

ENSAFE – Service Model Scenarios

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Executive Summary

This document provides a translation of the stand-alone ENSAFE service into an integrated solution in the health systems of the Netherlands, United Kingdom, Italy and Sweden. First of all, detailed information about ENSAFE is given: ENSAFE aims to support elderly people through prevention and self-care by providing them with smart services. The main idea of ENSAFE is to use technology to strengthen the connection between the elderly person and their life environment (both in the sense of spaces and of human relationship) in order to promote a more independent lifestyle. In order to do so the ENSAFE service is a dynamic platform based solution that caters for the entire continuum of care. ENSAFE exists of 4 levels of different packages in a spectrum of intensity: ENSAFE I (simple), ENSAFE II (comfort), ENSAFE III (safety) and ENSAFE IV (complete).

Mapping all stakeholders of the ENSAFE services resulted in scenarios of how the ENSAFE services can be integrated in the health system of each pilot country. In all countries nursing home organisations and home care organisations are important stakeholders for the integration of ENSAFE III and IV into the health system, which means that the care organisations can be approached for adoption of the ENSAFE service. However the decisive and/or financial stakeholders behind these care providers vary per country. In the Netherlands health insurers should be convinced for reimbursement of the ENSAFE services, in the UK the NHS Trust and local authorities can pay for the ENSAFE service, in Italy generic social funds can finance assistive technology and in Sweden each municipality has to decide on payment for the service. These financial stakeholders should be approached as well.

With regards to the adoption of ENSAFE I, II, III and IV by informal caregivers, relatives and elderly persons, direct sales to them may be most beneficial. In all pilot countries out of pocket sales are possible directly through the provider or through (online) retail shops. In some cases there are possibilities to get the ENSAFE service reimbursed. Setting up a sales strategy to sell ENSAFE services directly to the informal caregivers, relatives and the elderly person will be beneficial to the integration of ENSAFE into the health systems of each pilot country.

1. Introduction

The ENSAFE partners joined forces to improve the quality of life of elder people by developing a new integrated solution. Additionally they actively explored ways to integrate the solution into the existing health systems of the pilot countries: The Netherlands, United Kingdom, Italy and Sweden. In this way they contribute to the current development path of health systems towards more interoperability and integration among different care providers. The first step in integrating the ENSAFE services into the health systems of the pilot countries was to describe the service models and stakeholders for each ENSAFE service. After that the ways, or scenarios, to integrate the ENSAFE services via stakeholders into the health systems are described per country. These descriptions per country can be seen as Service Model Scenarios. The Service Model Scenarios are part of work package 4 of the ENSAFE project. The overall aim of work package 4 is to define a business strategy for the ENSAFE service allowing for rapid market entry and scaling up to achieve European level deployment. This means that a tailored made integration model for the individual conditions in a target country has to be made. The business plan (deliverable 4.3) describes a business strategy including a tailored made integration model for a target country.

2. The ENSAFE service

ENSAFE aims to support elderly people through prevention and self-care by providing them with smart services. The main idea of ENSAFE is to use technology to strengthen the connection between the elderly person and there life environment (both in the sense of spaces and of human relationship) in order to promote a more independent lifestyle. In order to do so the ENSAFE service is a dynamic platform based solution that caters for the entire continuum of care. Since the ENSAFE solution caters for the entire continuum of care, 4 levels of different packages in a spectrum of intensity are offered: ENSAFE I (simple), ENSAFE II (comfort), ENSAFE III (safety) and ENSAFE IV (complete). The technology roadmap (figure 1) below shows the ENSAFE packages. A detailed description of each ENSAFE service is given below.

