumptions, values and philosophies in the implementation of welfare technology. In addition I have chosen to address the concept of Vlaar, van Fenema, & and Tiwari (2008) on how actors can make, demand, break and give sense in the interplay of actors. This will hopefully give me an understanding of how different people can become more congruent and actionable with each other. This concept will contribute to my discussions in chapter six,

Secondly, I wanted to explore the interplay between the actors more in depth as I interviewed fifteen people, including from the health care sector, representatives from various research groups, private and public organizations, municipalities and suppliers of technology. Therefore I chose to supplement with Orlikowski and Gash’s Theoretical Framework, where I formed my interview guide based on their domains of Nature, Strategy and Use. I will go more in depth on these three domains in a later section in this chapter. As a part of my research I will also try to find out the cause of the differences or similarities that emerge - for example, whether certain attitudes can be linked to different values, work processes etc. Orlikowski and Gash’s view will also be useful for analyzing collected data and when answering the second sub question; what is the nature of conflicts between the municipalities’ welfare technological visions and other involved actors' visions? I will address Orlikowksi and Gash structure on Incongruence and/or Congruence to analyze this question. The theoretical framework allows me to distinguish between the actors and categories them under technologists, users and managers. In the analysis I will go more in depth on
the different categories and whether I have detected Congruence or Incongruence.

Thirdly, one can argue that one group is putting pressure on the other. Therefore I chose to address Institutional Theory, and this will hopefully contribute to answer my sub question number three; how do regulations on public procurement affect the interactions between players?

Finally, the fourth and last sub question; how are users involved and represented in the process? This question will be answered through address my observational findings and by relating these findings to the knowledge and experiences I got in relation to the pilot project Trygge Spor. In other words, I will not address any theory directly to answer this question. I will now go more in depth on the different theories I applied throughout my paper.

2.1.1 Theoretical area 1 – Sensemaking

“Sensemaking is about the interplay of action and interpretation rather than the influence of evaluation on choice”

(Weick, Sutcliffe, and Obstfeld; 2005:409).

In order to understand what Sensemaking is, one should be familiar with the term Organization. This familiarization is due to the close connection between the process of organizing and the process of Sensemaking. Weick, Sutcliffe, and Obstfeld (2005) argue that Sensemaking illustrates people organizing to make sense of confusing inputs and enact this sense back into the world to make the world more orderly,. Sensemaking is a relevant theory for my paper, firstly because it stresses how identity constructs the perspective of someone. Sensemaking address questions such as: Are shared beliefs a necessary condition for organized action? I address Sensemaking in order to examine how the different stakeholders in the interplay of welfare technology act; their behavior towards other actors; and how they interpret the consequences of implementing welfare technology. Sensemaking is therefore relevant because it touches upon my sub question number one; the relationship between organization and technology in the process, by addressing how different actors align assumptions, values and philosophies in the interplay of implementing welfare technology. Probably, the actors involved experience an outcome in different ways. As Weick, Sutcliffe and Obstfeld (2005) emphasize in their paper; what is plausible for one group, such as managers, often proves implausible for another group, such as employees. Therefore I will use this perspective when I further on tries to understand how the different actors involved make sense of actions, and whether there are shared or different frames
within and also across groups. This explores how shared understanding and common sense are necessary for a successful implementation. Further on, Weick, Sutcliffe and Obstfeld (2005) stresses how the images of us changes as our identity (who we are) are decided by others. In other words, if the image of us changes, our identity may be destabilized. I will address the construction of identity to explore how the different actors align themselves in the interplay of welfare technology. And this exploration will further on be useful to answer my first sub question about the relationship between organization and technology in the process. I have chosen to address the concept of Sensemaking by Vlaar, van Fenema and Tiwari (2008) which concerns acts as sensegiving, sensedemanding, and sensebreaking. This concept will according to Vlaar complete the action of sensemaking. I will relate this theory to the focus on lessons learned based on my findings in the analysis, and how one can point the way forward. What needs to be facilitated for the industry and municipalities to apply innovation in this process? This concept allows me to investigate how and why the different actors are framing experienced situations as meaningful which. Furthermore, the findings will be presented in chapter five under analysis, as well as in chapter six under discussion, and I will return to some of the sub questions highlighted in these chapters. In the end I will reflect upon the theoretical implications of the analysis, and the insight that I have gained from it with a hermeneutic interpretation perspective. Vlaar, van Fenema and Tiwari (2008) gives me a detailed insight on how actors make sense of their tasks, which increases the likelihood that congruent and actionable understandings emerge. They are discussing the significance and impact of how the actors involved make sense of their tasks and their environment. I will address this theoretical framework in chapter six (Discussion), for exploring how actors make, demand, give, break sense.
2.1.2 Theoretical area 2 – Technological Frames

“In Technological Frames are the set of assumptions, meanings, knowledge, and expectations that people use to understand the nature and role of technology in organizations “

(Pinch and Bijker, 1987, in Orlikowski and Gash, 1992:3)

In this paper I argue that a useful way of understanding and assessing organizational change around welfare technology is through examining the shared cognitive assumptions that people have about welfare technology and its role in their organization.

My semi structured interviews take the following structure based on Technological Frames by Orlikowski and Gash and their concept of nature; strategy, and; use. This approach has provided me with an overview based on underlying assumptions; meanings, and; expectations that the actors have about welfare technology. In that way the actors can interact with technology, by making sense of it. This frame will hopefully give me an overview of the challenges identified among the actors, and allow me to investigate the process of creating shared understanding across different stakeholders out of congruence and incongruence individual’s perspective and varied interest. This framework will at the same time explore my third sub question related to if there are conflicts between municipal welfare technological visions and other involved actors’ visions.

The framework of Orlikowski and Gash (1992) allows me to differentiate between three social groups which are categorized as managers; technologists; and users. Comparison of frames across groups creates an analysis which can identify sources of 1) conflicts among actors involved in the change, 2) barriers who facilitates technological change, as well as the 3) intended and unintended outcomes of the change process.

One can assume that these three groups (managers, technologists and users) would have different assumptions about welfare technology. As Orlikowski and Gash discuss in their paper, the different actors involved have a certain dialog with each other, and one can assume that by various groups negotiating with each other they change meanings around the technology.

In the article of Orlikowski and Gash (1992), Kling and Gerson (1986) discuss how Managers are the organizational decision maker. The managers control resources, set organizational objectives and strategy, and later influence the direction of change.
In my paper I will explore different actors involved and I believe I will find all of the different groups as managers, technologist and users in the interplay of implementing welfare technology. One example of managers is the Norwegian Health Directorate.

Technologist is the second group, and involves either internal or external system developers, and will in this case be the suppliers. They have the main responsibility for the design, construction, installment and maintaining the information technology to be used in the organization. In this paper a typical technologist would be Telenor who provides and develop welfare technology.

The last group, which is Users, employs the information technology in their daily tasks to perform production work for the organization. This group consists of the municipalities and the care workers. Orlikowski and Gash believe that these three groups will have distinctive technological frames representing that group’s particular experience, interaction and understanding of the welfare technology.

2.1.2.1 Nature, Strategy and Use

I have followed the structure of Orlikowski and Gash (1994), which allows me to address Nature, Strategy and Use for structuring my interviews. These domains have made it easier for me to characterize the interpretations that the participants made about welfare technology. It also contributed to a good way of structuring my collected data for the analysis I did in chapter five. I consider in turn each of the three domains outlined: nature of technology, technology strategy and technology in-use.

(i) Nature of Technology – refers to peoples images of the technology and their understanding of its capabilities and functionality

(ii) Technology Strategy - refers to people’s views of why their organization acquired and implemented the technology. It includes their understanding of the motivation or vision behind the adoption decision and its likely value to the organization

(iii) Technology in Use - refers to peoples understanding of how the technology will be used on a day to day basis and the likely or actual conditions and consequences associated with such use

These domains will function as a theoretical framework throughout my paper, as I use these domains for structuring my interviews. This domain has been a functional tool for me when I was
developing the schedule for the interviews, where I was categorizing them under Nature, Technology and Use. I believe the concept of Technological Frames and its three domains is useful for examining the key actor’s interpretations of welfare technology. In the next section I will explore how Congruence and Incongruence arises, and examining its relevance in this paper and how this concept will be addressed.

2.1.2.2 Congruence and Incongruence

In this section I will explore the assumption that one of the success criteria for succeeding with the implementation of welfare technology is congruence between the actors involved. My sub question number two which stresses the nature of conflicts between municipal welfare technological visions and other involved actors' visions, will be answered in the section of Analysis based on congruence or incongruence.

Orlikowski and Gash (1992) define the notion of congruence in technological frames as referring to frames that are aligned, based on assumptions, meanings, expectations and knowledge. This does not mean identical, but with aligned is meant more like falling within a certain range on the same field. They argue that there will always be a difference in amount and detail of knowledge about information technology across frames, and based on this assumption I will examining whether there are similar or different frames across the actors.

Orlikowski and Gash (1992), focus on similarities of frames within each group and differences in frames across groups. I will apply this perspective during my analysis, with the purpose of detecting Incongruence, and examining differences in frames within and across groups.
2.1.3. Theoretical area 3 – Institutional Theory

I have chosen to apply Institutional Theory for answering sub question number three on how the regulations on public procurement affect interactions between players. I believe this will give both interpretive analysis of welfare technology and institutional analysis of structural, cultural and political issues. The goal is to map how the actors experience institutional pressures. They may perceive the institutional pressure as a political pressures and institutional constraints. In other words, this can involve rules and regulation, based on top-down or bottom-up processes, or both. One can argue that there is a certain institutional pressure in the Norwegian society and that the actors involved, relating to the implementation of welfare technology, are acting because of that pressure. When talking about institutional pressure in this setting, I am referring to the relation between the elderly care and its challenges associated to the growth of the amount of elderly which will affect all actors involved. Institutional theory is well suited to explain the effects or outcomes of institutional pressure; therefore I have chosen to use a combined theoretical framework of Sensemaking and Institutional Theory. Weber (2003) argues that the media provides corporate vocabularies and that corporate social structures direct the distribution of these vocabularies among actors. In other words, Weber mention how institutions in the form of public discourse define the problem to which corporate actors respond, but those public institutions do not appear to direct the solutions (Weick, Sutcliffe and Obstfeld; 2005). Jensen et al (2009) argue that institutional theory will contribute to insight in the micro level processes of the actors and the interplay between them, and at the same time focus on macro level structures addressing the organizational field level and organizational level of analysis. In the next section I will elaborate on how the different theories relate to each other and in what way they give meaning to answering my four sub question mentioned in the Introduction.
2.2 Summary
The theoretical framework of Orlikowski and Gash are relevant in that sense that it structure my interview guide by the three domains, Nature, Strategy and Use. Furthermore it functions as a useful tool when interpreting the data during the analysis as it allows me to distinguish between managers, technologists and users. By following Orlikowski and Gash’s Technological Frames together with Institutional Theory, I believe this will give both interpretive analysis of welfare technology and institutional analysis of structural, cultural and political issues. Sensemaking explores the world by asking the question, “same or different?” related to when one perceives the world differently than others. This theoretical approach may contribute to answer my research question number one. When the situation feels differently, this can be related to Orlikowski and Gash’s view on Incongruence.

The framework of Orlikowski and Gash will further on be useful for answering my sub question number two, if there are conflicts between municipal welfare technological visions and other involved actors' visions. Incongruence affects the whole interplay, while congruence in technological frames refers to frames that are aligned, based on assumptions, meanings, expectations and knowledge. In this way I connect Sensemaking with Technological Frames. Weick (1995) claims that sensemaking is the feedstock for institutionalization (Weick, Sutcliffe and Obstfeld; 2005). Institutional Theory combined with Sensemaking will probably give a richer interpretation of Information Systems implementations by linking macro (Institutional theory) with micro-levels (Sensemaking) analysis. This allows me to go more in depth in what kind of institutional pressure the actors experience, and how they act based on different interpretations and assumptions.
3 METHOD

This chapter will present methods and reflects my work, both in the pre-phase prior to the interviews and the actual work in the field. The reader can expect to get insight on how my research was conducted, structured and processed in terms of collection of data. The empirical material consists of fifteen in depth interviews; observation during project meetings; conferences; and various relevant documents. The purpose of this chapter is to validate the entire study as an academic work where findings, analysis and conclusions must be viewed on the basis of participants, design and procedures. In any process and organization there is a variety of different links and activities taking place. In a study to be meaningful, one must make adjustments and choices. In this chapter I will therefore explain the choices I have made during the research process, in order to create transparency about the basis for the study and increase its credibility and reliability. I chose to use an explorative/inductive method to get as much knowledge as possible from the studied presentation of the problem.

Firstly, I will describe the setting of my study by presenting the scientific approach I chose based on the theoretical framework I presented in the previous chapter. Further in I will discuss the research perspectives of Kvale, and discuss why a hermeneutic interpretation is well suited for my study. Next, I will go more in depth on the access and my own role during this study. In this section I will give a presentation of SINTEF, the project Trygge Spor (Safe Tracks) and my own role. Under research methods I will address why I choose semi structured interviews, how my data was conducted and structured with the actual process of the study, and furthermore explain the choices I made during the process. Then I will explore the process of recruitment of informants, before I explain how I conducted the data, by describe my in depth interviews and present a table of participants (this can be found in appendix 3). In the end I will describe my second method of conducting data, namely observations, before I end this chapter with a brief of the data analysis and explain how I developed my interview schedule.
3.1 Qualitative Analysis

The theoretical concepts presented in the previous chapter request a method that allows me to follow and analyze the technology and discover how it is shaped in multiple contexts to answer the research question. My research question calls for a qualitative analysis, and an inductive approach. This study has an inductive approach because of the bottom up approach, where I address questions related to the interaction between the actors involved. In this chapter I explain and reflect upon the work I have put into collecting, selecting and analyzing my empirical material. The main focus has remained on the collaboration and interplay between the industry and the municipalities. The research took part with the applied framework by Orlikowski and Gash’s *Technological Frames* and its key structure involving Nature, Strategy and Use. My semi structured interviews had a theoretical framework based on Technological Frames, and will be further discussed in the analysis combined with the theoretical framework of *Sensemaking* and *Institutional Theory*. This allowed me to map the actors’ perspective on welfare technology, and explore whether there is congruence or incongruence among the actors. I have outlined the interview questions beforehand by studying Orlikowski and Gash’s structure. I followed the structure mentioned above in almost all of the inter interviews I conducted. Some of the interviews I had in the beginning, for example with the Health Directorate were not completely structured. By using semi structured interviews, the data was at some point already framed and ready for analysis, in the categories of Nature, Strategy and Use. This made it easier for me to apply the data related to the four sub questions that I have addressed. However, as Breakwell claims, if I had chosen a structured interview schedule it would be even easier for me to interpret the data, and less time consuming.

“The problem is obviously less acute if you use fully structured interview schedules, since then the response variety is constrained”

(Breakwell, M. Glynis; “Research Methods in Psychology” 2012; 250)

3.1.1 Research perspective

According to Kvale (1997) there are four philosophies which highlight different cognition aspects that are relevant and can be related to the qualitative interview. The four philosophies consist of the
postmodern view; hermeneutic understanding; phenomenological perspective; and dialectical approach. During my interviews I was guided by a hermeneutic approach which means that the interpretation of the meaning is the central theme. The purpose of a hermeneutic interpretation is to grasp the valid and universal understanding of a text’s significance. Kvale (1997) argues that to make an understanding of the next interpretation of the produced interview texts, this can finally be experienced as a dialog or conversation in the text. In other words, one cannot understand the whole picture without understanding the different parts of it, and one cannot understand one part without the whole picture. The interpretations of meanings are characterized with the hermeneutic circle, which are illustrated in appendix (see appendix 1). The hermeneutics spiral illustrates a certain pre-understanding of something that can be described as fruitful which give opportunities to have a deeper understanding of a meaning. For every interview I conducted I develop a new understanding of the phenomenon. For each dialog I had with SINTEF, I got a new understanding. The hermeneutic spiral explains my first interpretation of my research field and at the same time the keeps continuing in an endless learning process. I became aware of incongruence after having conducted several interviews with people from the industry, municipalities or organizations. This leads me to address the snowball effect, where one dialogue with one actor leads me to talk to another and so on. I had to stop being affected by the snowball effect after interviewing two of the municipalities which were involved in SINTEF’S project Trygge Spor. The snowball effect is a figurative term for a process that starts from an initial state of small significance and builds upon itself, becoming larger. I did a strategic choice when it comes to my informants, and I ended the interviewing process when I had a certain selection of representatives. I was satisfied when I had representatives from the municipalities on the one side, and representatives from the industry on the other. I have applied a model which illustrates a snowball (see appendix 2). The figure illustrates that as you get more contacts, the ball continues to roll, and the network expands in different directions. Tips for names and people to contact, I got underway, particularly in connection with interviews, but also by attending various seminars and conferences. By following this methodology, I moved between different types of actors in various fields - in the municipalities, among suppliers and other organizations.

