

D5.1 SmartCare Operational Pilots

WP5: Pilot site preparation

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Document information

Abstract

This document describes the preparation process of deployment as planned and performed in each site to make the deployment fully operational. All issues identified during the preparation phase are considered resolved and what is presented in the current document is the description of the implemented and finalised activities for the concrete deployment implementation.

Organisation responsible

FVG / AAs1

Author(s)

Matteo Apuzzo (FVG)

Contributing partners

Matteo Apuzzo (FVG)
 Marlene Harkis (NHS24)
 Rosana Angles (Salud Aragon)
 Maria Hardt Schønnemann (Region Syddanmark)
 Milan Vukovic (Belit - Serbia)
 Katja Rääpysjärvi (EKSOTE)
 Doris Kaljuste (ITK - Tallinn)
 Anastasios Rentoumis (Attica)
 Wil Rijnen (The Netherlands)

Reviewed by

John Oates (HIMSA)

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D5.1 v1.0 SmartCare Operational Pilots

Statement of originality

This deliverable contains original unpublished work except where clearly indicated otherwise. Acknowledgement of previously published material and of the work of others has been made through appropriate citation, quotation or both.

Executive summary

This deliverable describes in detail the process carried out in each sites to make the deployment fully operational.

All sites have implemented specific activities accordingly to their local context, legal requirement, organisational model and administrative procedures. Considering these differences of the local contexts, all sites have to answer the following same set of questions, based on the DoW content:

- Operational planning (workplan).
- Recruitment of users.
- Training of users.
- Introduction of systems and services.

WP5, and related activities, are connected to the both the previous WPs and WP6. This means that the individual conclusions and further work sections per site reflect many issues that are already explained in the previous WP deliverables (e.g. ICT infrastructure, the service model, etc.) and concrete implementation details can be found in the WP6.

It is important to note that the preparation details of all sites are mostly included and clarifies in the work plans that are attached to this document as Annexes.

This document gathers summary descriptions of what has already been done in the deployment sites. It has to be considered in conjunction with the operational workplan Annexes that describe the planned preparation process and actions of deployment sites to make the deployment fully operational. Considering that contributions are different but linked to the workplan, this D5.1 tries to avoid duplication from workplan and to collect information not included in that document. D5.1 is therefore drafted as a shorter document than the workplans, presenting the activities implemented, the local tasks carried out, and the issues identified during the preparation phase.

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1. Introduction

1.1 Purpose of this document

The scope of this deliverable is to describe in detail the prototype validation mechanisms per site before the official launch of the pilots. This particular validation mechanism is known as field testing, as it is conducted in conditions as near as possible to the actual operation.

D5.1 covers all nine deployment sites that have started, or are in the process of setting up the required infrastructure to host extensive testing before launch of the SmartCare services.

1.2 Structure of document

There is one section for each pilot site. The structure of information per site is identical. The topics discussed are the following:

- Operational planning.
- Recruitment.
- Training.
- Introduction of systems and services.

1.3 Glossary

API	Application Programming Interface
EHR	Electronic Healthcare Record
FVG	Friuli Venezia Giulia
GP	General Practitioner
HCP	Healthcare Professional
ICT	Information and Communication Technology
IS	Information Systems
LiU	Living it Up (Scotland)
RSD	Region of Southern Denmark
SCP	Social Care Professional

2. Deployment Preparation: FVG, Italy

2.1 Operational Planning

The operational workplan is described in the Annex 7 SmartCare operational workplan - FVG. FVG deployment site team has been set up in the Local Health Authority of Trieste, involving the SmartCare coordination staff of the Cardiovascular Ward. The team includes a site manager, a nurse responsible for the healthcare sector, a psychologist responsible for the social care sector, and the SmartCare project coordinator.

SmartCare deployment involves all Local Health Authorities within Friuli Venezia Giulia Region (that cover the whole regional territory), through their Local Health Districts.

In FVG, 200 patients will be recruited; each one of the 20 Districts is responsible for the recruitment of 5-15 users, according to district's capacity, organisation, space availability, and supply size. In order to ensure the enrolment of the planned number of users, competitive enrolment will be carried out within the 20 regional Districts, without setting a maximum number of participants per district.

SmartCare also involves relevant municipalities and socio-health local institutions.

The FVG coordination team supported the ASS1/FVG in all the contractual measures implemented.

An official letter coming from the Director General of the FVG regional Directorate for Health and Social Policies gave the Local Health Authorities the task to implement the SmartCare service.

An institutional agreement between all the Local Health Authorities within FVG will be drafted and officially approved, to formalise coordination and implementation activities and staff involvement. This agreement faces some delays because of several administrative changes due to the regional health system reform preparation and implementation. Now it has to be signed again, because starting from 1st January 2015 all the Local Health Authorities and the Directors changed.

A public procurement was carried out for the design, supply and set up of the ICT SmartCare service in FVG: Hardware & software devices, an ICT-based integrated healthcare and social care platform, and call centre. FVG ended the procurement process for the SmartCare service at the end of April. The signature of the contract to the awarded company was foreseen to take place by mid-June. However, because of the appeal and the related hearing, the procurement process lasted till mid-June. Therefore, the finalisation of the process took two months longer than expected, and the company awarded the contract (HeS, based in Piacenza, Italy) finally signed the contract on 16th July 2015.

The stakeholders to be recruited are described in table below.

Table 1: FVG: Stakeholders to be recruited

Users / stakeholder	Role
End users (older people over65)	They are the main users and beneficiaries of the service. They must be able to connect and communicate at any given time (either directly or through their caregiver) with their case manager, or any equally relevant, appointed professional.

Users / stakeholder	Role
End users' family members	They play an essential supporting role by monitoring parameters and meeting their healthcare and social care needs in real time and to the extent and scope of their abilities. They have to be allowed to communicate at any given time with the end user's case manager, or appointed person. They act as end users' caregivers.
Caregivers	Play a fundamental role by helping elderly users to measure those parameters which need to be monitored. At any given time, they have to be allowed to communicate with healthcare / social care professionals. Often, such a role is played by the end user's family members.
Informal Caregivers	These are volunteers who may either systematically or from time to time play a supportive role in the end user's care process.
Case Manager	Plays an active monitoring and coordination role of the whole end user's cure and care process. Often, such a role is played by a district nurse, but it may be played by a physician (District/GP), or a social worker. The functions related to such a role may be carried out either in the district or at the end user' home.
Physicians (GPs)	May access the system to provide decision-making support during the course of the disease. They may signal through the system any change in conditions that require intervention. GPs play a pivotal role in the end user's clinical management; they may act as case managers. District physicians may play a clinical support and coordination role. One or more specialists (cardiologist, diabetologist, pneumologist) may be called on to be part of the care team in complex cases.
Nurses	They are at the forefront of healthcare interventions. Their goal is to meet end users' care needs through domiciliary interventions. A nurse may be appointed as end user's case manager.
Social workers	They have to provide real time response to the needs signalled by end users. A social worker may be appointed as end user's case manager.
Staff from COMES, the Monitoring and Support Centre	They are in close constant contact with all the stakeholders and play a role in the randomisation process, setting up of devices at end user's home, alarm protocols, training, and providing remote support to all the stakeholders involved in the integrated care.

Some problems has been faced in the involvement of the social care operators, as each Health District has to organise local involvement, and it depends on the local existing relations between health and social organisations. A specific meeting of the SmartCare regional managing team with the referent of elderly services of the social sectors of the Municipality of Trieste took place on 26th June 14, with the aim of defining the potential contribution of SmartCare to the activities already put in place by the integrated local planning process (“Piani di zona”) foreseen by a regional law that applies the national law on social policies.

GPs, although not officially involved in the FVG SmartCare service, have been formally involved through the participation of their regional representatives at specific meetings with SmartCare managing staff and managing board of the Local Health Authorities.

Ethical approval: FVG coordination staff submitted the SmartCare deployment process to the regional Ethical Committee in September 2014. Documents for ethical approval should be provided at least two months before the deployment starts. Request for ethical approval was submitted on 19th September 2014; final approval was received on 7th November 2014.

FVG deployment site started being fully operational from mid-November 2014.

Below are some of the challenges we have experienced implementing SmartCare and the solutions put in place.

Table 2: FVG: Operational Planning

ISSUE	CHALLENGE	SOLUTION
Managing change	The recent reorganisation of FVG healthcare structure has stretched thin the operators' abilities to handle different competing priorities. This means the implementation is not proceeding as homogeneously as expected in all FVG Districts.	We have doubled our communication efforts through individual contacts and meetings, and provided additional support to HC/SC professionals to prevent overload and burn out.

2.2 Recruitment of users

Check of potential end users started in May 2014, but registration and official recruitment started 8th November 2014, after the approval of the Ethical Committee. Enrolment will last till March 2015 for Long Term Pathway and till September 2015 for Short Term Pathway.

Table 3: FVG: Timeline of recruitment

Item	Plan	Status	Responsible
HCP & SCP staff team trained on SmartCare pathways and inclusion criteria	January-May 2014	Done	FVG Coordination Team
Involvement of regional Districts for enrolment	May 2014	Done	FVG Coordination Team
Collection of end users pointed out and assessment of eligibility criteria	From March 2014	Ongoing	FVG Coordination Team & Health Districts staff
Official enrolment	From November 2014	Ongoing	FVG Coordination Team & Legal Department

Delays were due to the long-lasting procurement process, and to the ethical approval process that was longer than expected. To date, more than 60 end users have been recruited.