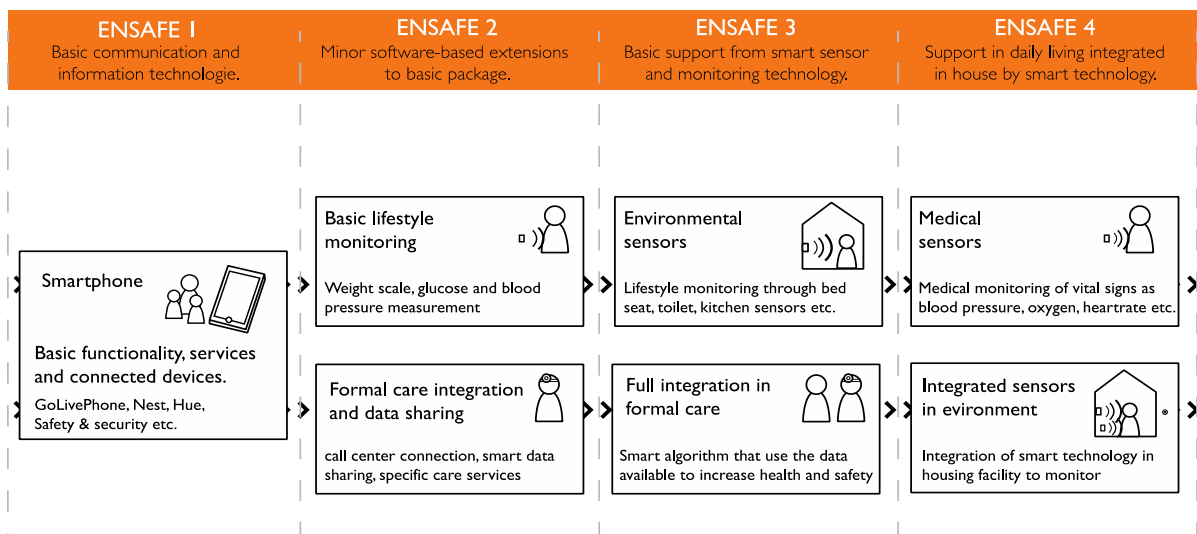


Figure 1: Technology roadmap of the ENSAFE service

Either the first package of the ENSAFE service or up to all packages, depending upon the needs of the elderly person or the distinct patient groups, can be purchased. In this way, a residential care provider with a mixed level cohort of patients/residents, for example, will be able to purchase level I support for patients who have lower care dependency as well as level IV for individuals who have high care dependency and a greater need for additional remote clinical monitoring. The service is multifaceted as it supplies support according into individual need, but also offers the opportunity to increase or decrease levels of support along a patient pathway. Customers will be free to change their choice for the ENSAFE package (upgrade or downgrade) at any moment.

2.1 ENSAFE I (simple)

ENSAFE I includes support from basic communication and information technologies, as a smartphone. These simple digital tools seamlessly combine social interactions, self-management of health and wellbeing, and digital connection to the end user’s health services all within one space. The end users are the elderly person and their relatives. They can benefit from ENSAFE I by feeling more safe and secure, since ENSAFE I can prevent the end user from falling, and detects falling. Furthermore contact with relatives will be easier, also in case of emergencies. An additional benefit of ENSAFE I is that elder people can learn to deal with a smartphone. Overall, keywords of ENSAFE I are independency, stay safe at home, stay in health and stay connected to relatives. A person who would be suitable to use ENSAFE I is described in the use case of figure 1.

