

The Value Web

Organizational and Economic Evaluation of the RemoAge Services

D.5.1 Economic Evaluation and Business
Cases

D.5.2 Deployment Plan

Elin Breivik

Frank Larsen

You may freely copy text from this report if the source is provided. You are encouraged to provide the report's name, report number, that it is published by the Norwegian Centre for E-health Research and that the report is available online at www.ehealthresearch.no.

© 2018 Norwegian Centre for E-health Research

Summary

The RemoAge is an EU-funded project that aims at developing and implementing eHealth services in the northern regions of EU, including Norway, Scotland and Sweden (2015-18). The overall objective of the project was to improve the services for frail older people living in remote areas, including people with dementia. All the three countries planned to host pilot sites.

In this report we describe and analyse organizational and economical aspects related to the services. We have applied different methods to the same field data: workshops with RemoAge project members, focus group interviews with health care professionals and a log sheet to report on the use of video conference.

Some services have been tested within the public services organizations, with the goal of improving care, while other services have tried to raise awareness about new ways of delivering services and offer training to families, community members as well as social and health care professionals on how to use new technologies. The services have been developed in co-operation with representatives of public care sector as well as representatives of community organizations. In many of the services, especially in Norway and Sweden, they have used videoconference solutions, normally between the patient's home and health care professionals located in a medical centre, a GP office or a hospital. The local RemoAge teams in the Western Isles and Shetland have also focused on the social aspects of people's well-being.

The health care professionals reported that it was easy to learn how to use the videoconference solutions. The staff in Norway and Sweden have used the iPad, not only the videoconference solution but also the camera to film and take photos (of wounds). The intergenerational services in the Western Isles has also used videoconference technology for communication, and people who are socially isolated may use videoconference to communicate with social organizations. One of the work streams in Shetland was aiming at teaching elderly people how to use iPads. They started from scratch, learned how to navigate through the dashboard, activate apps, access web sites etc., each session they learned new functionalities. Some respondents said that they have encountered problems due to bad connection (Sweden and Western Islands).

The respondents report that the RemoAge services have several benefits. Respondents from all the partner countries highlights the main benefit of introducing the RemoAge services to be less travelling. The patients and next-of-kin do not have to travel the health care centre, GP office or the hospital to get the services. The same goes for some the health care professionals, they can offer the services sitting in his or her own office. The use of interactive distance technology makes it easier for physicians to use their time in a more rational way. The use of videoconference also made it easier to arrange meetings involving a large number of actors at different locations. The services in Shetland and Western Isles have partly focused on the social aspects of people's quality of life, with the objective of reducing the burden on the public care sector in the future, while one of the bi-products of learning people to use iPads in Shetland is that they are able to communicate with health and social care organizations via videoconference if they become clients in the future.

Table of contents

Summary	2
1 Introduction.....	5
1.1 Background	5
1.2 The Project	5
1.3 Value Web	6
1.4. Methods.....	7
1.4.1 Workshops	7
1.4.2 Interviews	7
1.4.3 Log sheets	8
2 Test Sites and Services	8
2.1 Norrbotten	8
2.1.1 Palliative Care Teams	9
2.1.2 Remote Multi-Professional Coordinated Care Planning (CIP).....	10
2.1.3 Consultation.....	11
2.1.4 Support of Family.....	11
2.2 Tromsø	12
2.2.1 Test sites.....	12
2.2.2 The Service.....	12
2.2.3 Technology, training and support	13
2.2.4 Organization of the Services	13
2.3 Western Isles.....	14
2.3.1 The services	14
2.4 Shetland	15
2.4.1 The Services	16
3 Value Web	18
3.1 Plans.....	18
3.2 Legal issues	18
3.3 Organization and Actors.....	18
3.4 Important Actors.....	19
3.5 Economic issues	20
3.6 Technology	20
4 Conclusions.....	21
Appendix 1. Business case: CIP in Gällivare.....	23
1.1. The Test	23
1.2 Results.....	23
1.2.1 Costs	23

1.2.2	Saved costs.....	24
1.3	Conclusion.....	25
Appendix 2. Business case: Palliative Care Consultations in Arjeplog and Arvidsjaur		26
2.1	The Test	26
2.2	Results.....	26
2.2.1	Costs	26
2.2.2	Saved Costs	27
2.3	Conclusion.....	28
Appendix 3. Business Case: eHealth services for Patient Centred Healthcare Teams in Tromsø.....		29
3.1	Results.....	29
3.2.1	Costs	29
3.2.2.	Saved Costs	31
3.2	Conclusion.....	31
Appendix 4. Log Sheets.....		33
4.1	Norrbotten	33
4.2	Tromsø	35
Appendix 5. Interview Guides		37
5.1	Shetland	37
5.2	Norrbotten og Tromsø (all services).....	37
Appendix 6. Workshops.....		39
6.1	Value Web Workshop May 2016.....	39
6.2	Value Web Workshop May 2017.....	39
Appendix 7. Plans.....		41
7.1	Scotland	41
7.1.1	Shetland.....	42
7.1.2	Western Isles.....	43
7.2	Norrbotten	44
7.3	Tromsø	45

1 Introduction

1.1 Background

Health care systems in the developed world is faced with the challenge with rising expenditures. An aging population and new and costly treatments leading to improved survival have put pressure on the governmental finances. The challenges are felt most strongly by regions located in rural and remote areas. The proportion of elderly people in these areas is higher than in central and urban areas. We also see that urban and remote areas have problems in recruiting qualified health care personnel.

Policy makers all over the developed world try to find solutions to cope with the growing discrepancies between responses and requirements or need for health care services. One of the approaches to handle the challenges is to use technologies that makes it easier to deliver health care services. As the information and communication technologies are getting cheaper and access to broadband is getting widespread, it is more relevant to deliver services to urban and remote areas via ICT. The services can be offered to patients living in nursing homes, to patients visiting a GP or a health care centre, or to the patients' homes. The patients in their own homes can use medical devices and assistive technologies and information gathered from the devices can be transferred to relevant health care personnel.

The use of technologies in health care will allow the health care organizations to deliver services to the people living in remote areas in more cost-effectively manner. The patients do not have to travel long distances to see a doctor e.g. and informal caregivers (family, friend etc.) do not have to a day off in order to accompany the patient going to a health care centre or a hospital. The use of technologies may also make easier for people to stay in their homes for a longer period. The health care workers may also save travels and as they spend time be able to offer services to more people.

Many studies have revealed that the implementation of new technologies has been challenging. Although studies have identified many facilitators to the use of modern technologies in health care there has also been many obstacles to the use. What has become clear now is that both technological as human and institutional aspects are of importance when implementing eHealth services, and also keeping in mind the interrelation of these aspects.

1.2 The Project

RemoAge is an EU-funded project that aims at developing and implementing eHealth services in the northern regions of EU, including Norway. The project started up in 2015 and ended in 2018 and included partners in Norway, Scotland and Sweden. All the three countries planned to host pilot sites.

During the first year of the three-year project the partners in the three countries identified possible services and service provider organizations. After having identified possible services to be implemented, members of the local RemoAge projects together with the staff from the provider organizations examined how technological solutions can help health and social care in their efforts to offer quality services based on the needs of the patients. By technical solutions, we mean both ICT tools and technical infrastructure.

1.3 Value Web

Implementation of eHealth solutions is not just about deciding which technology to use and how to implement it. Implementation of a new service is the result of several aspects or processes, and not just about technology. Using the word web implies that we anticipate that the different aspects are interrelated. Implementation of new technology is about an actor or actors making decisions regarding if the organization should adopt the technology or not. It is of importance who these actors are, and if they are supported by other actors. The actors may be informed by many variables regarding if to implement the new solution, and these variables will again affect the result of the implementation.

Implementation starts when an actor makes an initiative to put the introduction of a new solution on the agenda. The actor can be located outside of the implementing organization, or in within the organizations. The general hypothesis is that the initiative coming from an actor within organization has better chance of succeed than initiative coming from outside of the organization. Who the actor is, is of importance, meaning that actors located higher in the hierarchy wield more influence on the activities of the organization. The possibility to influence the implementation of the solution is dependent on the support of other actors, like an opinion leader.

The existence of national and/or local plans or strategies focusing on eHealth or telecare solutions may support the implementation of the solution. The actors promoting the implementation of the new service may refer to the facts that there are plans supporting the implementation. The plans may be more or less detailed, referring to specific services and/or specific time for implementing of the services.

Health and social care is highly regulated, not just the work, but also the use of technologies. The implementation of new technologies will affect how health care professionals do they their work, how they share information, and how they interact with the patients. Projects that are not in accordance the legal framework cannot be implemented, and maybe have to go through major changes in order to be adapted to the regulations. There is also a question about if the service is credible in terms of security, reliability and availability.

Technology is of course an important aspect when implementing new services. Since eHealth involve communication and cooperative work across distance, communication infrastructure has to be in place to facilitate the delivery of the services. And this network should have enough bandwidth and be reliable. Communication with patients living in their homes may pose difficulties of another kind if the patients don't have access to a broadband in their homes. There may be a solution to use the mobile network.

Health care work is performed by professionals working in health care organizations, and very often eHealth means communication between members of at least two organizations. Introduction of a new service very often means that new roles and responsibilities have to be defined. Offline services may be easier to organize than online services. Health care professional can take pictures of wounds while visiting the patients in their homes and send it to the hospital. Health care professionals can access the picture and respond later or within an established period. The use of videoconference in health care is an example of an on line services and may be more difficult to organize as the health care workers have to communicate in real time and there is need of establishing a schedule.

1.4. Methods

The analyses in this report are based on focus group interviews with members of the RemoAge project and healthcare personnel from the pilot sites, workshops with participants from all project partners and log sheets filled in after videoconference services were used.

1.4.1 Workshops

During the RemoAge meeting in Tromsø, May 2016, we arranged a workshop to gather and compile information regarding aspects that affect the implementation of telemedicine and eHealth. The partners worked in groups to identify and discuss aspects regarding obstacles and facilitators to the implementation of the services as routine services. The partners discussed and identified aspects related to national and local plans and how these plans may support the implementation of the RemoAge services, legal issues and risk management related to the RemoAge services, and actors that are important or vital for implementing and providing the RemoAge services. During the meeting in Shetland, May 2017, we again invited the partners from the pilot sites to work in groups. This time they were invited to discuss and identify the technological structures necessary for the implementation, organizational issues related to the embedding of the services and economic issues.