Below are some of the challenges we have experienced in recruitment and the solutions put in place

Table 4: FVG: Recruitment

ISSUE	CHALLENGE	SOLUTION
Awareness in local partnerships	Sustain awareness / training sessions to ensure large groups of health and social care staff are aware of SmartCare and retain an interest.	We monitor recruitment on a daily basis, trying to provide full support to those Districts which are working effectively and to stimulate those Districts which are still lagging behind, especially addressing management issues.

2.3 Training of users

Training has started involving the social and health staff at regional level. FVG/ASS1 coordinated the training sessions that were conducted with the participation of HeS staff as trainers. The whole FVG managing staff of SmartCare and two HeS staff members participated in all the meetings.

The first training session took place on 16th August 2014 in Trieste; it involved the SmartCare coordinating staff of ASS1 Trieste and ASS5 Palmanova.

Three other training sessions for health and social operators of all regional Health Districts took place at the end of August, involving a total 40 of operators.

A small coordination board has been set up to implement the training of health and social operators, patients, voluntary sectors and informal carers.

Following the results of previously organised focus groups, staff expressed the need for joint training to: a) build team connectedness and understating; b) allow each stakeholder to clearly understand the big picture for better overall management; c) Classroom training to be supplemented with onsite experiential, shared, and supervised training. Main training issues were raised, mostly related to the ease-of-use of the platform and alarm handling.

The following training protocol was drawn up:

- Questionnaire to be administered to staff before training in order to evaluate motivation, previous ICT experience, computer literacy, needs, concerns.
- Joint meeting: integration of formal lessons and cooperative learning.
- Learning to be adjusted to experience, knowledge and learning speed.
- Feedback to be provided by participants at the end of the training event, to clarify satisfaction, areas still to be covered, problems expected, and solutions to be provided.

Training started being more focused at the testing phase, and it is planned to be continued through the project, through close monitoring and feedback provided by district contact person to Team Care Coordinators.

End users training started in the testing phase. Following the results of the previously organised focus groups, end users as well as caregivers expressed the need for onsite training to: a) build team connectedness and understanding; b) allow each stakeholder to clearly understand the whole integrated approach for better overall management; c) have practical on-site experiential learning. Main training issues were raised, mostly related to the ease-of-use of the platform and alarm handling. The following training protocol was drawn up:

- Friendly, supportive atmosphere to promote motivation, adherence and retention.

The training of end users is an ongoing process.

Below are some of the challenges we have experienced in training and the solutions put in place.

Table 5: FVG: Training

ISSUE	CHALLENGE	SOLUTION
Gaps in computer skills among different professionals may affect performance	Across the range of activities involved in deployment (recruitment, technical issues, and integration issues), training often falls to the bottom of the list when allocating time and resources. Moreover, some professionals may find it difficult to become fully comfortable with using the platform because of scarce basic computer knowledge.	Share good practice materials. Develop a sustainable model of training. Provide call centre 800 number fully available to answer any specific training issue, also through one-on-one dedicated sessions.

2.4 Introduction of systems and services

The FVG Region decided to subcontract the whole service for the SmartCare integrated care related to the regional deployment site.

The contract was awarded to HeS (Piacenza, Italy). The whole ICT system and service was designed by the company awarded the contract. This covers the ICT platform design, testing, implementation, the training activities, the call centre 24/7 installation, and the installation of devices at patients' homes. Refer to WP3 documents for a description of all the details and elements of the SmartCare ICT service in FVG Region.

The procurement also addressed the call-centre (COMES) set up and activities to ensure technical and healthcare support to end users and their caregivers. In order to guarantee the correct use of devices, COMES staff contact end users once a week by phone. If any compliance issue should arise, twice weekly calls will be made until a clear knowledge of platform and devices used is achieved by the end user and/or his/her caregiver.

The testing phase was carried out between July 2014 and September 2014. This involved five end users and their relevant provider of services.

The installation team members are composed of IT specialists from HeS (Piacenza, Italy), the company awarded the contract. Healthcare professionals of the SmartCare FVG coordination team support the IT specialists in the set-up of the IT platform and the installation of devices at patients' homes.

Below are some of the challenges we have experienced implementing SmartCare and the solutions put in place

Table 6: FVG: System and services

ISSUE	CHALLENGE	SOLUTION
Access to a smart device	The number of people over 65 using smart devices is rising at an exponential rate. Tools such as Skype may prove precious in promoting social inclusion and better quality of care. However there are still people who do not have access to a smart device, and this restricts them in using the SmartCare service.	Some third sector organisations are exploring ways to assist people who do not have a tablet device and want to learn how to use one. SmartCare is exploring a collaborative project with the Third Sector to ensure people who want to use, or learn to use, the SmartCare tools can.

3. Deployment Preparation: Aragon, Spain

3.1 Operational Planning

The operational workplan is described in Annex 2 SmartCare operational workplan - Aragon. Please refer to the workplan defined for Aragon attached to this document for further detail.

Below are some of the challenges we have experienced implementing SmartCare and the solutions put in place.

Table 7: Aragon: Operational Planning

ISSUE	CHALLENGE	SOLUTION
Managing change	Capacity of change management in such a big organisation, with the character of a public institution with a high rotation of staff, including managers, is challenging and difficult.	Work bottom up.
Integration of data	Integrate the SmartCare platform with the already existing information systems may impose a challenge on big care providers (big organisations) as their IT departments may not respond rapidly.	Define the basic functionality for the SmartCare platform, and then upgrade to more enhanced versions.

3.2 Recruitment of users

The recruitment of patients has been performed according to planning defined in the operational workplan. As the number of cities included in SmartCare have increased, so have the number of users from these sites (including Barbastro and La Fortunada), and thus also the social provider's teams included on the SmartCare project (Barbastro and Ainsa Red Cross Assemblies). Likewise there has also been an increase in the number of healthcare professionals, GP's and nurses involved in SmartCare. Although very few people targeted to participate in the SmartCare project have declined their participation, we have nevertheless noticed a clear preference for these to be in the intervention group. All care recipients have signed the consent form. Information sessions have been a key factor to promote their participation.

The recruitment of care recipients is currently ongoing. The assessment of users has been demonstrated in some cases a challenge, as some potential participants identified by GPs had no social services and in turn were unknown by the social agents as having social needs. The challenge was to assess their social needs without interfering and invading their privacy or willingness to be interviewed.

Below are the challenges addressed in recruitment and the solutions put in place.

Table 8: Aragon: Recruitment

ISSUE	CHALLENGE	SOLUTION
Involvement of healthcare professionals	The success of the participation of healthcare professionals and recruitment of patients at a location can be compromised, caused by certain groups of healthcare roles.	The initial information meetings have to be performed for all types of healthcare roles, nurses and GPs, and involve them from the beginning so that they do not feel their job compromised or threatened.
Promotion of enrolment of users. Dissemination of IC services.	Promotion of recruitment.	Information meetings were held not only with potential users, but also with relatives to help them take the decision to participate.
Achieve expectations - avoid drop-outs	Maintain the enthusiasm of the users with their participation on the project.	The period between when the patient is committed to participate and the start of provision of integrated care services must be short, to avoid discouragement or drop-outs.

3.3 Training of users

Different training courses have been held as the users and stakeholders were enrolled in the project. The training has always been performed with the shortest delay possible between the moment they are enrolled and the moment they started providing / receiving services. In order to provide a secure and trustworthy setting for the attendees, the training courses on biomedical devices were given by the healthcare professionals, along with a set of best practices.

All agents have received training courses in the use of the online platform and biomedical devices. On some occasions, a double session was required to further acknowledge the functionality and use. Paper materials were handed out. A telephone support service has proved to be required to support training queries.

The training programmes have also been useful in identifying new functionalities required or in simplifying some actions of the online platform, which has led to enhanced versions of the integrated care online platform. New updated training material on the SmartCare online platform is being drawn up.

Below are issues that have arisen during training.

Table 9: Aragon: Training

ISSUE	CHALLENGE	SOLUTION
Create confidence	Not all care providers are digital / technology aware, and especially in the use of biomedical devices.	<p>Training programmes must be taught by healthcare professionals to ensure confidence in the use of biomedical devices.</p> <p>Tutorial and good-practice materials must be handed out.</p> <p>The training programmes must be held closer to the starting date.</p> <p>A point of contact must ensure quick response to the technological issues that may occur.</p>

ISSUE	CHALLENGE	SOLUTION
Facilitate use	The more applications a person has to use in their daily tasks, the more probable that those applications are not used.	The procedures should not be very much affected, and when possible, integration of systems should be the solution so that users can continue using the applications they are used to.

3.4 Introduction of systems and services

The installation team and the different agents have been involved in the project as planned, and have worked jointly on the preparation, implementation and support of all information and communication systems for the project. Although there are several teams, coordination has been possible, as all the teams belong to the same organisation (Servicio Aragonés de Salud) and share a common network, hierarchy and budget.

