

# **A Research Design for the Study of an Innovation Journey**

## **- The eSenior Project: Piloting Telecare and Telehealth Technology**

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## **Abstract<sup>1</sup>**

This paper presents a research design for the study of an “innovation journey” in local services, with the overall aim to examine the ways in which different groups of actors (local authority service providers, users and suppliers of technical solutions) are linked in order to enable the development of telecare and telehealth technology solutions that are feasible in practice. The process being studied focuses on ensuring user-driven innovation and we discuss what this implies. The purpose of this paper is to present a design based on an institutional perspective on the study of local innovation processes in telecare.

The study is based on “eSenior,” a VRI II (R & D and innovation) project to seek solutions that allow elderly people to live at home for presumably longer than they could without the technology aids. Emphasis is also placed on the needs of seniors and the testing of solutions in real environments through a number of pilot schemes which will also provide suppliers with quality assurance and opportunities to update their solutions.

We present a design for a case study in which we follow the processes in the local authorities of two Norwegian municipalities, Fredrikstad and Sarpsborg. These are processes related to the design and selection of pilot schemes for the introduction of telecare and telehealth technology. We have drawn up a proposal for a research design where these processes can be followed through interviews with participants in project teams and our participatory observations from project team meetings. We discuss how our choice of research design can adapt to the complexity of clients’ service needs, in conjunction with professional assessments of clients’ general needs, while remaining keenly aware of how innovation measures interact with existing services.

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## **Introduction**

This paper presents a research design to study an innovation journey at local level. The overall objective of the case study is to examine how different groups of actors (local service providers, clients and suppliers of technical solutions) are linked to help develop telecare solutions that are feasible in practice. There is a strong focus on aspects of user-driven innovation in the processes under study. The acquisition and use of telecare and telehealth technology is a relatively new phenomenon in local council care services in Norway, and has therefore yet to be studied to any great extent. Recent years have seen an ever-increasing focus on the introduction of care technology. National and local health authorities, hospital trusts and private parties have all stressed that the introduction of such technology is vital to solve the health policy challenges of the future. Innovative solutions are typically being tried out at present in connection with local projects involving a number of the relevant actors. There are now a number of reports and project evaluations in this area at both general and local levels (Grut & Hem 2012). Recurring themes in these efforts are the identification of various problems and challenges in the local implementation of telecare solutions, and a need for contextual expertise where organisational factors are emphasised in practice-based research (Norwegian Directorate of Health 2012:35).

The present paper aims to present a design based on these arguments, involving an institutional perspective on the study of local innovation processes in relation to telecare and telehealth technology. We will study the innovation journeys taking place in two Norwegian municipalities – Sarpsborg and Fredrikstad. The methodological contribution of this paper is to generate a basis for a discussion of process-oriented studies of innovations and organisations; this has been sought by several key researchers in the field of innovation (Pavitt 2005; Tsoukas & Chia 2002; Van de Ven & Poole 2005).

In the local government sector, we find uncertainty about telecare and telehealth technology in at least two areas. One is about the kind of technology that exists and/or can be developed within a reasonable time. The other is what clients actually need and are able to use. Therefore the introduction of care technology is an uncertain process, but also a dynamic one (Van de Ven, Polley, Garud, & Venkataraman 2008).

We will first consider the political and organisational framework conditions and challenges facing the introduction of telecare in local nursing and care services. We then present the eSenior project, and the reasons why this may be considered suitable for a study of an innovation journey. We conclude by discussing the proposed design in relation to the status of knowledge in the field, issues related to innovation in health care, and a particular focus on what is meant by “user-driven innovation”.