3.1.2 Access and own role
During my thesis I have been working closely with the Department of Technology and Society at SINTEF. I was in contact with SINTEF Oslo and have been in contact with two of the employees
there. During my time writing the master thesis, they had an ongoing pilot project called “Trygge Spor” (Safe Tracks). As my focus is on the interplay between the municipalities and the industry, SINTEF has helped me to get in contact with people working in the municipalities. The working relationship I have had with SINTEF has been significant and they have guided me in challenging situations. Since they have had their pilot projects in several municipalities, they also gave me access to two of the municipalities for insight in how the municipality perceives the implementation of welfare technology based on their experiences from Trygge Spor. Through my close work with SINTEF this allowed me to attend project meetings and seminars in relation to Trygge Spor and implementation of welfare technology. As for the project meetings, the project group from Trygge Spor summarizes experiences and presents results from the study. This has been helpful to me in many ways, and I have used some of the information as secondary data.

3.2 Research Methods

“Interviewing is an essential part of most types of social research. Interviews can be used at any stage in the research process. They can be used in the initial phase to identify areas for detailed exploration”

(Breakwel, M. Glynis in “Interviewing” 1990:17)

I hope my inductive approach emphasizes developed insights and generalizations out of the data collected. One of the main challenges is to be objective during the interview, since the interview situation is an interaction between humans. My inductive approach will discuss my tentative theory in comparison with my empirical findings and also in comparison to what other theorists have written about my topic and the theory I have addressed. I have made empirical observations, and based on these observations I have looked for patterns that may lead to sub questions. Upon these sub questions I will address the theoretical framework I have chosen. The best method of exploring these questions was to complete an individual in depth interview with the interviewed subjects. Since the interviews were semi-structured, it allowed me to have a conversation with the respondent, controlled by me as a researcher, instead of a straight forward interview. The semi-structured interview was constructed based on the Technological Frames and questions were categorized under these. I had spent time in advance by putting the information together into the different categories. During the interviews I saw the possibility to add further question while I was talking. I addressed content analysis for reducing the data to manage the proportions. This worked
for me as a system where I took systematic quotations from the interviews to illustrate conclusion (see table 4).

3.2.1 Recruitment of informants
The collection of informants took place on an early stage. The interviews I conducted are done by focusing on the person being interviewed and their experiences and perceptions of welfare technology. Two of the interviews took place via Skype; while the others were conducted face-to-face. The first interview I had was with the Norwegian Board of Technology (Teknologirådet) in June 2012. I interviewed Hilde Lovett, who is the project manager for Technology's health care initiative. My conversation with Lovett directed me to Dag Ausen from SINTEF. This was the start on how I got in touch with many relevant people that I interviewed for my paper. During the work it became clear to me that the main focus of the study should be on the relationship between the municipality and the supplier. This is where the interaction between the actors is central and by going more in depth of this will hopefully give me an understanding on how technology and innovation takes place in such a process. During my selection of respondents, SINTEF guided me to some of the interviews I conducted. They helped me to get in touch with Bærum and Drammen municipality. I also had to take individual choices, as I could do research within SINTEF and their project group. But I decided to go beyond that, and also recruit actors which had been in involved in other projects, such as Telenor. I contacted people both over the phone and through email. Everyone I contacted was positive and would sign up for an interview. There was one exception, but it was more peripheral and I eventually chose not to follow up when the person was not clear in their feedback. Many of the informants had busy schedules so that the interview had to be arranged well in advance. Prior to many of my interviews, I sent an email in beforehand of the interview to highlight the theme of the study.

3.2.2 In-depth interviews
The respondents I interviewed are presented in a table (see appendix 3). They represent both informants from the industry, the municipalities and other relevant actors. The table of participants shows certain parameters that explore who they are and what position they hold. I wanted to explore if there was any significant difference between the two main actors, namely the industry and municipalities based on their assumptions, values and philosophies. The next step was to investigate and describe the two actor’s attitudes to welfare technology more in depth, where I did interviews
with three representatives from the industry, and three representatives from the municipalities. This covered both perspectives.

3.2.3 Observations
During my contact with SINTEF, I was invited to attend a project meeting and a conference in relation to Trygge Spor and welfare technology. This provides access to the interaction between the actors, and what happens when they meet, and one can argue that observation as a method is suitable to gain insight into how individuals relate to each other. I have been attending as a participant in a total of three meetings and/or seminars related to welfare technology. It has been really helpful to get a better understanding of the process, but also to have a closely look on how the different actors interact together. The meetings I attended had somewhat different character, and I went into different roles and positions in the various meetings. The first meeting I attended, was January\textsuperscript{22} where I also held a presentation in front of SINTEF and the municipalities involved in the pilot project. This was a more casual setting, and I became increasingly included as a participant. I presented my project and why I was there. It fell naturally I took part in the talks as part of the group. After the presentation and discussion, we finished it off with a dinner. Here I took a more personal role, where I enjoyed it in their company. It seemed that both representatives from SINTEF and municipalities had a very casual tone, and they were very relaxed. In this case I would say I did not have a role as a fully interaction, either a role where the researcher just observes. In other words, I was somewhat in between. The next meeting was the following day, January\textsuperscript{23}. This was a seminar, and there were over 200 participants. Here I took a somewhat more limited observer role and did detailed notes around the time of the seminar and what was said. Nevertheless, I met many people I had spent time with the day before and during the seminar I also grew many new interesting contacts. At the same time I also met former people I had interviewed. In other words, I met people from multiple groups, both managers (Health Directorate), users (The municipalities) and the technologists (Telenor).

The third meeting was a conference at Sandvika that Bærum municipality had arranged. Also here I met many people I already knew. I would like to stress the importance of data gathered through observations. Orlikowski and Gash (1992) argues that data gathered as interactions between members of multiple groups (managers, users, technologist) may provide the best opportunity for observing congruence and diagnosing incongruences.
3.3 Data analysis
After specifying my research question, I had to develop a research schedule. This involved a series of questions asked in an interview which I used for most of the unstructured interviews. I recorded most of the interviews to make it easier to transcribe afterwards. The transcription process (see appendix 4 for a full description) was slow and time consuming. It took me approximately five hours for one hour of speech. This material in combination with documents formed the basis for further data analysis. I started to explore the material and assign tags and categories. The material appeared occasionally as something confusing, partly because I had an open approach to some of the interviews. But also because informants had many different positions and perspectives on the process, and there was time consuming for me to categorize the data. Because of these difficulties, I divided the material into under whom the interviewee was, under User, Technologist or Manager. The structure of Orlikowski and Gash, allowed me to divide the material into what they said, in relation to Nature, Use and Strategy. Through this process, I eventually noted a certain pattern and key categories that were of interest in the material. These became concretized to the dimensions examined in the study. In the study, I got access to different types of documents. The material covers both documents from SINTEF and the municipalities, as well as sites where the project has been presented. A key document that it is worth to highlight is the document NOU: Norges offentlige utredninger (2011) “Innovasjon I Omsorg”  

10 NOU: Norges offentlige utredninger (2011) “Innovasjon I Omsorg”

This document was mentioned during many of my interviews, and had an active role particularly in the relationship between local authorities and providers. It elaborates on the municipalities expected needs and demands of technology, as well as the need for innovation in local government. Other documents I have used are “Technical reports on the implementation of welfare technology in the municipal health care services from 2013 to 2030”. One of my interviewees from the Health Directorate also led the design of this scientific report.
4 CASE DESCRIPTION

4.1 Overall case description
This study seeks to develop a better understanding of the potential benefits and challenges related to the implementation of welfare technology in the elderly care in Norway.

I will in this chapter discuss the case analysis and prepare the reader for what to expect in the fifth chapter called (analysis).

Life expectancy in Norway is among the highest in the world and is still increasing. The life expectancy for men in Norway was in 1997, 71 years. This increased to 78.2 years in 2007. Looking at the same decade, women’s life expectancy has increased from 77 to 82.7 years. More than half of the adults living in Norway suffer from an illness or injury. Despite illness, and function problems, eight out of ten says that they are in good health condition. There has been an increase from the nineties to the present day in the number hospital stays in Norway. The elderly accounts for nearly a third of all admissions at Norwegian hospitals and the women have most stays (www.ssb.no). On the other hand, despite illness and function problems, the elderly are getting healthier which is promising in terms of the reported growth of elderly and future care needs (www.ssb.no). Several actors have entered the field of introducing technology in care services. In October 2011, a government-appointed committee presented its recommendations to meet future care challenges through a developed report NOU 2011:11, "Innovasjon I Omsorg” (Innovation in care). Teknologirådet was one of the pioneers regarding their view of technology in care services and they presented their recommendations as early as 2009. In a four year period from 2008 to 2012 Teknologirådet has involved technology experts and stakeholders to provide them with innovative contributions to the health care sector. In order to better address my research question when selecting the case, I tried to explore the path of different actors. I saw the opportunity to follow the project Trygge Spor as a resource for me. I got in contact with different actors, but also for see how the users where represented in the process. In the research project Trygge Spor, over fifty persons was using GPS over a period of few weeks up to a year. The results from the report Trygge Spor show that localization technology, such as GPS contributes to increased security, freedom and quality of life - both for people with dementia and their families. People with dementia are a major

11 http://www.ssb.no/helsetilstand
12 http://www.ssb.no/vis/emner/03/01/helseforhold/arkiv/art-2006-07-03-02.html
13 http://www.teknologiradet.no/FullStory.aspx?m=28&amid=9860

Copenhagen Business School
diagnostic group among the users of municipal care. Five municipalities have therefore collaborated with researchers (SINTEF) to bring forward new knowledge in nursing and care services. Drammen Bærum, Trondheim, Bjungn and Åfjord municipality has contributed to a practical research to find answers to the following: Can GPS can be used as a tool in dementia care? Several companies have been involved. They have supplied existing products as a basis for research and participated in the development of new solutions (www.sintef.no)\(^\text{14}\).

I got in contact with Tone Øderud at SINTEF in the early stages of my writing process, and Dag Ausen at a later point in the process. They have both contributed to my research by including me in their field and project work related to Trygge Spor.

### 4.2 Situation today

Due to the growth of the elderly population in the world, we can expect to see an increase in the frequency of dementia. This makes dementia care one of the most demanding issues in long-term care (Dahl and Holbø: 2012:572). Consequently, the government needs to develop solutions that can fulfill the demands this increase of elderly will bring. Dahl and Holbø stresses the fact that there has been a great focus on how electronic tracking technology, such as GPS and location-based services, can promote values such as the safety and security of persons with dementia. The engagement of implementing GPS and other sensor-based technologies in the dementia care has raised debate over ethical aspects of monitoring. The municipalities are key players and add many guidelines for what direction certain actors goes, based on different assumptions, meanings and expectations related to welfare technology. My research involves many other actors who have more a distance to the municipality and the pilot project Trygge Spor. Dahl and Holbø stress the fact that the world population can expect to see an increase in the frequency of dementia (Dahl and Holbø: 2012:572). Orlikowski and Gash (1992) argues that where there are changes in information technology this can be triggered by various elements, such as environmental conditions, including increased complexity, turbulence and globalization. Orlikowski and Gash discuss how former research has shown that different groups in organizations will perceive interventions differently. For example, a new implementation of GPS in an institution for elderly would be perceived differently by managers who had the final saying and had the administrative responsibility of implementing it, compared to the employees and end users who were the users of the GPS.

\(^{14}\)http://www.sintef.no/trygge-spor
“We cannot simply use technology without being influenced by it”
(Dahl, Holbø; 2012:572)\textsuperscript{15}

4.3 Case analysis
The aim of this case description is to prepare the reader for what to expect in the chapter of Analysis.

The analysis will \textit{firstly} describe what the reader can expect throughout the introduction. \textit{Secondly}, I will explore the three main actors, each in turn, namely SINTEF; the municipalities; and the industry. In this part I will describe the highlights from my time spent with SINTEF, the gathering of information during my participatory observations of a project meeting and seminar, as well as my time spent working on the in-depth interviews. I will then present the municipalities and the industry. This presentation will hopefully paint a clear picture of who they are, why they are relevant, and their role in the interaction between the actors. \textit{Thirdly}, I will summarize the main points from each section, mainly with the focus on the actors involved and their relevance for this research before I analyze the research- and sub-questions. \textit{Fourthly}, I will discuss my research question and the four sub questions. I wanted to go more in depth by looking at the social aspect, and find out people’s attitude towards the use of future welfare technology. This will be explored by focusing on four dimensions; namely the relationship between organization and technology in the process; if there are conflicts between municipal welfare technological visions and other involved actors' visions; how the regulations on public procurement affect interactions between players; and how users are involved and represented in the process. \textit{Finally} I will summarize with a conclusion that covers my findings which I think is essential to answer my research question.

The analysis in chapter five is based on a meaning condensation scheme which I used throughout the analysis of the data that I gathered. The chapter will consist of findings from the fifteen in depth interviews I conducted with the different actors in addition to my observational findings through the project Trygge Spor 1.

\textsuperscript{15} Dahl, Yngve., and Holbø Kristne., “Value Biases of Sensor-Bases Assistive Technology: Case Study of a GPS Tracking System used in dementia Care” 2012:572
5 ANALYSIS

In this chapter I will present the findings of my study supported by relevant data, in my case, quotes from the interviews I conducted. In addition, I will link these results to the theoretical concepts I presented earlier (chapter 2) and propose an analysis developed based on my four sub-questions.

The reader can expect to be introduced to my findings from the fifteen in-depth interviews I have conducted. I will provide the results from the analysis of my research question respectively. As a part of answering my sub-questions, one can also expect to read about my observational findings during the process of Trygge Spor. I will explore what the different interpretations of the benefits and barriers are, related to shared or differences in frames within each group, as well as looking into the differences in frames across groups (technologist, users, and managers). The analysis will provide the overall findings from my research, where I explore the perspective of how I have conducted and analyzed the data. In the next section the reader can expect to get a grasp on the research perspective; how the interviews were conducted; and in what way the data was analyzed.

5.1 Introduction

I have chosen to examine the perspectives of implementing welfare technology from both the municipality side and from the industry. This allows me to explore a phenomenon from more than one perspective. I have conducted my interviews to determine what the actors experience as facilitating and what they perceive as a barrier related to an implementation of welfare technology in Norway. Ultimately, I want to determine whether there is an interaction between the actors involved and if the actors involved are working at different organizational levels. The purpose of exploring the interaction between the actors is to map challenges related to their assumptions, meanings and expectations towards implementing welfare technology. Furthermore, by looking at the interaction and the different organizational levels, I can reproduce success criteria’s that must be present to meet these challenges which I address. By addressing these success criteria’s that will be presented in chapter seven this may contribute to a successful implementation of welfare technology in the public sector. Firstly, the reader will be introduced with a presentation of the informants in this study. I will introduce the reader to my analysis by touching upon the recruitment phase and describe who the actors are. The reader can find a scheme in appendix 4, where I structured the participant and distinguished between the actors based on name, profession;
organization name; and date for the interview. Secondly, I will explore the three main actors, which are SINTEF; the municipalities; and the industry. In this part I will describe the highlights from my time spent with SINTEF, gathered through my participatory observation during one project meeting and a seminar. I will then present the municipalities and the industry in order to give a better picture of who they are and their role in the interaction across the actors. Finally, I will summarize the main points from each section, mainly with the focus on the actors involved and their relevance for this research, before I will explore the analysis of the research- and the four sub questions. After elaborating on the research- and sub question I will explore the theoretical framework more in depth in the collaboration of the analysis of my data conducted. The analysis will evolve on the four sub questions I have mentioned in the beginning of this chapter. The theories of Sensemaking, Technological Frames, and Institutional Theory, will be implemented and used throughout the analysis. There is a conclusion at the end where I will provide the reader with the key lessons learned from the theory used.
5.2 The actors

Because of the variety of the respondents among the fifteen in depth interviews, I have created a table (see appendix 4 “table of actors” for a full description), where I have located the different participants in columns under the name of the organization or company (or just the person’s name) and their role or profession. I also created a category for the date for when the interview took place. This will hopefully give the reader an overview of the actors involved in my study. When I coded the data I found it appropriate to follow the structure of Orlikowski and Gash (1994), to distinguish between the actors by dividing them into the categories of managers, users or technologist. Furthermore, I put what the actors said into the categories of Nature, Strategy and Use, to highlight the relevant differences of their meanings, assumptions and expectations towards welfare technology.

I have chosen to distinguish the three domain, this is due to the relevant differences between the technologist, and the user’s interpretations of the technology as well as for the sake of the discussion. I have chosen to interview three participants from both the industry and the municipalities, including SINTEF, since they are the main actors in this study. The municipalities of Drammen, Bærum and the region of Vernes are the informants that represent the municipalities. Telenor Objects, Norsk Teknologi and the National Supplier Development are representatives from the industries. I have also distinguished between the other actors involved (see appendix 4). It is worth mentioning that NOVA; SINTEF; Health Directorate; The Data Authority; The Board of Technology; and the two professors in this research paper fall under the group of managers.

According to Orlikowski and Gash (1992), managers or organizational decision makers decide on the overall decision making related to resources and organizational decisions. User consists of the municipalities of Drammen and Bærum, the region of Vernes, and the two health care workers which I interviewed. According to Orlikowski and Gash (1992), this group employs the information technology in their daily tasks to perform production work for the organization.