The main issues encountered in implementation of new systems and services are shown below.

Table 10: Aragon: System and services

ISSUE	CHALLENGE	SOLUTION
Coverage is not always available on the territory	Communication channels are not always available in the territory	Devices with wifi channels and data memory are a must to provide the maintenance and integrity of the data.
Access to technology	Cover the maximum of population, no matter their location.	The best cost-effective solution is to create alliances with third sector organisations that can provide a technology-counter and support available for the population to ensure that people who want to use the SmartCare tools can. Alliances are ongoing.

4. Deployment Preparation: Scotland, UK

4.1 Operational Planning

The operational workplan covers the key activities planned, and is attached in Annex 9 SmartCare operational workplan - Scotland.

Table 11: Scotland: Description of sites' stakeholders

Stakeholder	Description
Health Sector	
AHP's	Allied Health Professionals, e.g. physiotherapists, dieticians
Community Nurses	Nurse who provides a service to people at home
General Practitioners	GP at local level
Intermediate Care Team	Community Care workers at local level
Pharmacist	
Podiatrist	
Social Work	
Social Workers	Social Services or Independent Sector
Home Care	Carer employed by statutory agency or independent sector
Occupational Therapists	Therapist involved in the treatment of physical and psychiatric conditions using specific activity to prevent disability and promote independent function in all aspects of daily life
Housing	
Senior Managers	Senior Officer from Local Government
Housing Officers	Frontline staff who visit people in their homes
Third Sector	
Senior Manager	
Frontline Worker	
Independent Sector	Private home care, podiatry, physiotherapist
Care at Home	Carers
Service Users	
People over 50	People with long term conditions who want to reduce the risk of a fall
Vulnerable older people	70+ who have fallen and need to recover and prevent a future fall
Vulnerable older people	80+ with dementia who are now reliant on carers to manage risk
Telerate users	Mainly people over 70 who are at risk and have received a social care assessment
Telehealth users	People with LTC who want to self-manage and avoid hospital admission
Carers	
Carers organisations	Carers Scotland Age Scotland

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The SmartCare project has established working alliances with the broad range of stakeholders referred to above. The alliances which are bringing particular benefits to the project include:

- Third Sector: Information provision and digital coaching.
- Cares organisations: assistance with co-production and testing of the products.
- Users groups: ideas on who would benefit, and design of the tools / testing.

The recruitment strategies attached indicate in more detail the benefits of the different alliances formed.

Below are some of the challenges we have experienced implementing SmartCare and the solutions put in place.

Table 12: Scotland: Operational planning

ISSUE	CHALLENGE	SOLUTION
Managing change	Capacity to manage change at a local partnership level is extremely stretched at present with other competing priorities. This means the implementation is not proceeding as quickly as required, resulting in slippage with project plan, e.g. recruitment.	At implementation meetings we discuss and reprioritise tasks Identify opportunities for other stakeholders to assist, e.g. third sector, SD with Evaluation.
Communication	Scotland has seven local health and social care partnership areas. It is challenging to ensure all key stakeholders within this area are aware of SmartCare and are engaging positively. E.g. GPs and Third Sector.	In addition to the regular meetings with local staff, project managers have engaged with Third Sector providers. GPs are a harder group to engage with; we are reviewing our approach to ensure we can become more successful in this sector.
Adjusting original technical requirements	Scotland is developing new digital tools. The pathway redesign highlighted specific needs which could not be identified in the existing market. This process has involved procurement of development time with industry, and an iterative process of development within the budget and timeframe.	In this area there is no specific solution. We need to keep going on the path of coproduction and "try and test" ideas / requirements. With this level of consultation and iteration, the process will result in the right technical solution which fits with the service users' needs. Innovation and service change takes longer than three years in the complex arena of integration. The SmartCare service change may not be achieved within the three years. To mitigate this, we are continuing to collect requirements which we know go beyond the project timescale, but we will leave a legacy of rich information on requirements that can be taken forward by stakeholders.

ISSUE	CHALLENGE	SOLUTION
Change in personnel	Scotland’s health and social care services are in the middle of major organisational change. Key managers who originally agreed to lead and be involved in local partnership areas have moved to other jobs locations.	Spending time with new managers individually and revisiting original aims and objectives of SmartCare at Board and local strategic meetings.
Security policy	The information we require to share in SmartCare is highly sensitive; we are reviewing our existing policies to ensure they are fit for propose.	This has proved to be a very worthwhile review, and has highlighted areas which need to become tighter.

4.2 Recruitment of users

Scotland has taken a phased approach to the development of the service model. In May 2014, the SmartCare project went live and commenced recruitment to the LiU web platform. LiU is a self-care hub directed at people over 50 with long term conditions. A high number of SmartCare recruits in Scotland will come from people who are active and independent while managing a long term condition. The intention is that we use the LiU shared ICT platform and the SmartCare digital tools on the platform to sustain the persons’ independence, and delay deterioration of their health and independence. In addition, we have recruited a high number of practitioners during Phase 1 to ensure they can encourage and support service users and carers when the tools become available in Phase 2.

Phase 2 will commence March 2015 when the SmartCare digital tools are available. These tools will be targeted towards more vulnerable people, who are likely to be 70+ and have already experienced a fall.

Figure 1 shows the number of users of health and social care services we expect to recruit at each stage in their journey of care.

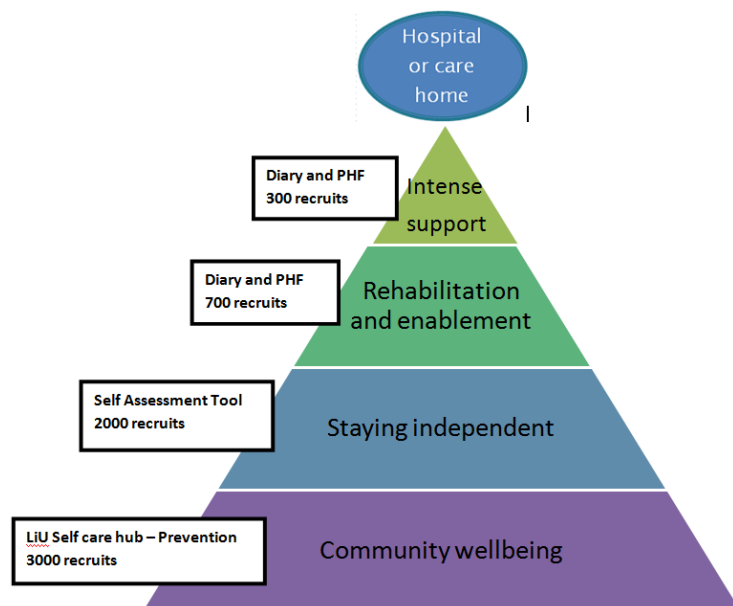


Figure 1: Recruitment pyramid

Current number of users recruited are shown in the table below.

Table 13: Scotland Recruitment numbers

	Milestone Users (increm.)	North Lanark	South Lanark	East Renfrew	Renfrew	East Ayrshire	North Ayrshire	South Ayrshire
Current Position	Target	354	337	97	184	130	147	120
	1,370							
16 th Feb'15	Actual	50	69	41	76	145	16	36

Retention strategies have been put in place. These are attached in Annex 12.4.

Table 14: Scotland: Recruitment issues

ISSUE	CHALLENGE	SOLUTION
Awareness in local partnerships	Sustain awareness / training sessions to ensure large groups of health and social care staff are aware of SmartCare and retain an interest.	In addition to project managers and other staff doing briefings, we have used video materials and regular newsletters. Existing communication tools of other organisations to sustain awareness e.g. council website establish a link.
Readiness of LiU for SmartCare service	The content and functionality of the LiU site needed to be adjusted to accommodate the SmartCare tools. The current position was over estimated	Intensive work was and is being carried out to make the required adjustments. This has required additional resources
Local priorities	Operational issues will always take priority. Local teams struggle to keep a consistent effort directed at service innovation / development.	Review dedicated staff available to implement the project and identify opportunities through the funding sources to enhance this.
Competing projects	SmartCare is not the only new technology project in local areas being implemented.	Continually work at making the connection between doing things differently will eventually make the job easier and the service more effective. Blend it in with what is happening routinely rather than extra activity. Training is a good example of this.
Digital skills amongst older people	Although tablet use and broadband access is rising, older people tend to use certain key applications which enhance their lifestyle e.g. Skype.	SmartCare has engaged with local digital coaching teams provided by the third sector, trained them on assets within LiU and requested they use and promote LiU and SmartCare in coaching sessions.

ISSUE	CHALLENGE	SOLUTION
Access to smart devices and broadband for service users.	Access for the over 80's to tablets and broadband remains a challenge. The number of owners of tablets is rising in this age group at an exponential rate, but not necessarily amongst vulnerable groups. Project manager and other local staff are often challenged about the access issue and the relevance of the service for older people.	Local partnerships have linked their SmartCare development and activity to partnership digital inclusion strategies. SmartCare is exploring with LPAs providing third sector with grant funding to support lending facilities.

4.3 Training of users

Training takes place across a range of different activities to support the introduction of SmartCare and the redesigned integrated pathways. Each of the seven partnership areas has developed local material which reflects their current position of progress with integration of health and social care and technology enabled services. Samples of those materials are attached in Annex 12.1.