## **Telecare and telehealth technology**

One of three strategies in the Norwegian Coordination Reform from 2009 concerns the need for new technological solutions for clients, primarily in their own homes, assisted living or nursing homes (Ramsdal, Bjørkquist and Ramsdal 2012). Such solutions are linked to a key point of the reform, namely that the growing number of seniors/people with care needs cannot be addressed without greater capacity of support functions in local care services. Since the recruitment of new care workers will be a scarce resource in the future, the reform can only be realised through the introduction of new technology in the home and at various levels of care services. The Coordination Reform points out that efforts have been made to ascertain how and to what extent telecare and telehealth technology can meet these goals, and attempts to determine the extent and nature of such technology have been primarily rooted in the recommendations of the so-called “Hagen Committee”, published in 2011 after several years’ work.

Work on the NOU 2011:11 report *Innovation in the Care Services* (Report of the Hagen Committee) was commenced in spring 2009 and completed in spring 2011. The committee had broad representation from both public and private sectors. Their mandate was stated in White Paper No. 7 (2008-2009) *An Innovative and Sustainable Norway*, which picked up the thread from White Paper No. 25 (2005-2006) *Mastery, Opportunities and Meaning* and later presented in White Paper No. 16 (2010-2011) *National Health Care Plan 2011-2015* about future care challenges. The mandate focused particularly on four main themes: new technology, architecture and new living arrangements, client involvement and mastery, and research and development. Emphasis was also placed on a prevention perspective clearly recognisable from the Coordination Reform.

The committee notes that the original establishment of the care sector itself must be seen as one of society's most comprehensive innovations, and that the desire to meet new challenges with a systematic innovation programme thus does not represent a radical departure. They particularly emphasise that “it is in the space between the public sector and civil society where some of the most exciting innovations may take place in the years to come” (op.cit.:13).

White Paper No. 25 (2005-2006) outlines a number of future challenges: new younger client groups, more seniors needing assistance and a shortage of volunteer caregivers and health care personnel. It also mentions challenges linked to shortcomings in care services, such as poor coordination and medical follow-up, physical inactivity among the elderly and neglect of psychosocial needs.

These issues have been generally followed up in National Health Care Plan 2011-2015 (White Paper No. 16 (2010-2011)), and the committee has therefore decided to concentrate on topics that are less well covered or outside the timeframe of this plan (op.cit.:14). As an illustration and practical starting point, three of the most common care problems are mentioned: falls, loneliness and cognitive impairment. These mutually influence each other and affect most areas of the sector. A further challenge the committee will examine is international trends towards an international market for personnel, the emergence of international service companies and increasing patient and client migration. It also states that the challenges “must be resolved on the basis of public sector responsibility involving most areas of society, and through support and development of new forms of commitment and participation by families and communities, organisations and businesses” (ibid).

The NOU report states that care for all throughout the life cycle requires the dismantling of barriers to functioning in society and a new unified and activating/mobilising senior policy. Key concepts here are client self-management, activating technology/technical design, adaptation to client capabilities towards the highest possible degree of autonomy and mobilisation of family members/volunteers. The commission presents a number of strategic proposals in what they term *Community Care – the Second Coordination Reform*. “The second coordination reform” is as much about mobilising resources, placing the focus firmly on interaction with the family, the social network and local community. This will be done by

establishing “alternative methods of working and organising that encourage good citizenship” (op.cit. p. 17). This presupposes

A national agreement and local agreements on partnerships between the public and voluntary sectors, new forms of operation, client-driven aspects of care, new methods and approaches with more emphasis on active care, life rehabilitation, group methodology, culture and well-being, a new family policy, organisation of services directed at family and community, home-based care services, open institutions and network cooperation (Ibid).

## **Challenges involved in innovation processes in the introduction of telecare and telehealth technology**

The innovations most relevant in the establishment of more effective and better quality care services are partly a question of new technology to support the individual's daily activities, patient care or service innovation, i.e. new ideas about organising work more effectively from a financial and professional point of view. Service innovation in this area will often be characterised by similar approaches (logistics and process thinking) and will face many of the same challenges. The need for new technology in local care services is clearly recognized, but the detailed specification of this technology and its role and scope within the new framework for local care services are major challenges. As the Hagen Committee points out, there are ethical challenges involved in using technological solutions in the home or in services for patients. The meeting between new technology and professional care work will also involve ethical and professional challenges. The introduction of new technology lies in the range between “technology optimists” and “professional pessimists”, where the latter group’s concern about the professional and ethical challenges and their lack of expertise in managing new technology could represent barriers to benefiting from the potential of technological knowledge, which in turn might be over-stated by a one-sided technological point of view.