Lastly, the grouping of technologists consists of Telenor, Norsk Teknologi, and the Norwegian Supplier Development. According to Orlikowski and Gash (1992) technologists involve either internal or external system developers, and will in this case be the suppliers in the industry. They have the main responsibility for the design, construction, installment and maintaining the
information technology to be used in the organization. I will in the next sections explore the three main actors and in the final section go more in depth on why the different actors are relevant for my study.

5.2.1 SINTEF
The groupings of managers include SINTEF which is Scandinavia's largest independent research organization. SINTEF is a broad, multidisciplinary research group with international expertise in technology, science, medicine and social sciences. They are among the four largest contract research institutes in Europe (www.sintef.no)\(^\text{16}\).

Tone Øderud work as a senior researcher at the Department of Technology and Society in SINTEF and has mainly functioned as a supervisor for me during my contact with SINTEF. Øderud said the purpose of adopting GPS is to provide people with a lifestyle which involves more freedom and activity if possible. The aim of the project Trygge Spor, initiated by SINTEF, is to explore the use of GPS and its effect in relation to the quality of life for elderly people. In addition, an important part of the project is to explore the use of GPS and its consequences in relation to not only the user, but their relatives and staff in the health care sector. SINTEF is a relevant actor in my study because of their research perspective and their approach towards testing out welfare technology through the pilot project Trygge Spor.

5.2.2 Municipalities
In my case the user is the municipalities and the health care workers. They employ the information technology in their daily tasks to perform production work for the organization. I have chosen to interview two of the municipalities who have been involved in the project Trygge Spor with SINTEF, which are the municipalities of Drammen and Bærum. As I wanted to explore my subject from two perspectives, namely from the side of the municipalities and the side of the industry, these actors are relevant in my study. They are highly relevant because of their experience through interacting in the pilot project, where I see the potential to bring their experiences into light. It is worth mentioning that I choose to interview two out of five municipalities that have been involved in Trygge Spor. The reason for the selection was my lack of time. During my analysis I elaborate on the experiences from the interviews I had with the two municipalities of Drammen and Bærum. In addition, in this part I present quotes and observational findings which also represent the other

\(^{16}\) [http://www.sintef.no/trygge-spor](http://www.sintef.no/trygge-spor)
municipalities which I did not interview as one to one basis. The third actor from the category of User is the region of Vernes, which I got in contact with through my dialogue with Telenor. The region of Vernes was engaged in a concrete project with Telenor and Visma of implementation of welfare technology, which in this case involved implementing patient journals. These patient journals were developed for patients with cognitive injury and who are not consent skilled. It was interesting for me to interview an actor who had not been involved in the project of Trygge Spor, because I wanted to explore differences across municipalities based on different experiences.

5.2.3 Industry – suppliers
When following Orlikowski and Gash’s structure, the industry is in this case the Technologists. This involves Telenor Objects, Norsk Teknologi (Norwegian Technology) and Nasjonalt Program For Leverandørutvikling (The National Program for Supplier Development). The category of Technologists involves either internal or external system developers, and will in this case be the suppliers in the industry. As Orlikowski and Gash (2004) stress, the technologists have the main responsibility for the design, construction, installment and maintaining the information technology to be used in the organization. Telenor Objects, which is a part of the Telenor group, has been developing welfare technology in cooperation with Visma. Visma Business is the leading business solution in Northern Europe, with special focus on efficiency and optimization developed for organizations17. The project they have developed in a close cooperation to each other has been carried out in the region of Vernes. I have been in touch with them not only during the in depth interview, but also during a conference initiated by SINET and during a seminar initiated by the municipalities of Bærum. Telenor Objects are relevant and an interesting actor because they have engaged in this interplay as a commercial actor. Norsk Teknologi is a national association in Næringslivets Hovedorganisasjon (NHO) (Confederation of Norwegian Enterprise). Norsk Teknologi organizes 1700 companies and technical entrepreneurs18. They are relevant in my case because they have worked with welfare technology for many years and engage many actors, such as suppliers and installers, to build homes especially designed for elderly.

The final supplier from the category of technologists is The National Program for Supplier Development. They are developing a public procurement with the focus on how to stimulate innovation and value creation. The target group of the program is the purchasers of the technology,
and research, and development actors, such as SINTEF. Based on information I got from Tore Andre Sines; project leader in The National Program for Suppliers Development, I can mention that Norsk Teknologi and The National Program for Suppliers Development have a link to each other. In this program, Norsk Teknologi are engaged in the recruitment phase, where they presents a variety of suppliers, where The National Program for Suppliers Development engage in the purchasers (for example the municipalities). The program started up in 2010 and is relevant because they contribute to develop a platform where the different actors, such as the suppliers and the municipalities can meet.

5.2.4 Summary
In the previous chapters I have explored who the different actors are in the interplay of implementing welfare technology. The selection of the representatives is based on my own network and access, and the snowball effect which I described in the chapter three (method). The actors consist of SINTEF, municipalities, and industries, and are from my opinion a representative selection of informants for my study. The municipality of Drammen and Bærum, and the region of Vernes, has been engaged in different projects at different levels. The municipalities of Bærum and Drammen are relevant actors in that sense that they have participated in the pilot project Trygge Spor. They can, based on their experiences from the pilot project, give perspectives and learning objectives due to the process of implementing GPS (Global Positioning System). Because of my contact with SINTEF, I also got easy access to the municipality of Drammen and Bærum. There was in total five municipalities involved in Trygge Spor, but based on the lack of time, I had to eliminate the rest. The five municipalities involved in the project consisted of Drammen, Bærum, Trondheim, Åfjord and Bjungn. The region of Vernes is relevant because they have engaged in the project of Telenor and Visma, which has a more commercial perspective on the implementation process, compared to the view of SINTEF which doing a pilot project with a research perspective. The region of Vernes may draw on totally different experiences related to implementing welfare technology. In general, the municipalities of Drammen and Bærum, and the region of Vernes, are relevant in my study because of the activities they are in charge of considering public health. In other words, they have the main responsible of purchasing services to the user in the certain municipality, such as welfare technology. The activities they are in charge of consisting of; homecare nursing; school health service; rehabilitation; and the majority of social services (www.wikipedia.org).
I have attached a model in appendix (see Appendix 5 for a fuller description). The model above was presented during the conference I attended in relation to Trygge Spor and illustrates the perspective from an organizational view considering implementing welfare technology. Dag Ausen from SINTEF introduced the model and explained how the different actors need to learn from each other to generate a successful implementation of welfare technology. Orlikowski and Gash (1992), believes that the three groups of actors will have characteristic technological frames representing that particular group’s experience, interaction, and understanding of the welfare technology.

“The assumptions and meanings that constitute people’s technological frames are often shed by similar experiences, occupational training, socialization, group membership, functional specialization, and organizational roles”

As I realized that the effects of public decision making can happen in many different ways, direct and indirect and open and more closed, the relationship and collaboration between the industry and municipalities became gradually interesting throughout the interviewing process. One can assume that employees in the municipalities, compared to those working in the industry, would have different mindset and different approaches towards why they want to implement welfare technology. This is what I want to explore more in depth.
5.3 Analysis of research question and sub questions

Research Question:

“How can different actors align meaning, values and philosophy in the implementation of welfare technology, in the cooperation between industry and municipalities”?

Having specified the research question, I needed to translate it into a form that could be used with my interviews. I wanted to go more in depth by looking at the social aspect, and find out the actors attitude towards the implementation of welfare technology. This will be explored by focusing on several dimensions. Namely the relationship between organization and technology in the process; how the regulations on public procurement affect interactions between players; if there are conflicts between municipal welfare technological visions and other involved actors' visions; and how users are involved and represented in the process. I am interested in finding out whether there are differences and/or similarities between the attitudes of local authorities (municipalities) and the suppliers. To explore this more in depth, I interviewed representatives from the health care sector, representatives from various research groups, private and public organizations, municipalities and suppliers of technology. I have created a table (meaning condensation scheme) where I put the data with a brief summary of what is really being said in each quote. This will make it easier for me to give the sentence a meaning. Further on, I have developed sub categories after using meaning condensation throughout the fifteen of the in depth interviews I have conducted. These sub categories will hopefully highlight the source of the dialogue under each quote.

Furthermore, this allows me to create a pattern based on whether I have detected Incongruence or Congruence and will further lead me to a discussion (chapter six) about Sensegiving, Sensedemaning and Senserbreaking. As a part of the assignment I will also try to find out the cause of the differences or similarities that emerge - for example, whether certain attitudes can be linked to different values, work processes etc. Answering the four sub questions I have developed will enhance my response to the main research question in full, because it will provide a greater understanding of the interaction that I explore. I will address one sub question at a time and use the information from the already transcribed interviews when answering each question.
5.3.1 Sub question one

1) **What is the relationship between organization and technology in the process?**

“*It's all about change processes [...] so there are plenty skeptical attitudes to this as well, as it is for everything else that involves change*” *(Sværen, Vigdis, Norsk Teknologi)*

This sub question allows me to explore how the actors feel about the cooperation on welfare technology, from an organizational point of view. I have divided this sub question in two parts: *Firstly*, this section will explore more what the actor’s experiences as challenging in relation to implementation of welfare technology on an organizational level. *Secondly*, another element I found essential during my transcription is how the actors in the project Trygge Spor experiences the cooperation which will be addressed as a second part. I will start to elaborate on what the actors experience as challenging in relation to the process of implement welfare technology. Ole Hanseth, Professor at the University in Oslo in the Department of Informatics, seems to be positive regarding the use of GPS, but more skeptical to the whole organizational process. Even though he thinks it is important to implement GPS in the elderly care, he sees challenges at the organizational level.

“I believe that adaptation and integration of GPS in the elderly care will be the biggest challenge from my perspective [...]” *(Hanseth, Ole, Professor, UiO)*

Weick, Sutcliffe and Obstfeld (2005) elaborate on how people within an organization construct different meanings from the same situation. One can argue that this could happen in this case; that the different actors involved in this interplay construct different meanings on welfare technology, even though they are in the same situation. I asked Professor Hanseth if he could address some of those challenges more specific and elaborate more on why he is skeptical about the complexity of implementation. He mentioned that routines are important. Hanseth continued to compare the implementation of welfare technology with the NAV reform in Norway as a bad example of a poor organizational design;

“... *You have the NAV reform as a great example of a bad design. NAV’s implementation was an old organization, and the processes within NAV were baked deeply into the different solutions. It is important to*
have something that supports organizations working for adaptations and changes [...]” (Hanseth, Ole, Professor, UiO)

One of the success criteria’s Hanseth mentions is to start small and gradually get more users. Hanseth argues if the pilot project is successful then the municipalities decide to purchase the products. However, he believes it's important to let the whole process grow. However, other actors where of that the challenges of implementing welfare technology consisted of 20% of technological challenges, and 80% of organizational challenges:

“We know so far that the challenges with the implementation of welfare technology consist of 20% technological challenges and 80% organizational challenges. One cannot use the new technology, without changing something. You can see from the Hagen selection where they address three crucial factors which are [...] fall, loneliness, and cognitive impairment [...] To keep you in activity, you will also stay healthier in the longer run”
(Holsæter, Edvin; Telenor Objects)

In other words, as Lucas (1974) stresses, human issues are typically the major source of failure in information systems implementation (Orlikowski and Gash: 1992:23). One can interpret this as that the challenges lay in the hand of the organizations on how the processes are developing across each other. Based on the interview I had with Data Authority, Christina Nes and Eirin Lauvset from the Data Authority expressed that the employees had become more positive related to welfare technology and the actors involved. However, the Data Authority sees the importance to accept the implementation of technology as a process;

“It is important that the one that adopts the technology understands the use and know how information is processed, therefore it is important to take it gradually” (Lauvset, Eirin; Data Authority)

Otherwise, one can assume that the consequences of failure could be that pilot projects of poor quality will give insignificant result which would lead to skepticism among the actors;

“Municipalities are skeptical because they’ve got so much equipment that does not work. Often when they use technology, so it does not work in practice” (Øderud, Tone: SINTEF)

During the project meeting I attended January22, SINTEF discussed the cooperation between them and the five municipalities involved in the pilot project Trygge Spor. Both SINTEF and the five
municipalities were discussing what they experienced as the biggest challenge related to the implementation of GPS in the elderly care. There were several challenges discussed during the meeting, where one of the biggest challenges was how to discover standardized solutions. After I had the interview with Bærum municipality I was left with the impression that there are several solutions in the market and too many suppliers to deal with;

“One vendor has one thing and another vendor has something else. This forces you to relate to many different interfaces from different suppliers, so it becomes impossible. And that is what the developers have to take into account. We cannot deal with many suppliers and many standards. So we would like to go into a single solution. We must have some interface that makes it possible”

(Standal, Kristin; Bærum municipality)

One can assume that, on an organizational level, the municipalities are faced with difficulties regarding the gathering of information concerning who has what kind of solutions. The market is complex, there are many suppliers, and one can argue that a common platform for these two parties to meet would be preferable for making the purchase of products easier. Norsk Teknologi has members who are installers and technical integrators that supply technology. Also, the suppliers which I interviewed see the same need as the municipalities:

“We need a complete overview of what is going on, about money and resources. The municipalities have questions like "who should I turn to", "how do I find the solutions suited for me", and "who will deliver it?" At the moment, this complete overview does not exist. We need a separate platform where suppliers register their own solutions [...]”

(Sværen, Vigdis; Norsk Teknologi)

Telenor Objects also see the same need;

“In general, we need an overview of solutions and order expertise [...]”

(Holsæter, Edvin; Telenor Objects)

After talking with Norsk Teknologi I got the impression that there is no interface or overview where all the projects, solutions and so on are documented. This can also be a problem in that sense that there is no overview of the results from the pilot projects. This might be the reason for why the
municipalities think it is difficult when there is no overview of all the suppliers and solutions. There are congruence which appear concerning the lack of overviews and many solutions;

“There are many different projects at many different levels [...]”
(Sværen, Vigdis; Norsk Teknologi)

Kåre Hagen, researcher at the research council NOVA (The Norwegian Institute for research on welfare and aging) stresses how important it is that the government takes responsibility related to the problem of a complex market;

“One needs to know where to get professional advice. It is just struggled need for knowledge. You also need to deal with suppliers, as you may be fooled by a market. It must be a government responsibility, and expertise advice. Who are the serious actors? We need a common platform for excellent technical standardization to roll out such technology” (Hagen, Kåre; NOVA)

Rolf Rønning, the author of the book “Omsorg som Vare” (Care as a commodity), thinks that there is a uniqueness to the individual elderly. He therefore thinks that one cannot find one solution that fits all; still he is positive towards the use of GPS;

“I have a positive view on GPS. I work in KS (The municipality’s local interaction) and I am working on Innovation in the municipalities [...]” (Rønning, Rolf; Professor)

After my contact with SINTEF during a period of five months, it gave me a certain impression of their approach towards the use of GPS. Tone Øderud elaborated on how a GPS is not suitable for all;

“Although GPS is a technology developed, everything must be put into a frame. Everything must be adjusted individually” (Øderud, Tone; SINTEF)

From a researcher perspective, I got the impression that the representatives from the industry, research councils and the municipalities are all agree considering that there are not one solutions that fits all when it comes to welfare technology. In addition, many of the actors has shared frames within one group, such as the suppliers (Telenor and Norsk Teknologi) when expressing their needs for a common platform and overview of solutions. I also experienced shared frames across groups, where for example the supplier such as Norsk Teknologi addressed the same challenges as the municipality of Bærum. Another example on shared frames across groups is Telenor Objects and
Hanseth on their view on the organizational process. Both of them are aware of the organizational challenges. Based on my findings it is reasons to believe that that there is a need for a common overview of solutions that exist, and an anchoring on an administrative level. In other words, the outcome of this is Congruence, where the actors involved have shared frames related to the organizational process. I see a pattern of similarities, where these actors express positivism towards use of GPS, but that it is important to adjust the solutions individually because every person is unique. One can assume that if there are not shared frames among the actors this might be because of diverse interpretation of each other’s role in the interplay. Further on I wanted to explore how the cooperation between SINTEF and the municipalities was experienced from both perspectives. The concept of Sensemaking occurs among collaborating systems, described as communities of practice, or communities of interest, therefore it would be interesting to explore the cooperation between these two actors to find out whether there are communities of interest or not.

“Who we are lies importantly in the hands of others, which means out categories for sensemaking lie in their hands. If their images of us change, our identities may be destabilized and our receptiveness to new meanings increase”
(Weick, Sutcliffe and Obstfeld; 2005:416)

The actors involved experience an outcome differently. As Weick, Sutcliffe and Obstfeld (2005) argue in their paper; what is plausible for one group, such as managers, often proves implausible for another group, such as employees. In this section I have addressed the data gathered from the observation I did during the project meeting and conference in January. At the project meeting the municipalities were supposed to express how they felt about the cooperation with SINTEF based on their own experience from the pilot project. All of the five municipalities expressed a positive experience in their interaction with SINTEF;

“We experienced it as an exciting cooperation with SINTEF and the municipalities. This cooperation contributes to strengthen the relationship among the actors” (Municipality of Trondheim)

Most of the municipalities felt that the project was established well, on a management and administrative level, except from one municipality;

“The project might have worked better if the project was better established on an administrative and political level” (Eriksen, Sissel; Municipality of Drammen)
Two of the municipalities joined the pilot project in a later phase than the others. Åfjord and Bjungn came a little later in the project, and they had to create their own learning process in the beginning. They said that based on their own experience it was important to get involved early in the process. Åsfjord and Bjungn had no experience with the use of GPS. Nevertheless, they were left with good experiences within an organizational level, and expressed the project as very good anchored on a managerial level.