Table 15: Scotland: Training

ISSUE	CHALLENGE	SOLUTION
Capacity	Across the range of activities involved in deployment - recruitment, technical issues, maintaining the system, integration issues - training often falls to the bottom of the list when allocating time and resources.	Blend sessions on SmartCare with existing training programmes, e.g. falls team sessions, home care training sessions. Share good practice materials. Develop a sustainable model of training.
Sustainable model	The training model around SmartCare needs to be economical in person time and innovative with materials.	For both staff and service users, use video material, eLearning approach which can be repeated at no extra cost. Adjustments and developments can be cascaded easily.
Accessible content	For best effect, the training material needs to be varied for different stakeholders. In addition, the content needs to be in simple user friendly language, and accessible to sight and hearing impaired people. Also people with dementia need a model which can be repeated as required, and preferably visual.	We have used best practice guidelines and tested materials in a variety of setting and adjusted according to feedback.

4.4 Introduction of systems and services

The approach in Scotland to ensure large scale deployment is to use the person's existing smart device; in the main these are tablets. This approach does not require installation in

each person's home, but is reliant on the person having a device. As well as being sustainable, it is also how service users are indicating they want services delivered. This is also being explored in telecare and home health monitoring. People want to access the services on one device and not have several pieces of kit in their home.

The online digital tools being developed will be simple to use in conjunction with LiU, and will require only minimal instruction. A guidance note is being developed which will support users to use the tools, and a video "how to" guide will offer verbal instructions and examples of case scenarios to ensure service users, carers and practitioners can use it. This is currently being developed with our test users.

In addition, we are exploiting the existing digital coaching / training and support network already in place in local partnerships and supplied by the third sector as part of the local digital inclusion strategies.

Table 16: Scotland: System and services

ISSUE	CHALLENGE	SOLUTION
Access to a smart device	The number of people over 65 using smart devices is rising at an exponential rate. This is very evident at events that the majority of people use online services particularly Skype. However there are still people who do not have access to a smart device and this restricts them in using the SmartCare service.	Some third sector organisation has already set up lending facilities to assist people who do not have a tablet device and want to try it. SmartCare is exploring a collaborative project with the Third Sector to ensure people who want to use the SmartCare tools can.
Access to broadband	Broadband is a similar issue most people do have access but some people particularly in rural areas do not have access.	All local councils are working to resolve this. Several housing projects for older people have included broadband
Vulnerable Older people	80+ with dementia who are now reliant on carers to manage risk	
Telerecipients Users	Mainly people over 70 who are at risk and have received a social care assessment	
Telehealth Users	People with LTC who want to self-manage and avoid hospital admission	
Carers organisations	Carers Scotland Age Scotland	

5. Deployment Preparation: RSD, Denmark

5.1 Operational Planning

The operational workplan covers the key activities planned, and is attached in Annex 3 SmartCare operational workplan - RSD

Below are some of the challenges we have experienced implementing SmartCare and the solutions put in place.

Table 17: RSD: Operational Planning

ISSUE	CHALLENGE	SOLUTION
Management level	It has been important to have support from the political and management level at an early stage and involve them in the planning and implementation.	From 1 st April 2015 an agreed contingency plan developed in collaboration with the relevant people at management level will ensure further support of deployment and use of the system.
Need for local supporters	It has been important to understand the workflows of the user groups actually deploying and testing the service. However, it might have been easier to follow the implementation closer if a person had been appointed in each relevant organisation to be in charge of the implementation.	Visit the different user groups as often as possible to support their use of the system, their workflows and requirements for the platform.
Lack of coordination with other ICT projects	Many ICT initiatives have been started in the Region of Southern Denmark, and sometimes it is difficult for the deploying organisations to keep up with the different initiatives.	The SmartCare project is part of an existing programme of projects planned by the different regional committees and follow the decision process of these.

5.2 Recruitment of users

Health Care Providers

The healthcare providers in the Region of Southern Denmark are primarily linked to the hospitals in regards to the SmartCare service. The initial development of the IT part of the RSD SmartCare service, the Shared Care Platform, was carried out in collaboration with the healthcare providers. The collaboration supported the incentives to use the platform, and the idea was that it would also make it easier to recruit more healthcare professionals. The recruitment of care recipients depends on the different care providers such as the healthcare providers which will primarily recruit care recipients and enter their information in the Shared Care Platform to begin the IT supported SmartCare service.

The recruitment of healthcare professionals has been affected by the implementation of other projects. To ensure the recruitment of the required number of healthcare providers, the project team decided to expand to a larger geographical area and include Odense University Hospital which covers 50% of the region's hospital capacity.

The resources and procedures needed for fast implementation at the hospital have been established. This ensures the hospital's incentives to use the platform and recruit more patients, and it will have a positive effect on the social care providers as an increasing number of users increase the relevance for the social care professionals.

General Practitioners

GPs are viewed as the gatekeepers to the patient's course of treatment. However, they have not played an essential role in the RSD SmartCare service as gatekeepers for citizens with a heart condition. It is possible for the GP to enrol patients in the SmartCare service and the Shared Care Platform, but it has not been their main task.

GPs do not have that many consultations with patients suffering from a heart condition. It has been decided that the involvement of GPs is not crucial for the RSD SmartCare service in the area of heart conditions, since the clinical relevance is lower than expected in the initial phase of the SmartCare project. Since the service has been deployed for other groups of users where GPs are involved, this is considered sufficient evidence of the capability of the cross sector collaboration supported by the platform.

The GPs are linked to an association, and originally an agreement was made with them that each GP should be contacted individually and be recruited. This means that the support for the project has been limited. It is possible for the project team to print a report showing when the patient will have the first follow-up appointment with the GP. The plan is to attempt to recruit GPs at that point, since it will be relevant for them as they are about to see a patient that is using the platform.

The project team offered GPs payment for the extra work related to the use of the platform in the beginning. However, the GPs have so far turned down the offer in relation to heart patients.

Social Care Providers

The social care providers are primarily linked to the municipalities in the RSD SmartCare service; they have participated in the development of the IT part of the SmartCare service, the Shared Care Platform, to ensure the usability of the platform.

The process of recruiting social care providers has been delayed due to a more comprehensive need for development than expected. This was solved through close contact with the social care providers in the development phase in order to meet their needs and improve the user experience.

The social care providers have received training needed for the proper use of the service just before the summer holidays. In retrospect, it would have made more sense to postpone the training until after the holidays as it would have been easier to "keep them going". Follow-up meetings with the professionals have ensured their continued use of the system.

Care Recipients

The care recipients have been involved in the development process of the service to ensure citizen support for the use of the platform and the service.

A workshop was carried out with a group of patients. Based on the workshop it became clear to the project team that the care recipients have been ready to use the RSD SmartCare service from the beginning of the project.

So far, all patients with a heart condition considered eligible for recruitment have been recruited from the participating hospital. However, the number of eligible patients has been lower than expected, and also their need for integrated care is lower than originally expected. The RSD SmartCare service has been developed for many different patient groups, and they have also been enrolled in the SmartCare project. These include elderly and frail patients, as well as patients suffering from stress, anxiety or depression. Patients with brain-damage and cancer are next in line to be included.

In general, the contingency plan put in place will drive the project and deployment forward starting from 1st April 2015. In addition, a new project manager for heart condition patients has been employed, who will focus solely on the implementation of the Shared Care Platform in the area of heart disease to ensure the patient numbers for evaluation.

Below are some of the challenges we have experienced in recruitment.

Table 18: RSD: Recruitment

ISSUE	CHALLENGE	SOLUTION
GPs	GPs do not have that many consultations with patients suffering from a heart condition. It has been decided that the involvement of the GPs is not crucial for the RSD SmartCare service in the area of heart conditions, since the clinical relevance is lower than expected in the initial phase of the SmartCare project.	Since the service has been deployed for other groups of users where the GPs are involved, this is considered sufficient evidence of the capability of cross sector collaboration supported by the platform. Also the hospitals represent the healthcare sector.
Control Group	As mentioned above, there are not many heart failure patients. This has made it difficult to recruit the control group. Also, control group patients are harder to recruit, as they do not benefit directly from the project.	Meetings have been held with the control group staff to support the recruitment of patients.
Fewer patients than expected	There are fewer patients than expected in the heart failure group, and therefore recruitment for evaluation purposes has been more difficult.	We have included more disease areas to make sure that we have enough users. Also, we have expanded the heart failure area to the largest hospital in the region to increase patient numbers for the evaluation.

5.3 Training of users

Training has been carried out with all relevant users at this stage according to the original plan.

It was necessary to conduct training with the social care providers (municipalities) in two rounds. In the first round of training, the users had many inputs for improvements and further development of the platform to fit their needs. Due to amount of input, it was considered necessary to adjust the platform and arrange a second round of training. This made it possible to carry out and plan the training based on the most recent and updated version of the platform.

If there are any problems with the platform, the users will contact the helpdesk / support team, and which will forward the problems to the IT supplier IBM.

A new round of training will be carried out when Odense University Hospital starts using the platform during March or April 2015.

In general, new rounds of training will be carried out whenever it is necessary. At some point, the users will have enough experience to be able to train and guide each other.