One major problem in the introduction of new technology/service innovation is the relationship between what the market, with a multitude of manufacturers, can offer in telecare and telehealth technology, and the needs as defined by users/purchasers, whether those requiring technological support themselves, their relatives or the local services. The potential represented by market-based technologies is constantly increasing, partly by extensive global networks such as “Living Lab” (<http://www.livinglabproject.org>). It could be said that the innovation aspect of telecare and telehealth technology does not primarily concern the technological solutions in themselves,

but the links between suppliers and purchasers – where the innovation journey from technology to implementation is the key point. This is also acknowledged by the health authorities in emphasising that “welfare technology is not about technology ... but about people” (Nissen in the Norwegian Directorate of Health 2012: front page).

## **eSenior – the study of an innovation journey**

Presented below is a discussion of how this study is organised. There is first a brief overview of eSenior and the research questions we raise in connection with the study of an innovation journey towards the introduction of telecare and telehealth technology. Then follows a discussion of the research design, where we explain the use of case study and process tracing. The final section describes the data collection and presents some premises for the analysis.

### ***Research questions***

eSenior is a project to develop and try out technology in the care sector. The aim of eSenior is to create an easier and safer life for elderly people. A key question in this context is whether technology can contribute to this. In the project, the local authorities involved will try out technology solutions for elderly and infirm clients in their own homes or in sheltered housing. eSenior is an EU Interreg project involving Oslo, Gothenburg, Fredrikstad and Sarpsborg. Our study will follow the project in Fredrikstad and Sarpsborg.

The main question we wish to address is:

How can different groups of actors (local service providers, users and suppliers of technical solutions) be linked to enable the development of telecare and telehealth technology solutions that are feasible in practice?

This problem may be resolved by focusing on the following research questions:

- How are boundaries applied and violated between existing organisational forms, attitudes, knowledges and competencies and new technology?
- How can (potential) users contribute to technological innovations related to the introduction of telecare and telehealth technology?
- To what extent does the introduction of telecare and telehealth technology lead to conflict or cooperation?



These three questions point to complex relationships between the various actors, technologies and structures involved. In situations of uncertainty about goals and methods, organisational complexity and many (current and potential) actors, one often talks of “wicked problems” (Rittel and Webber 1973). Technological innovations in this area may therefore be understood not only as an attempt to “tame” such problems by providing solutions that make the problems more simple and manageable, but they may also involve the addition of further complexity and uncertainty. The answers to the questions above can therefore not be expected to be straightforward or generalisable. We may assume that new technology will affect relations between various stakeholders in local care services, through change processes involving both conflict and harmony. The relationship between a technological approach and a more comprehensive professional care perspective is fundamental. How to balance technological innovations and ethical and professional considerations is a crucial question in the innovation journeys we focus on. We presume that where professional care concerns form the premise for the technological solutions, there will be a greater chance of success than where this is not the case.

A further area of great interest to us is how to operationalise and implement user-driven innovation, which is a primary aim of various health authorities. A “user/client perspective” in the health care sector is generally an ambiguous phenomenon, as there is at least a need to clarify the relationship between clients as a group/organisational actor and the individual clients who are (potential) users of new technology (Hansen and Helgesen 2010). There is in any case a basic question of how and to what extent users can play a role in the development of new technologies, and how they could provide input to the design of integrated services which include new technology. Studies analysing these issues have largely been based on experiences with relatively resourceful and competent clients, whereas the future challenges of care services will be more concerned with ailing health and vaguely defined self-expressed needs, often in relation to technological solutions unfamiliar to the client. We may therefore assume that user-driven innovation is difficult to achieve (fully) in this context, and that it is more a question of seeking a more realistic plan to safeguard client wishes and needs.