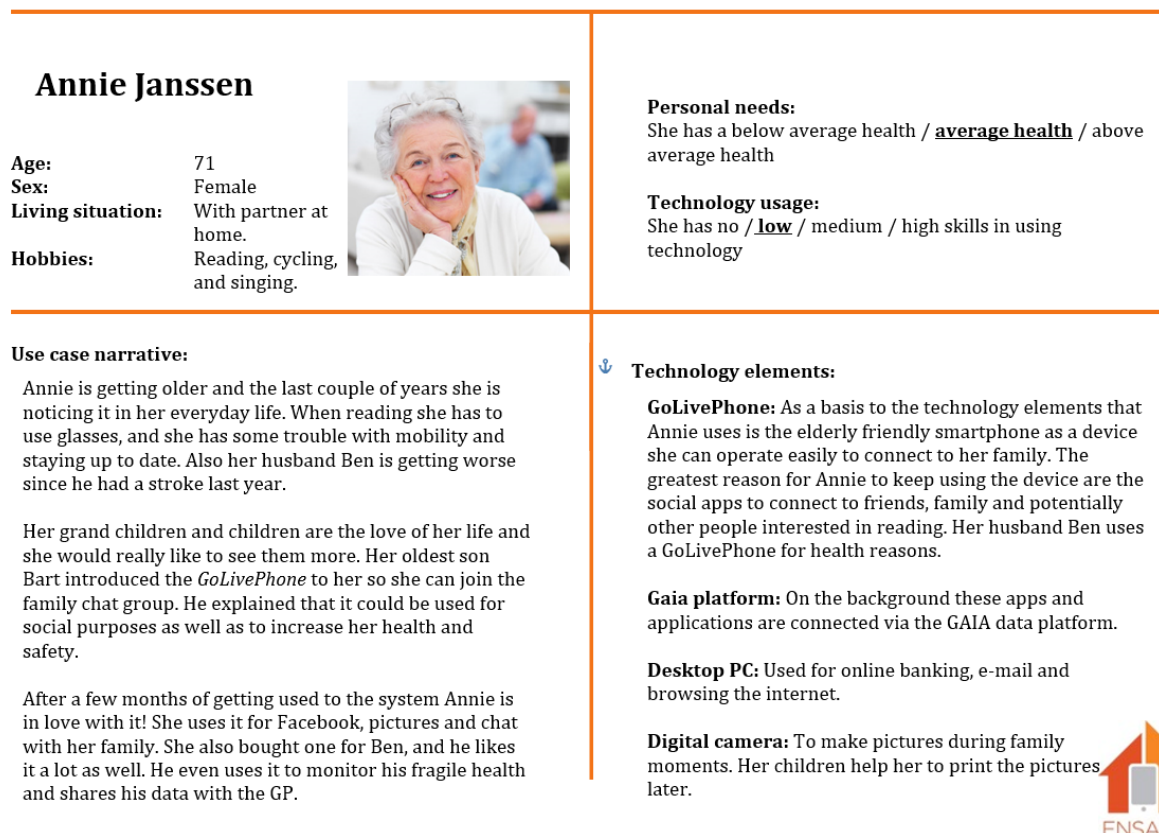


Figure 1: Use case for ENSAFE I

2.2 ENSAFE II (comfort)

ENSAFE II provides more comfort than ENSAFE I by basic lifestyle monitoring. Lifestyle monitoring is realized by the addition of minor software based tools to ENSAFE I. These tools can be weight scales and blood measurement devices. Data of the tools can be stored and shared online. End users are not continuously monitored or routinely supported, but it does give them the option of calling for assistance if required. In this way early detection and prevention of diseases will be possible. The end users of ENSAFE II is the elderly person, and relatives/informal caregivers and formal caregivers from home care organisations can be included as well. Key words of ENSAFE II are independency, stay safe at home, stay in health, stay connected to relatives and insight into the own health values. A person who would be suitable to use ENSAFE II is described in the use case of figure 2.