Below are some of the challenges we have experienced with regard to training.

Table 19: RSD: Training

ISSUE	CHALLENGE	SOLUTION
Timing of training	The social care providers have received the training needed for the proper use of the service just before the summer holidays. In retrospect, it would have made more sense to postpone the training until after the holidays as it would have been easier to “keep them going”.	Follow-up meetings with the professionals have ensured their continued use of the system.
Sector divided	The training of the user groups has been divided into different sessions. Joint training could have created a sense of synergies and collaboration at an earlier stage.	Continuing in the project the sectors will be more together when further expanding the use and evaluating.
Repeated training	Social care providers turned out to have a more comprehensive need for development than expected, which slowed down the development process and also the training process as it was necessary to conduct training in two rounds to accommodate all changes.	The training was repeated after development was finished.

5.4 Introduction of systems and services

There are no installations to be made at the premises of the user groups, and therefore there is no need for an actual installation team. The Shared Care Platform, the IT part of the RSD SmartCare service, is a web based platform, and the system should be accessible on a computer with internet access. They will receive information about the platform, and user guides have been developed for each user group and type of interface. The project team decided to follow the first patients using the guide to ensure that the guides were easy to understand and use. It was possible to make changes if these were required to make the guide more user-friendly.

Users experienced some difficulties with the platform if they had the wrong version of the browser. The project team was able to solve this problem fairly easily, and improve the user experience. Whenever users experience problems, they contact the support team / helpdesk that has been established for the project. The support team / helpdesk is also the project team working on the development and implementation of the platform.

The project team is placed physically far away from the actual implementation of the SmartCare service. It has been important to understand the workflows of the user groups actually deploying and testing the service. However, it might have been easier to follow the implementation more closely if a person had been appointed in each relevant organisation to be in charge of the implementation.

The system / platform will be developed continuously, also beyond the end of the SmartCare project as the success of the Shared Care Platform is of great interest to the region.

D5.1 SmartCare Operational Pilots



Below are some of the challenges we have experienced implementing SmartCare and the solutions put in place.

Table 20: RSD: System and services

ISSUE	CHALLENGE	SOLUTION
Support from different geographical location	It has been difficult to provide the required support due to the distance between the users and the support team.	Visit the different user groups as often as possible to support their use of the system.
More development for Social Care Providers than expected	It was expected that the service was more or less ready to be used by the Social Care Providers. However, it turned out that they had extensive additional wishes for the development of the platform.	This was solved through close contact with the social care providers in the development phase in order to meet their needs and improve the user experience.
Browser issues	The users experienced some difficulties with the platform if they had the wrong version of the browser.	The project team was able to solve this problem fairly easy and improve the user experience. Whenever the users experience problems they contact the support team / helpdesk that has been established for the project.

6. Deployment Preparation: Tallinn, Estonia

6.1 Operational Planning

Operational planning has been an ongoing process in the Tallinn deployment site. The deployment plan has been prepared, and during that process many changes have been made to the original plan. The number of users has not changed, but changes have been made to the length of the long-term care pathway. Instead of one year the pathway will last for six months.

The main issue that we have encountered is the technical readiness. There are still deficiencies with the system. To resolve the issue, the technical team is working to fix issues encountered, and constant testing to the system is being done. See Annex 1 SmartCare operational workplan -Tallinn

Tallinn has not had to address any issues related to operational planning due close day-to-day monitoring of tasks.

6.2 Recruitment of users

The indicators for the care recipients have been described. A recruitment plan has been drawn up. In accordance with the personal data protection law (RT I 2007, 24, 127), the processing of sensitive personal data has been registered in Estonian Data Protection Inspectorate. Permission for research has been requested from the East Tallinn Central Hospital's Research Commission, and the paperwork has been done to request permission from the Tallinn Medical Research Ethics Committee.

As of 12th February 2015, 17 long-term care recipients have given their permission to participate in the SmartCare services. Amongst these 17, nine have been randomised to the intervention group and eight to the control group. Recruitment for the hospital discharge pathway will begin at the end of February.

All contact centre workers, GPs and specialist doctors have been enrolled for SmartCare services in early January 2015.

So far, there have not been any major issues with the recruitment of end users. It has however appeared that two GPs from different practices have a different way of carrying out care recipient recruitment. Although the pathway is the same for both, one of the GPs chose to contact the possible care recipients via a letter inviting them to participate in SmartCare, and the other GP contacted the possible care recipients by phone followed by home visits to the possible care recipient's home.

Below are the main issues that Tallinn has had to address in recruitment.

Table 21: Tallinn: Recruitment

ISSUE	CHALLENGE	SOLUTION
Selection of users	The GPs located in Tallinn can have patients outside of Tallinn, but the Social Alarm Services get reimbursement from the Tallinn City Social Welfare and Healthcare department only for citizens living in Tallinn. Two care recipients were enrolled to the services living outside of Tallinn and cannot be provided with the social alarm services.	It was added as a condition of enrolment that the care recipients must live in Tallinn.

6.3 Training of users

Introductory training for the health and social care professionals has been held using a conference format. More focused training sessions were held in mid-February 2015.

Technical training will be performed by the technical personnel; they will train the professionals on how to use the portal and how to assist the care recipient when they have problems using the devices. The professionals will have user manuals on how to use the portal and the SmartCare application.

The SmartCare project managers instruct the professionals on how the SmartCare services are different from the usual care services, and the additional work required with SmartCare.

To train the elderly, instruction training materials are being made on how to use the measurement devices and application.

To train informal carers, virtual training materials and manuals are being developed on how to use the SmartCare portal and application.

As there have been only a few training sessions so far, no major issues have been encountered. The Tallinn deployment site is developing the training material keeping in mind that the different stakeholders involved come from different backgrounds and different levels of skills when using technical solutions.

Tallinn has not encountered any issues in training.

6.4 Introduction of systems and services

In the Tallinn deployment site, installations have not yet been carried out.

For the installation of devices and implementation of systems and services training will be carried out to prepare the contact centre workers. The contact centre workers will introduce the systems and services to the end users, and follow a specific plan to ensure that all the aspects have been explained and well understood by the end user.

Below are the most significant challenges that Tallinn site has had to deal with.

Table 22: Tallinn: System and services

ISSUE	CHALLENGE	SOLUTION
Some users who need the telemedicine service do not need the social alarm services	Some end users who will benefit greatly from the telemedicine service are not interested and also do not need the social alarm services.	These end users are enrolled if they get social aid from informal carers.
Not possible to control the central units remotely	Due to the fact that central units (tablets) used in the service are relatively new, the options available for older devices are not yet available for central units used in the service. One of those options is to remotely control the tablet using only the internet connection.	Try to find other options to achieve remote monitoring. Meanwhile try to provide reliable and dependable system.

7. Deployment Preparation: Kraljevo, Serbia

7.1 Operational Planning

Centre for Social Work Kraljevo and Health Centre Studenica jointly defined a list of participants in May 2014, and a timetable for involvement of users in the coming period. SmartCare will include 110 care recipients, five social care professionals, 20 healthcare professionals and 100 informal carers.

SmartCare Project team decided to increase total number of end users to 130 participants in case some of the initial users decide to exit the service before the end of the project. It was also decided that it would be more beneficial for the project evaluation to speed up the enrolment process, thus all the users will be enrolled by April 2015. See Annex 4 SmartCare operational workplan - Kraljevo

Below are the main challenges addressed in operational planning.

Table 23: Kraljevo: Operational Planning

ISSUE	CHALLENGE	SOLUTION
Organisational changes in beneficiary institutions	Expected and planned change in health centre	Transition into new institution was extended for unplanned period.
Implementation of new IS in Social Centre on national software	Expected and planned, but without precise time line.	Project team left possibilities in the software solution to adapt to the new system once it is implemented.

7.2 Recruitment of users

Centre for Social Work Kraljevo and Health Centre Studenica (Dom Zdravlja Kraljevo) jointly defined the list of participants in May 2014, and timetable for the involvement of users. Social Work Kraljevo and Health Centre will be responsible for conducting these processes. To meet the enrolment figures for the evaluation period, the following changes have been made to the original recruitment timescales.

Table 24: Kraljevo: Recruitment timescales

Original Time line	Modified Time line
January 2015 <ul style="list-style-type: none"> • approx. 30 care recipients • approx. 5 social care professionals. • approx. 10 health care professionals. • approx. 10 informal carers. 	March 2015 <ul style="list-style-type: none"> • approx. 30 care recipients • approx. 5 social care professionals. • approx. 10 health care professionals. • approx. 10 informal carers.
December 2015 <ul style="list-style-type: none"> • approx. 110 care recipients. • approx. 5 social care professionals. • approx. 20 health care professionals. • approx. 100 informal carers. 	April 2015 <ul style="list-style-type: none"> • approx. 130 care recipients. • approx. 5 social care professionals. • approx. 20 health care professionals. • approx. 100 informal carers.

With regards to recruitment, the issues below were faced by Kraljevo with the solutions adopted.