### ***A case study***

This is a case study of the eSenior project and processes related to the introduction of telecare and telehealth technology. As mentioned, the local authorities of Fredrikstad and Sarpsborg, both in Østfold County, constitute the two units of analysis (Yin 2003). The empirical objective of the study is to contribute to the knowledge of processes related to the introduction of telecare and telehealth technology at the local level. The design of target strategies, requirement specifications and the selection of pilot schemes are central elements. The object of study is what we generally consider to be a good example of local processes for introducing telecare and telehealth technology. There is considerable uncertainty, as in other projects involving the introduction of telecare. The phenomenon is studied in these two towns on the basis of their participation in the Interreg project eSenior. The two units of analysis in the case study will contribute towards a comprehensive understanding of the processes related to the introduction of telecare and telehealth technology, which we refer to as the innovation journey.

For the examination of these processes we have chosen a qualitative case study design which allows for an understanding of phenomena not yet studied to any great extent. This study design is also appropriate for conducting in-depth studies of contemporary phenomena (Yin 2003). Case studies are in fact a common method of studying innovation processes (Håkansson & Waluszewski 2007; Slappendel 1996). Our research questions prompt a study design which is both descriptive and explanatory, and case studies are considered suitable for such purposes (Yin 2003). How things actually happen is important in this study and case studies encourage proximity to the actors and the process, which is available to us in our exploration of local innovation journeys. Knowledge of change or development over time is also an important element (Andersen 1997).

### ***Process tracing***

This study has a comparative design; we wish to see the two innovation journeys in context and thus be able to point out similarities and differences. Our study is therefore not comparative in the strict sense, i.e. a design that uses the most similar or most dissimilar cases or objects of study (Andersen 1997; George & Bennett 2005; Yin 2003). Process tracing provides an alternative approach to this type of controlled comparative method, and is both compatible with and complementary to case studies (Checkel 2008). The method is understood as a way to

examine the causal mechanisms in each case or study object (Hall 2003), here the mechanisms that contribute to the development of feasible telecare solutions. The findings from each innovation journey are drawn together within a common theoretical framework (George & Bennett 2005). A causal mechanism is not directly observable, but when activated it “generates an outcome of interest” (Mahoney, 2001:580).

Process tracing is also well suited as a method to study factors related to both structure and actor (Bjørkquist 2011; Checkel 2008). To capture the more dynamic interactions requires an approach which studies both aspects, as an improvement on many other case studies of innovations considered to be too static (Hoholm & Araujo 2011). This is possible in process tracing where the relationship between structure and agency may be seen as dynamic rather than dualistic (Hay & Wincott 1998; Marsh, Batters, & Savigny 2004). The ability of agents to change structures is presumed to be dependent on resources such as capital and knowledge, and these resources are unevenly distributed (Hay 2002; Hay & Wincott 1998).

We will have continuous access to the processes taking place in both local authorities. As researchers we will only to a small degree intervene in the processes in order to e.g. change behaviour. A key principle of this approach is the focus on learning and development (Finne, Levin, & Nilssen 1995). We will be able to have a continuous dialogue with representatives of the working groups, which will in itself contribute to the process and also lead to increased opportunities for the use and dissemination of results.

### ***Data collection and analysis***

The data collection in the two local authorities involves similar phases but somewhat different pace and emphasis, as the processes (innovation journeys) are expected to proceed differently. We will use a variety of data sources to enable us to check the information collected (Yin 2003). The empirical data will be collected from participatory observation of meetings, document analysis and interviews. We will conduct many interviews ourselves, but will also have access to the focus group interviews carried out by each council during its innovation journey. We have had the opportunity to advise on how the focus group interviews (given by council employees or leaders) should be implemented.