All of the municipalities had good experiences when working with the other municipalities. They expressed it as an exciting collaboration with the municipalities involved, and that this interaction helped to strengthen the solidarity with a strong anchoring.

“We experienced the cooperation with the other municipalities as a very fruitful interaction”  
(Landmark, Bærum; municipalities)

Many of the municipality’s interpretations and actions around welfare technology reflected that there is also a focus on organizational context;

"We will develop new knowledge and the industry will develop new knowledge”  
(Landmark, Bjørg; Drammen municipalities)

One of the municipalities I spoke with explained how important it was to let the employees in the municipalities know that they were allowed to fail:

“... You need a strong foundation in the administrative management, and you must have a culture that says it is OK to fail and allowed to try” (Standal, Kristin; Bærum municipalities)

What Standal mention can be related to innovation in the municipalities, and that one cannot control creativity. In the learning process one also needs to fail. Frantzen from the Norwegian Health directorate mentioned tremendous training need as one of the challenges. Frantzen gets the impression that they face greater resistance from employees than the user, so it is important to include employees. Frantzen told me that some are skeptical towards using new things and might think "I will not cope with this." Therefore it is important to view and provide demonstration locations for employees in the health care sector. Frantzen further on explains how they do it in Wales;
“The biggest success factor in Wales has been getting staff to try and learn, so they can ask questions. It is important to include users and staff members early on in the development phase because things take time”

(Frantzen, Lasse; Health Directorate)

Frantzen emphasizes the importance of setting aside sufficient time, to adjust users and staff to the new technology. The main message should be to create an acceptance that it is courageous to resolve things with new solutions today in a new way. This is a process in itself.

Another challenge which is essential is the way the media highlights welfare technology, which will probably have an effect on the implementation but also the process and cooperation between the actors. One can assume that the exposing of related news of welfare technology in media would have a positive effect of the outcome. The day after the project meeting I attended, there was a conference arranged by SINTEF at Quality Hotel at Gardermoen. On the same day as the conference, one of Norway’s leading newspapers, Aftenposten, wrote about GPS and tracking technology based on the pilot project Trygge Spor initiated by SINTEF. Aftenposten’s front page read: “All people with dementia can now be labeled and tracked”.

SINTEF highlighted this during the conference and talked about how the media also can be a challenge. Dag Ausen mentioned during the conference that the challenges with how the media highlights the subject, is based on a challenging language, different terminology and unclear terms. As for the front page of Aftenposten, one can understand that this is not the way SINTEF and other parts involved wants to promote the pilot project and their engagement for the use of GPS. “Labeled” and “tracked” are words which are associated negatively and can easily be misunderstood and interpreted the wrong way.

SINTEF highlights how important it is to give an accurate picture of what is actually going on. The organization of services and service innovation is another challenge. The engagement of implementing GPS and other sensor-based technologies in the elderly care has raised debate over the ethical aspects of monitoring. These challenges are related to the usability and ethics related to the use of GPS. During the project meeting, both SINTEF and the municipalities stress the fact that the cooperation between the Industry, Government, and Academia to work together to achieve a successful implementation. This will be discussed more in depth under my third sub question. As a conclusion to my first sub question I see the main challenge in the lack of a common platform for
the actors involved. All of the actors; the municipalities, research councils, and suppliers perceive the implementation of welfare technology as a process.

“It is typical for Norway, as it is of today, to take things gradually. There is clearly a need to test the solutions along the way. One must find out what works and what does not work. It’s a human behavior [...] the developments going on, you think again, taking technology to use.” (Sværen, Vigdis; Norsk Teknologi)

You cannot take any shortcuts, it is a process. A connection between organization and technology in process is that one must begin with the foundation and the user understanding. However, the actors express a need for a common platform to get an overview of the existing pilot projects and the solutions on the market. Discussed in the next chapter there will be pointed out an alternative to a common platform which is established of the National Suppliers Development. But even though this platform exists, not all of the actors are interested in attending. This will be elaborated more in depth, in the next section.
5.3.2 Sub question two

2) What is the nature of conflicts between the municipalities’ welfare technological visions and other involved actors’ visions?

What I explored during my interviews was a shift across the groups I interviewed, which one can argue is potentially resulting in frame incongruence. In this section I will explore whether I have detected Incongruence or Congruence among the actors. I will discuss this more in depth in the next section. Based on the interviews I conducted, I have spotted a certain pattern of Congruence and Incongruence. There are three main challenges I want to address; the requirement specification and their diverse expectation to each other related to implementing welfare technology, and incongruence among actors. The last challenge I address is the biggest. Telenor Objects said that there was the municipalities that were faced with the biggest challenges;

“The challenge that municipalities face concerns that the active municipalities are very active, it is a general lack of an overview of solutions, and municipalities need better order expertise”
(Holseter, Edvin; Telenor Objects).

The first challenge I would like to address is the requirement specification. The municipality seems to be critical based on their assumption and previous experiences related to a requirement specification. I got the impression after talking to the municipalities that some of them were tired of just “give” away information about the user and the user needs. Especially when they had been working hard by engaging in pilot projects over time to achieve that kind of information. Some of the municipalities was during the project meeting January discussing the requirement specification. The municipalities expressed that if they delivered a requirement specification to the suppliers, the suppliers thought that they could just come up with any technology.

“... We share the information we have. But businesses have to respect us and our knowledge, and desire to cooperate as equals. And they don’t when they come to us and say: “Here is the technology, here you go”.
It's such a stance behind it to very many”
(Standal, Kristin; Bærum municipalities)
The suppliers do not necessary experience this is in the same way;

“The municipalities must look at user groups, and look towards those who need the different types of technology” (Holsæter, Edvin; Telenor Objects)

*The second challenge* I would like to address is different assumptions of one another and expectations of what the technology is meant to do in different contexts. Research councils such as SINTEF are very aware of that technology won’t replace the need for care.

“Telenor says that they technology will save money, but GPS does not reduce the need for care” (Øderud, Tone; SINTEF)

However, while SINTEF is skeptical to the thought of that GPS can save money, one can assume that there is a financial gain in the use of GPS. Especially because GPS can save the government for search operations for elderly who gets lost. Ole Hanseth see the financial advantages of using GPS;

“Advantage of GPS is the saving from the expensive search operations. I can see for myself that there will be an economic win […]” (Hanseth, Ole; Professor UiO)

One can argue that the use of GPS would not reduce the need for warm hands and human care. However, there are indications that make me believe that by investing in welfare technology this contributes to save money, not only for the government, but for the elderly themselves, search operators, and other actors involved.

*The third challenge*, and probably the biggest, concerns the relationships to each other

Incongruence among the actors. Many of the suppliers which I have interviewed and also spoken with have left me with the impression that the suppliers do not know the municipalities’ needs. Or the other way around; the municipalities are not clear enough to describe what their needs are. This seems to be an endless discussion;

“To the supplier’s defense, they do not know how it works” (Øderud, Tone; SINTEF)

If the suppliers that deliver technology to the municipalities do not have the authority to specify the users’ needs from the municipalities, one can argue that there will be a lack of product specification. This may lead to a product that is not good enough developed for the end user. However, the
suppliers do feel that some of the problem is in the hand of the municipalities and their lack of knowledge related to the requirement specification;

“Municipalities must identify their needs [...]” The most ideal situation would be if you had started the other way around. If the municipalities had addressed their needs and outlined what the technology companies can serve them, then the technology would be developed based on the user need. Municipalities need to be more innovative, see the needs, adopting the solutions that exist [...]” (Sværen, Vigdis; Norsk Teknologi)

Public Organization such as the Data Authority also had an opinion on whether the municipalities had knowledge about the requirement specification or not;

“We believe that the municipality has little technological expertise on advanced technological solutions” (Data Authority)

After my interview with the Data Authority, I was left with the impression that the Norwegian municipalities where skeptical considering the law. They told me how there in Denmark are much more cooperation between the private sector compared to Norway. As they further elaborates on;

“Norwegian municipalities have pushed away the law. They have been afraid since the GPS has not been allowed, and they intend to have some general technology skepticism [...] Municipalities are very afraid of using technology [...]”

(Lauvset, Eirin; Data Authority)

At the same time the municipalities themselves do see challenges in the way they are describing their needs;

“Because, part of the reason why the developers not deliver better is that municipalities are too poor to describe requirements” (Standal, Kristin; Bærum municipalities)

In other words, they do see that there is a lack of requirement specifications in their own organization. Standal further describes how she sees the need for expertise to identify the user needs. She says they lack the tools to make reviews on what kind of features they need, such as elements as traffic safety. Standal refers to tools that make them better in their order expertise, and on the other hand makes sure that the suppliers are getting better in their field, as product expertise. Standal is very clear when she says that their role is to describe their needs, and not ordering solutions from the suppliers:
"We could be better at describing the requirements. We will not order solutions, we shall describe the requirements. Providers must understand the needs and describe the solutions"
(Standal, Kristin; Bærum municipalities)

There are different frames across groups as well. While the municipality of Bærum describes the difficulties regarding the requirement specification between them and the suppliers, one of the suppliers expressed the challenges’ like this:

"If the nurses in the home care can define the problem, then skilled technologists can solve this [...]"
(Sværen, Vigdis; Nors Teknologi)

Norsk Teknologi address challenges related the ordering expertise across actors. They have a certain need for that the care workers who work closely with the user can address the needs. By these quotes mentioned above, there seems to be a need for a common platform where the user can describe their needs towards the municipalities or technologist.

It is also interesting to see how the different actors make sense of each other in the interplay of many actors. Frantzen, from the Health Directorate confirmed that;

"It has been a changing perception of Data Authority after the new director has started. Data Authority is more positive and has a more nuanced view. Data Authority has great impact, and they see the importance around several issues" (Frantzen, Lasse; Health Directorat)

One of the challenges is to share the knowledge of the actors involved, the actors purpose of why they are doing as they do, so people do not get misunderstood. Also the Data Authority could agree upon that by confirming that there had been a shift in the culture of their organization;

"It has been a changing perception in the Data Authority after a new president has come, so we are more positive towards the use of GPS and appears to be more positive towards other actors"
(Data Authority)

This is an example on how different actors make sense of each other. A barrier which arises between two actors which have vastly different backgrounds is the language and terms being used. This can be a hinder when the two parts are negotiating;
"We have seen during the workshop that they (suppliers) use different terms; they use technological concepts from their digital world. We are not familiar with the concepts. And we use our concepts. So that's why we spend so much time trying to understand each other " (Landmark, Bjørg; Drammen Municipality)

At the same time, one of the suppliers, Norsk Teknologi, also sees the challenges with the language barrier. This means there are shared frames across groups, and congruency;

“Technologists are talking bits, bytes and cable in a technology-based language, a language that healthcare professionals do not understand. When working on things such as technologists do, they get into their own language. There are two different languages, and it is important how to communicate the solutions. I think it is more importantly, talking about functions, the types of issues you have, and how we can help assist you with that [...]” (Sværen, Vigdis; Norsk Teknologi)

One can assume that the different terminologies that are used by the actors may lead to a reduction in a successful cooperation, because of misunderstandings of one another.

However, both actors in this case are aware of the fact that there are differences in the terms across the parties. The fact that these actors are aware of this problem may help the actors so they won’t misunderstand each other to much, or that they do not to expect too much when it comes to the understanding. One can assume that there has arisen congruence around the subject of technological language, because the actors involved are clear about the problem.

If congruence occurs, where similar expectations are set around the role of technology, it would mean that there is a good foundation for believing that the implementation would be successful. If it seems like there is congruence across the stakeholders, this would be a good starting point for developing the main points for the consequences of the success criteria, and to build a strategy for the future. On how the actors perceive one another is individualized;

“What’s negative with SINTEF is that they run lots of pilot projects, and use lots of money. The results will not be industrialized. They need to get their work from the pilots and out in the field [...]” (Holsæther, Edvin; Telenor Objects)

Based on this quote I have detected Incongruence, based on different frames across groups. In other words, Telenor is not satisfied with how SINTEF works or their approach to implement welfare technology. However, this is mainly because the different assumptions, meanings and philosophies
among the actors diverged. One of the actors from the region of Vernes told me he was tired of all the bureaucracy, and wanted to just go ahead with the implementation;

"I have experience from numerous of conferences. All babbling about the same and everyone has of course good intensions, but nothing is getting realized” (Sunset, Ole Ivar, the region of vernes)

In order for the suppliers to understand the needs, it will cost time, money and resources. One challenge is how one can develop the expertise among the suppliers. There are different approaches to implement welfare technology;

“Relations must be established to specify the cooperation to work. Part of the success factors in adopting welfare technology is good relationships between industry and healthcare”

(Øderud, Tone; SINTEF)

How to create a good relationship between the actors involved is probably the main challenge. There are conflicts among the actors involved, both within one group and across groups. These conflicts are especially related to who has the responsibility. The suppliers also have the impression that the municipalities do not have focus on the user;

“ I do not think the municipalities have focus on the users. Users do not know what kind of solutions or services that is on the market” (Holsæter, Edvin; Telenor Objects)

In this case, the assumptions and expectations are not aligned. Incongruence arises if the frames are not shared across stakeholders, which happens to be the case here. Incongruence means differences in expectations, and one could assume that for example Telenor has different expectations on how the municipalities focus and act. On the other hand, the municipalities get the impression that the suppliers do not want to engage in their work;

“ They said; “no, we have no time to participate in research projects”. But they can’t and don’t know anything about this field, and certainly not enough to know how to offer this to the public. And then they come here and soaked up information from us, in retrospect, of what we've learned, and it is quite provocative [...].” (Standal, Kristin; Bærum municipalities)

Discussed in the previous section, the actors were congruent in relation to the lack of a common platform. However, there exists one platform which is established by the National Suppliers Development. During the project meeting with SINTEF and the five municipalities involved in
Trygge Spor, I observed the different actors’ discussion about certain elements with the implementation of welfare technology. There was different reactions towards the platform discussed established by The National Suppliers Development. This platform works as a meeting place for both suppliers and municipalities where they can discuss needs and solutions related to welfare technology. One of the most interesting observations was during the discussion about The National Supplier Development Program, where one of the municipalities was engaged and positive towards attending the program, while another municipality was more negative:

“The National Supplier Development Program is not prepared or willing to learn with us.”
(Standal, Kristin; Bærum municipality)

However, one of the representatives from the municipalities of Trondheim was positive, and she tried to have focus on the pros with this program, and could not understand why this platform was not fruitful for them:

“We use PwC as consultant for requirements specification and we are experiencing a learning curve. One must also be able to share experiences. What is the best GPS in the future? Why can’t we challenge the supplier market for GPS through the National Supplier Development Program?” (Trondheim municipality)

The representative from the municipality of Trondheim was indeed positive to The National Suppliers Development Program and tried to engage the others in the same direction. She was breaking sense through creating new aspects of task and environment relevant for the team members, in this case the task of interact with suppliers though the National Development Program. This will be discussed more in depth in the next chapter of discussion. There is no doubt that there are conflicts between municipal welfare technological visions and other involved actors’ visions. At the same time, there are also different frames not only across group, but from the example above, also differences in frames within one group, in this case, the municipalities. One can assume that the municipalities have had bad experiences in their cooperation with previous suppliers and it seems like the two actors have different expectations, assumptions, and meanings. If the frames referring to assumptions, meanings, expectation, and knowledge were aligned, this would be defined as the notion of congruence. In this case the frames are not shared. It is important to keep in mind that
“aligned” does not mean equal identical, but rather “falling within a certain range of field” according to Orlikowski and Gash.

5.3.3 Sub question three

3) How do regulations on public procurement affect the interactions between players?

“There should be a proper use on how to apply technology” (Data Authority)

One can argue that one group is putting pressure on the other. Because of the increase in the elderly population it forces managers to think towards new directions. A typically scenario is the managers that see the need for new technology, and initiate the need of technologist. The technologists are developing technology for the need that the managers where initiated. At the same time, the managers are not fully satisfied with the final results, and the technologists have to adjust their product or the municipalities must be better in describing their needs, In other words, one group forces the other to change their frames or revert to old ones, or consequently the organization will become increasingly dysfunctional and unstable over time. Institutional Theory allows me to link macro (Institutional theory) with micro level (Sensemaking) analysis. Institutional Theory is suitable in relation to how actors feel the pressure of which direction they should go based on pressure among each other; local authorities; globalization; trends; economically reasons etc.