Table 25: Kraljevo: Recruitment issues

ISSUE	CHALLENGE	SOLUTION
Not enough family members / relatives of social care recipients	It was difficult to find informal carers for some social care recipients (neighbours, friends or relatives).	Care provider (Centre for Social Work) conducted interviews with potential end users in the field to assess potential informal care providers.
Change in motivation to participate in SmartCare project	Some end users showed positive initial response to participate, but after they were reluctant to take part.	Again, care providers conducted home visits to reassure end users to participate.
End users with limited capabilities	Some end users, especially social care recipients have limited capabilities (frailty, dementia...).	More work with their relatives & family members in explaining purpose of participating.

7.3 Training of users

So far, no issues were encountered during training phase. Training of health professionals was performed in their familiar working environment, so the training they received was not demanding for the users. Social professionals also adapted well to the functionalities of the SmartCare portal. Both group of professionals received a mix of traditional courses and training sessions.

Below are the issues addressed by Kraljevo.

Table 26: Kraljevo: Training issues

ISSUE	CHALLENGE	SOLUTION
Limited time dedicated to training process	Majority of family members or informal care providers have work and other obligations toward care recipient, and not enough time to dedicate for training sessions.	Additional effort will be directed to create better training material, online help tutorials and training of social / medical staff to instruct end users.
Limited time dedicated to training process	Medical and social care workers have a lot of everyday work.	Non aggressive approach, and time efficient sessions. Work under everyday environment and processes.

7.4 Introduction of systems and services

The installation team consists of experts from Belit, subcontractor MNO and IT department from the Health and Social Centre. Belit experts will be responsible for managing the team and coordinating the installation process and supporting documents; MNO will be responsible for the installation of the software and services; and the Health and Social Centre IT departments will be responsible for making sure that the infrastructure works and installing hardware in both institutions. The creation of new user accounts for accessing the system will be the responsibility of these institutions.

Table 27: Kraljevo: Implementation time line

Task	Deadline
Integration test between primary health centre software and Hospital Information System	Finished in October 2014
Setting up new services and application on infrastructure	Finished in February 2015
Network and infrastructure testing	February 2015
Beta testing of all applications, with health and social care providers	February 2015
Rollout of application	March 2015

With regards to services implementation, the challenges are listed below.

Table 28: Kraljevo: System and services

ISSUE	CHALLENGE	SOLUTION
Uneven knowledge of technology	Some users are familiar with technology, computers and mobile devices. Others have first time encounter with it.	Small groups of trainees, more person-to-person approach.
Poor IT infrastructure in pilot region	Especially in remote locations, access to sound internet access in scarce.	3G network devices will be used for people living in remote locations.

8. Deployment Preparation: South Karelia, Finland

8.1 Operational Planning

The operational workplan is described in the Annex 5 SmartCare operational workplan - South Karelia. Operational planning has been an ongoing process in the South Karelia deployment site. The deployment plan has been prepared, and during this process some changes have been made to the original plan. The number of users has not changed, but changes have been made to the length of the long-term care pathway. Instead of one year the pathway will last for six months.

South Karelia has signed an agreement with the Ministry of Employment and Economy to pilot the new law where social and health care plans are integrated and are to be deployed by social and health care professionals.

In addition, negotiations for co-operation with third sector associations will be started in the coming months. There is no need to enter into any signed contract between South Karelia Social and Health Care District and third sector associations.

Below are some of the challenges we have experienced implementing SmartCare and the solutions put in place

Table 29: South Karelia: Operational Planning

ISSUE	CHALLENGE	SOLUTION
Managing change	Capacity to manage change at a local partnership level is extremely stretched at present with other competing priorities. This means the implementation, especially in home care, is not as quick as we hoped for.	At implementation meetings, we discuss and reprioritise tasks. Meetings will also be held with participating elderly care director, who supports the project.

8.2 Recruitment of users

The recruitment of patients has gone as planned in the operational workplan and is still ongoing. The assessment of users has been demonstrated in some cases as a challenge, in particular the PAM questionnaire has been considered difficult to understand. Many care recipients suffering from memory problems find the questions quite complex. Also the questions relate more to the change of lifestyle, which is not the main goal of the project.

In addition some suitable identified care recipients refused to participate. Main reason for this was the fear of technology and also some relatives have refused, because they do not want their loved ones to participate.

Service assessment team perform the elderly service assessment if they are not home care clients. Assessment is based on the needs of the elderly and discussion with them and their informal carers.

Below are some of the challenges we have experienced in recruitment and the solutions put in place.

Table 30: South Karelia: Recruitment

ISSUE	CHALLENGE	SOLUTION
Questionnaires (especially PAM) not suitable for our client group	Clients are old (mainly over 85). Most of the PAM questionnaire's questions are formulated in such a way that these are difficult to understand.	Try to explain more the questions to clients.

8.3 Training of users

Health and social care professionals' training has been gone as planned. Professionals have received training in their own working environment. Care recipients and informal carers have received training at their own homes. In some cases, care recipients have needed more face-to-face training than expected. User manuals have helped all users to use the system.

Training has helped to get feedback from the users and identify new functionalities which could be useful. Also training material has been updated based on the feedback from the users.

8.4 Introduction of systems and services

In the South Karelia deployment site, installations started in December 2014. Installations have taken a bit more time than expected. There have been challenges in scheduling in the case of delays. Every time an installation is to be done at an elderly home, many actors, such as system provider's technical person, project worker, home care professional and in some cases also relatives have to be coordinated - this is a challenge. Creation of new user's accounts is carried out by system provider.

In addition, internet connections and the ICT solution need to work properly, and some cases there have been problems with the connections. This has caused delays of several days in implementing the new service.

However, installations coordination has been quite effective, because all social and health care professionals work under the same organisation.

When the care recipient uses the GPS alarm device, the device sends either an alarm automatically or care recipient can activate it by pushing the button. Home care professionals do visits to care recipient's home if he/she needs help or gets lost.

Below are some of the challenges we have experienced implementing SmartCare and the solutions put in place

Table 31: South Karelia: System and Services

ISSUE	CHALLENGE	SOLUTION
Problems with Internet connections	Services need internet connection to work and some places connections have been bad.	Used several operators 3G connections.
Use of technical equipment	Clients are very old and have no experiences in using technical devices. Also some healthcare professionals are not very keen to use technology.	Users need lot of training. Also professionals will get more training if needed.

9. Deployment Preparation: Attica, Greece

9.1 Operational Planning

As far as progress of the Operational Planning in ATTICA is concerned, the following issues have emerged since last version of D5.1 in January 2015:

1. The pilot operational protocol was delivered to the municipalities on 27th February. By 6th March, the principal investigator will send the protocol to the MEC of the Iatriko Palaio Falirou Hospital. We expect approval by 25th March, and an official letter for approval will be sent to the consortium by 21st April.
2. As a result of 1 above, we do not expect to recruit any patient until the first week of April 2015.
3. The willingness to participate in the project is high; so far 70 patients have signed and returned the Patient Participation Forms to the municipalities.
4. ICSMER (Integrated Care Socio- Medical Electronic Record) and telemedicine devices have not been delivered to the municipalities yet. We expect them to be delivered by 12th March 2015.
5. Some procurements are still pending; these are highlighted in the procurement table.

Risk no.	Risk	Categorisation	Impact	Probability	Remedial action	Manager	Deadline	Status
1	Delay to achieve ethical approval committee	Legal / regulatory	<input type="checkbox"/> low <input type="checkbox"/> medium <input checked="" type="checkbox"/> high	<input type="checkbox"/> low <input checked="" type="checkbox"/> medium <input type="checkbox"/> high	consortium	Local Medical Coordinator	End of February 2015	Active
2	Operation of the ICSMER	Technological	<input type="checkbox"/> low <input type="checkbox"/> medium <input checked="" type="checkbox"/> high	<input type="checkbox"/> low <input checked="" type="checkbox"/> medium <input type="checkbox"/> high	Delivery of ICSMER and telemonitoring equipment to Municipalities	Technical Staff - VIDAVO	11 th of March 2015	Active
3	Drop out of participants	User-related	<input type="checkbox"/> low <input checked="" type="checkbox"/> medium <input type="checkbox"/> high	<input checked="" type="checkbox"/> low <input type="checkbox"/> medium <input type="checkbox"/> high	Actions related to retention strategy	Diabetologists, Social Workers	Beginning of April 2015	Active
4.	Improper functioning of devices	Technological	<input type="checkbox"/> low <input checked="" type="checkbox"/> medium <input type="checkbox"/> high	<input checked="" type="checkbox"/> low <input type="checkbox"/> medium <input type="checkbox"/> high	Technological support	Technical staff - VIDAVO	During pilot	Active
5.	Problems with software use and optimization of software	Technological	<input type="checkbox"/> low <input type="checkbox"/> medium <input checked="" type="checkbox"/> high	<input checked="" type="checkbox"/> low <input type="checkbox"/> medium <input type="checkbox"/> high	Constant monitoring of technical adaptations during time line and immediate technical support	Technical staff - VIDAVO	When all technical adaptation is finished	Active
6	Delay in receiving permission from Greek Data Protection Agency	Organisational	<input type="checkbox"/> low <input type="checkbox"/> medium <input checked="" type="checkbox"/> high	<input type="checkbox"/> low <input checked="" type="checkbox"/> medium <input type="checkbox"/> high	Application to Greek Data Protection Agency as soon as possible	Technical personnel of the Municipality of Palaio Faliro in cooperation with VIDAVO	End of March 2015	Active

See Annex 8 SmartCare operational workplan - Attica.