Representatives from each of the pilot sites sat around a table to discuss the issues and each session lasted for two hours. Two of the members of the RemoAge project, who also were responsible for the organizational and economical evaluation of the services, acted as moderators. One of the partners in each of the groups took notes during the discussions. The written notes were handed over the moderators after the focus group interviews, except for one of the groups that later submitted a Word document.

As having theoretical knowledge regarding two important aspects related to implementation, the moderators facilitated the discussions in the group discussions related to organizational and economical aspects. However, it is the partners from the pilot sites who have the insights into how all the aspects interact and affect the implementation of the services.

1.4.2 Interviews

In order to collect data regarding the actual services in three countries, we interviewed the users. There are two types of users, healthcare personnel and patients (and next of kin). We have interviewed the health care workers as we have focused on implementing the services in health care organizations, the facilitators and obstacles to the implementation, and what kind effect the services have on the work processes. Interview is a proper method when little is known about the subject that is studied. In this study we have used semi structured interviews. The pro of semi structured interviews is the flexibility. Some of the questions were formulated before the interview started, while other questions were formulated as the interview went on based on themes brought up by the interviewed. We were focusing on many of the same aspects interviews, as this will make it possible to compare answers from different informants.

The use of interview is resource demanding. Whenever it was possible, it is preferred to arrange the interviews as focus groups interviews. All the interviews were focus groups interviews, except for one. The pro of doing focus group interviews is that an informant may bring up themes or aspects that the other informants have not thought about. The con of doing focus groups interviews is that a

talkative person may dominate the discussions. The interviews were all performed via Skype. They lasted between 40 minutes to 60 minutes and all the interviews were taped.

1.4.3 Log sheets

Log sheets have been completed by participating health professionals in Norrbotten and Norway after each use of the iPad (Tromsø) or after each videoconference session (Norrbotten), recording data on avoided travels, what the alternative to using the RemoAge services would be and if the purpose of the session was reached. Questions are tailored to fit each of the tested services.

The log sheets included few questions to minimize the time spent by health professionals to fill in the requested information. Collecting data using log sheets makes it possible to get a high number of respondents, but responses are sometimes ambiguous, making it difficult to know how the respondent has interpreted the questions. In addition, questionnaires are in many cases only partly filled in, affecting the quality of the data. (Log sheets in Norwegian and Swedish are attached in Appendix 4.)

2 Test Sites and Services

The local RemoAge teams in the three partner countries have developed and tested RemoAge services. In Sweden the geographical area of the test site has been 11 of 14 municipalities in Norrbotten County, in Norway the municipalities of Tromsø, Harstad, Balsfjord and Karlsøy, and in Scotland Western Isles and Shetland. The local teams have developed the services in close co-operation with actors who have knowledge and/or interests in these kinds of services.

2.1 Norrbotten

Norrbotten County is the northernmost county of Sweden. Norrbotten County covers almost one quarter of Sweden's surface, but is sparsely inhabited. The population in 2017 was 251,080. There are 14 municipalities in the region. Luleå is the largest town with 75,500 inhabitants. The region covers 25% of Sweden's total land area.

There are Finnish and Sami minorities living in the area, who have maintained their own culture and customs. Apart from Swedish, Sami, Meänkieli and Finnish may be used in dealing with government agencies, courts, municipalities, preschools and nursing homes in parts of Norrbotten County.

Common for all rural areas is an ageing population. In these areas, a smaller part of the population is employable, contributing tax revenue to the community. Another characteristic feature of rural areas is long distances to neighbours, hospital and other public services.

Different types of services have been tested in many municipalities and hospitals in Norrbotten. The table below gives an overview of the pilot sites and the tests carried out during the project period.

Table 2.1. Tested services in municipalities and hospitals in Norrbotten.

Services Municipalities	CIP	Care Plan- ning	Consul- tation	Palliative Teams	Support of Fam- ily	Mobile safety Alarm	Medicine Dis- penser	Night Camera
Arjeplog				X				
Arvidsjaur				X				
Boden	X				X			X
Gällivare	X					X		X
Haparanda	X		X	X		X		X
Jokkmokk	X							
Kalix						X		
Luleå						X	X	
Älvsbyn		X				X		
Övertorneå			X	X	X	X		X
Hospitals								
Kalix				X				
Piteå		X		X				

Log sheets have been completed by participating health professionals in different municipalities in Norrbotten after each videoconference session March 2017 –October 2017. 102 log sheets were completed by project participants in selected municipalities during the different tests.

Participants in the videoconferences sessions were the patient, health care staff, and in many cases, the family would also take part. The alternative to the videoconference was stated to be that the patient or health care staff would have to travel in 50 % of the cases. In 7 cases, more health care staff participated in the session than they would in a traditional visit, because they didn't have to travel to see the patient.

In 40 cases, there would have been a telephone conference if the videoconference session had not been carried out. In two cases, the patient wouldn't receive any consultation. For the five test persons in the support-of-family-service, some consultations in the support series wouldn't have been carried out. However, these are not included in this overview. For the remaining cases, no information on the alternative was stated.

Travels for either for the patient or health care staff were saved in 51 of the 102 cases. The log sheets show that the patients lived from half a kilometre to 204 kilometres from the health centre or the hospital. In total 6600 kilometres were saved, this is on average 65 kilometres per consultation. In the following, services involving videoconference are analysed.

2.1.1 Palliative Care Teams

Palliative Care Teams offer specialized care for people with serious illness. Palliative care is provided by a specially-trained team consisting of different health care professionals.

The Palliative Care Teams are located at Kalix Hospital and Piteå Hospital and consists of physicians and nurses. The health care professionals have cameras and are able to use a PC or laptop in their own office. They are able to communicate with their partners in the municipalities. The district nurses in the municipalities have iPads that they bring with them when visiting the patients.

Both the Palliative Care Team and the district nurses can take the initiative to arrange videoconference meetings. Together they conclude if it is necessary to have a meeting and when it will take place. The district nurses visit the patients in their homes and are able to communicate with the team at the hospital via iPads.

The team offers services to patients suffering from the symptoms of a variety of serious illnesses and it's difficult to describe a typical meeting. This include treatment of pain and care of wounds. The iPads are used for videoconferencing and in the case of wounds the iPads was used to show pictures of the wounds. Health care professionals at the hospital had already observed the wound at a previous occasion and thought it was adequate to do follow up based on the pictures. The general impression was that the quality of the pictures was good enough.

There are always health care professionals visiting the patients. Normally there are at least two health care professionals visiting the patients, and that fact enables them to work together and help each other when encounter technological problems. Being two persons at the same place also makes it easier when they are using the iPad to take pictures of wounds.

When comparing the use phone with iPads, health care professionals at the hospital express that the ability to see patients offer them richer information about the patients. And when they already met the patients face-to-face it much easier to communicate via the iPad.

2.1.2 Remote Multi-Professional Coordinated Care Planning (CIP)

A coordinated Plan (CIP) is developed for patients who have a need for coordinated and integrated follow up from preventive healthcare and medical care, with personnel from both the county and the municipalities. The plan is based on the needs of the individual patient. Social services, healthcare services, the patient and family members participate in the development of the plan. The plan includes an overview of actions, the responsible organization/person for carrying out the actions and a description of the monitoring of the planned actions. The purpose of arranging virtual/remote CIP-meetings via videoconference is to clarify the roles of all stakeholders involved in the care process, make it easier for stakeholders, including family members, to participate in the planning as well as empower the patients as they are able to meet and communicate with all relevant stakeholders.

Tablets are used to connect to the videoconference from the patient's home. Local health care personnel are visiting the patient in his or her own home. The GP and/or other healthcare and social care staff participated on videoconference from the health care centre or their offices. All participants use accessories like external speakers, microphones and headsets. All participants connect to the videoconference by using Polycom software or Skype over broadband or mobile internet connections.

One of pros of using videoconference for planning of preventive and medical care of the patients is that it's easier to organize meetings between relevant care personnel than with face to face meetings. Some of the healthcare personnel said they have missed the opportunity of meeting the GP in real time, and some said that they sometimes had contacted the GP individually after the physical meetings. By using videoconference, the GP don't have to leave the office and still be able to attend

the meeting. For family members, videoconferencing represent an opportunity get the same information as the patients get.

The videoconference meetings were in most cases successfully carried out, but in few cases they were not able to connect due to bad or lack of internet connection. The respondents found it quite easy to learn how to use the videoconference tool. However, the carers found the screen on the iPad to be too small as it sometimes were difficult show all the participants on the screen. They thought it was necessary, whenever there was virtual meeting, to inform everyone about who attended the meeting.

2.1.3 Consultation

The service offers the doctor to do virtual visits in the patient's home. The doctor can sit in his own office and interview the patients via videoconferencing. The interview with the patient is performed while the district nurses is visiting the home of the patients.

The virtual visits are planned, meaning that the health care personnel agree upon time to do the virtual visits. The videoconference sessions may also include other health care professionals, like physiotherapists, and next of kin. The district nurses are using the technology for several purposes: individual plan, planning of care and communication with palliative care in Kalix.

Normally the technology functions quite well. However sometimes it would have been better to have an external camera to take photos of wounds, but sometimes they just use the smartphone to take pictures. The sound quality can also represent a problem, and the respondents think it would be more convenient to have external loudspeakers as some of the patients have hearing problems.

This is a services that patients benefit from as they don't have to travel to the health care centre. Also next of kin benefit from the services as they get the same information as the patients when they participate in the videoconference sessions.

2.1.4 Support of Family

The purpose of the service is to offer support to family members who are living with a patient, especially for people who can't just leave the home because the patient can stay in the home alone. The family members were to use their own equipment for the videoconference sessions in their homes as this is an equipment they already know how to handle. The health care professionals could sit in their own office while communicating with the family members.

The videoconference meeting offers an opportunity for the health care workers to inform the family about what kind of social and practical support are available for them. Its' also an opportunity to get insight of the life conditions of the family members.

This is a service that already has been offered, without the use of videoconference equipment. There are different ways of arranging the meetings between family members and health care professionals: 1) Family members comes to the care or medical centre, 2) the health care professionals travel to the homes of the patients, 3) communication via telephone, and 4) group sessions. The pros of using the videoconference system are that the next of kin as well as the health care professionals do not have to travel. This means that the health care professionals can save time when they don't have to travel,

and that meetings can be arranged more frequently. Due to technical problems the number of actual meetings have been low. However, the experience so far is that it is quite easy to arrange the meetings because it is also communication between the next of kin and the care professionals, and care professionals do not have to be in the patient's home during the videoconference sessions.