We plan to use the informal discussions and unstructured conversations which take place at various meeting points with the local project manager of eSenior as part of the data collection. This person will be familiar with the processes in the two local authorities through cooperating with them and can thus provide ongoing feedback and evaluation of current developments in the project. We will also conduct semi-structured interviews with the overall project manager of eSenior, project leaders of the two working groups in Fredrikstad and Sarpsborg and the group members. These interviews will provide information on e.g. choices made, objectives and reflections on the process. Through discussion and ongoing dialogue with the parties involved, we aim to enhance the overall knowledge of eSenior in the two local authorities.

There will be ample opportunity to attend meetings and observe in both local working groups as well as some meetings of the central eSenior group which includes Gothenburg and Oslo. Participation in the local groups will be particularly useful for access to discussions about e.g. assessing client needs, drawing up suitable objectives and specifying requirements.

Both Fredrikstad and Sarpsborg continue to conduct a number of focus group interviews with seniors/clients and employees respectively. Fredrikstad has also conducted interviews with the relatives of clients. The research group has access to this material for use in its subsequent analysis. Key questions here are what helps to create a feeling of confidence and what experiences have been gained from the use of technology. We will also have access to this information and can use it as a secondary material in our analysis of the innovation journey. Interviews with clients will therefore be central to the discussion about user-driven innovation. Interviews with employees can provide information about whether the introduction of telecare and telehealth technology is resulting in conflicts or cooperation. Content analysis of these interviews will be performed (Grønmo 2004).

The processes have been planned somewhat differently by the two councils, which means that the data collection will also proceed in different ways, as illustrated in the overview below. In addition, as mentioned, there will be participation in meetings of the working groups and interviews with the participants in these groups.

Fredrikstad – phases of data collection during the innovation journey:

- 1) Focus group interviews with about 40-50 seniors about their experiences with the use of technology and assessments of future care needs that may require new technological solutions.
- 2) Focus group interviews with about 25 health care staff about the same issues.
- 3) Focus group interviews with about 8-10 younger seniors (55-65 years) about their experiences with the use of technology and their views on future possibilities.
- 4) Dialogue conference with potential suppliers.
- 5) Focus group interviews with relatives of seniors
- 6) Acquisition process
- 7) Setting up a show apartment – responses from interested clients
- 8) 25-50 pilots – apartments with technology adapted to selected clients

Sarpsborg – phases of data collection during the innovation journey:

- 1) Focus group interviews with around 16 seniors about various technology aids and their general attitudes to mobile and data usage
- 2) Focus group interview with health care staff about the same issues
- 3) Dialogue conference with potential suppliers
- 4) Acquisition process
- 5) Planning of show area and demonstration room in new health centre
- 6) 25-50 pilots – apartments with technology adapted to selected clients

## **Background and status of knowledge**

This research project aims to enhance knowledge of the organisational and technological challenges of innovation in the relevant sectors in the Østfold region. Kline and Rosenberg (1986) documented how technology and economics are interwoven in the innovation process and von Hippel (1988) identified how users often contributed to the development and adaptation of new solutions to real use contexts. However, we still have limited knowledge of innovation across industrial networks, across the private and public sectors, and in the interaction between producer, purchaser and user. Leading international research therefore seeks to develop knowledge of innovation processes in networks (Hoholm 2011; Håkansson & Waluszewski 2007; Karnøe & Garud 2001; Rubach 2011), open innovation (Chesbrough 2003), and innovative practices within and across organisations (Andersson 2011; Mørk, Aanestad,

Hanseth, & Grisot 2008; Mørk, Hoholm, & Aanestad 2006; Mørk, Hoholm, Ellingsen, Edwin, & Aanestad 2010; Newell, Robertson, & Swan 2006). Such processes involve what we may call boundary issues. Boundaries can be defined as relatively stable distinctions between different fields, e.g. different professions, organisations or sectors (Mørk, Hoholm, Maaninen-Olsson, & Aanestad 2012). The development of new practices (innovation) implies that boundaries are often crossed and new relationships established across them (Swan, Scarbrough, & Robertson 2002). Boundaries also make it difficult to move new practices, as they are created in a local situation that is not always possible to replicate elsewhere and may be subject to institutional, political and financial restraints. Networking is often suggested as the solution to many of these problems. Boundaries are thus explored and crossed (boundary spanning), are places for development (boundary objects), or they may need to be changed (boundary work/boundary organising) (Mørk et al. 2012).