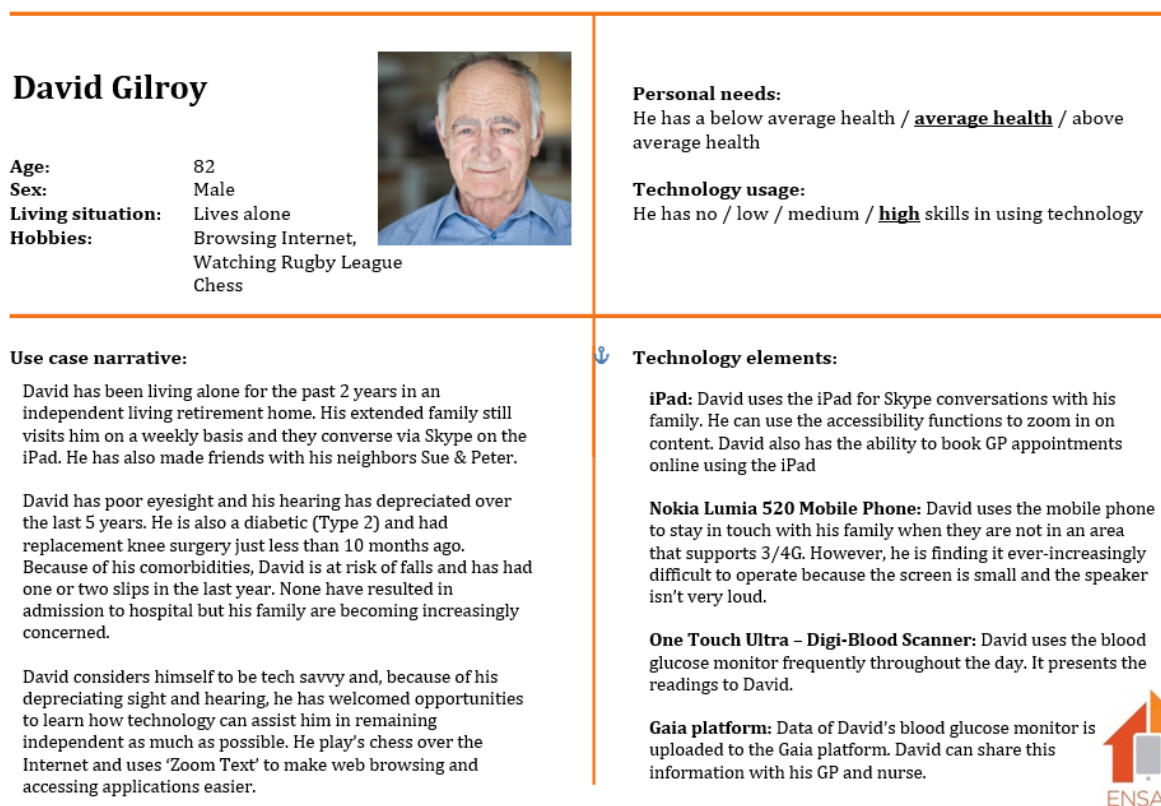


Figure 2: Use case for ENSAFE II

2.3 ENSAFE III (safety)

ENSAFE III adds more safety to the ENSAFE services by basic support from smart sensor and monitoring technology to end users, mostly at home. End users of ENSAFE III are the elderly person or people around an elderly person, like relatives, formal and/or informal caregivers and caregiving managers. ENSAFE III will directly benefit the relatives, informal and/or formal caregivers and caregiving managers of the person in question, as they will be given access to the data that is captured in a live state through the environment and wearable sensors. This will allow for interventions to be led more proactively and less reactively. In turn this additional level of support provides piece of mind to friends and family as well as the elderly person in question, as they know there are suitable interventions in place to keep them as safe as possible. In addition ENSAFE will provide the option for additional 'medical sensors' to

be configured alongside the environmental sensors. For end users with complex comorbidities or specific mental/physical health conditions, these sensors will act as a 24/7 monitor, ensuring any unusual patterns or behaviours are identified quickly and suitable interventions follow. Figure 3 shows a use case of a person who would be suitable to use ENSAFE III.