2.2 Tromsø

Tromsø is a city and municipality in Troms county. Tromsø municipality is the most populous municipality in northern Norway and the ninth largest municipality in Norway. As of 1 January 2017, Tromsø municipality had 74 541 inhabitants. 19% of the population was over 60 years old. The municipality covers a large geographical area with several rural villages set outside the central part of the city. The city is located over 300 kilometres north of the Arctic Circle and is home to the world's northernmost university. The university has 15,500 students and 3,300 staff. Together with the University hospital with 6,500 employees, these are the largest working places in the city.

2.2.1 Test sites

Patient Centred Healthcare Teams (PACT) are inter-disciplinary teams that offer an integrated approach to providing coordinated health care to patients over 60 years with complex long-term needs. The patients referred to the teams are multi-morbid and have one or more chronic conditions, they had more than one hospital stay the previous year and there is a risk of readmissions. All patients receive homecare services. The teams follow patients through the system and help them to receive appropriate, patient-centred and timely care at the most appropriate location¹. The teams also focus on providing support at home to minimise hospital admissions. Patients are followed up during a limited period of time until all necessary services are in place.

The teams are a collaboration between primary and secondary health care and are at present established at two different geographic locations of the University Hospital of North Norway (Tromsø and Harstad). Nurses, physiotherapists and occupational therapists from both the municipality and the hospital work in the teams. One of the teams have a pharmacist and a doctor. PACTs are also established in the rural municipalities of Balsfjord and Karlsøy, which both borders to Tromsø. The team is made up of home care staff and rely on close collaboration with the Tromsø team to follow up patients discharged from the hospital in Tromsø. Several teams will be established in rural municipalities in the region in 2018.

2.2.2 The Service

Digital solutions and mobile devices are used and tested by team members to support patient treatment and follow-up of patients outside of the hospital. The goal is to improve communication and facilitate information exchange between team members, with external health care professionals and with patients and their family.

¹ Trine Bergmo et al. Patient –Centred Health Care Team. Work Practice, Experiences, and Estimated Benefits. IARIA, 2016 (eTELEMED 2016).

iPads enables direct communication between team members and patients or with other health personnel (team members or other health professionals across sectors) from the patient's home over videoconference. Short videos or pictures can be stored on the tablets to be shared with colleagues at a later point of time. The patients are informed by the team members and give oral consent to the use of iPads.

The team members use the iPads to:

- Support the planning of follow-up of patients.
- Receive advice in the patients' home from other team members and other health professionals over videoconference and the sharing of pictures and films.
- Clarify further treatment in elective and emergency situations in the patient's home over videoconference.
- Document the patient's condition.
- Make instructive films available for other health care workers.
- Carry out collaboration meetings and supervision between teams in different municipalities. Administrative and clinical issues are addressed.

2.2.3 Technology, training and support

The Tromsø team has access to six iPad; Harstad, Balsfjord and Karlsøy have three iPads each. All iPads are in the project period equipped with sim cards to be used when there is no Wi-Fi in the patient's home. A browser-based videoconference tool is installed on the iPads. The iPad is part of a tool kit, which also includes a case, earphones, a charger, and a stylus pen. Technical support is needed for set-up of tablets, solving of technical errors as well as training in use of the tablets and the videoconference tool. Technical support is carried out by the project team. After the end of the project, the teams in Tromsø and Harstad will have to rely on support from the hospital support team. In Balsfjord, technical support is carried out by the municipal IT-department. User manuals are provided and are always available in the tool kit. New team members during the project period have been trained by more experienced colleagues.

The teams use a browser-based videoconference tool. All videoconferences take place within the secure health network. Passwords are used to access the iPad and the videoconference tool, as well as to protect all pictures and videos stored on the iPads.

If planned videoconferences are cancelled or there are other technical problems, the patient still get the planned follow-up.

2.2.4 Organization of the Services

The Tromsø team has been able to embed the use of the iPads into ongoing work processes of the team. The team was well established before the RemoAge project was launched. The health care professionals are now able to communicate via iPads with each other in real time. The use of the camera for film and pictures enables the staff to utilize the service as an offline service. An offline service is easier than an online service to organize as the partners don't have to communicate in real time, but can respond later. The iPads are easy to use, but someone needs to update the software and charge the batteries, and one member of the staff have taken care of all the iPads.

2.3 Western Isles

Western Isles² is an archipelago off the west coast of Scotland with a total population of 26,900 (2016). After declines in the 20th century the population has stabilised since 2003, although it is ageing; about 30% of the population is over 60 years old.

The length of the archipelago is roughly 210 kilometres. Bridges and causeways are built so that all the inhabited islands are connected to at least one other island by a land transport route. Transportation to the mainland is made by ferry or plane. The administrative centre is Stornoway with 8,038 inhabitants (2014). Scottish Gaelic is the pre dominant spoken language, although in a few areas English speakers form a majority.

2.3.1 The services

The RemoAge project in the Western Isles had several goals, including how to tackle social isolation and reducing pressure on clinical services by reducing social isolation. The project also had a technology perspective focusing on the user acceptability of the technology and how the technology could support the clients to live independently.

The RemoAge project in Western Isles developed several services:

- 1) Assisted technology centre was designed as a one stop shop where carers, patients and other relevant actors could come and see how the technology works. The idea was to set up the technology (different kind of technologies like monitoring equipment, medical dispenser, the more robotic (beam)): and that people could come and see, and meet people from the social and care organizations, the rehab team and member of Alzheimer Scotland. The centre also arranged sessions for people who already had mobile phones, iPads etc., but weren't confident in using them. A member of the staff would talk it through on how it could be used and what benefit it that might be for them.
- 2) Intergenerational project was a project between a primary school and a care home. The idea was to give the care home iPads and the school beam technology, which can be described as a big iPad on wheel. The project team wanted to train them do to intergenerational exchange, and had planned to do sharing of experiences, skills, languages and songs.
- 3) Tackling social isolation among elderly people. It has shown that this can impact on their health condition. A pilot called social prescribing was set up, named Connecting Uist. Uist is the area in what it was based. They introduced a new service, called the social navigator, and health and social care staff could refer to the services. Whenever they had contact with the elderly they could check if there is social isolation underpinning their health condition. The health and social care staff could then make an online electronic referral to the services. Once the social navigator had received the referral, they would meet up with clients in their homes and go through an action plan and maybe measure the level of isolation which then could be compared with data after the intervention. The plan was to link the client up with community activities in order to try to engage them socially. The communication with community activities could be done via an iPad. The social navigator would follow up the

² The description of Western Isles is based on:

http://en.wikipedia.org/wiki/Outer_Hebrides (02.03.2018)

client to check what happened and we would pass information back to the health and social care about how things were progressing.

4) The final services were around dementia friendly community and a continuation from the Remo-Dem project. Part of that was linked to the intergenerational services. The first part of that was business friendly dementia and dementia friendly training, including an introduction to what dementia is and how to support people living with dementia.

The RemoAge project in the Western Isles has used a mixture of technologies. Looking at the public social and care sector, it has been important to integrate the new services with the existing system. The social isolation part of the project has focused on technologies that people already and familiar with using (iPads, smartphones) that could be used for communication.

Social isolation pilot was organized as a formal referral process. The referrals, once they had been received, needed to be handled by the social navigator. They had a time frame when to respond and arrange to meet face-to-face with the client. The health carers could then look at the referrals at any time, and it was up to the clients choosing where to meet. The duration was open ended, one hour or longer. Intergenerational was organized around the schools' pupils' week. The Tech Centre had planned two drop in sessions per week, but was dependent on the ability of the staff to attend.

The respondents report that the project has created awareness about loneliness and its links to health. There have been some findings about how social support can improve health, but not much has been done around that. This project may focus people's mind that this is a useful area to approach. The intergenerational project may help people to get a better understanding of dementia and give insights into how technology can support people who are socially isolated and how communities can support people living with dementia.

There are some disadvantages to the introducing of the support of social organizations. This could mean a shifting of the dependence from the care sector to the social support organizations, while the aim was to make the clients more independent in their own community. The data connectivity is still a problem. The existence of a local sponsor championing the new approaches would have made easier to get more acceptance and support from the staff.

2.4 Shetland

Shetland is around 170 kilometres north of mainland Scotland, covers an area of 1,468 square kilometres. Lerwick, the capital and largest settlement, has a population of 6,958 and about half of the archipelago's total population of 23,200 people (2016) live within 16 kilometres of the town.³ About 23% of the population is older than 60 years.

Scotland is facing demographic changes in the coming decades with a sharp rise in the older population. Over the next 25 years, there is a projected increase of 28% in the number of pensioners in Scot-

³ https://en.wikipedia.org/wiki/Shetland#cite_ref-SIC4_1-1 (02.03.2018)

land, compared to an increase of just 1% in the number of people of working age. This will have implications for funding allocations, tax revenues, pensions, education as well as health and social care provision⁴.

The RemoAge project in the Western Isles had several goals, including how to tackle social isolation and reducing pressure on clinical services by reducing social isolation. The project also had a technology perspective focusing on the user acceptability of the technology and how the technology could support the clients to live independently.

2.4.1 The Services

The Shetland Islands developed and tested what they called 3 different paths or work streams of services targeting elderly people.

One of the work streams (2) was a peer-to-peer support work stream of the project. Originally the RemoAge project team wanted to identify and engage community groups with people who were in the right age, above 65 years old, and groups that already were engaged in the community support. In order to recruit participants, the project group produced a leaflet and contacted health and social care organizations as well as organizations representing the voluntary sector. The leaflet could then be handed out to potential participants and I could fill in application to join the project. They wanted to recruit people living in the right area, and people who think that technology would make them feel less socially isolated instead of asking them if they are socially isolated. The project team also had two roadshows where people could come and learn more about the project, but the meetings were relatively unsuccessful. The reason may be that core group saw it as a technology project and not as support project.

The project team contacted a group called Stepping Out, a third sector older persons support group that meets every month with informal carers and clients, both above 65 years old. The goal of the work stream was not just to support clients using technology but also informal carers as they in some years may become clients, and as this was opportunity to pre-empt the use of technology.