There has been a need for regulation of laws in relation to implementing welfare technology. One of the biggest challenges discussed in the past years related to welfare technology and GPS is the ethical aspects of the use. Many people are still of the opinion that technology would replace warm hands and humans in the elderly care. On the other hand, Hege Nordquelle who has spent many years working with elderly and now is a founder of her own home care company, has the impression that most of the people today have enough knowledge to know that this is not the case;

“GPS would not take away human relationships, and I do not think that people will take more distance even though some use GPS” (Nordquelle, Hege, Founder of Omsorg I Hjemmet)

Also Telenor Objects are of the same experience;

“[...] No technology can replace human hands” (Holsæter, Edvin; Telenor Objects)
There has been a non-stop economic; social; organizational; and political disagreement, concerning the use and implementation of GPS between the different departments and actors involved. Data Authority and SINTEF are agreeing on most part of the implementation of GPS, however, there is tension when it comes to the aspect of personal protectiveness which touches upon the ethical aspect of the subject. I recount these tensions, conflicts, and negotiations as examples of how cross disciplinary learning is not smooth and unproblematic. Managers or organizational decision makers decide on the overall decision making related to resources, organizational decisions, and so on. In my case, the typical manager or organizational decision makers would be the Health Directorate. The Health Directorate has been open minded towards welfare technology;

“There has been no legal change since 2009 with respect to implementation of welfare technology related to the use of GPS”
(Frantzen, Lasse: Health Directorate).

Lasse Frantzen has been the project manager during the design of “the technical report on the implementation of welfare technology in the municipal health care services from 2012 to 2030.” He says that technology should not be a substitute for human contact and expertise, but may contribute so that people with dementia get a more free and safe life. However, one of the most important aspects of the implementation of welfare technology is also to consider the consequences of not implementing it:

"The use of GPS in the institution is paradoxical, what are the consequences of not using tracking technology? To lock the elderly inside? Tracking technology must defend itself from moral ethics [...] “
(Hagen, Kåre; NOVA)

What Hagen mentions touches upon the use of technology and its consequences. Use of GPS should be weighed against what other measures that can be used to prevent people from getting lost. Probably GPS are less limiting compared to the feeling of imprisonment and medication in an institution. One of the professors I spoke with, Ole Hanseth from the University Of Oslo, expressed many factors he saw that could be an obstacle for the implementation of welfare technology;

“I believe there will always be an element of monitoring [...] There will be access to data in the system [...] There is potential in all digital technology, which is of the character of surveillance subsidence. But the potential is not so interesting, because it is not so much dangerous to discover [...] you could compare it
with Amazon, the world's largest web shop for purchasing books. Amazon keeps track of the books you have purchased. Which data is the government interested in? Are they at all interested in this kind of data? […]”
(Hanseth, Ole: Professor UiO)

The quote by Hanseth illustrates both the use of the technology, and how carefully one should be concerning the right way of using it. But also how important it is that the ethical aspect of the situation is clearly understood. One element that has been discussed the most is how different suppliers storage data. It is the storage of data that the government and the Data Authority have been negative towards. There are some challenges in regards to how the technology should be, and different levels related to what is acceptable regarding how data is storage;

“The Data Authority and Health Directorates lawyers have not been completely satisfied with the solutions to Telenor Objects and Visma because of data collection”
(Frantzen, Lasse: Health directorat)

One can assume that these kinds of pressures, both the ethical aspects on how the technology cannot replace warm hands and the regulations concerned the use and maintenance of welfare technology, could lead the actors in certain directions. This is called institutionalized pressure and may be caused by various elements. The responsible part regarding maintenance can be a question to discuss. Frantzen (Health Directorate) also stresses the maintenance and the technical support 24/7 as a security service. He argues that this is a big challenge for small municipalities, and that it is important to make sure it does not provide a form of false security. This problem needs a wider cooperation, not only in the municipality, but also between voluntaries, relatives and care workers. Further on I will address another kind of pressure which consists of financial gain. There are presumably many actors that would save money because of the way technology are complementing human employment, such as search operations;

“One advantage of using GPS is that it would contribute to the saving of the expenses related to search operations for people that are lost. There will always be an optional service, but I can see that there will be an economic win related to implementing GPS […]” (Hanseth, Ole; Professor UiO)

Kåre Hagen, a professor working at NOVA, also has a positive outlook on the implementation of welfare technology;
"The pros are many. I see how GPS can reduce costs, and that it could replace employment with technology" (Hagen, Kåre; NOVA)

All quotes from the informants above are perspectives of Managers, Users and Technologists. Based on these quotes, one gets the impression that there is a certain pressure related to implementing welfare technology. In the light of the ethical aspects and the strict rules and regulation towards the storage of data, one can assume that certain actors act beyond those. In the next section I will answer the fourth, and last, sub question regarding how the users are involved and represented in the process.
5.3.4 Sub question four

4) How are users involved and represented in the process?

To address this question I have chosen to relate the pilot project Trygge Spor and the outcome from the project. During my contact with SINTEF I was left with the impression that they had focus on the user during their pilot project and stressed the fact how important it was to include the end user in the process. When it comes to the technology, and its function, it seems like most of the municipalities were satisfied with how it functioned. Although it was one municipality that expressed that the technology could be improved, they added that they did not expect more of it at that time. Bærum municipality said there were still some things that could be improved with the technology, and that was the charger. More than one of the representatives from the municipalities experienced it hard to monitor that the elderly actually had the GPS with him when he or she went out:

“... but the biggest challenge was to ensure that the GPS was with the person when they went out” (Fossberg, Anne Berit, Bærum Municipalities)

Regarding the ethical part of using GPS, one municipality expressed how difficult some of the care workers experienced it when it came to putting the GPS on the elderly:

“... Some home caregivers experienced it ethically difficult to add a GPS in his or her handbag. They felt the personal intervention was too big” (Fossberg, Anne Berit; Bærum municipalities)

However, SINTEF told me how it was much easier doing these pilot projects if the user lived or had a relative who could help him or her, considering situations where you had to put the GPS in her handbag etc. Ethical reflections must anyhow be taken into consideration, and there are other aspects of ethical challenges as well;

“GPS can be a danger to themselves and others. It is not proper to use GPS in all cases” (Nordquelle, Hege, Founder of Omsorg I Hjemmet)
Nordquelle address the challenging concerning the ethical aspects. Therefore it is important to get a new law regulation which was discussed under sub question three, so that relatives and care workers can use GPS on elderly with dementia even though they cannot consent.

“If a person is diagnosed with Alzheimer’s one should use their clear moments to ask if they want a GPS”
(Nordquelle, Hege; Founder of Omsorg I hjemmet)

There are many actors that see that the user group is not a homogeneous group, which means one need to develop each product for one another;

“GPS for dementia, they are not a homogeneous group [...] You can have multiple needs in this group [...]”
(Fossberg, Anne Berit; Bærum municipalities)

What is positive is that the suppliers also see that the group of elderly is not a homogeneous group;

“We know that users are not a homogeneous group” (Holsæter, Edvin; Telenor Objects)

Other aspects that could influence the outcome, is the care workers response towards the use of GPS in the project Trygge Spor. For some municipalities this project was experienced as a step in the right direction, but at the same time they saw it as a long step to reach the accurate implementation.

“We experienced motivated staff. But it is a huge step from those who are reticent to those who really want to try this” (Landmark, Bjørg; Drammen Kommune).

The care workers enthusiasm in the different municipalities related to the pilot project towards welfare technology must been seen in relation to the municipalities willingness for new technology. The overall deployment process can also influence their attitudes as well as the outcome of the pilot project. Bærum municipality also has positive experiences from the implementation of GPS:

“We experienced a high learning curve, and assumed that the employees experienced this in the same way.
The care workers were very positive. We ensured procedures so that technology did not become a false sense of security” (Standal, Kristin; Bærum Kommune).

The municipalities also addressed what positive experience’s they learned from being involved in the project;
“Considering meeting positive health staff, we have been working with people, those who have been around
the users, and I think many people find that they work in line with their own ethical guidelines. You do not
have to spend time trying to convince someone to not go out when they want to, but that he can go. He has a
GPS with him [...]” (Fossberg, Anne Berit; Bærum municipalities)

Addressing the results and experiences from the pilot project Trygge Spor has made it easier for me
to analyze what challenges and opportunities there are regarding the use of GPS and the
involvement of users. In the next section, I will give the reader a conclusion that stresses the
importance of shared frames among the actors based on this analysis, which will hopefully give the
paper a sense of completeness.
5.4 Conclusion

In order to answer the research question, one needs to answer the four sub questions which I hopefully have done in the previous section. The first challenge, as I see it, is the lack of a common platform for generating needs and knowledge across the actor. Even though some platforms exist, the main challenge lays in engaging the actors to participate these networks. As discussed, some of the actors were skeptical towards the different networks, such as The National Suppliers Development Program, due to previous bad experiences. The actors express the need for a common overview where results from pilot projects, such as SINTEF, can be published. This may contribute to knowledge creation among actors. The second challenge seems to be the poor communication and different expectations among the different actors. The municipalities explain how they experience the many solutions and suppliers in the market, and how difficult it is for them to know exactly who the serious actors are. The suppliers, on the other hand, say that the municipalities are not good enough in describing their needs. To get a greater product expertise one can assume that the process of purchasing would benefit from a greater knowledge of the requirement specification among the actors. During my research I got the impression that the municipalities are positive regarding engagement with pilot projects to develop welfare technology, such as GPS with a user oriented approach. What seems to be the challenge is that suppliers do not necessary see the same need regards to process, as the municipalities, concerning the pilot projects and the importance of involving the user. Without such processes (such as Trygge Spor) the result may be that the qualities of the product do not match the need of the municipality. Research councils as SINTEF also address the importance of how every situation is unique, and one cannot expect finding a standardized solution, because “one does not fit all”. The technology today is designed for different purposes and it turns out that there are different levels of developed technology. One type of GPS, for example, has been developed for the use and location of boats. The third challenge concerns how the actors involved have different agendas for why they want to implement welfare technology. This may be due to the institutional pressure from organizations and local authorities. The government may see savings as the main motivation for implementing welfare technology, since having people in institutions are more expensive compared to people living in their own home. Another example of institutional pressure is how the Data Authority control elements as privacy setting such as how the suppliers storage data. If they detect that the supplier storage the
data in an inappropriate way, they would probably reject the suppliers to offer their product in the market. The actors are then constrained from producing products that are of poor quality, but at the same time the market is protected from insufficient actors. The suppliers are therefore under pressure regards to developing product after some guidance and criteria’s.

The forth challenge considers how the employees and relatives should be provided with enough knowledge and expertise so that they are prepared when testing out the welfare technology. It can also be challenging for the care workers and relatives to learn how the different technologies work. Therefore the municipalities must continue to develop tools which may contribute to that the relatives and employees not experience the process as difficult or unfamiliar. It is important to build trust among the different actors.

I am suggesting, as an end-note to this section, that if incongruence appears there might be an increased need for better training and communication across the actors. However, the training or communication may be less effective if incongruence is due to political battles such as rules and regulations. This will further require processes as workshops and a change in the education of management.
6 DISCUSSION

In the previous chapter I conducted a comprehensive analysis of how the interplay between the industry and municipalities were aligned under shared or diverse frames related to the implementation of welfare technology. The analysis were done by the following aspects; the relationship between organization and technology in the process; the nature of conflicts between the municipalities’ welfare technological visions and other involved actors' visions; how the regulations on public procurement affect the interactions between players; and how users are involved and represented in the process. Furthermore, I would like to raise this analysis into a discussion combining the applied theories and methods. I will discuss some of the lessons learned from the conducted analysis based on the theory of Vlaar et.al (2008) on how the actors in the interplay give, make, demand and break sense. I will address a number of issues related to my four sub question and at the same time keep a critical mindset on the applied theory and method. Afterwords I conclude by looking at the study’s quality in connection to the principles credibility; dependability; conformability; and transferability.

6.1 Findings

Based on the previous chapter, I explored both Congruency and Incongruence which I will discuss more in depth in this section. Vlaar et al. address three conditions to get a fully understanding of how different people can become more congruent and actionable with each other (Vlaar et al: 2008:232). I will take these three conditions and relate them to my findings from the analyses from the previous chapter. At the same time I have addressed the acts of Sensegiving, Sensemaking, Sensedemaning and Sensebreaking related to the three conditions and findings from the analysis. The purpose is to get a better understanding how the different actors can give, make, demand or break sense in relation to the implementation of welfare technology in the light of the three conditions. Firstly, Vlaar et al. argues that individuals should direct their thinking towards the same behaviors or outcomes. In software development this means that the actors ask themselves “are we building the product right”? One example on this condition is SINTEF who for example involves municipalities, suppliers and the users in the development of the project Trygge Spor. In this way they are creating learning through a process, where there is a fruitful interaction based
on different experience and knowledge from various perspectives. This can be related to Vlaar et al. where the actors make sense. Even though the different actors have different views and expectations towards the implementation of welfare technology, Sensemaking permits those actors to achieve congruency. As Weick (1995) argues, these sensemaking processes are activated when observations and expectations diverge from each other, or when there is no obvious way to engage in activities (Vlaar et. al: 2008:240). During Trygge Spor, I found that one of the municipalities was positive towards the National Supplier Program, compared to the others involved. Based on previous experiences, some of the municipalities and SINTEF was skeptical towards this program. Observing, reasoning, analyzing, contemplating, anticipating and imagining are some among others, acts of sensemaking. In the interplay of various actors, one may assume that the actors involved have different experiences and expectations towards the implementation of welfare technology. The actors who were negative to National Suppliers Program, could through the some of the activities of Sensemaking, such as reasoning or imagining, become more positive or open minded towards this program. My findings also show that the motivation for implementing welfare technology may be different among the actors. Some may have economical motives, while other has personal or status as a motive. Without prejudging, but one can assume that the suppliers would have economical motives, the relatives would have personal motives and the research councils would have status as a motive. If the actors could make sense by reasoning for why they would implement welfare technology towards the other actors involved, the outcome would probably be that they would have a greater understanding for each other. Another example is how the Health Directorate makes sense considering Data Authority and their more nuanced perceptive towards welfare technology. Frantzen, points out that there has been a changing perception of Data Authority after the new director has started. After talking with Data Authority they also could confirm that this was a fact, by telling me that as a result of a new leader is a more open minded and positive approach towards to GPS. This is also one example on how actors make sense of each other.

What are also discussed in the previous chapter is how some of the actors are not satisfied with the way municipalities are describing their needs. In many examples it seems like the suppliers are not satisfied in the way the municipalities describe their needs. And even in some cases, the municipalities themselves can agree upon this. Secondly, Vlaar et al. discusses that individuals should have the same temporal orientation. In other words; the different actors focus on what is important here and now, or expecting to focus on future behavior outcomes. Trygge Spor is an
example on how different actors through a common goal had a huge focus on the user during their pilot project. The people involved in this project learned of each other, and give sense to each other during a learning process. Sensegiving consist of acts by which individuals attempt to alter and influence the way other thinks and acts (Maitlis 2005; Weick 1995 in Vlaar et al; 2008:240).

SINTEF arranged a conference explaining key initiatives for implementing GPS in the elderly care and exposed their final results from Trygge Spor to a large relevant audience. This contributed to give sense because they clarified the ethical aspects as well as challenges and opportunities they had experienced during the pilot project. The audience was now aware of underlying values such as how this project was driven through a process, and not something that one could expect to implement in just one day. I found many acts on Sensegiving, which consisted how large players in the market, such as the Health Directorate tried to influence the way others thought and acted by producing the report about implementing welfare technology in the municipal health and care sector 2013-2030. One could also interpret this report as an explanatory brief, but at the same time one can assume that this report would have influence on many actors reading it.

I also detected how the actors involved also gave sense by confirming and correcting the viewpoints of others. Another example is the view on the implementation of welfare technology in Norway compared to other countries. Lasse Frantzen from the Norwegian Health Directorate mentioned that both the British Isles and Scotland had a stronger progress compared to Norway regarding the implementation of welfare technology. However, Telenor Objects and Edvin Holsæter explained the reason for why those countries had such a progress. He clarified that the reason was that Scotland had created a fund where the actors could apply for funding, such as money with the purpose of financing welfare technology projects. He added that he did not think the countries where much ahead of us in regards of technology, but the opportunity to apply for funding. This is one example on how one actor (Telenor Objects), corrects and confirms, the viewpoint of others. Telenor, however, does not get the impression that the exemplified countries, is ahead of Norway. Therefore Telenor is correcting the viewpoint of the Health Directorate probably based on earlier or others findings. Finally, Vlaar et al (2008) address the third condition that must be fulfilled to become congruent, concerns how individuals have the ability to translate their understanding into actions contributing to collective value creation. There are reasons to believe that if the actors involved would contribute to a collective value creation this would increase the likelihood for a successful implementation of welfare technology. I link this condition to my second sub question.
regarding the nature of conflicts between the municipalities’ welfare technological visions and other involved actors visions. However, my findings demonstrate that the actors have diverse frames when it comes to require the specifications and how they share information. 

*Sensedemanding* may include cross-checking, which in this case means that the actors are checking their perception and interpretation of a certain subject with actors from other organizations. For instance, one actor, let’s say Norsk Teknologi may attempt to ask indirect questions to a participant from another organization such as Telenor, for clarification, confirmation and additional information related to the implementation of welfare technology. In this example the actors are cross checking the perception and interpretation of others, and *demanding* sense, by asking for clarification, requesting confirmation for additional information. To conclude the discussion of the final condition; a common platform where the actors could meet and share ideas, needs and so on, would be ideal for them to be more able to learn of each other.