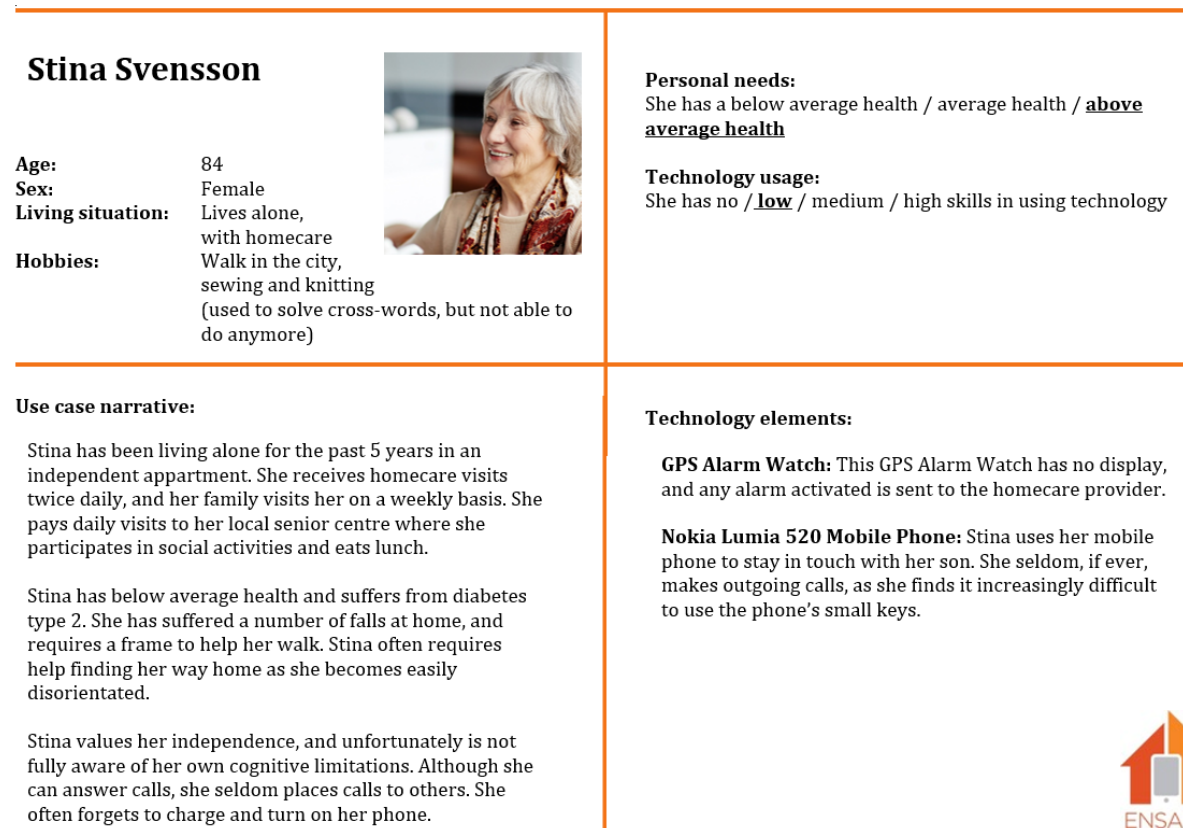


Figure 3: Use case for ENSAFE III

2.4 ENSAFE IV (complete)

ENSAFE IV can be seen as the complete package, which supports elderly people by integrated smart technology mostly in a care organisation. End users of ENSAFE IV are mostly not the elderly person anymore, but relatives, formal and/or informal caregivers and caregiver managers. ENSAFE IV is very similar to ENSAFE III, however ENSAFE IV can be distinguished by the lack of interaction between technology and the elderly person. Mostly the elderly person is not capable of interaction with a technology as a smartphone anymore. Furthermore ENSAFE IV typically is used in care organisations or assisted living spaces where professional caregivers are involved, instead of at home. A person that would be suitable for ENSAFE 4 is shown in the use case of figure 4.

Adele Polastri



Age: 87
Sex: Female
Living situation: Alone in an assisted apartment
Hobbies: Watching TV, Playing card games, knitting

Personal needs:
 She has a below average health / average health / **above average health**
Technology usage:
 She has no / **low** / medium / high skills in using technology

Use case narrative:

Adele is a self-sufficient old woman, who lost her husband 5 years ago. Last year, despite her pretty good health, she began to forget facts and information, such as tasks or appointments. By agreement with her children (Marco and Daniela), she decided to move to an assisted apartment in her city neighbourhood. Marco and Daniela often visit Adele in her new house and thanks to the assistants taking care of her, she feels better and less scared about her future.

She's still able to use her mobile phone to call Marco and Daniela, but she finds some increasing difficulties in following the right sequence of operation to do it. In the last months she often forgot to take her medicines, and she became to wander and wake up at night, so assistants decided to implement new specific sensors to monitor her.

Technology elements:

Behavioural monitoring sensors: Using a set of environment sensors, the behaviour of Adele at home can be continuously monitored. Her children (Marco and Daniela) and professional assistants can evaluate her state of wellness, monitoring:

- How many times she gets up at night
- How often she opens the refrigerator or the pantry
- How many times she enters the bathroom and she uses the toilet
- If and when, she opens the drawer of medicines

Mobile phone: She sometimes calls with her children.



Figure 4: Use case for ENSAFE IV

2.5 Stakeholders of the ENSAFE services

The end users of the different ENSAFE services are the stakeholders. These end users are described above and can be the elderly person, relatives or informal caregivers, and formal caregivers of organisations providing care in nursing homes or home care. In some countries care is paid by insurance companies, mutual aid society or the government. These parties can be seen as financial stakeholder and can be involved in all ENSAFE services. Table 1 shows the stakeholders of the ENSAFE services:

Table 1: Stakeholders of ENSAFE I, II, III and IV

	ENSAFE I	ENSAFE II	ENSAFE III	ENSAFE IV
Nursing home organisation				
Home care organisation				
Informal caregiver/relative				
Elderly person				
Financial stakeholder				

3. Service model scenarios – ways to integrate the ENSAFE services into the health system of the pilot countries

The previous chapters have described ENSAFE I to IV. This chapter describes the scenarios for integrating the ENSAFE services into the health system of the Netherlands, United Kingdom, Italy and Sweden. The health system of each pilot country has been mapped before, and can be found on the

website of ENSAFE (www.ensafe-aal.nl). To integrate the ENSAFE services into the different health systems, the stakeholders for the ENSAFE services in the health systems are important. The stakeholders should be willing to adopt the ENSAFE service, since they can accelerate or hinder the integration of the ENSAFE services into the health system of a pilot country. The role of each stakeholder of ENSAFE (see table 1) in integrating ENSAFE into the health system are described per pilot country. However the financial stakeholder is not described on its own, since they are strongly related to the other stakeholders by providing reimbursement, paying services or lacking a role.