The members of the local RemoAge project was invited to join a social meeting with potential participants. The people met on a regular basis, had lunch together, and socialised. At the end of the meetings the, members of the project handed out iPads and taught them how to use basic functions, including taking selfies, taking photos, accessing council's website, do social media etc. There was a core group of 6-7 coming to meetings regularly, and approximately 16 meetings. The informant thinks it works better when there is a small number of participants as the users are on different levels. The participants can help each other. They also identified possible participants who may become clients in the future but are now living in their homes. One of the person got support in her or his own home and was given tasks to be done.

⁴<https://www.scotsman.com/news/politics/scotland-facing-ageing-population-timebomb-1-4520767> (02.03.2018)

Work streams 1 aimed at offering service delivery via a system called Mt Ethel (myethel.co.uk). It has been difficult to recruit the right clients at the right time. However, there is one example of communication between health care staff and a client using video conference technology. The service functioned properly, the health care professionals were able to stay in touch with the clients and enabling family members to go on vacation.

The biggest obstacle to the implementation of the RemoAge project has been selling it to the care organizations. The infrastructure has not been the obstacle that they had anticipated.

3 Value Web

We have applied different methods, workshops, focus group interviews and a log sheet, to identify and map important aspects related to implementation and use of the RemoAge services in the three partner countries, Norway, Scotland and Sweden. The aim has been to describe how these aspects can support the implementation of new services in remote areas of the arctic periphery.

3.1 Plans

All the pilot sites report that they have plans, both local and national, which support the types of services that the RemoAge have developed and tested.

The recent plans concerning health policy in Norway focus on decentralization and the use of new technologies to achieve those targets. The RemoAge services in Tromsø is in accordance with the focus on continuity of care and cooperation between different professions as well as between municipalities and hospitals. At the local level, we find that the municipality of Tromsø has a plan which focuses on people with dementia. The Scottish partners report that there are plans and strategies at the national level supporting technology enabled care, but also strategies targeting the same group of clients as the RemoAge project is targeting. At the local level we find strategies targeting the target group of the RemoAge project like the Shetland dementia strategy and Shetland Older Persons Strategy. Also in Sweden we find plans on the national level with a vision of implementing eHealth solutions. At the local government level, we find plans focusing the implementation of welfare technologies in health and social care.

3.2 Legal issues

There is a concern in all the three partner countries regarding legal issues and risk management related to the implementation of new technologies. One of main aspects in regulations of health care organizations and health care works is aspects related to privacy and information security. The new eHealth services very often mean transferring and sharing of health information. The question is sometimes if legal regulations are up to date with the technical development, and if they are, have any risk assessment been performed before the new services have been implemented. The use of video conference in new environments, as we have seen done in Norway and Sweden, also means that actors need to assess the environment where the video conference will take place. Some of the services in Shetland and Western Isles may have some specific legal or risk management challenges as the services will engage community organizations in the support of elderly people.

3.3 Organization and Actors

The RemoAge services in the three partner countries have involved a variety of organizations and actors, including public service organizations, community organizations, health care professionals, patients, families, schools. Many of the services have involved several care professions in the delivery of the services. Often services include physicians and nurses. In one of the services in Sweden, consultation over distance, we saw that the district nurse visited the patient in his or her home while the doctor stayed in his own office. This is also an example of a services crossing organizational borders,

between the municipality and the county. Another example from Sweden is the palliative care counselling team which offers services to the municipalities. The team itself is a multi-professional team, consisting of physicians and nurses, and they are communicating with the district nurses visiting the patients. In Norway we also find a multi-professional team. The team itself consists of members from both the municipality and the hospital, and consists of members with different professional background (nurses, physician, physiotherapists).

The services in the three countries have involved both public care organizations and informal third-sector organizations. The projects in Norway and Sweden have focused on the services offered by the public sector, while the projects in Shetland and Western Isles have focused on social isolation and how the third sector may support elderly people living alone. One of the objective of the services is to minimize the pressure on the public health and social care sector as people who are more socially engaged tends to be healthier. In Shetland, the idea was that people who have been using new technologies for social interaction will be able to use technologies for health care services while living in their homes.

In many of services we find the typical patient-health care professional relationship, but this time using mediated communication. But very often when the patients communicate with the health care professionals located at another place, we see that local health care personnel are present with the patient during a videoconference session. The services have involved a variety of health care professionals. One of the group of people who have participating in videoconference sessions is the family members, and sometimes they are the target group for the services. The services in Shetland and Western Isles have involved actors from the community or the third sectors as well schools and representatives from the local businesses.

Some of the RemoAge services try move beyond the traditional patient-health care professional relationship. Some of the services in Shetland and the Western Isles involved community organizations, schools, private businesses. The goal of these services is to support people who are socially isolated or living with dementia, and the services tried to activate actors outside of the traditional social and care system. of people who have participating in videoconference sessions is the family members, and some-times they are the target group for the services. The services in Shetland and Western Isles have involved actors from the community or the third sectors as well schools and representatives from the local businesses.

3.4 Important Actors

In some cases, the RemoAge partners have invited health care professionals to take part in the process of defining and developing the actual services. By involving the future users in the process of developing new services may be a way for the developers to gain insight into how to adapt the services, including the technology, to ongoing organizational arrangements and work processes. There is also a better chance of users accepting the new services when they have been allowed to plan and design the services.

In order to make projects into viable services, there is a general impression among the respondents that the leadership, both the leaders of the public social and health care organizations and the political-administrative system, have to embed the new services into their own strategies.

eHealth represent a new way of working and very often changes has to be made in two or more organizations, and this means that the we need support of leaders in all the organizations. And still if the leaders support the introduction of eHealth services it's often up the health care professionals to adopt the new services.

3.5 Economic issues

All tests sites have employed tablets, which are low cost equipment. This is user friendly technology and little training is needed, neither is much technical support needed to maintain tablets. Different videoconference tools are employed at different costs. During the project period, occasional support was needed to solve technical difficulties when carrying out videoconference sessions.

The tests of the RemoAge services indicate that saved travel costs and saved time for health care staff as well as patients is possible when digital tools are implemented. The longer the distances from the users' homes to health care facilities and the more avoided physical visits, the greater the savings from avoided travels are. Saved travels are specifically important in rural areas, where patients live far away from health care institutions and health care staff drives long distances to offer home care services or other health services to users. However, to realize savings, a specific level of use is required. This level varies between test sites and services.

Cost-effectiveness increases when the equipment is used for other services or purposes. For example, in Älvsbyn municipality in Norrbotten the iPads and the videoconference tool are used for CIPs as well as Care Planning, and in Haparanda for CIPs and Palliative Teams. Health care staff in several other municipalities in Norrbotten plan to test and implement more services after the project period. In Tromsø, the iPads are used for clinical as well as administrative purposes.

Funds to cover investments as well as training and technical support must be allocated by local authorities or health care institutions. Strategies for covering running costs for maintenance and subscriptions must also be in place to secure permanent implementation.

In Appendixes 1-3, detailed calculations on the effects on costs and savings in Tromsø and selected municipalities in Norrbotten are presented.

3.6 Technology

During the RemoAge project all the partners have implemented and tested new technologies. In all the three countries we have observed that the local RemoAge project have implemented and tested video conference technologies. Video conference tools can be implemented on stationary as well as on mobile technologies (iPads, smart phones). Health care professionals can have access to videoconference solutions on their own stationary computer. They don't have to leave their own office when attending a videoconference session, and they are able use equipment that they are familiar with. The introduction mobile platforms, like tablets and smart phones enables health care workers to bring the videoconference solution with them when visiting the patients in their homes. The videoconference solution can also be used by clients and family members as well as other non-health professionals.

The health care professionals found it quite easy to learn how to use the videoconference tool. Normally it only took a short introduction to the technological platform and the videoconference program to learn how to use the solution. In Norway the health care workers learned how to log into the iPad, use the videoconference solution, make films and take photos. In Scotland iPads have also been introduced to lay persons or people that could be clients in the future. As older lay persons may not be familiar with the use iPads, the Shetland team had a much slower introduction to the use iPads, starting with the basic handling of the device: how to activate the tablet, how to swipe, how to activate websites, apps etc.

The RemoAge projects in all the three countries have implemented and tested well known off the shelves technologies. They have all been using videoconference solutions via iPads, laptops or stationary computers. The video conference technology is an open technology, meaning that it can be used for a variety of purposes. A mobile solution, like iPads, doesn't just represent a videoconference solution, the iPads can also be used as a camera, taking photos of wounds or filming the patient in her or his own home environment. The videoconference solution delivers higher information richness than a telephone conference solution. The use of videoconference gives more feedback, cues and personal focus than using a telephone.

4 Conclusions

The overall objective of the project was to improve the services for frail older people living in remote areas, including people with dementia. Improved services for people living in remote areas may support them to live an independent life in their current homes instead of having to move to a healthcare environment. The partners in the RemoAge project have developed and tested several services. What they have in common is that all services are targeting people who are above 65 years of age, and live in remote areas. This often means that it is a long distance to organizations offering health and social care. The goal was to develop and test new services for frail older people living in some remote communities, including services that have aspects of remote support. Some services have been tested within the public services organizations, with the goal of improving the care, while other services have tried to raise awareness about new ways of delivering services and offer training to families, community members as well as social and health care professionals on how to use new technologies.

The services have been developed in co-operation with representatives of the public care sector as well as representatives of community organizations. These representatives can give valuable information on how to adapt or tailor the services to local conditions. We also see that some of the services have changed from the original idea after the users have started to test the service.

The RemoAge teams in Norway and Sweden have developed services together with representatives of the health care professionals. In Norway, the Patient Centred Healthcare Teams (PACT), an interdisciplinary team with health professionals from the municipality of Tromsø and the University Hospital of North Norway, offered coordinated health care to patients over 60 years with complex long-term needs. Participation in the RemoAge project has enabled them to use iPads for videoconferencing, filming and taking pictures of wounds. In Sweden the local RemoAge project implemented several services. In many of the services they have used video conference solutions, normally between the patient's home and health care professionals located in a medical centre, a GP office or a

hospital. The local RemoAge teams in the Western Isles and Shetland have focused on the social aspects of people's well-being. In Western Islands people who were socially isolated could be referred to a Social Navigator who assessed their needs. The people could for example be linked to social societies or activities, and this could be done via an iPad. Video conference technology has also been used in the Intergenerational project, where pupils were communicating with elderly home care residents. The team in Shetland have focused their interests on people who thought that the use of conference technology could make them feel less isolated. Teaching them how to use the video conference technology could make them prepared for the use of video conference solutions to communicate with health care actors if they were to become a client in the future.