The main challenge is listed below, and is the cause for the delay in site operations.

Table 32: Attica: Operational Planning

ISSUE	CHALLENGE	SOLUTION
Managing change	The rate of procurement is very slow. This has caused problems in having the evaluator in time in order to provide input to outcome research, and especially translation and collection of tools for evaluation purposes. Also this has caused delays in applying for the MEC approval and the Hellenic Data Agency for Data Protection	At implementation meetings we discuss the issues with procurement. New Deputy Mayors have been assigned the task of proceeding with pending procurement in Alimos and Palaio Faliro.

9.2 Recruitment of users

Identification of eligible participants started in middle January 2015, since Diabetologists were at that time hired for the purposes of the project.

Identification of participants that will join both the control and the SmartCare groups is progressing well and already 70 SmartCare group participants have expressed their willingness to join the study. However, since the local operational protocol will be submitted for approval to the MEC on the 6th of March 2015, since it was received by ATTICA municipalities on the 27th of February 2015 and in addition ICSMER and the telemonitoring devices will be delivered to the Municipalities. MEC approval is expected by March 25th.

Under the current circumstances, it is expected that the first patient to enter the pilot after signing the informed consent form, will do so in the first week of April.

For Attica recruitment will not be an issue.

An updated timeline table for expected patient recruitment is presented below:

Table 33: Attica: Enrolment, Running & Exit Phases

	April 2015	May 2015	June 2015	July 2015 - February 2016	March 2016	April 2016	May 2016
Patients/month	+60	+60	+90	0	-60	-60	-90
Total	+60	+120	+210	210	150	90	0
Informal Carers	+60	+60	+90	0	-60	-60	-90
Total	+60	+120	210	210	150	90	0
HCP's	+10	+3	0	13	13	13	0
Total	10	13	13	13	13	13	0
SCP's	+3	+3	0	6	6	6	0
Total	3	6	6	6	6	6	0

9.3 Training of users

Nurses are the Care Coordinators in ATTICA. An introductory course to Care Coordinators from the pilot coordinator and the diabetologists will take place late March 2015.

Training material is in preparation, and will be available end March 2015.

The training curriculum is as follows.

Table 34: Attica: Training curriculum

Item no	TOPIC	TRAINER	DURATION
1	Introduction to Integrated Care	Local Coordinator	1 hour
2	ICPs for ATTICA	Local Coordinator	2 hours
3	Operational Protocol, Informed Consent Form,	Local coordinator	2 hours
4	The process of welcoming the patient, signing Informed Consent Form and using the Care Plan Form to monitor ICP progress	Local Coordinator	3 hours
5	Outcome Evaluation Tools based on Local OP	Local Coordinator, Psychologist, Dietician	4 hours
6	Biochemistry of T2DM	Diabetologist	2 hours
7	Types of Diabetes, Epidemiology, Pathology	Diabetologist	2 hours
8	Obesity burden, the role of insulin, Lifestyle and diabetes	Diabetologist	3 hours
9	Diabetes and cardiovascular risk. The role of glycaemia control. Results of studies	Diabetologist	2 hours
10	Pharmacological treatment for Diabetes.	Diabetologist	2 hours
11	GLP 1 for Diabetes	Diabetologist	1 hour
12	Insulin therapy for Diabetes	Diabetologist	1 hour
13	Hypoglycemia in Diabetes.	Diabetologist	1 hour
14	Self-Managing Diabetes (SMBG). The role of CGM. Educating the Diabetic patient	Diabetologist	3 hours
15	Personalising Diabetes therapy. Guidelines for the treatment of Diabetes.	Diabetologist	2 hours
16	Diabetic Complications	Diabetologist	2 hours

9.3.1 Training for patients and their caregivers about the role of nutrition in T2DM self-management

The training process aims at two basic outcomes regarding the patient's ability to self-manage T2DM. The first learning outcome aims to educate the patient and the caregiver from a medical point of view. It is accomplished by care coordinators that are previously trained by diabetologists (see 9.3) above. The second learning outcome aims to increase users' awareness about the role of nutrition in the self-management of T2DM. This is realised through a basic training group course delivered by the dieticians involved in the pilot directly to the patients and their caregivers on an individual basis. This nutritional course lasts around 45 minutes, incorporates the nutritional targets of the SmartCare pathways, and briefly explains how this will be achieved through the platform. Nutritional management of T2DM includes training on the fundamentals of nutritional guidelines for the management of DM II in conjunction with the medical care (Medical Nutrition Therapy MNT). The contents of this course will be:

1. Brief description of the nutrition targets.
2. Live demonstration of one nutrition goal with navigation through the platform, step by step.

This is on-the-job training, and will begin from the day the first patient enters the pilot, i.e. around the first week of April 2015.

9.3.2 Training of professionals in the ICSMER, apps, usage of telemedicine equipment and tablets

Training will be held by IT experts of the ICSMER Contractor; the duration will last for 18 training hours and it will begin the first week of April 2015.

The basic education groups will be:

- Care coordinators.
- Dieticians.
- Diabetologist.
- Social workers.

The flow of the training will have many similarities for all categories. At first, there should be an effort to make a general introduction to e-health. Then, the conventional methods of measuring bio-medical data will be presented. After that, the way these measurements can be done by the specialised devices will be explained. So, the goal is to emphasise the simplicity and ease of using the platform, the app and the telemedicine devices, to both the end user and informal carer, and the health or social care professional.

Another goal is the demonstration of a number of realistic scenarios of everyday life, introducing mostly the 'medical professionals' (doctors, care coordinators) to the potentials of the equipment and the ease it is going to provide. This demo will start with the specialised devices. Depending on the professional category, different levels of detail will be explained for the functionality and abilities of the devices. Diabetologists and care coordinators will learn all the capabilities of the devices regarding the medical measurements.

Apart from the specialised devices, the use of the tablet and the use of the application will be explained to patients and informal carers by the already trained care coordinators.

The training course will be interactive, in the sense that whenever a question emerges it will be explained with simple examples, skipping if necessary the normal flow of the course.

Depending on the professional category, different training material is to be used.

1. Care Coordinators (that will consequently) train patients and caregivers at home

The coordinators will be trained in the use of the telemedicine devices, the tablets and the management of ICSMER and the app for transmitting the data from the tablet to the ICSMER. Specifically, they will be trained in the following units:

- Introduction to e-health applications.
- Introduction to the proper use of the telemedicine devices (glucose meter, blood pressure).
- Taking measurements.
- Transmission of data and storing on the central server through the tablet device.
- Use of the electronic platform and the app.

During the training, the caregivers will be given the following training material:

- e-health educational material,
- User manual for the devices to be used (glucose meter, blood pressure),
- User manuals for the app,
- User manuals for ICSMER,
- User manual for the tablets

2. Diabetologist / dietician/ social worker

All specialties will be trained in the use of the specialised devices (the social worker will not be trained in the use of telemedicine equipment) and the management of the ICSMER and the app. They will be trained in the following general units:

- Introduction to e-health applications.
- Use of ICSMER and the app to display and transfer biomedical signals to the ICSMER.
- Questionnaires for outcome evaluation

All training material is being compiled and will be ready end March. For the site training material and training is on track and is not foreseen to be an issue.

9.4 Introduction of systems and services

Introduction of systems and services has not started yet. The telemonitoring equipment, the ICSMER and the app necessary for the pilot will be delivered to the Municipality of Palaio Faliro by the 13th of March 2015.

Below are the two main issues in implementation of services and the solutions.

Table 35: Attica: System and services

ISSUE	CHALLENGE	SOLUTION
Delivery of ICSMER, Apps and Telemedicine Equipment.	There is a slight delay in delivery of ICSMER (one month after original time of delivery) and telemedicine equipment from contractor. As a result, training in systems and services will start late March 2015.	The Municipalities of ATTICA have agreed with the contractor to deliver the ICSME, telemedicine equipment and Apps by the middle of March 2015
Access to a smart device - tablet / Access to Gateways	Originally tablets for access of the elderly people to the SmartCare were planned to be obtained through donations from telecommunications vendors. This is not the case anymore, at least for a substantial amount of tablets; the municipalities are restructuring their budgets in order to purchase those tablets missing over the period of the next 3 months, i.e. around 100 tablets.	Municipalities will purchase tablets through procurements from April to June 2015 to cover the decrease in donations. First donation to occur is 83 tablets within the third week of March 2015.

10. Deployment Preparation: North Brabant, Netherlands

10.1 Operational Planning

Within the first project year, the Dutch consortium partners have experienced many difficulties in setting up sub-consortia, resulting in a cascade of events in looking for the right partners, as presented earlier. After setting up the final Dutch consortium, preparations for the start of SmartCare deployment started with a delay of more than one year.