I have now closed the discussion related to the three conditions that must be fulfilled to get the actors to become more congruent and actionable with each other. However, the last of the fourth act, *Sensebreaking* has not been discussed yet. Vlaar et al (2008) explains how Sensebreaking involves the reframing of previously held conceptions and redirecting other team member’s attention and search for solutions. I found that one representative from one of the municipalities was positive towards the National Suppliers Program and towards the approach of meeting potential suppliers. This is discussed in the chapter of analysis under sub questions two and brings Incongruence into light. On the other hand, the other municipalities and SINTEF were negative and went in detail on their previous experiences or assumptions about this program. In this case, the one representative was *breaking* sense, because she could not understand why the others were so skeptical towards the program. The representative from the municipality was strongly positive to the program and tried to engage the others in the same direction. She was breaking sense through creating new aspects of task and environment relevant for the team members, in this case the task of interaction with suppliers through the National Development Program. In addition, this could contribute to that others could view the subject in a new light.

### 6.2 Theory

Hopefully this research has shown in-depth studies of academic areas as well as independent descriptions, processes and analysis of a complex issue at a Master’s level. Throughout this paper I have had focus on three different theories. Sensemaking is the first theory
which I addressed. I have chosen to address two different concepts related to Sensemaking in this paper. The first concept of Weick, Sutcliffe and Obstfeld, about the organizing and the process of Sensemaking, allowed me to use Sensemaking as the central concept in relation to the other theories. This made it practical for me to explore if the actors involved, had different assumptions, meanings and philosophies towards the implementation of welfare technology. By introducing the theory Sensemaking by Weick, Sutcliffe and Obstfeld (2005) this gave me background information such as a explaining method, before interviewing the respondents. The other concept of Sensemaking is explored by Vlaar et al (2008) and gave me the opportunity to bring light on how the actors give, make, demand and break sense, to create mutual understanding. This could further on be explored to how the actors make sense of their tasks and their environment. In addition, this concept is just mentioned in the chapter of theory, and used throughout this chapter.

I address Technological Frames of Orlikowski and Gash as a second theoretical framework. This made it easier for me during the transcription to analyze the data conducted, because the data is structured by using the concept of Orliowski and Gash. The concept Orlikowski and Gash address is Nature, Strategy and Use, which gave me insight in how the actors interpreted welfare technology based those categories. By investigating these three elements, I have firstly mapped the actor’s perception of Nature, which means their understanding of welfare technologies functionality with the main question as “what exactly does the technology provide or do?” Secondly, I have mapped the actors understanding of strategy, which consists of why and what the advantages and obstacles are with the technology. One can assume that the actors involved would have different understandings for the necessity and perhaps have different agendas for the implementation of technology. Finally, I asked them about the Use – how they understoedd the technology in use. The answers lead me to draw an assumption of the experience the different actors share with each other, as well as the individual experience. The concept also made it easier for me to distinguish between the actors, with categorizing them under technologist, managers and users. This is an interesting approach from my point of view, to answering my research question and to get a full understanding of the relationship between the actors and whether there are social cognitive perceptions shared among the group of individuals. The third theoretical framework I addressed is Institutional Theory to explore macro level processes which may occur in such interaction, such as pressure among the actors. The different concepts from the theory are from my opinion addressed with an purpose, and I therefor thinks my study is deliberately enough. I followed a prolonged engagement, which
contributes to show that my study has that quality which established trustworthiness. However, some of the concepts from the theories are left out. Orlikowski and Gash (1992) illustrates some concepts, such as types of technological change, which I have concisely chosen not to apply. The reason why these concepts are left out, is because my lack of time, and since I think the concept of Nature, Strategy and Use, Congruence and Incongruence, and the three groups of technologists, users and managers where more relevant in my case. I feel that my approach is useful, in sense that it helps to understand a particular situation better. When working on my thesis I took advantage of the many resources around me. For instance, I arranged a meeting with a librarian at the CBS library who taught me how to search for relevant articles and theories on the computer. The learning object from this study and this master thesis is to act as an innovator and entrepreneur primarily in contexts of formal organizations, as well as analyze the conditions for innovation and entrepreneurship in such contexts. Hopefully my section of Theory has provided theoretical-analytical skills with developing competence to identify problems and solutions in concrete contexts. I have learned to analyze and understand the organizational conditions under which innovation and entrepreneurship takes place. This involves a clear understanding of the organizational conditions (i.e. organizational politics, governance, power-relations and the role of informal decision-making), but also an ability to promote, create and facilitate the conditions necessary for organizational innovation and entrepreneurship. To criticize the theory I choose, the theory of Sensemaking, Technological Frames and Institutional Theory had not the ability to explain or address these organizational conditions in full, which means I could addressed other theories that could be useful. In this case Innovation Management could be a fruitful concept to apply to go more in depth on the organizational and managerial challenges concerning innovative processes. This could be noted for further research.

6.3 Method
No method of collecting information is free of pitfalls. Assuming there are both strength and weaknesses in the interviewing methods, I chose to apply semi structured interviews during my data collection. The interviews I created involved a fixed set of questions. The semi structured interviews were created based on Orlikowski and Gash’s Technological Frames; Nature, Strategy and Use. The questions I structured were asked in a fixed order. The weakness that lays in structured interviews is that people often feel constrained because they are not free to give the information that they feel is important. Because I did not want my informants to feel constrained to
a certain answer, I choose to address interviews that were semi structured. This made it easier for me to interpret the data afterwards, because the data was at some point already framed, ready for analysis, in the categories of Nature, Strategy and Use. However, as Breakwell claims, if I had chosen a structured interview schedule it would be even easier for me to interpret the data, and less time consuming.

“The problem is obviously less acute if you use fully structured interview schedules, since then the response variety is constrained”

(Breakwell, M. Glynis “Interviewing” p. 250)

I had a numerous of topics to cover, based on Nature, Strategy and Use. But all of the questions and their order were not necessarily fixed. The questions I asked during the interviews were allowed to develop as a result of the exchange with the respondent. When I asked my questions it gave call for open ended answers from the respondents which allowed them to say as little or much as they wanted. The analysis of the semi structured interviews were time consuming in many ways. Many of the interviews lasted for more than one hour, and secondly I chose to categorize everything the informants told me in a meaning condensation scheme to distinguish the certain topics. However, many people who use unstructured interviews believe that by immersing themselves in the data they can understand the key themes which emerge. During my transcription I illustrated the key themes by taking direct quotes from the transcripts and linking these in a coherent description of the themes. Ideally, the quotes allow the interviewees to speak for themselves, telling their own story. During my thesis work I had to keep in mind that I had to be independent. I had to take independent decisions along the way, which meant that I had to eliminate some potential interviewed objects. One example is KS (Kommunesektorens organisasjon) which represent the local government organization and who is a municipal employer - interest and membership organization (www.ks.no)\(^\text{19}\). I met the representatives from KS very late in my writing process, and at that point I thought it could be interesting to have an interview with them. Still, I had to eliminate them, because of the lack of time. Regarding to the respondents, it was also important for me to be clear on what I wanted, and be clear about the purpose of each meeting and interview. This was important first and foremost to not let myself be influenced in different directions. I witnessed several times that the people I interviewed, who had a great interest in the topic I wrote about,

\(^{19}\) http://ks.event123.no/tryggespor/pop.cfm?FuseAction=Doc&pAction=View&pDocumentId=43581
wanted to get information from me about others, as well as affect me in a direction that might benefit them from their standpoint. My awareness of that this could happen, made me try to be as objective as I could during the dialog with the different respondents. I had to avoid some traps during my interviews by formulating the questions right. I sometimes jumped between topics and this can be covered by short but apparently reasonable explanations. I experienced that some of the informants which I interviewed wanted to talk about something else, or tried to guide me and my questions in a certain direction. In this case, I had to jump back to the actual topic after a while. The occupation or the role of the informants is relevant due to the analyze I conducted based on Orlikowski and Gash’s strategy. I had to know the occupation of the informants, and the outcome was findings that represented differences between the views of people who had different occupation or roles in the interplay.

“In the social sciences today, qualitative interviews are increasingly employed as a researcher method in their own right, with an expanding methodological literature on how to carry out interview research” (Kvale, Steinar; “Doing interviews” 2007:6)

Other important factors in relation to study an ongoing process are issues related to confidentiality, anonymity of informants, and access to material. Therefore, I developed a consent form that was sent out to all those who attended the interview, to get their consent of the information they gave me, and that the information will be threat confidentially if they wanted. By moving around in the network I got the impression and knowledge of many different aspects of the theme I researched, few other actors had the possibility to get in the same way as I. I did meet various suppliers and others that could conceivably have a strong interest in terms of knowing what the municipalities were thinking and doing. Basically, this is likely to create challenges when it comes to having a neutral researcher role. By attending various seminars and conferences, I got the chance to engage with various people and talk about welfare technology solutions, such as GPS and sensor technology to create a contacts with new actors. They were also genuinely interested in me, and what I wrote about during my master thesis. This was a way for me to establish a relaxed atmosphere between myself and them.

When interviewing people it is tempting to say more than you perhaps should. However, I do not think I have crossed any boundaries in relation to this. I had few experiences about informants trying to "fish" for sensitive information and secrets, but it
happened. As a student writing my master thesis, it is nevertheless important to reflect on this dimension. There were times during my interviews that respondents were inconsistent in their pattern of answers. Therefore, I extended the questioning, or probed them, to achieve clarification. However, it is worth mentioning that I included almost all of the data in the analysis, except some data which was not relevant at all, from my point of view, but also from the informant’s point of view. This could be information related to another subject which did not relate itself to my research. Lincoln and Guba address four criteria’s for establishing trustworthiness. They are; Credibility, Transferability, Dependability and Conformability. I will in the next section consider the criteria’s one at a time.

6.3.1 Credibility
There are five major techniques to ensure credible findings and interpretations. One can say that the different techniques consist of a process which allows me to establish credibility in different ways. The five techniques are; activities for increasing the probability that credible findings will be produced; peer debriefing; negative case analysis; referential adequacy, and last; member checks. I have chosen to address one of the techniques, namely activities increasing the probability that credible findings will be produced. This technique consists of three activities which involve: prolonged engagement, persistent observation, and triangulation. The activities provide and interpret data in different ways. Lincoln & Guba (2005) argue that while prolonged engagement provides scope, the activity of persistent observation provides depth. The activity of triangulation consists of improving the probability that findings and interpretations will be found credible, based on four modes. I will not explore what these modes are, or the activities of persistent observation or triangulation, since I have chosen to go more in depth with the activity which concerns prolonged engagement. As Lincoln and Guba (2005) describes, prolonged engagement is the investment of sufficient time to achieve certain purposes such as learning the “culture”, testing for misinformation introduced by distortion either of the self or the respondents, and building trust (Lincoln & Guba, 2005;301). I didn’t have to learn so much about the culture in the elderly care, since I already have a background of working in a nursing home with elderly with dementia. This experience has been helpful when meeting with the informants. Lincoln and Guba stress the fact that it is not possible to understand any phenomenon without references to the context, in my case the elderly care (Lincoln & Guba, 2005; 302). With my seven year work experience at Hovseterhjemmet, I have gained knowledge about how the administrative organ works and gotten in close contact with the elderly
on a day to day basis. In other words, I was already oriented to the situation based on my working experience because I had indirect, studied the culture at the workplace before I chose to do research on welfare technology. Considering my already existing orientation due to a certain context, this made me feel that I had already built trust, in that sense that I was familiar with the users, the different expressions, systems and terms being used in such context. Because of my background, one can assume that I was familiar with the expressions used in the various situations that I was exposed to during my time spent while conducting data from my interviews, conferences, and the project meeting initiated by SINTEF. This is one of the advantages with my background and can straighten the credibility of my research. From another point of view, my familiarity with the environment of the elderly care might lead to some aspects being taken for granted during my research. Where I am very familiar on a certain subject, it could be that the informant which I interviewed did not have any knowledge about it. The same problem can also be related to the different terms and language that are being used, and the setting of the meeting place among the actors. For example the technologists, who talks a very technological language, may experience challenges when trying to negotiate with the municipalities. The reason is that municipalities have expressed frustration about their lack of understanding because everything is expressed through “megabytes” or “gigabytes”. These are examples on distortions introduced by respondents. Therefore it is important that I distinguish between misinformation that is unintended or intended. *Unintended* distortion may concerns choices while I conduct the data, and it is important that I do not make any interpretations that are continuously predictable from the original formulation. Therefore I have chosen to use the original quotes by the actors through my analysis, even though one can perceive that some of the sentences or words are very “technological”. As I have presented my findings in this paper, I could not take for granted that the reader knows all of the technological terms. Therefore it is important that I have in mind that the reader is not necessarily familiar with certain expressions used, such as GPS or sensor technology. I have addressed these challenges by explaining what the expressions means throughout the paper. In this way I do not create distortion. Douglas (1976) relates *Intended distortion* to lies, fronts, and deceptions that may be practiced by informants (Lincoln & Guba, 2005; 303). It is important to be aware of that misinformation may rise, and what position to take to battle the problem if it happens. As Lincoln and Guba (2005) mentions, the period of prolonged engagement is intended to provide the investigator an opportunity to build trust (Lincoln & Guba, 2005; 303). Based on my repeatedly meetings with SINTEF and...
municipalities, one can assume that I was building trust in relation to them as informants. The setting of most of the meetings I attended was very informal. During my three meetings with Tone Øderud (SINTEF) we were practically discussing the subject welfare technology in a very relaxed setting. My impression is, because of the relaxed and informal setting, this increased the openness and honesty between me and her as an informant. As Breakwell claims there is a common belief in the research community;

“It is thought that interviewing someone on several occasions increases their openness and honesty” (Breakwell, M. Glynis “Interviewing”, p. 241).

I attended the project meeting with a following dinner with SINTEF and municipalities, and the day after I attended a conference initiated by SINTEF. Because of the repeatedly meetings with the same actors, both through observational and projects meetings, one can assume that the validity of my data collection may have been improved. It is worth mentioning that Lincoln & Guba (2005) stresses how trust is a developmental process to be engaged in daily. Building trust concern a time-consuming process and trust can be destroyed (Lincoln & Guba; 2005:303). Because I attended the conference initiated by SINTEF, it allowed me to investigate and observe the actor’s attitude and interaction with one another in their own environment. These observations in the field gave me valid knowledge compared to just ask someone about their ways of behaving in such an environment. By being a participant of the conference I made observations which granted me access to the network that was fruitful for me in many ways, and this was achieved through developing trust with the people I met. During this research, I gathered different kinds of data by using different kinds of methods. In depth interviews has the purpose of getting more in depth knowledge about the person, and his or her perspective on personal emotional conflicts. Lincoln & Guba (2005) argues that the longer the investigator is in the field, the more accepted he or she becomes. But on the other hand the greater the likelihood that professional judgments will be influenced. I was not able to provide a guarantee against such influence, but by being conscious and aware about this problem, this may have prevented some influence that might occur. I am able to demonstrate a prolonged period of engagement based on my background, and my contact with SINTEF. I have learned the context, minimized the distortion, and build trust among the actors. Hopefully, based on these elements, my findings will be found to be more credible.
6.3.2 Transferability
Transferability is an important form of communicative generalization and fits with research aimed at knowledge as well as practice-oriented research. The fact is that the reader of the research report, not the researcher, determines whether similarities exist between the situation that has been researched and another situation which is of interest to the reader. The reader must have an adequate knowledge of the researched situation so that he or she can determine themselves whether there are sufficient relevant similarities that make it plausible that the research conclusions should also hold in the other situation. SINTEF is a good example on a reader that has an acceptable knowledge on the research situation in my case. The researcher has to take the trouble to help him or her, so as to enable the reader to identify the similarities and the differences between the researched situation and the un-researched situation. He or she can help the reader if the research report describes the following matters, as for example, the status or position or the roles of the researchers in the research situation. These elements can have an influence on the research results. As Lincoln and Guba (2005) stress how it is my responsibility to provide the data base that makes transferability judgments possible. The GPS that SINTEF evaluated and used in their pilot project can in many ways be looked at as a representative of what is available on the marked. I believe that my findings with regards to the interplay between the stakeholders involved can be generalized to other tagging and tracking systems. Different factors may influence the outcome of my study, and the purpose of choosing the design is either to control or to randomize those factors (Lincoln and Guba 2005:290). Along with my in-depth interviews, I have also complemented my gatherings of information with other types of data. I used for instance observations as a complement to the in depth interviews I conducted. To assure that the interview was effective, I took additional evidence from only a subsample of the respondents. I was in different settings during the conducted interviews. When I visited the municipalities I was casually dressed because of the neutral setting and this meeting took place in a meeting room. I was also in settings such as the project meeting, where we had a formal dinner after the meeting. Besides from the interviews I conducted I also held a presentation for the municipalities involved in “Trygge Spor” and SINTEF during one of their project meetings. Breakwell (1990) assumes that where the researcher is a participant in the data collection process, as I was, the interviewing involves researcher effects. In other words, researcher effects such as my way of behavior, the way I dress, my age, and gender and so on, would probably influence the respondent’s willingness to participate and to answer accurately during an interview.
Breakwell (1990) claims that such interview effects cannot be eliminated but it can be taken to control for them. As I conducted all of the interviews alone, it required me to take control of those various effects, because this serves to hold stimulus provided by the interviewer constantly. It could also happen that the interviewer could be affected by different subjects because I could have reacted to some characteristics of the respondent. And this could influence how the questions were asked. A potential critique to the method I choose is that the interview in itself doesn’t have strict guidelines. The semi structured interviews had a certain setup, but the purpose of it was that the informant did not feel constrained to give me a certain answer. Consequently, one can assume that I reacted and maybe behaved differently with the respondents. My behavior towards, for example, the director in the Health Directorate may have varied from my behavior towards the nurse from St.Olavs Hospital. I recognize that the validity of the results to some extent may suffer from the lack of more direct involvement of non-professional stakeholders such as elderly people and their close family members in interviews or meetings. However, one of the reasons why I chose to use the results from the project Trygge Spor, is because I know this project has a strong involvement from a user driven - perspective. This means that their findings is based on their time spent with the users, in this case, the elderly people and their relatives which gives me a reason to believe that the quality of the research I am using is of good quality.