The health care professionals reported that it was easy to learn how to use the video conference solutions. The staff in Norway and Sweden have used the iPad, not only the video conference solution, but also the camera to film and take photos (of wounds). The intergenerational services in the Western Isles has also used video conference technology for communication. One of the work streams in Shetland was aiming at teaching elderly people how to use. They started from scratch, learned how navigate through the dashboard, activate apps, access web sites etc., each session they learned new functionalities. Some of the respondents said that they have encountered problems due to bad connection (Sweden and Western Islands).

Looking at the RemoAge services in Norway offering care over distance, we found they were able to embed the online services via videoconference into ongoing organizational practices. A low number of clients may explain this fact, and we do not know if there will be a need for organizational changes if the numbers of clients get higher.

The respondents report that the RemoAge services have several benefits. Respondents from all the partner countries highlights the main benefit of introducing the RemoAge services is less travelling. The patients and next-of-kin do not have to travel to the health care centre, GP office or the hospital to get the services. The same goes for some the health care professionals, they can offer the services sitting in his or her own office. The use of interactive distance technology makes it easier for a physician to use their time in the more rational way. The use of video conference also made it easier to arrange meetings involving a large number of actors located at different places. The services in Shetland and Western Isles have partly focused on the social aspects of people's quality of life, with the objective of reducing the burden on the public care sector in the future. In Norway, the iPads enabled sharing of information about the patients' condition for all health professionals involved with the patient, for instance because the patient and the patient's home environment can be viewed and discussed over videoconference or different aspects of the patient's home environment can be filmed to be reviewed at a later time by the multidisciplinary team or other health professionals.

Appendix 1. Business case: CIP in Gällivare

1.1. The Test

Patients over 65 years from the municipalities of Gällivare, Haparanda, Älvsbyn and Boden in need of a coordinated plan participated in testing the service. Data is available from 42 videoconference sessions carried out in Gällivare and Älvsbyn from January to August 2017. In addition, four log sheets were completed in Haparanda, and one in Boden

Patients were given information material about the service. Healthcare, social care staff and participating family members were given training sessions and user guides that explain how to use the technology and service.

1.2 Results

The videoconference meetings were in most cases successfully carried out. In a few cases, it was reported that technical problems made it impossible to carry out the meeting as planned. The planning of most CIPs were carried out with health care staff (nurses, occupational therapists and care organizers) present with the patient in the patient's home or with the patient in hospital. The GP and/or other healthcare and social care staff participated on videoconference from the health care centre or their offices. The alternative to virtual planning meetings would in many cases involve travels for the patient to the health care centre or the meeting would be carried out by telephone. In a few cases, the health care staff would travel to see the patient, the meeting would be carried out in the patient's home with fewer participants or the alternative is unclear. In this chapter, economic effects of the service in Gällivare is outlined.

Gällivare municipality have 18,330 inhabitants (2011). The municipality covers a large geographical area but 77% of the population live in the two main villages. The municipality are responsible for delivering all health and care services in the patient's home. The home care headquarters is situated in Gällivare village. The staff consists of nurses, district nurses, occupational therapists and physical therapists. There is a hospital in Gällivare village.

1.2.1 Costs

The table shows equipment procured for the CIP tests and annual capital costs in 2016-prices. The project covered the iPad costs, but the municipalities are responsible for subscription costs. A five-year lifetime for the iPads are assumed and a discount rate of 4% is used to calculate annual capital costs. An annual maintenance cost of 10% of the purchase price is included in this cost. Data on training and technical support are incomplete and not included.

Licences for the videoconference tool cost 1800 SEK annually for each member of staff. The videoconference tool can be used for other purposes and the costs are not included in these calculations.

Table 1.1. Equipment costs in SEK for the CIP service in Gällivare

Equipment	Cost (2016)
11 iPad Air Wi-Fi + Cellular @5,184	57,024
6 Cases @706	4236
2 Cases @973	1947
3 Cases @ 372	1117
11 Loudspeakers@ 230	2,530
2 Apple Adapters @496	992
Total investment costs	67,846

Table 1.2. Annual capital costs and total annual costs in SEK for the CI service in Gällivare

Annual Capital Cost	15,240
10% maintenance	6,784
Total annual capital costs	22,024
Running costs	
Sim card subscription 11@249*12 ¹	32,868
Total annual costs	54,892

¹A subscription at 249 SEK per month is assumed (3GB data traffic, Telenor.se).

1.2.2 Saved costs

Data from 23 videoconference sessions carried out between November 2016 and April 2017 show that the planning of most CIPs were carried out with health care staff (nurses, occupational therapists and care organizers), and in many cases also family, present with the patient in the patient's home or with the patient in hospital. The GP and/or other healthcare and social care staff participated on videoconference from the Health Care Centre or their offices.

Travel distance from home care headquarter to the patients is 0.5-175 kilometres, on average 23.5 kilometres one way (47 kilometres return journey). However, the majority of the patients live 1.5 - 6 kilometres from the headquarter.

The alternative to virtual CIP planning meetings would in 13 cases involve travels for the patient to the Health Care Centre. In 10 cases the alternative to a videoconference session would be that the health care staff would travel to see the patient, in several cases with fewer participants than in the videoconference session.

The normal patient travel to the Health Care Centre consultation would be by public transport. However, old and frail patients who are not able to use public transportation would in most cases travel by taxi. It is assumed that the CIP patients all would travel by taxi. On average, 369 SEK is saved per video consultation when 62% of the patients save a travel to hospital. The fare is calculated using normal rates for a local taxi company and it is assumed that the patient is the only passenger.

Health professionals avoid travels in 38% of the cases. It is assumed that health professionals' travel to the patient home would be by car. Costs are estimated by using the public mileage allowance of

2.90 SEK per kilometre. Average saved travel costs are estimated at 52 SEK per videoconference consultation⁵. In addition to saved travel costs at 52 SEK, health care staff also saves time. In most cases, a medical doctor avoided travel, but in a few cases, also nurses, and/or occupational therapists avoided travel. Avoided travel time for health professionals are valued by using a weighted average salary in 2016- prices, including social security premiums for the participating health professional group. An average travel distance of 70 kilometres per hour is assumed. On average, a time cost of 158 SEK was saved per videoconference consultation, giving an average saved cost of 210 SEK per videoconference session.

The total average avoided cost per video consultation is estimated at 947 SEK⁶. Break-even, where annual costs equal annual savings, is estimated at 58 consultations.

1.3 Conclusion

The table shows the number of annual consultations that must be carried out at different travelling distances to break even. The conclusions are based on data from the 23 virtual CIPs carried out during the pilot period. The calculations show that the longer the distances from the users' homes to health care facilities and the more avoided physical visits, the greater the savings from avoided travels are.

Table 1.3. Business case: Number of annual CIPs needed to break even at different travel distances.

Distance to hospital in kilometres from the patient's home	Saved costs (SEK) per video conference consultation¹	Annual number of consultations to break even
5	256	214
10	369	149
23,5	947	58
50	1820	30

⁵ 47 kilometres return journey in 38 % of the cases.

⁶ Travel cost for patient and health professionals and time cost for health professionals.

Appendix 2. Business case: Palliative Care Consultations in Arjeplog and Arvidsjaur

2.1 The Test

Patients from the municipalities of Arjeplog, Arvidsjaur, Haparanda and Övertorneå in need of palliative care participated in testing the service. Palliative specialists participated on videoconferences from the hospitals in Piteå and Kalix, respectively. Data is available from 21 videoconference sessions carried out in these municipalities from April to September 2017.

2.2 Results

The videoconference meetings were in all cases successfully carried out. The video consultations were carried out with nurses, and in many cases also family present with the patient. During the consultations, the patient was at home or in a nursing home. The specialist and/or nurses participated in the sessions from their offices in the hospital. The alternative to virtual counselling sessions in many cases involve travels for the patient to the hospital, the health professionals would visit the patients in her home or the consultation would have been carried out by telephone. In two cases, the alternative was no counselling or follow-up of the patient.

In this chapter, results from the tests in Arjeplog and Arvidsjaur are analyzed. Arjeplog have 3116 inhabitants (2011). Arjeplog village had 1933 inhabitants (2010). The distance from Arjeplog village to Piteå Hospital is 211 kilometres. This is the fourth largest municipality in Sweden when it comes to geographical area. The neighbouring municipality of Arvidsjaur have 6529 inhabitants (2011). The main village have 4635 inhabitants (2010). The distance from Arvidsjaur village to Piteå Hospital is 126 kilometres. Piteå hospital is one of five hospitals in Norrbotten. The hospital has 900 staff and 118 beds. The hospital has an emergency ward and a variety of different clinics.

The videoconference meetings were in all cases successfully carried out. The video consultations were carried out with nurses, and in many cases also family present with the patient. During the consultations, the patient was at home or in a nursing home. The specialist and/or nurses participated in the sessions from their offices in the hospital. The alternative to virtual counselling sessions would in many cases involve travels for the patient to the hospital, the health professionals would visit the patients in her home or the consultation would have been carried out by telephone. In two cases, the alternative was no counselling or follow-up of the patient.

2.2.1 Costs

The table shows equipment procured for the tests and annual capital costs in 2017-prices. The project covered the equipment costs, but the municipalities are responsible for subscription costs. A five-year lifetime for the iPads and accessories are assumed and a discount rate of 4% is used to calculate annual capital costs. An annual maintenance cost of 10% of the purchase price is included in this cost. Data on training and technical support are incomplete and not included.

Four licences for the videoconference tool (Real Preference Desktop) for the hospital staff cost 7,200 SEK annually. Staff in the municipalities use Skype. Licence costs are not included in these calculations because information on number of licences and other services is unavailable.

Table 2.1. Equipment costs in SEK for the Palliative Care Consultations in Arjeplog, Arvidsjaur and Piteå Hospital.

Equipment	Cost (2017)
8 iPad Air Wi-Fi + Cellular @5,250	42,000
2 Computers @7,988	15,976
2 Computer Cases @250	
8 iPad Cases @250	2,000
2 Conference Phones @ 413	826
8 Bluetooth Loudspeakers @ 225	1,800
2 Microphone/Loudspeakers @,2000	4,000
2 Screens @1700	3,400
Total investment costs	70,002

Table 2.2. Annual capital costs and total annual costs in SEK for the Palliative Care Consultation service involving Arjeplog, Arvidsjaur and Piteå Hospital.