Immense efforts have been made by all Dutch partners to catch up with the other pilot sites. However, re-organising systems and processes in a strongly regulated care environment is rather difficult, and takes time. Especially, defining requirements and detailed specifications for this new way of working within a recent founded Centre for Integrated Care within the hospital was a challenging exercise. Operational planning has been an on-going process. In the deployment preparation phase, several changes have been made to the original workplan. See Annex 6 SmartCare operational workplan - Noord Brabant

Within the Maxima Medical Centre, no public procurement is required for ICT components or systems. An internal procurement strategy is applied with a best offer selection. A list of selection criteria for the sensors can be found in Annex 18.1.2.

The technical SmartCare solution exists out of an innovative data ecosystem with a secure personalised patient-centred web-based ICT platform. Data is collected from different sensors, and a web-app is used by health and social care providers. After specifying sensor specifications, sensors are selected and tested as stand-alone products with regards to functionality, effectiveness and ease of use. Afterwards, the technical integration of sensors in the platform has been realised and tested.

The implementation of an innovative data ecosystem within a large-scale hospital, and the integration with existing (not always open) hardware and software, resulted in an extra delay. A lot of work is done for reliable and secure data exchange between different systems in order to meet national and international legislation, and specific requirements from the hospital and other technology providers.

- Intensive collaboration with the vender of the Hospital Information System was necessary in order to discuss the integration with the ecosystem and its personal data store, and the alignment with the vendor strategy.
- Extra ICT capacity was required at the Centre for Integrated Care to liaise with the cloud-native ecosystem.
- Work-around developed in order to realise reliable and secured Actigraph data usage. Data needs to be fully pair-wise pseudonomised and transmitted to the US.
- Upgrade of database was delayed because of major upgrade, which was delivered later than planned.

To cope with the delay in technical readiness, a heuristic evaluation of the graphical user interface (GUI) has been executed based on screenshots of both the portal for patients and the web interface for the care professional. In this way, design flaws and inconsistencies in design and interaction are tackled at an early stage, in order to improve usability of the interface before the user tests. Consequently, user testing and technical adaptations based on the outcomes can be shortened in time.

Revised planning:

- 23/02/2015 Care professional training: Motivational Interviewing.
- 27/02/2015 Development of care professional testing protocol.
- 04/03/2015 Demo of platform v0.8: Infrastructure and basic functionality to include patients, connection SmartCare platform with external hard and software (EZIS hospital information system and sensor data).
- 06/03/2015 Care professional testing.
- 20/03/2015 Development of training material for care professionals.
- 20/03/2015 Development of patient testing protocol.
- 02/04/2015 Demo of platform v0.9: SmartCare platform with patient functionality for access role definition, goal definition, video communication, etc.
- 15/04/2015 Patient testing.
- 20/04/2015 Development of training material for patients.
- 21/04/2015 Finalisation of platform v1.0.
- 24/04/2015 Care professional training: SmartCare platform.
- 27/04/2015 Start patient recruitment.
- 01/05/2015 SmartCare Eindhoven fully operational.
- 01/05/2015 Patient training.

Below are some of the challenges we have experienced implementing SmartCare and the solutions put in place.

Table 36: North Brabant: Operational Planning

ISSUE	CHALLENGE	SOLUTION
Change care process	<ol style="list-style-type: none"> 1. Re-organising care processes in a strongly regulated care market. 2. Organisational change hindered by legislation and regulatory issues. 	The recently founded Flow Centre for Integrated Care within the Máxima Medical hospital adopts an integrated care approach. With this philosophy in mind, requirements for this new way of care delivery are defined.
Implementing technology	Implementation of an innovative data ecosystem within a large-scale hospital, and the need for proven reliability and security.	<p>Involvement of the higher management levels in the hospital in order to realise the implementation of this new technology for a wider target population. Implementation is worth the effort, because in the future all patients of the Integrated Care centre within the hospital will make use of this data ecosystem.</p> <p>Open communication with the ICT department of the hospital and third party technology providers guarantees seamless integration with existing systems.</p>
Collaboration	Involve other hospitals, GPs and social care providers.	600 GPs and 100,000 patients have been promised to join the ReLife platform.

10.2 Recruitment of users

Study population, inclusion criteria and exclusion criteria have been described. In 2015, approximately 900 patients are expected to enter a cardiac rehabilitation programme at Máxima Medical Centre. Based on registration and experience, it is expected that 90% meet the inclusion criteria, of which 30% are willing to participate in the SmartCare project. It is expected to recruit 10 patients per month for both intervention and control group.

The main starting point for the SmartCare project in the Netherlands is hospital discharge after a CAD-related incident. In addition, a minority of outpatients can be referred to the cardiac rehabilitation programme by a healthcare professional. During the intake procedure, the content of the rehabilitation programme is determined based on an individual needs assessment. All patients with an indication and willing to perform exercise training and meeting inclusion and exclusion criteria receive oral and written patient information about the study at the end of the first part of the intake procedure. Cardiac rehabilitation needs to start a few weeks after hospital discharge, so user recruitment can only start a few weeks in advance. In order to speed up recruitment and meet the target, collaboration with other hospitals in the region is currently investigated with regards to the referral of CAD-patients.

All patients will be asked about their informal carers in order to involve partner, family and friends. In this way informal carer participation is encouraged.

The care professionals in Máxima hospital will be enrolled into the SmartCare services automatically right from the start of deployment.

No user assessment forms are used. First of all, users are assessed based upon a number of direct and indirect indicators (see Annex 18.2 Beslisboom Hartrevalidatie, p18). Afterwards decision trees (p39-p54) are used to select modules that are of interest to the patient, and to investigate which goals are applicable. In collaboration with the patient, the definitive selection of rehabilitation goals is defined. The decision trees are currently used in a digital format called CARDSS = CARDiac Rehabilitation Decision Support System.

Below are some of the challenges we have experienced in recruitment and the solutions put in place.

Table 37: North Brabant: Recruitment

ISSUE	CHALLENGE	SOLUTION
Behaviour change	Persuading users to take part in the SmartCare programme, to change their lifestyle and to persist.	In the Máxima Medical hospital, care professionals had training in Motivational Interviewing. This technique helps clients to self-explore and solve the ambivalence regarding behaviour and to persist in behaviour change. In addition, SH and Synergetics were awarded the Do CHANGE H2020 project, which specialises in behaviour change for heart failure patients.
Upscaling	Collaboration with other hospitals in order to realise upscaling.	Collaboration in the region's ecosystem will lead to collaboration with Kempenhaeghe and Tweesteden hospital

10.3 Training of users

For the patient, the SmartCare portal and integrated sensors play a fundamental role in the cardiac rehabilitation programme. Since the ICT platform is not completely ready yet, user training has been postponed. Nevertheless, an information leaflet has been developed

for the patient to be introduced to the project, and to explain the ICT-supported integrated care approach.

With regards to the care professional, introduction of the project was performed to present the new approach and its merits. More precise training with regards to platform use and explanations on how to instruct the patient to work with the platform will be held when the development of the ICT platform is finalised. To speed up the training process, care professionals will take part in a course on Motivational Interviewing in advance. Motivational Interviewing is a methodical conversation style for professional communication that is directive and client-centred. This technique helps clients to self-explore and solve their ambivalence regarding behaviour and to persist in behaviour change. More information about the technique and the training can be found in Annex 18.1.1 Introductietekst MI.

Care professional training will be performed in an individual setting or in small groups. Together with a test panel, all sensors will be used and there will be an interface walkthrough with fake patient data.

Specific training for the ICT platform has not yet started.

Below are some of the challenges we have experienced in training and the solutions put in place.

Table 38: North Brabant: Training

ISSUE	CHALLENGE	SOLUTION
Capacity	Due to delay in technical development, limited time is available for training.	To cope with the delay in technical readiness, professional training is split up into a course for Motivational Interviewing and platform use. The MI training is started before finalising the IT development.

10.4 Introduction of systems and services

Installation of the sensors at home is not necessary. The doctor and/or case manager will explain how the sensors work and should be used when doing exercises. The installation of the MiBida portal on the computer or laptop can be done easily by the patient or partner / informal carer. In case a separate touch screen must be installed, MiBida + Smart Homes will take care for that, and give instructions in the house. Also, special requests for internet and wifi will be dealt with by Smart Homes.

The sensors (heart rate monitor and activity tracker) are wearable, so no installation at home is required. The MiBida portal is a web-based platform, so no physical installation is required. Only when patients do not have a computer at home, a separate all-in-one PC will be installed by either MiBida or by Smart Homes.

Below are some of the challenges we have experienced implementing SmartCare and the solutions put in place.

Table 39: North Brabant: System and services

ISSUE	CHALLENGE	SOLUTION
Computer access	Some older people do not have a PC, restricting them in taking part in the SmartCare programme.	For people who do not have a PC but want to take part in the SmartCare programme, all-in-one PCs will be provided.

ISSUE	CHALLENGE	SOLUTION
Usability	Design technology for older users that are not familiar with computers and online interfaces.	In order to improve usability (and therefore acceptance), a user-friendly MiBida portal is used. To increase usability of the SmartCare website, the GUI is evaluated with the help of design heuristics.
Meaningful data	The measurement data from individual sensors is not always reliable and/or correct.	The Actigraph activity tracker is combined with a heart rate sensor to have meaningful data.
Openness	Proprietary devices from which sensor data is not freely available (vendor locking).	Work-arounds developed in order to realise reliable and secured Actigraph data usage.