Pavitt (2005:105-109) emphasises coordination of knowledge and learning under uncertainty as the two main needs of innovation. To address these factors, companies must be learning organisations, i.e. they must be capable of realising continuous change (Klev & Levin 2009). Innovation often occurs in the interface between science, technology and markets, and it is precisely the differences in practice between these fields that lead to uncertainty (Akrich, Callon, & Latour 2002; Oddane 2008). Through interactions over time, new constellations of actors become gradually more stable and simultaneously interdependent (Van de Ven et al. 2008). Similarly, the development of regional innovation requires measures and policies to be adapted to local conditions (Tödtling & Trippel 2005), related to regional knowledge bases (Asheim & Coenen 2006). This is best developed through systematic learning, both in the development of one's own practice and from others with a similar basis (Gustavsen 2011). Recent research also indicates that international relations are of great importance for the level of innovation in regions of Norway (Fitjar & Rodriguez-Pose 2011).

The 2007-2009 R & D and innovation initiative VRI I in Østfold led to an understanding of innovation in the region as consisting of complex social processes involving attempts to achieve interaction between many actors with a variety of interests and competencies; there was a focus on collaboration, dialogue and broad participation as organisational measures. The two PhDs included in VRI I (Andersson 2011; Rubach 2011) have contributed to the understanding of innovation processes as effects of actor-networks (Callon 1986; Latour 1988) and of how

participation in external networks can be understood as a dual organisation-development process where the external and internal development processes must interact. In order to change practices in established companies, Klein (2004) argues for the importance of using “outsider-insiders” to introduce and initiate change. It was also found that the innovation processes in the individual company were important (Holmqvist, 2003, 2004) since these will lead to a great deal of the value creation, but at the same time individual companies need participation in external networks. The results also showed that measures to encourage increased innovation do not always match the needs of companies.

## **Innovation in health care**

In the health sector it is a significant challenge to organise better coordination between primary and specialist services, as well as between health providers and patients. As a general consequence, but particularly in the context of the Coordination Reform, it is expected that an increasing number of innovative solutions will have to be developed in cooperation between companies, health care services and various user groups. This will require both organisational and technological innovation, particularly linked to technology to enhance collaboration between different health care services and patients/users. Contact is weak between the companies in the sector and research communities who can provide the expertise to initiate development, both in the sector in general and in Østfold County in particular. The purchaser side in the system, whether providers or users of health services, does not possess sufficiently broad expertise and lacks a general view of potential solutions. The complexity of client needs for services, in conjunction with expert assessments of clients' overall needs, calls for particular awareness of how innovations interact with existing services (Ramsdal & Hansen 2005; Rønning & Teigen 2007). New services require new skills and new solutions in order to realise the intentions of the Coordination Reform (White Paper No. 47 (2008-2009)). There is a great need to develop new relationships between hospitals, council care services and private actors if this is to be achieved.

The health care sector is interesting from a theoretical point of view since it encompasses many powerful professional groups, the activities are emotionally demanding and politically charged, while at the same time the work must be anchored in complex socio-technical infrastructures and be flexible enough to change (Abbott 1988; Nicolini 2010). Few studies have dealt with how different actors cooperate to cross the boundaries that make telecare innovations a

challenge. To overcome these important problems, research has demonstrated the necessity of interaction between heterogeneous groups of actors (Christensen, Bohmer, & Kenagy 2000; Robertson 2007). Many breakthroughs in technological and scientific knowledge are not translated into practice, even if they could drastically improve the effectiveness of treatment. This is often due to the missing link to existing practices and because new practices challenge established disciplinary boundaries and power structures (Mørk et al. 2010; Newell et al. 2006; Ramsdal & Fineide 2010). The degree of innovation may therefore be reduced to changes that do not oppose established traditions and structures (Borum 1999).