Annual Capital Cost	15,724
10% maintenance	7,000
Total annual capital costs	22,724
Running costs	
4 Videoconference licences @ 1,800	7,200
Total annual costs	29,924

2.2.2 Saved Costs

Data from nine palliative care consultations over videoconference is available. The information from these log sheets are used as basis for the following estimations, although the number of respondents are not high enough to conclude. The log sheets show that the alternative to the videoconference sessions would have been visits by health professionals in the patient's home in three cases, the patient would have to travel to hospital in three cases and in one case, the alternative would have been a telephone conference. In two cases, the patient would not have received any consultation.

The palliative care consultations were carried out with one or more nurses present with the patient in the patient's home. In many cases, also family would participate with the patient. The specialist and/or specialist nurses would participate from the hospital.

Travel distance from Piteå hospital to the nine patients is 127 – 204 kilometres, on average 152 kilometres one way (304 kilometres return journey).

It is assumed that health professionals' travel to the patient home would be by car. Costs are estimated by using the public mileage allowance of 2.90 SEK per kilometre. Average saved travel costs

are estimated at 294 SEK per videoconference consultation. In addition to saved travel costs, health professionals also save travel time. Avoided travel time are valued by using a weighted national average salary in 2017- prices for specialists and specialist nurses, including social security premiums. On average, a time cost of 344 SEK was saved per videoconference consultation, giving a total saved cost of 638 SEK per consultation for health professionals.

The normal patient travel to the Health Care Centre or the hospital for a consultation would be by public transport. However, old and frail patients who are not able to use public transportation would in most cases travel by taxi. It is assumed that the Palliative Care patients all would travel by taxi. Some patients would need to travel with a companion, but there is no information available on the use of companions, so this is not included in the calculations. On average, 2332 SEK is saved per video consultation when one third of the patients save a travel to hospital. The fare is calculated using normal rates for a local taxi company⁷ and it is assumed that the patient is the only passenger.

The total average avoided cost per video consultation is estimated at 2,970 SEK⁸. Break-even, where annual costs equal annual savings, is estimated to 10 consultations.

2.3 Conclusion

The short testing period and the low number of participants in the test render it difficult to draw conclusions on the economic consequences of the normalization of this service. However, the result will depend heavily on the number of videoconference consultations and the distance the user lives from the hospital. The table shows the number of consultations that are necessary at different travel distances to break even. The conclusions are based on data from the nine video consultations carried out during the pilot period.

Table 2.3. Business Case: Number of annual video consultations needed to break even at different travel distances.

Distance to hospital in kilometres	Saved costs per video conference consultation ¹	Annual number of consultations to break even
100	1,968	15
152	2,970	10
200	3,895	7

¹Patients and health professionals save travels in one third of the cases respectively.

⁷ Taxi rates for patient travels are normally lower than ordinary rates. Information on these rates is unavailable.

⁸ Travel cost for patients and health professionals and time cost for health professionals.

Appendix 3. Business Case: eHealth services for Patient Centred Healthcare Teams in Tromsø

This chapter will describe the use of the service and economic issues for the patient Centred Healthcare Team in Tromsø. Log sheets were filled in by the team members of the Tromsø team after using the iPads, recording data on number of participants, avoided travels and what the alternative to using the iPad service would be. 46 sheets were filled in from February 2016 to October 2017. However, we do not have complete numbers of all uses of the iPads during this period.

3.1 Results

Information from the log sheets shows that the iPads were used to make pictures 18 times and two instructive videos. 11 consultations, mainly with the team doctor were carried out. In addition, two supervision sessions and 13 administrative meetings were completed.

Participants who carried out the iPad service were the patient and different health care professionals (team members, specialists, specialist nurses and home care staffs). The alternative to using the iPad was stated to be that the patient or health care staff would have to travel in 56 % (26) of the cases. In seven cases, more health care staff could participate in the session than they would in a traditional visit, because they didn't have to travel to see the patient. In two cases, there would have been a telephone conference if the iPad hadn't been used. In five cases, the alternative to using the iPad is stated to have been nothing. In one case, the alternative to a picture would have been a drawing and in another case, the family of the patient wouldn't have been able to participate in the meeting. For the remaining ten cases, no information on the alternative was stated or the alternative was unclear.

Technical problems hindered use of the iPad in three cases. The problems were reported to be forgotten passwords or bad mobile internet connection.

3.2.1 Costs

The Patient Centred Healthcare Team in Tromsø have six iPads. All iPads are equipped with sim cards to be used when there is no Wi-Fi in the patient's home. The iPad is part of a tool kit, which also includes a case, earphones, a charger, a stylus pen, a case for storage in the office and a bag for transportation.

The unit cost of an iPad is 5,586 NOK, the total cost of the tool kit is 6839 NOK. A few additional parts were also procured for 1,421 NOK. Total costs are 42,455 NOK. All prices are 2015-prices.

Table 3.1. Equipment costs in NOK (2015).

Equipment	Cost (2015)
6 iPad Air 2Wi-Fi + Cell 16GB @5,764	34,586
6 Leather folders @ 499	2,994
6 Transportation bags @99	594
6 Storage boxes @46	276
8 Headsets @ 340	2,720
2 Apple Chargers @ 142	284
11 Stylus pens@ 91	1,001
Total investment costs	42,455

Table 3.2. Annual capital costs and total annual costs in NOK.

Annual Capital Cost	9,536
Running costs	
Sim card subscription 6@ 1,875	11,250
Total annual costs	20,787

The tables show equipment procured for the service test and annual capital costs in 2015-prices. A five-year lifetime for the iPads and accessories are assumed and a discount rate of 4% is used to calculate annual capital costs of 9,536 NOK. The iPads are still in use after the two-year project period and are expected to be employed for at least three more years. No maintenance was needed during the tests; therefore, no maintenance costs are included. Accessories like headsets, pens and transportation boxes are not in use or not needed. Sim cards are installed in all iPads, annual subscription cost per iPad is 1875 NOK (5 GB). Adding annual sim card subscriptions gives total annual costs of 20,787 NOK.

The videoconference tool is free to use for all organizations that are members of the Norwegian Health Net. Most health organizations in Norway are members; this also applies for the host organization of the Patient Centred Healthcare Teams, the University Hospital of North Norway.

Technical support is needed for set-up of tablets, solving of technical errors and training in use of the tablets and the videoconference tool. However, the users are responsible for normal updates of the software. During the two-year testing period, there have been few technical errors. At a few occasions, planned videoconferences have been cancelled due to technical errors. Data on training and technical support are incomplete and not included.

After the project period, the iPads will still be used. However, the numbers of Sim card subscriptions will be reduced to two, as the team has experienced that a mobile internet connection is not often needed. Annual costs after the project period are 13,286 NOK.

3.2.2. Saved Costs

Tromsø covers a large geographical area. Travel time to visit a patient's home may be as much as one hour one way if the patient lives far from the city centre, but most patients live closer to the city centre. The log sheets show that most patients live from two to eight kilometres from the hospital, however a few lives as far away as up to 60 kilometres. In 29 cases, travel distance to the patients' homes were stated. On average, the patients lived 12,25 kilometres from the hospital (team HQ) which makes a return journey of 24.5 kilometres. In the following calculations, the average distance to patients' homes described above is used to estimate travel costs.

In connection with visits in the patients' homes, 26 travels were stated to have been avoided for team members and patients. (However, several log sheets lack the information on the number of team members who avoided travels).

Patients avoided travels to hospital in seven cases. Most patients would travel to the hospital by taxi, although ambulance is sometimes needed. Also at rare occasions, family drives the patient to hospital or GP. Average saved travel distance (return travel) by taxi is used to estimate saved travel costs per patient at 2312 NOK (2015-prices).

In 20 cases, one or more health professional avoided travels to the patient's home or to participate in administrative meetings. Team members normally travel to patients' homes in the team car, taxi or one of their two electric bikes. Most often travel costs are not saved because at least one team member travel to the patient's home anyway. However, travel time are saved for health professionals who participate from the team office. In addition, health professional participating in videoconferences often save time because their meeting with the patients in many cases is shorter when participating in the home visit on distance compared to physically visiting the patient's home. Saved travel time is estimated from data registered on the log sheets. Assuming an average travel speed of 50 kilometres per hour, health professionals save on average 30 minutes' travel time per avoided visit. In many cases, the team doctor has clarified the situation for the patient from the team office, but also nurses, physiotherapists and occupational therapists have seen the patient from the team office. Saved costs per avoided visit per team member is estimated at 171 NOK (2015-prices).⁹

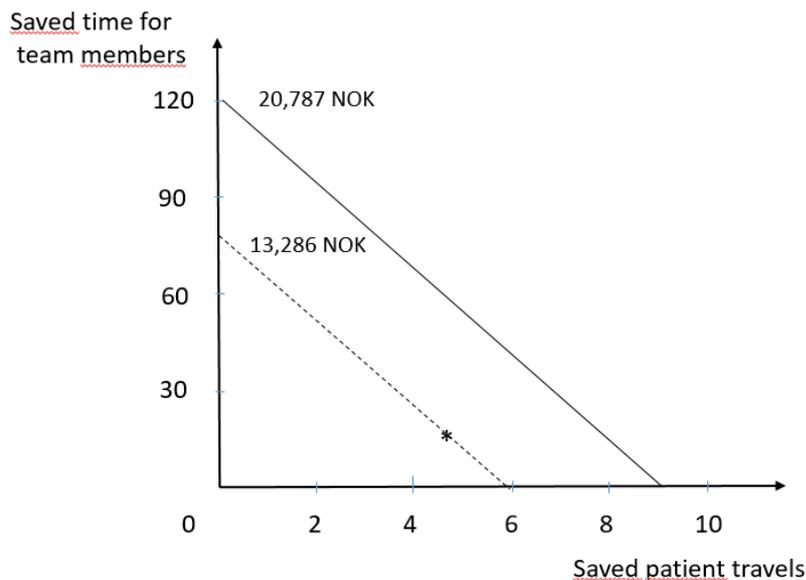
3.2 Conclusion

The figure shows different combinations of saved patient travels and saved travel time for team members. The unbroken line shows different combinations of saved patient travel and saved time for team members that equal the annual costs during the project period (20,787 NOK). The dotted line shows combinations that equal annual costs after the project period has ended (13,286 NOK). The single point shows actual annual saved costs (patient travels and saved travel time for team members) during the project period¹⁰. Costs of for instance saved doctor's appointments and hospital admissions are not included. The results show that costs were higher than savings during the test period, but the stated number/level of avoided travels break even with the post project annual costs.