3.1 The Netherlands

3.1.1. Nursing home & home care organisations

In the Netherlands around 350 care organisations, including nursing homes, are active at over 2000 locations¹. The nursing homes reside around 120 000 people each year. The average age of the female residents is 87 years, while the average age of male residents is 82 years old². Around Eindhoven (the area where the Dutch partners of ENSAFE operate) Vitalis and Archipel Zorggroep are large organisations taking care of nursing homes. The amount of nursing homes is decreasing, while the amount of home care organisations increases. Currently, home care organisations are active at almost 3500 locations in the Netherlands³. Around Eindhoven, ZuidZorg is one of the largest home care organisations.

The nursing home and home care organisations in the Netherlands could be potential customers of ENSAFE II, III and IV. Adoption of the ENSAFE services by them will ensure the integration of ENSAFE into the Dutch healthcare system. It depends on their willingness and their financial resources whether they will buy the ENSAFE services. Until now they will have to pay for the ENSAFE services themselves, but reimbursement or payment by health insurers or mutual aid society may be possible in the future. However ENSAFE should than be a state-of-the-art-service. It will be hard to let ENSAFE become so far.

3.1.2. Informal caregiver/relative & elderly person

Another way of integrating ENSAFE into the Dutch healthcare system is by selling the services in (home) medical supply shops to informal caregivers/relatives and the elderly person. Medical supply shops sell medical devices which can be used by elderly people at home, as for example a wheelchair or rollator. A large medical supply shop in the Netherlands is Medipoint.

In the Netherlands health insurers have a large role in the health system, because of their financial role. Sometimes medical devices are reimbursed by health insurers. At this moment the services will not be reimbursed and people have to pay the service out of pocket. In order to accelerate the adoption and integration of ENSAFE into the Dutch health system, the large health insurers should be approached. However getting the ENSAFE services reimbursed will be a long process. Health insurers to involve are for example VGZ, CZ, Menzis and Achmea.

1 = Report 'Feiten en cijfers over de verpleeghuiszorg', Actiz, 2017

2 = Report 'Ouderen in verpleeghuizen en verzorgingshuizen', Rijksoverheid, 2017

3 = www.zorgkaart.nl

3.2 *United Kingdom*

3.2.1. Nursing home & home care organisations

In the UK there are around 5500 different care providers operating over 11 000 nursing homes for around 410 000 residents. The vast majority of the 5500 different care providers are small with around 4000 providers owning just one home to the largest four groups with over 100 homes each. The top four independent nursing home groups in the UK are Four Seasons, Bupa Care Homes, Barchester Healthcare and HC-One; they account for just 15% of the overall market, according to the latest Healthcare Market Review by Laing Buisson⁴.

The nursing home organisations' environment in the UK is dynamic, and the Office for National Statistics predicts a substantial increase in demand for nursing home services as a consequence of the ageing population. The rising demand for care also accounts for home care. There are currently 8460 home care organisations in England (monitored by the Care Quality Commission (CQC)). In the UK in 2015 around 900 000 people received approximately 320 million hours of domiciliary care, costing £4.62bn and employing 629,400 people. However there are growing concerns about the stability of the domiciliary care market for several reasons: it seems that access to domiciliary care is being restricted to those with the greatest levels of care and support needs, the numbers of providers is increasing, gross expenditure on domiciliary care continues to decrease and the workforce increases

Nursing homes and home care organisations may serve as customers of ENSAFE II, III and IV. By the use of ENSAFE II, III and IV in the nursing homes and in home care, the ENSAFE service will be integrated into the healthcare system in the UK. Sometimes services as ENSAFE get paid by the NHS or local authorities. This depends on whether the innovation service is recommended by the NHS Trust (or local authority). Recommendation depends on the extent to which the service is supporting the patient and is beneficial to the patient. Approaching the NHS Trust, local authorities and the care home providers may be a start to get ENSAFE II, III and IV integrated into the healthcare system.

3.2.2. Informal caregivers/relatives & elderly person

Another way of adoption of ENSAFE services will be sales of ENSAFE II, III and IV to informal caregivers, relatives or in case of ENSAFE I, II and III the elderly person himself. These stakeholders could purchase the service through the relevant provider. There is currently no provision for reimbursement unless services are recommended by the NHS Trust or local authorities. Engaging with the NHS Trust is recommendable to integrate ENSAFE I, II, III and IV into the healthcare system in the UK on all levels.