## **User-driven innovation**

We argue above that the new solutions, in order to improve interaction between local health care services and clients, must be developed in collaboration between various parties: suppliers of telecare products, service providers and clients. The development of products in cooperation with clients is referred to as user-driven innovation (Hoholm & Huse 2008). It is often pointed out that users contribute to the modification of systems or products, which can result in the development of products of commercial interest (Di Gangi & Masko 2009; Henkel & von Hippel 2005; Morrison, Roberts, & von Hippel 2000). It is generally the lead users who can contribute to the innovation process; these are users who identify needs in advance of the rest of the target group or the market. We may also assume that those who will benefit greatly from new developments are more likely to innovate (Morrison et al. 2000). The question here is whether there is a group that can be referred to as “lead users” in telecare and telehealth technology in general and among those who will try out the pilot schemes in our study in particular.

During an innovation journey for the local introduction of telecare and telehealth technology in general and the eSenior project in particular, the users themselves would be unlikely to actually develop any new functionality that they need. However, we presume that they can influence the choice of products through their input in focus groups, and have even more say in the further development through their testing of pilot schemes. The backgrounds of users will naturally differ in terms of experience with the use of technology, education and expertise.

Need should be the basis for the allocation of telecare and telehealth technology, given the goal of using technology as a tool to encourage more independence among users. Both Sarpsborg



and Fredrikstad have been keen to adopt security packages albeit in somewhat different designs. Key elements of such packages are e.g. security alarms and fall alarms. The further development of fall alarms may appear to be a product area where the user can contribute to innovation. It has been argued that the alarms currently available are not a satisfactory solution, because they are set off by mistake, have too short a range and are too large and heavy. If the care services select security packages that include the piloting of fall alarms, this will enable us to study how client experiences and wishes are involved in further product development.

So far we have distinguished between service provider and user where the latter is the recipient of the council care services. In the discussion of user-driven innovation above it was shown that the person receiving care is given a position which may involve influence on product development. But it can also be argued that service providers may have the role of the user, as users of telecare and telehealth technology in relation to their professional practice. They may then be expected to contribute to innovation in cooperation with the developer on the basis of what is referred to as asymmetric information (Henkel & von Hippel 2005). We may further assume that it will be primarily their knowledge of health care and of the needs of the client group that will complement the knowledge of product and production of the developers. The latter can thus gain access to information on market needs and possible solutions of which they themselves were unaware, thus enabling them to create “strong” products (Henkel & von Hippel 2005).

## **Summary**

We have presented a design for an analysis of the processes related to the introduction of telecare and telehealth technology in the care sector in two local authorities in Norway, based on the Interreg-funded development project eSenior. In line with some classic studies of innovation processes, we have chosen to describe our approach as an analysis of innovation journeys. We have been particularly concerned with choosing a research strategy that takes into account the complexity and uncertainty in these processes, and the fact that the local authorities under study face many, sometimes conflicting, considerations in the implementation of the projects.

The projects studied are well underway, and have conducted several rounds of data collection about the views of clients, council employees and suppliers on the technological solutions that

may be appropriate. Both councils have been concerned about safeguarding client wishes and needs, but have not yet demonstrated how these may be linked to specific technological solutions. In these two local councils, just as in councils all over Norway, there is now a need to find ways to make relevant and forward-looking orders of new technology. One challenge that will become increasingly important is to implement solutions in a way which avoids sub-optimisation. This can easily happen if we do not grasp the complexities of the needs of the actors involved, or the ethical and professional dilemmas faced in planning the care sector of the future. We have therefore been concerned that our research design as outlined here will take account of these dilemmas.

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