⁹ The average of the national average salary including social security premiums for the involved professional groups (medical doctor, nurse, physiotherapist, occupational therapist).

¹⁰ Data registered in the log sheets has been transformed to annual travel costs in 2015-prices.

Figure 3.1. Business Case: Different combinations of saved patient travels and saved health professional travels to break even (project costs and post project costs).



During the project period, qualitative effects that can't be valued in monetary terms were experienced both by the team members and the patients. Examples of these effects are better information about the patients' condition for all health professionals involved with the patient's care, for instance because the patient and the patient's home situation can be viewed and discussed over videoconference or different aspects of the patient's home situation can be filmed to be reviewed at a later time by the multidisciplinary team or other health professionals. Earlier clarification of condition and treatment is made possible because team members on home visits can receive advice on how to handle a problem or a procedure, or clarify whether the patient should see his/her GP or a specialist to get necessary treatment. Furthermore, team members report of better quality of consultations when videoconference is used instead of telephone, and that pictures saved in the Electronic Health Records make possible better documentation of for instance ulcers than text alone.

Other teams have been established in neighbouring rural municipalities. These new teams depend on close cooperation with the Tromsø team about patients admitted to the hospital in Tromsø. There is therefore a need to establish a close cooperation when working together in the follow-up of patients. The collaboration between hospital teams and healthcare teams in different municipalities intensifies the need to overcome long geographical distances in order to work together. The iPads and videoconferences can be used for administrative purposes, in the patients' homes as well as in clinical settings, for instance between the hospital teams and home care teams in the rural municipalities. The rural teams have shown great interest in the iPad service.

The technology tested in the Patient Centred Healthcare Team was low cost tablets and videoconference. A limited number of saved travels for patients and team members will cover annual costs. However, to ensure break-even of costs and savings, further work is needed in the team to make routines and follow up the implementation processes.

Appendix 4. Log Sheets

4.1 Norrbotten

RemoAge - loggschema

Schemat fylls i av den som initierar videokonferansen.

Patientkod _____ Ålder _____ Kön _____

antal km till patientens hem (en väg) _____

3. Hur länge varade videokonferansen (antal minuter)? _____

4. Syftet med videokonferansen (kryssa):

5. Konsultation Tillsynsbesök via iPad Uppföljning av
träningsfilm
- Virtuellt SIP Virtuellt läkarbesök Virtuellt SVP

Annat _____

Kommentarer; (uppgi t ex vilken typ av konsultation)

6. Var videokonferansen ett flerpartersamtal? Ja
(fler än två parter)

7. Var vistades brukaren/patienten vid videokonferansen? Svara på frågan ifall patienten deltog i videokonferansen.

I hemmet I särskilt boende På sjukhuset

8. Totalt antal deltagande personer i videokonferansen:

9. Personer i patientens hem;

_____ Sjuksköterska _____ Fysioterapeut _____ Arbetsterapeut

_____ Biståndshandläggare _____ Läkare _____ Undersköterska

_____ Hemtjänsten _____ Anhörig _____

Andra professioner _____

10. Personer utanför patientens hem;

___ Sjuksköterska ___ Fysioterapeut ___ Arbetsterapeut
___ Läkare ___ Biståndshandläggare ___ Hemtjänst
___ Anhörig
Andra professioner _____

11. De som reser, sparar:

12. Ange hur många av personal som inte behövde resa? Antal _____

13. Om du skulle ha rest, hur skulle du ha gjort det (kryssa)

Taxi Buss Annat: _____

14. Vad skulle ha varit alternativet till videokonferans (vk):

Besök Besök med färre deltagare än med vk

Patient/brukare måste resa Telefonkonferens Ingenting

Kommentarer _____

15. Blev syftet med videokonferansen uppnått?

Ja Delvis Nej

Kommentarer _____

4.2 Tromsø

Dato:

RemoAge – loggskjema

1. Formål med bruk av iPad:

- Ta bilde Lage film Oppfølging av treningsfilm Samarbeidsmøte
 Tilsyn Konsultasjon Veiledning av helsepersonell

Annet _____

2. Antall km til pasientens hjem (en vei) _____

3. Hvis videokonferanse: Hvor lang var den (antall minutter)? _____

4. Antall deltakende personer (angi antall):

4.1 I hjemmet (i tillegg til pasienten):

_____ Sykepleier _____ Fysioterapeut _____ Ergoterapeut _____ Farmasøyt
 _____ Lege _____ Hjemmetjeneste _____ Pårørende

Andre, spesifiser _____

4.2 Involverte personer utenfor pasientens hjem: (for eksempel: hvem deltok på videokonferanse eller hvem ble bildet vist til)?

_____ Sykepleier _____ Fysioterapeut _____ Ergoterapeut
 _____ Lege _____ Farmasøyt _____ Hjemmetjeneste

Andre, spesifiser _____

5 Ble reise spart ved bruk av iPaden:

5.1 Hvor mange helsepersonell unngikk reise? Angi antall: _____

5.2 Dersom reise unngås, hvordan ville helsepersonell ha reist (kryss av)?

Bil Taxi El-sykkel Annet: _____

6 Hva ville vært alternativet bruk av iPad:

- Besøk Besøk med færre deltakere
 Pasienten må reise Ingenting

Kommentarer _____

7 Ble formålet med å bruke iPad oppnådd?

Ja Delvis Nei

Kommentarer til bruken av bilder, film, videokonferansen (forklar for eksempel hva bildet skal brukes til - dokumentasjon, vises til lege osv.)

Antall km fra UNN

Berg 15	Bakkejord 51
Bjerkaker 7	Breivikeidet 49
Elverhøy 5	Brensholmen 56
Fagereng 8	Ersfjordbotn 20
Hamna 7	Fagernes 29
Kroken 8	Grøt fjord 36
Kvaløysletta 11	Håkøya 20
Mortensnes/Håpet 4	Kald fjord 15
Myreng 5	Kvaløyvågen 38
Reinen 9	Laksvatn 54
Sentrum 5	Movika 11
Slettaelva 11	Oldervik 43
Stakkevollan 3	Sjursnes 66
Storelv 12	Sjøtun/Sørbotn 40
Tromsdalen 6	Skulsfjord 26
Tomasjord 6	Skittenelv 24
Utsikten 3	Sommarøy 56
Vesterli 7	Straumbukta 37
Workinnmarka 6	Tromvik 48
Åsland 13	

Appendix 5. Interview Guides

5.1 Shetland

- 1) How did you identify the people who were willing to engage with the target group?
- 2) How did you identify and recruit the end-users (the elderly)? What were the inclusion criteria for the end-users? How did you select the end-users?
- 3) How did you organize the training sessions?
 - a. Where did sessions take place?
 - b. How many attended the training sessions (end-users and volunteers)?
 - i. Each sessions
 - ii. In total
 - c. How long were the sessions?
- 4) How was the service organized? (the elderly)
 - a. Time schedule? Ad hoc?
 - b. What were the roles of the volunteers and the end-users?
 - c. One-to-one or group sessions?
- 5) Can you tell me about the advantages of the service?
 - a. What are the facilitators to the use of the service?
- 6) Can you tell me about any disadvantages of the service?
 - a. What are the obstacles the use of the service?

5.2 Norrbotten og Tromsø (all services)

- 1) Hvordan vil du beskrive dine erfaringer med bruk av informasjons- og kommunikasjonsteknologi før prosjektet startet?
- 2) Hvorfor ble du med i prosjektet?
- 3) Hvordan og etter hvilke inklusjonskriterier ble pasientene rekruttert?
- 4) Kan du fortelle litt om organisering av arbeidet som utføres i avdelingen og din rolle der?
- 5) Kan du fortelle hvordan teknologien har vært anvendt og til hvilke formål?
- 6) Er det spesifikke formål som teknologien passer for og det formål det ikke passer for?
- 7) Hvor lett eller vanskelig er det å bruke teknologien i det daglige?
- 8) Hvor lett eller vanskelig har det vært å passe inn bruken av teknologien i daglige gjøremål? I hvilken grad må tjenesten være planlagt (trigger: på bestemte tider, at partnerne er til sted osv.)
- 9) Stilles det spesifikke krav til organiseringen av tjenesten?
- 10) Er det krav til support og vedlikehold av utstyret? Hvis, ja hvordan har det vært organisert?
- 11) Har bruk av teknologien endret pasient- helsepersonell-relasjonen?
- 12) Har bruk av teknologien endret helsepersonell- helsepersonell-relasjonen?
- 13) Kan du fortelle om hvilke fordeler det er i å bruke teknologien?

14) Kan du fortelle om hvilke ulemper det er i å bruke teknologien?

15) Hva slags tanker har du om mulighetene for å gjøre denne tjenesten til en rutinetjeneste?

- a. Rekruttering av helsepersonell
- b. Opplæring
- c. Økonomi
- d. Organisering

Appendix 6. Workshops

6.1 Value Web Workshop May 2016

1.Plans.

Are there local and/or national plans that support the implementation of the your RemoAge services? Hint: Plans and strategies that includes the use eHealth/telecare technologies as well as plans and strategies that focus on services for old, frail people.

2.Do your services fit into local and/or national strategies and plans?

3.How will the RemoAge services enable achievement of national or local goals and priorities?

4.Legal issues: Are the services compatible with legal regulations?

5. Risk management: Is the services credible in terms of security, confidentiality, reliability and availability?

6. Actors: Actors that are important for implementing and providing the RemoAge services.

6.2 Value Web Workshop May 2017

7. Technology:

Is the necessary IT-infrastructure in place to facilitate the delivery of the services, for instance if the patient doesn't have is mobile Network available (3 or 4G)?

Why do use the specific technology at your site? (Triggers: already in place economy, the challenge or the problem to be solved, user-friendliness, no need of technical support)

8. Organizations:

Which organization(s) are involved in the delivering the services?

Who are the most important decision maker connected to the implementation of the services? Triggers: third sector, political/administrative, the service provider organizations, patient organizations

Do the organizations have the necessary competencies to perform the necessary activities needed to deliver sustainable services? If not, are there any measures to be taken to mitigate the issues related the lack of competencies?