3.3 *Italy*

3.3.1. Nursing home & home care organisations

There are reportedly more than 12 000 nursing homes all over Italy, but these reside adults as well as young people. About 270 000 elderly people are hosted in residential facilities, most of them (about 200 000) in the northern regions of Italy. Proges is a large care organisations in the north region.

⁴ UK Healthcare Market Review – 29th edition, LaingBuisson, 2017

It manages more than 30 residential facilities (nursing homes, assisted apartments, co-housing units). Proges manages 15 different home care services as well. Listing all other active home care organisations (private and/or public) is not easy due to the small scale of the home care service, that is provided or supervised by the municipalities (about 8000 all over the country). However, we know that about 370 000 elderly are assisted by a home care service (2,7% of the total).

The nursing home as well as home care organisations have to purchase technology devices and software, like any other physical asset, instrument or furnishing by themselves. Temporary or *ad hoc* facilities can be arranged case by case. This means ENSAFE services could be purchased by the care organisations as well. Furthermore, generic social funds provided by the social service can be used to acquire assistive technologies. Convincing them to adopt ENSAFE would be beneficial to the integration of ENSAFE in the Italian health system.

3.3.2. Informal caregivers/relatives & elderly person

The adoption of ENSAFE I, II, III and IV can be realized by purchasing the services to informal caregivers/relatives and/or the elderly person. These end users should buy it on the retail market, through the relevant provider. No direct reimbursement facility is available for this purchase.

3.4 Sweden

3.4.1. Nursing home & home care organisations

In Sweden the 290 local municipalities are responsible for running the country's nursing homes. The nursing homes are subsidized by local authorities, and the elderly persons being cared for pay a monthly fee according to the amount of care they receive. 21% of the nursing homes are run by private companies as subcontractors to local authorities. An example of a private company is Aleris. In total, the nursing homes reside approximately 90 000 Swedes permanently. Annually, about 20 000 to 25 000 older people move into a nursing home.

Also home care services in Sweden are subsidised by local authorities, and the elderly persons being cared for pay a monthly fee according to the amount of care they receive. About 230 000 Swedes receive home care services regularly. Home care services are with approximately 23% run by private subcontractors and subcontracted by the local authorities. Even as for care homes ENSAFE services could theoretically be financed as part of the municipal care budget. It would then be up to each local authority to decide whether or not these costs should be passed on to the elderly. Approaching the municipalities and care providers would be a step to realise the integration of ENSAFE services in the Swedish health system.

3.4.2. Informal caregivers/relatives & elderly person

Currently devices such as blood pressure monitors, blood sugar meters etc. can already be purchased via retail outlets such as medistore.se, or sometimes via chemist shops (e.g. apotea.se). People pay for services/products themselves. There is a cost reduction system in place for medicine costs above 1125 SEK - patients receive rebates for medicinal costs up to 5522 SEK, and after that it's free. However, there is currently no corresponding rebate system for medical devices. This means ENSAFE I, II, III and

IV could be sold in retail outlets, but people have to pay it out of pocket. A rebate system for medical devices, as the ENSAFE services, would be beneficial for the integration of ENSAFE into the health system of Sweden.

4. Conclusion

In all countries nursing home organisations and home care organisations are important stakeholders for the integration of ENSAFE III and IV into the health system, which mean that the care organisations can be approached for adoption of the ENSAFE service. However the decisive and/or financial stakeholders behind these care providers vary per country. In the Netherlands health insurers should be convinced for reimbursement of the ENSAFE services, in the UK the NHS Trust and local authorities can pay for the ENSAFE service, in Italy generic social funds can finance assistive technology and in Sweden each municipality has to decide on payment for the service. These financial stakeholders should be approached as well.

With regards to the adoption of ENSAFE I, II, III and IV by informal caregivers, relatives and elderly persons, direct sales to them may be most beneficial. In all pilot countries out of pocket sales are possible directly through the provider or through (online) retail shops. In some cases there are possibilities to get the ENSAFE service reimbursed. Setting up a sales strategy to sell ENSAFE services directly to the informal caregivers, relatives and the elderly person will be beneficial to the integration of ENSAFE into the health systems of each pilot country.