6.3.3 Dependability
Lincoln and Guba (2005) stress how there cannot be credibility without dependability (Lincoln & Guba; 2005; 316). This section provides four majors techniques for establishing Conformability. I suggest that to safe guard the quality of my study, and to explore dependability both in practice and in principles, this will hopefully increase the credibility of this study. Since I have chosen to explore dependability in practice, this does not mean I deal with this in principle. In Lincoln and Guba (2005) they are addressing four arguments useful for why dependability is useful by applying techniques elaborated below, in relation to credibility to show that a study has quality. The first technique stressed how there can be no credibility without dependability. The second technique represents the kind of triangulation which is reviewed in relation to credibility. The concept of triangulation by different methods can imply either different data collection modes (interviews and observation) or different designs. Guba argues, that this “overlap methods” is typically undertaken to establish validity, not reliability. A third technique, called “the stepwise replication” is suggested by Guba. This concern how repetition can establish reliability. Lincoln and Guba argue that this
problematic mode is not necessary suitable for establishing dependability, since there are other modes that exist. Therefore I will not go more in depth on this technique. The fourth technique is the most relevant in my case. The technique consists of inquiry reviewing and addresses two tasks. I will relate these two tasks to my research. The first task consists of examining the process and the second task consists of examining the product. In the second task there are two steps involved. The first task consists of how I sent out consent form to all of the participants for knowing whether they wanted to attend my studies with full name, or be anonymous. The second task could be that I reviewed the consent form to check that they have signed on the agreement paper. Transcribing the interviews was somewhat problematic. The reason for this is that some of the interviews were touching upon sensitive topics. Therefore, I sent out a letter to all informants, and requested them to contact me if they wanted to be anonymous in the paper. However, I chose not to anonymous the organizations involved in the network, partly because this would be difficult to implement in practice because Trygge Spor is a high profile project. The requirement of informed consent is important in this type of study, and therefore I have stated clearly about the study's purpose and conditions for identification. Another example is how I examine all the different elements in this study, such as the product, the data, findings, interpretations and recommendations, so that the bottom line may be accepted. One example on this is my exploration of the product. Let say SINTEF have examined and then tried out the GPS developed by one supplier, and further confirm that this GPS is in good order. When SINTEF suggests this I know that their types of GPS which they are using in their pilot studies, is in general a product of good quality which can be related to other products in the market of the same standard. This will increase the quality of my study. These mentioned processes establish the conformability, which I will discuss in the next section.

6.3.4 Conformability
Lincoln and Guba (2005) explain how the assessment of conformability involves several sub steps. The first concern is to determine whether the findings are grounded in the data. First; how the data is grounded in the data. This may be that I can check my raw data, for example in my meaning condensation scheme whether I have expressed face expression and so in relation to detect findings, such as Incongruence. Further on, conformability concerns how I check that the analytic techniques, appropriateness regard my table of participants, quality of interpretations and so on. Then I had to check whether the structure of the categories in my meaning condensations scheme was clear enough and if it had certain. Based on how I distinguished between actors and data, I feel my
meaning condensation scheme has an explanatory power. To reach a successful completion based on these steps that Lincoln and Guba (2005) stress, I will be able to reach an overall decision about the study’s conformability.
# 7 CONCLUSION AND PERSPECTIVE

## 7.1 Conclusion

I have conducted a qualitative research, where I have been engaged in the pilot project Trygge Spor. Based on the challenges I detected from answering my four sub question in chapter five, I will in the next section present success criteria’s that may contribute to a successful implementation of welfare technology in the public sector. The first sub question explores the challenges on an organizational level where the actors make sense of what they experience as barriers and opportunities towards implementation of welfare technology. This creates a foundation of the biggest challenges they address, concerning organization and technology. Based on my findings it is reasons to believe that there is a need for a common overview of solutions that exist, and an anchoring on an administrative level. The other element in this sub question is how the actors involved experience the cooperation. The cooperation is a process, and the purpose of the illumination of this process, is to improve the actors knowledge towards they role in the interplay and also how other actors interpreted them. The lack of a common platform may contribute to a nonexistence of knowledge creation among the actors. A connection between organization and technology in process is that one must begin with the foundation and the user understanding. This may contribute to a greater understanding and expectations among the actors which can prevent misunderstandings, lack of knowledge etc. The second sub question addresses the nature of conflicts between the municipalities’ welfare technological visions and other involved actors' visions. I have mobilized how Incongruence and Congruence and occur in the development process between the actors. What I have explored is that there seems to be poor communication and different expectations among the different actors. To engage the actors to gain a greater knowledge on the requirement specification this may contribute to a better interplay, which consist of better flow to generate knowledge on what the suppliers offers in the market. At the same time the suppliers would probably be more aware of the needs of the municipality. The third sub question is how regulations on public procurement affect the interactions between players. Regulation on public procurement has played an important role when it comes to the interplay of actors. Some of the municipalities and research councils are skeptical towards how the processes are done. This may be based on previous experiences, but also because of change. The platform developed by National Suppliers Program was discussed between the municipalities and SINTEF and there was clear a strong Incongruence between the actors. Many of the suppliers also
got tired because SINTEF and municipalities did research pilot projects, while the suppliers wanted to go ahead and implement the technology in practice without involving in such processes. Because of the different approaches towards how to implement, the network between the actors seems to develop in a negative direction.

The fourth sub question address challenges such as how the municipalities, relatives and users where involved in pilot projects and that I was important to be involved in an early stage of the process. Every one of the actors can contribute with their expertise. For instance, top down approaches face challenges related to the transition from existing welfare technological products. If the system is complex, such as the many actors expressed, there will be difficult for the actors to involve and engage. One can assume that trust is an essential feature for a good cooperation between different actors.

7.2 Perspective and further research
The thesis could be viewed in several different ways; each viewpoint would result in a unique thesis. It is therefore important to explain the choice of perspectives that I have made in the thesis. The thesis is built upon four main questions in order to answer the research question of the thesis. Those four sources are observations, interviews, theoretical framework and experiences from previous research. I would like to acknowledge the participants and their great contributions to my research study. It has been a very positive experience. However, for further research, I would recommend to go more in depth in one of the four sub questions which I have addresses instead of trying to get a grasp on all of them at the same time. This can bring more detailed experience into light in order to conduct a deeper study. Furthermore, it would be interesting to compare the results from my findings with another country, for instance Denmark, to get another point of view regarding the procurement process and the actors’ visions. It would be interesting to detect if this process of implementing welfare technology in Norway is proper to another country and their visions. Another interesting view would be to go more in depth on the organizational challenges, and detect where the barriers are and address innovative solutions. Based on my success criteria’s related to the four challenges is addressed during my analysis, this can function as a recommendation for managers, technologist and users, based on my findings. This thesis has hopefully contributed to a bigger understanding of the interplay of actors in a context of implementing welfare technology.
Appendix

1 The hermeneutics spiral

Model: The Hermeneutics spiral
(Kvale, Steinar 1997 “An Introduction to Qualitative Research Interviewing”)
2 The snowball effect

1) Illustrating the figurative term of a snowball effect

3 Table of Participant

<table>
<thead>
<tr>
<th>Participant name</th>
<th>Who</th>
<th>What</th>
</tr>
</thead>
</table>
| Kristin Standal and Anne Berit Fossberg | Bærum municipality | Standal: Head of the Department  
Fossberg: Project leader in the department of PLO  
Health Informatics in Bærum municipality |
| Sissel Eriksen and Bjørg Landmark | Drammen municipality | Eriksen: Social worker with further studies in dementia.  
Service manager at the home Bragernes |
<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
<th>Institution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Catharina Nes and Eirin Lauvset</td>
<td>Data Authority</td>
<td>Nes: Senior advisor and social scientist in the department of Monitoring and Safety</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Lauvset: Senior advisor in the department of legal issues</td>
</tr>
<tr>
<td>Hege Nordquelle</td>
<td>Founder of Omsorg I Hjemmet</td>
<td>Self-employed and care worker</td>
</tr>
<tr>
<td>Pia Ebbing Holst</td>
<td>Nurse at St. Olavs Hospital</td>
<td>Nurse</td>
</tr>
<tr>
<td>Lasse Frantzen</td>
<td>Health Directorate</td>
<td>Senior Adviser</td>
</tr>
<tr>
<td>Iver Olav Sunnset</td>
<td>Vernes region</td>
<td></td>
</tr>
<tr>
<td>Kåre Hagen</td>
<td>NOVA</td>
<td>Researcher</td>
</tr>
<tr>
<td>Tore Andre Sines</td>
<td>The National Program for Suppliers Development</td>
<td>Senior Advisor</td>
</tr>
<tr>
<td>Vigdis Sværen</td>
<td>Norsk Teknologi</td>
<td>Head of Public Affairs</td>
</tr>
<tr>
<td>Ole Hanseth</td>
<td>Professor ved UiO</td>
<td>Professor at the Department of Informatics at University of Oslo (UiO)</td>
</tr>
</tbody>
</table>
4 Table of actors

<table>
<thead>
<tr>
<th>Name and profession</th>
<th>Organization/Company</th>
<th>Date for interviewing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hilde Lovett, Project Manager for Technology’s health care initiative</td>
<td>Teknologirådet (Norwegian Board of Technology)</td>
<td>The interview took place 18th of June 2012 at Prinsens gate in Oslo</td>
</tr>
<tr>
<td>Tone Øderud, Senior researcher</td>
<td>SINTEF, Technology and Society</td>
<td>The interview took place 31th of August 2012 at SINTEF 02th of November 2012 at SINTEF 22th of January 2013 (project meeting at Quality Hotel)</td>
</tr>
<tr>
<td>Rolf Rønning, Professor at Høyskolen in Lillehammer</td>
<td>Professor</td>
<td>The interview took place 25th of October 2012 at Thon Hotel Vika in Oslo</td>
</tr>
<tr>
<td>Vigdis Sværen, Head of business policy / technology in the Norwegian Technology /</td>
<td>Norsk Teknologi (Norwegian Technology)</td>
<td>The interview took place Tuesday 30th of October 2012 at Norsk Teknologi in Fridtjof</td>
</tr>
<tr>
<td>NHO</td>
<td>Telenor Objects AS</td>
<td>The interview took place 31\textsuperscript{st} of October 2012 at Fornebu</td>
</tr>
<tr>
<td>-------------------------------------------------------------------</td>
<td>-----------------------------------------------</td>
<td>---------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Edvin Holsæter, Product/Account Manager</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Holst Pia, nurse at St.Olavs sykehus</td>
<td>Working as a nurse at St. Olavs Hospital in Trondheim</td>
<td>The interview took place 19\textsuperscript{th} of October 2012 at the café The Broker in Oslo</td>
</tr>
<tr>
<td>Ole Hanseth, Professor at the University of Oslo, Norway</td>
<td>Professor</td>
<td>The interview took place 23\textsuperscript{rd} of October 2012 at the University of Oslo (Department of Informatics)</td>
</tr>
<tr>
<td>Tore Andre Sines, employed as Project leader</td>
<td>Nasjonalt Program for Leverandørvikling (National Program of Supplier Development)</td>
<td>The interview took place 10\textsuperscript{th} of December 2012 at Skype</td>
</tr>
<tr>
<td>Kåre Hagen, Research director</td>
<td>Research Institute NOVA (Norwegian Institute for research on welfare and aging)</td>
<td>The interview took place 07\textsuperscript{th} of November 2012 at NOVA in Munthesgt 29</td>
</tr>
<tr>
<td>Sunnset, Iver Olav Project Advisor ICT Health</td>
<td>Værnes region (The region of Vernes)</td>
<td>The interview took place 30\textsuperscript{th} of November 2012 at Skype</td>
</tr>
<tr>
<td>Lasse Frantzen, Project leader of the technical report about implementation of welfare technology in Norway</td>
<td>Helsedirektoratet (Norwegian Health Directorat)</td>
<td>The interview took place 24\textsuperscript{th} of October at the office of Health Directorate in Universitetsgata 2 0164 Oslo</td>
</tr>
<tr>
<td>Hege Nordquelle, Founder of”Private care in your home”</td>
<td>Self – employed</td>
<td>The interview took place 23\textsuperscript{rd} of October in my own</td>
</tr>
<tr>
<td>Name</td>
<td>Location</td>
<td>Interview Details</td>
</tr>
<tr>
<td>---------------------------</td>
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<td>--------------------------------------------------------</td>
</tr>
<tr>
<td>Eriksen, Sissel and</td>
<td>Drammen Kommune</td>
<td>The interview took place 17\textsuperscript{th} of December 2012 at Drammen Geriatriske Kompetansesenter</td>
</tr>
<tr>
<td>Landmark, Bjørg</td>
<td>(The municipality of Drammen)</td>
<td></td>
</tr>
<tr>
<td>Nes, Christina and</td>
<td>Datatilsynet</td>
<td>The interview took place Tuesday the 6\textsuperscript{th} of November in their own office at Tollbugata 3, 0152 Oslo</td>
</tr>
<tr>
<td>Lauvset, Eirin</td>
<td>(Norwegian Data Authority)</td>
<td></td>
</tr>
<tr>
<td>Fossberg, Anne Berit and</td>
<td>Bærum Kommune</td>
<td>The interview took place Tuesday 29\textsuperscript{th} of January 2013 at Kommunegården i Sandvika</td>
</tr>
<tr>
<td>Standal, Kristin</td>
<td>(The municipality of Bærum)</td>
<td></td>
</tr>
</tbody>
</table>
5 Model (SINTEF)
# 4 Meaning Condensation Scheme

## 4.1.1 Nature of Technology

<table>
<thead>
<tr>
<th>Nature - refers to peoples images of the technology and their understanding of its capabilities and functionality</th>
<th>Technologists</th>
<th>Users</th>
<th>Managers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Welfare Technology is a broad term which consists of more than one element. Technologists have to deal with a wide range of different definitions when it comes to welfare technology. The term is not an unambiguous term, but a term that covers many different technologies: “Welfare technology is a broad term within a dispersed sector” (Sværen, Vigdis; Norsk Teknologi)</td>
<td>There are many thoughts on what the functionality the GPS should and could have, and also the design: “I believe it is important that the GPS shows exactly where you are and what house numbers there is nearby. Not only what street it is.. It must be easy to use, like a bracelet on your arm. Or by phone, still, you could also lose your phone... But GPS could for example be connected on your clothes, shoes or attached to a button on your t-shirt” (Nordquell, Hege; Omsorg I Hjemmet)</td>
<td>The technology today is designed for different purposes, and it turns out that there are different levels of developed technology. One type of GPS, for example, developed for the use and location of the boat. While another type of GPS may indicate the location of a human, but not the exact address. The senior scientist of SINTEF described it like this: &quot;Technology can be misused. You have boat GPS to Track boats, where it records the speed and where you at. You can log online and find the way you had run the “map, but not the address. Norwegian user interface of GPS systems are not well developed &quot; (Øderud, Tone; SINTEF)</td>
<td></td>
</tr>
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</table>
### Nature - refers to peoples images of the technology and their understanding of its capabilities and functionality