Are there any obstacles to embedding the services into ongoing work practices?

Is technical support necessary and how will it be organized?

9. Economy/financial issues:

Who pays for the investments (computers, studios, accessories (head phone, camera), training) ?

Who pay for the operation costs?

Will costs be an issue or obstacle to the deployment of the services?

Will the users pay for receiving the services?

Appendix 7. Plans

7.1 Scotland

National plans and strategies

Alzheimer Scotland Technology Strategy

Scotland's Third National Dementia Strategy (2017 - 2020) builds on work carried out since dementia was made a priority by the Scottish Government 10 years ago. Significant progress has been made in this time, however for many people, the gap between policy and real life experience remains too wide.

The new commitments are progressive and ambitious, and will help deliver high quality, person centred support for people with dementia, their families and carers from the point of diagnosis to the end of life. It will require local areas throughout Scotland to maintain and increase their investment in dementia care, making dementia a priority locally.

http://www.alzscot.org/campaigning/national_dementia_strategy

National Dementia Strategy 2017-2020

With a continued focus on improving the quality of care, this strategy sets out 21 commitments around work on diagnosis, including post-diagnostic support; care co-ordination; end of life and palliative care; workforce development and capability; data and information; and research. At the heart of this strategy is a recognition of the need to ensure a person-centred and flexible approach to providing support at all stages of the care journey.

<http://www.gov.scot/Publications/2017/06/7735>

Technology-Enabled Care 2014-2017

The overall aim of the programme is about significantly up scaling of tried and tested approaches across the following interlinked work streams:

- Expansion of home health monitoring
- Expanding the use of video
- Creating a national digital platform framework
- Expanding the take up of Telecare
- Exploring the scope and benefits of switching current provision of Telecare from analogue to digital telecare

<http://www.jitscotland.org.uk/action-areas/telehealth-and-telecare/technologyenabled-care-programme/>

Telehealth and eHealth Strategy

This eHealth Strategy builds on the direction and achievements of its predecessor which ran from 2008 to 2011. The Strategy reaffirms the Government's view that information and communication technologies are important to the improvements in quality and the ambitions set out in The Health

Care Quality Strategy for NHS Scotland to actively support and enable quality improvements in healthcare services across Scotland.

The Strategy reinforces our move from a focus on technology products, services and their suppliers toward a focus on benefits and outcomes experienced by NHS Scotland (NHSS) professionals in helping them to re-design and improve services, and the citizens of Scotland who benefit from those improvements. It endorses the incremental approach to information and communication technology enabled changes, and that such changes will be planned and driven from closer to the front line of service delivery and aligned more closely with the improvement planning processes in Boards and workforce development. In particular, it recognises the importance of clinical leadership and clinical engagement in developing and delivering successful eHealth initiatives.

<http://www.gov.scot/Publications/2011/09/09103110/0>

2020 Vision: objectives and following policies

The Scottish Government's 2020 Vision is that by 2020 everyone is able to live longer healthier lives at home, or in a homely setting and, that we will have a healthcare system where:

- We have integrated health and social care
- There is a focus on prevention, anticipation and supported self-management
- Hospital treatment is required, and cannot be provided in a community setting, day case treatment will be the norm
- Whatever the setting, care will be provided to the highest standards of quality and safety, with the person at the centre of all decisions
- There will be a focus on ensuring that people get back into their home or community environment as soon as appropriate, with minimal risk of re-admission

<http://www.gov.scot/Topics/Health/Policy/2020-Vision>

7.1.1 Shetland

Local Plans

The developed services on Shetland are all founded in national and local plans for the development of dementia services and treatment in the country. A selection of local plans and strategies are:

eHealth Strategy:

The main components of the eHealth Plan are designed to underpin both the six national strategic eHealth aims, and the strands of the local clinical strategy implementation. The priority is to use technology in the most cost-effective way to support bringing the delivery of care closer to the patient, closer collaboration with key partners and improved patient safety.

<http://www.shb.scot.nhs.uk/board/foi/2015/01/2015-024b.pdf>

Shetland Dementia Strategy and Action Plans

The second Dementia Strategy identified 17 National commitments highlighting key areas for improvement in care for people living with dementia and their families and carers. This local strategy develops a series of local priority actions that will support these commitments.

<http://www.shb.scot.nhs.uk/board/policies/ShetlandDementiaStrategy.pdf>

Other relevant local strategies are: Shetland Older Persons Strategy, Management of Medications, Housing Strategy, which advises on design for future-proofing etc.

7.1.2 Western Isles

Local Plans and Strategies

Western Isles Health and Social Care Partnership

The strategic priorities are expressed as 12 priority areas for action in pursuit of the vision of high quality, sustainable and integrated care. These areas connect to three broad themes:

- Quality of care
- Health of the population
- Value and financial sustainability

<http://www.cne-siar.gov.uk/wihscp/Documents/Strategic%20Plan.pdf>

Re-Shaping Care for Older People, Western Isles Change Plan 2014-2015

- Overarching Key Priorities and Outcomes of the Western Isles Change Fund are:
- Reduction of hospital emergency admissions for older people
- Facilitation of accelerated discharge from hospital for older people
- To move towards a re-ablement model
- To increase support at home for older people
- To enhance Third Sector capacity and sustainability
- Effective shared planning and use of resources
- Re-align secondary care, care home and housing support provision
- Support carers capacity through a range of appropriate services delivered primarily through the Third
- Sector
- Development of anticipatory care models
- Maximise the development, impact and benefits realisation of eHealth (telehealthcare)

<http://www.cne-siar.gov.uk/committees/documents/e-agendas/2014/04-april/health-and-social/urgent-items/H%20Item%208A%20-%20Change%20Plan.pdf>

7.2 Norrbotten

National Plans

National guidelines for nursing and care for dementia

<http://www.socialstyrelsen.se/publikationer2016/2016-11-7>

Social Services Act (2001:453)

New paragraph added in 2016: In special housing as referred to in Chapter 5, Section 5 of the Social Services Act (2001: 453), based on the individual's current needs, there should be access to staff 24 hours a day, which can be noted without delay if an individual needs support and assistance, the individual should be given support and the help needed for the protection of life, personal safety or health.

Vision eHealth 2025

By 2025, Sweden will be the best in the world to use the potential of digitization and e-health to help people achieve good and equal health and well-being as well as develop and strengthen their own resources for increased independence and participation in society.

Digitization offers great opportunities for future social services and healthcare. Modern information and communication technology can facilitate the individual to be involved in his or her own care and support, support the contact between the individual and the businesses, as well as provide more effective support systems for the employees in the operations. The government and the Swedish municipalities and county councils want to support the efforts to make use of the potential of digitization in social services and health care.

<http://www.regeringen.se/4a1f04/contentassets/79df147f5b194554bf401dd88e89b791/vision-e-halsa-2025.pdf>

Other relevant plans/ documents are: Guidelines for Dementia, Guidelines for Palliative Care, the Act of collaboration with SIP Users, etc. In addition, the Data Inspectorate influence the development of new services by focusing on the protection of patient confidentiality.

Action plans for Norrbotten County

Citizen services (Invånartjänster): Access to health services using the Internet.

<http://www.norrbotten.se/sv/Halsa-och-sjukvard/Invanartjanster/>

Strategy for Distance Care in Norrbotten County Council 2014 – 2016

The number of Health care facilities in the county using IT- technology will increase and technology will become an integral part of healthcare. Distance care should be used as a tool for moving care

closer to the patient: from the hospital to the health centre and from hospital / health centre to self-care.

Distance care is part of the county council's strategy in order to:

- reduce travel
- increase patient participation
- ensure high patient safety
- spread skills and facilitating skills exchange.

Seven - eight municipalities in the county have made local action plans for the implementation of welfare technology in social care.

<http://www.norbotten.se/publika/ig/verk/Kansli/Lst/2014/Bilagor/140527/L%C3%A4nsstrategi%20distansv%C3%A5rd.pdf>

7.3 Tromsø

National plans

Official Norwegian report (2011:11): Care Innovation/ Innovation in Care

Five recommendations:

1. Mobilize resources and interacting with the family, the social network and the community at the centre of attention.
2. Care services have a huge potential for using available technology and developing new technology. This applies to both welfare technologies that can provide users with greater security and better ability to manage themselves in everyday life, telemedicine solutions for treatment, supervision and care, and technical support for communication, administration and management that free up more time for direct user contact.
3. Make accommodations and environment suitable for aging.
4. Innovation in care will primarily take place in the municipalities, with close proximity to the users and local authorities responsible for the services.
5. Point at health and social care as a field for industrial and commercial development.

Care 2020: Government plan for the care field 2015-2020

Care 2020 presents the government's plan for the care field. It describes prioritized initiatives together with concrete measures in the follow-up of the "Morgendagens Omsorg" report.

Care 2020 will contribute to a long-term goal of strengthening the capacity, competence and quality of municipal health and care services.

https://www.regjeringen.no/contentassets/af2a24858c8340edaf78a77e2fbe9cb7/omsorg_2020.pdf

HealthCare 21 (HelseOmsorg21): The Government's Strategy for Research and Innovation

The health and care sector is characterized by new knowledge, new technology and demographic development, that leads to fast and extensive change. The government will put patients and their needs at the centre of these changes. The changes give us the opportunity to build new industry and a world-leading research environment in Norway. It is necessary to invest in innovation, knowledge-building and technology to meet the challenges in the sector and to provide safe health and care services of high quality, innovation and business development. (Followed by an action plan.)

Report to the Storting 26 (2014-2015): The primary health service of the future – in specific and in general

The report proposes how the municipal health and care services can be developed to meet the challenges of today and of the future. The proposals describe measures that will facilitate multidisciplinary and comprehensive municipal health and care services, with good quality and competence.

Regional/local plans

Welfare Technology Programme

Tromsø was part of the national program for the development and implementation of welfare technology in health and care services 2014-2016. The municipality's services in the field of welfare technology are now operational and will be gradually expanded as more experience is gained.

Areas of action from 2017:

1. Digital supervision
2. Medication Support
3. Outdoor security alarm and localization technology
4. Patient alert and welfare technology in health and care facilities
5. Establishment of Response Centre

Municipal Dementia Plans

Demensplan Tromsø kommune 2012-2015

Demensplan Harstad kommune 2017-2022

Demensplan Balsfjord kommune 2014-2017