<table>
<thead>
<tr>
<th>Technologists</th>
<th>Users</th>
<th>Managers</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>opportunities</strong>” (Sværen, Vigdis: Norsk Teknologi)</td>
<td>**impairment. And their families ” (Bjørg, Drammen municipalities)</td>
<td>There is a common wish, to have standardsolutions. Both the municipalities stated but also the researchers expressed that there exists no standard solution. Mainly because of all of the cases is individual: “ It’s not one GPS suitable for all” (Øderud, Tone, SINTEF)</td>
</tr>
<tr>
<td>One of the technologists sees the constriction area with GPS, and that is that the GPS do not work inside: “GPS works fine [...] you need to have mobile coverage - if they are over a coverage area so they will not position itself [...] A GPS constrict the exploration areas. GPS does not work inside.” (Holsæter, Edvin; Telenor Objects)</td>
<td></td>
<td>The researchers, both from the University in Oslo, from NOVA and SINTEF have different approaches towards the functionality of GPS. But still, they are all agree that it is needed: “It makes sense [...] it is important and appropriate to implement GPS. But it is complex. I believe it is important to start small and get more users [...] If the pilots are successful, then the municipalities decide to buy for all those who have dementia. It is important to let it grow [...]” (Hanseth,Ole,Professor UiO)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>One assumes that there is a financial gain in</td>
</tr>
<tr>
<td>Technologists</td>
<td>Users</td>
<td>Managers</td>
</tr>
<tr>
<td>---------------</td>
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</tr>
<tr>
<td><strong>Nature</strong> - refers to peoples images of the technology and their understanding of its capabilities and functionality</td>
<td></td>
<td>the use of GPS, as it can save the state of nursing places, and search operations for elderly who get lost: “Advantage of GPS is that the saving of the expensive search operations. But there will always be an optional service, which is to operate it. But I can see for myself that there will be an economic win lift the term […]” (Hanseth, Ole; Professor UiO)</td>
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“One advantage of using GPS is that it would contribute to the saving of the expenses related to search operations for people that are lost. There will always be an optional service, but I can see that there will be an economic win related to implementing GPS […]” (Hanseth, Ole; Professor UiO) |

There are some challenges considered the level on how the technology should be, and on what level it is on: “The Data Authority and Health
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<td><strong>Nature</strong> - refers to peoples images of the technology and their understanding of its capabilities and functionality</td>
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<td><em>Directorates lawyers have not been completely satisfied with the solutions to Telenor Objects and Visma because of data collection</em>” (Frantzen, Lasse: Health Directorate)</td>
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<td>“There has been no legal change since 2009 with respect to implementation of welfare technology related to the use of GPS” (Frantzen, Lasse; Health Directorate)</td>
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### 4.1.2 Technology Strategy

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<td><strong>Strategy</strong> - refers to people’s views of why their organization acquired and implemented the technology. It includes their understanding of the motivation or vision behind the adoption decision and its likely value to the organization</td>
<td>The challenge between the municipalities and the suppliers, is the different expectations they have to each other, and to what responsibility they have in a given setting. One of the suppliers expressed the frustration over a non-functional cooperation as: “Telenor is a commercial vendors, they must earn income, and if they get no income then they will not be able to develop any further [...] If the municipalities won’t buy, they will go into a vicious circle [...]” (Holsæter, Edvin: Telenor Objects)</td>
<td>Many of the municipalities interpretations and actions around welfare technology reflected that there is also a focus on organizational context: “We will develop new knowledge, and the industry to will develop new knowledge” (Bjørg, Drammen municipalities)</td>
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<td>“We believe that the municipality has little technological expertise on advanced technological solutions” (Data Authority)</td>
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<td>“We could be better at describing the requirements. We will not order solutions, we shall describe the needs and describe the solutions” (Kristin Standal, Bærum municipalities)</td>
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<td>One of the other suppliers expressed their need like this: “If the nurses in the home care can define the problem, then skilled technologists can solve this […]” (Sværøen, Vigdis; Nors Teknologi)</td>
<td>of course good intensions, but nothing is getting realized” (Sunset, Ole Ivar, the region of vernes)</td>
<td>It is highly significant that welfare technology may contribute, as one of many factors, to create a better standard of living for the elderly living in their own homes and provide security for their relatives: “For GPS by itself, does not mean that a person can stay at home longer. It's a set of services around the user, which means that he can stay home. So this is a small part of it” (Standal, Kristin; Bærum municipalities)</td>
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<td>“The municipalities must look at user groups, and look towards those who need the different types of technology</td>
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<td>Technologists learned of developing GPS, often in cooperation with the buyer, which is in this case the municipalities. Also with the program Supplier Development Program, the suppliers have a platform where they can meet the municipalities and try to explain to them what they offer. In some cases, the municipalities don’t experience it just as a</td>
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**Strategy** - refers to people’s views of why their organization acquired and implemented the technology. It includes their understanding of the motivation or vision behind the adoption decision and its likely value to the organization.
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<td>friendly brief, but more as overselling: (FINN SITAT HVOR EN KOMMUNE SNAKKER OM AT LEVERANDØRER OVERSELLER!)</td>
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### 4.1.3 Technology in Use

<p>| Use - refers to peoples understanding of how the technology will be used on a day to day basis and the likely or actual conditions and consequences associated with such use | The technologist experienced that when implementing welfare technology; this would also take time, and was not done by a day: “One sector that have so little experience with technology must cooperate with people internally and externally. It is a utility value to the work of insecurity, and everything new that creates frustration for care workers and people who work in the care sector and the relationship between local authorities and | An important aspect of using technology is to know enough about it’s as to appropriate ad manipulate if effectively. Such knowledge is usually acquired through education and training: “Routines are important. Several as [...] alarm and control room, who will follow up, what kind of warning, if someone disappear who the alarm go to? I also assume that its best that the people working in the care sector retrieves the elderly if |
| Use - refers to peoples understanding of how the technology will be used on a day to day basis and the likely or actual conditions and consequences associated with such use | One of the municipalities I spoke to explained how important it was to let the employees in the municipalities know that it is allowed to fail: “… you need a strong foundation in the administrative management, and you must have a culture that says it is OK to fail and allowed to try” (Standal, Kristin; Bærum municipalities) |                                                                      |
| Use - refers to peoples understanding of how the technology will be used on a day to day basis and the likely or actual conditions and consequences associated with such use | There are different opinions related to the use of GPS, and which effect it will have the person who use it, and |                                                                      |</p>
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<td>technology companies that want to implement this […]” (Sværen, Vigdis; Norsk Teknologi)</td>
<td>their relatives: “I absolutely believe it will have an effect on people who use it, but if it is a positive or negative effect, I think depends on the person. Perhaps some will feel persuaded to use GPS, and feel watched as a result […] At the same time I think it can help elderly people to have greater freedom of movement both home residents and elderly in institutions. Media reviews increasingly lack of staffing in institutions, and from my own experience it is usually not enough manpower to one patient” (Holst, Pia; Nurse at St. Olavs Hospital)</td>
<td>they are lost […] I could mention more, as infrastructure solutions related to the municipalities, should it connect with other things, should we have a joint center for emergency calls, should relatives be involved? […]” (Hanseth, Ole; Professor UiO)</td>
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<tr>
<td>Use - refers to peoples understanding of how the technology will be used on a day to day basis and the likely or actual conditions and consequences associated with such use</td>
<td>More than one of the representatives from the municipalities experienced it hard to take care of that the elderly actually had the GPS with him when he or she went out: “… but the biggest challenge was to ensure that the GPS was with the person when they went out” (Anne Berit, Bærum Municipalities)</td>
<td>At the same time, one of the most important aspects of the implementation of welfare technology, is also to consider the consequences of not implement it: ”The use of GPS in the institution is paradoxical, what are the consequences of not using tracking technology. To lock the old inside? Tracking technology must defend itself from moral ethics” (Hagen, Kåre; NOVA)</td>
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<td>“ There have been no legal challenges in 2009 with respect to implementation of welfare technology under the use of GPS in the form of monitoring. In 2010 came the formal decision.”</td>
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<td>The same person who experienced it difficult to watch if the elderly had the GPS with him or not, also expressed how difficult some of the care workers experienced it when it came to put the GPS on the elderly “... Some home caregivers experienced it ethically difficult to add a GPS in his or her handbag. They felt the intervention was too big” (Anne Berit; Bærum municipalities)</td>
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<td>(Frantzen, Lasse: Health Directorate)</td>
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<td>“People though that the Data Authority was skeptical” (Data Authority)</td>
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<td>One of the professors expressed many factors he saw as could be an obstacle or an hinder for the implementation of welfare technology, and also compared the data storage with data stored with Amazon: “I believe there will always be an element of monitoring […] There will be access to data in the system […] There is potential in all digital technology, which is of the character of surveillance subsidence. But the potential is not so interesting, because it is not so much dangerous to discover […] you could compare it with Amazon, the world's largest web shop for purchasing books. Amazon keeps the books you have purchased. Which data</td>
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is the government interested in? Are they at all interested in this kind of data? […]” (Hanseth, Ole: Professor UiO)

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<td>is the government interested in? Are they at all interested in this kind of data? […]” (Hanseth, Ole: Professor UiO)</td>
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### 4.2 Subcategories

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<th>Product expertise</th>
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<th>Expectations strategy</th>
<th>Culture, values and attitudes</th>
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<td>“What is most important is that it must sit people in the municipalities that have ambitions, we see that we as leaders need to take ownership and involve organization in terms of how you drive off a thought process […] A leader who says to a unit manager “fix this,” occurs frequently and is not an optimal</td>
<td>“There are many who wait to get aids in their own homes, in the form of welfare technology. There may be several reasons for this, one of them could be that the elderly are not aware of the products that exist”(Vigdis Sværen) (Norsk Teknologi)</td>
<td>“Imagine if 10-15 years: then comes the users who have an entirely different relationship to the iPad, the Internet, and Skype, compared to today […] my own mother had decided to buy her own iPad [!]”</td>
<td>“Those who are older today versus those of</td>
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solution.” (Kristin Standal; Bærum municipalities)

toward municipalities that both should be service, and those who will serve the elderly in their area, if I decide to apply technology in my home - how do the municipalities accommodate me? GPS tracking, who will receive the notification?” (Sværen, Vigdis; Norsk Teknologi)

“Norwegian municipalities have pushed away the law. They have been afraid since the GPS has not been allowed, and they intend to have some general technology skepticism […] Most of it are in their heads […] Municipalities are very afraid of using technology […]” (Lauvset, Eirin; Data Authority)

“Very few people have knowledge of the possibilities. People need to know what opportunities are out there. This exhibition leaded by the Norsk Teknologi is an industry trade show where they made the whole house, or they illustrated and invited

20 years […] will have a different approach to technology […] The elderly today are grateful, they are happy that they get what they get. The elderly within 20 years, are used to have demands, compared today’s elderly.”(Edvin Holsæter)

“There are many different projects at many different levels […]” (Sværen. Vigdis; Norsk Teknologi)

“GPS would not take away human relationships, and I do not think that people will take more distance although some use GPS” (nordquelle, Hege)

“[…] No technology can replace human hands” (Holseter, Edvin; Telenor Objects)
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<td>municipalities to see the opportunities that are there.” (Vigidis Sværen)</td>
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<td>“Challenges related to the use of GPS, is information that will be used to find a person who is lost and not used for other purposes” (Data Authority)</td>
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<td>“The GPS can relieve the relatives also, at least I have a desire to relieve my kids when I get old” (Hege Norqdquelle)</td>
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<td>“It can be difficult and hard to be relatives and not knowing” (Hagen, Kåre; NOVA)</td>
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<td>“Municipalities must identify the needs […]” The most ideal situation would be if you had started the other way around. If the municipalities had addressed their needs and outlined what the technology companies can serve them, then the technology would be developed based on the user need. Municipalities need to be more innovative, see the needs, adopting the solutions that exist […]” (Sværen, Vigdis; Norsk Teknologi)</td>
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### Product expertise

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<td>“I have no doubt that municipalities need more expertise and support and innovation, that's where the challenge lies. 20% is technology, and 80% are organization, and therefore scientific report about welfare technology, has a strong focus on innovation. As it stands I am completely behind it [...]” (Kristin Standal)</td>
<td>“Municipalities are skeptical because they've got so much equipment that does not work. Often when they use technology, so it does not work in practice” (Øderud, Tone: SINTEF)</td>
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<tr>
<td>“The most ideal situation would be if you had started the other way, the most ideal is if the municipalities take hold of what is the need, outlines what the technology companies can serve, and that technology as developed in the wake of what it needs arising. Municipalities need to be more innovative, see the needs, adopting the solutions that exist [...]” (Sværen, Vigdis; Norsk Teknologi)</td>
<td>“The worst that can happen is that the technology is not working as it should. The user and care worker loses confidence in the product [...]”(Holsæter, Edvin; Telenor Objects)</td>
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<td>“We know that users are not a homogeneous group” (Holsæter, Edvin; Telenor Objects)</td>
<td>“I found that some of the major suppliers, those who want to be big in this market, a consequence of the fact that when we say we have faith in what they do, they can be involved in our projects, they say &quot;no we found it takes too much time with this research, we cannot agree.&quot; But those who come here, and to learn from our experience, is precisely the same suppliers” (Kristin Standal; Bærum Municipalities)</td>
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<td>“GPS for dementia, they are not a homogeneous group [...] You can have multiple needs in this group [...] “ (Anne Berit, Bærum municipalities)</td>
<td>“One vendor has one thing, and another vendor has something else that you need to relate to many different interfaces, so it becomes impossible. And it's that what the developers have to take into account. We cannot have it like that we have to deal with many suppliers and many standards. So we would like to go into a single solution. We must have some interface that makes it possible.” (Kristin Standal, Bærum municipalities)</td>
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<td>“Technologists talking bit, bus and cable, on a technology-based language, a language that healthcare professionals do not understand. When working on things such as technologists do you get into your own language? There are two different languages, and it is important how to communicate the solutions. I think it is more importantly, talking about functions, the types of issues you have, and how we can help assist you with that? [...]”</td>
<td>“I do not think the municipalities have focused on the users. Users do not know what kind of solutions or services that is on the market”(Edvin Holsæter)</td>
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<td>(Sværen, Vigdis; Norsk Teknologi)</td>
<td>“They (TELENOR) said, no, we have no time to participate in research projects, but they can’t and don’t know anything about this field, and certainly not enough to know how to offer this to the public. And then they come here and suck information off of us, in retrospect, of what we’ve learned, and it is quite provocative [...]” (Kristin Standal, Bærum municipalities)</td>
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<td>“We’ve seen that during the workshop they use different content terms, they (vendors) use technological concepts from their digital world. We are not familiar with the concepts. And we use our concepts. So that’s why we spend time to understand each other”(Bjørg, Drammen Municipality)</td>
<td>“It's hard to have a dialogue with someone who does not respect you as an equal party. No doubt. It's something we experience with Telenor among differently, why on earth should we draw from our knowledge then, they can go into this and believe that they will succeed, but it is the way that it is, not our task to help them now, when they closed the door in the first place, so we get one of those type of conditions that are [...] yes ... [...]” (Kristin Standal, Bærum municipalities)</td>
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<td>“It is typical for Norway and as it is today, is to take things gradually. There is clearly a need to test the solutions along the way. One must find out what works and does not work. It's a human behavior [...] the developments going on, you think again, taking technology to use.” (Sværen, Vigdis; Norsk Teknologi)</td>
<td>“we share the information we have. But businesses have to respect us and our knowledge, and desire to cooperate as equals. And they don’t when they come to us and say, ”here is the technology, here you go”. It's such a stance behind it to very many” (Kristin Standal)</td>
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<td>“Much good pilot projects, big step to move to a service” (Øderud, Tone; SINTEF)</td>
<td>“What’s negative with SINTEF is that they run lots of pilot projects, and use lots of money. The results will not be industrialized. They need to get their work from the pilots and out in the field [...]” (Holsæther, Edvin; Telenor Objects)</td>
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<td>“ SINTEF is a contributor - an objective party who can give input and advice. I believe that what SINTEF does is to do research, research and more research [...]”(Edvin Holsæter)</td>
<td>“It is important that the one that adopts the technology, understands the use and know how information is processed, therefore it is important to take it gradually” (Data Authority)</td>
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<td>“Imagine if 10-15 years: then comes the users who have an entirely different relationship to the iPad, the Internet, and Skype, compared to today […] my own mother had decided to buy her own iPad [!]” (Sværen, Vigdis; Norsk Teknologi)</td>
<td>“Those who are older today versus those of 20 years […] will have a different approach to”</td>
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<td>technology […] The elderly today are grateful, they are happy that they get what they get. The elderly within 20 years, are used to have demands, compared today’s elderly.”(Hølseter, Edvin; Telenor Objects)</td>
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<td>“We need a comprehensive overview of what is going on, about the money and assets. Municipalities have questions like ”where do I go”, ”how do I find out the solutions I can use”, ”who will deliver it?” At the moment, this not exists. We need a separate platform where suppliers even sign into their solutions […]” (Sværen, Vigdis; Norsk Teknologi)</td>
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<td>“In general, we need an overview of solutions and order expertise […]” (Hølseter, Edvin; Telenor Objects)</td>
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<td>“One need to know where to get professional advice. It is just stuggled need for knowledge. One also need to deal with suppliers, as you may be fooled by a market. It must be a government responsibility, and expertise advice. Who are the serious actors? We need a common platform for excellent technical standardization to roll out such technology” (Hagen, Kåre; NOVA)</td>
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<td>“There should be a proper use on how to apply technology” (Data Authorithy)</td>
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<td>”The pros are many. I do see the work savings it will contribute to, or that replace labor with thecnology in the first place” (Hagen, Kåre; NOVA)</td>
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<td>“GPS can reduce costs related to emergency search</td>
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| operations. It is costly” (Øderud, Tone; SINTEF) | }
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