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[1] R = Report, P = Prototype, D = Demonstrator, O = Other
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Glossary

AAL	Ambient Assisted Living Joint Programme
AA4	Action Area 4
A2	Action Group 2
AG	Action Group
CTs	Cascade Trainers
CIP	Competitiveness and Innovation Framework Programme
COSME	Programme for the Competitiveness of Enterprises and small and medium-sized enterprises
DoW	Description of Work
DSP	Digital Social Platforms
EaSI	EU Programme for Employment and Social Innovation
EC	European Commission
EIP-AHA	European Innovation Partnership on Active and Healthy Ageing
E-NO FALLS	European Network fOr FALL Prevention, Intervention & Security
ESIF	European Structural and Investment Funds
EU	European Union
FATE	Fall detection for the elderly
FP7	Seventh Framework Programme for Research and Technological Development
HIMSS	Health care Information and Management System Society
H2020	Horizon 2020
ICT	Information and Communications Technology
IMI2	Innovative Medicines Initiative 2
IPR	Intellectual Property Rights
JPI	Joint Programming Initiative
JPND	EU Joint Programme Neurodegenerative Disease Research
KIC	Knowledge and Innovation Communities
NGO	Non-Governmental Organization
OEP	OTAGO Exercise Programme Leaders course
PCP	Pre-Commercial Procurement
PFPApp	ProFouND Application
PPI	Public Procurement of Innovative Solutions
ProFouND	Prevention of Falls Network for Dissemination
SC	Societal Challenge
SME	Small and Medium-Sized Enterprises
WP	Work Package
Wiisel	Wireless Insole for Independent & Safe Elderly Living

1. Introduction

This interim business plan is part of task 4.4 of the E-NO FALLS project. This task includes the preliminary and final version of the E-NOFALLS business plan. Goal is to ensure the continuity of the network mainly by two means [1]:

1. By offering - after the project end - "services" to interested parties. Some of the interested parties will be participants/members of the network and therefore already involved during the project network life. What we envisage is that elicited information will turn out in "market" services with specific disclosed information, which is of value for interested parties. This type of product is available by HIMMS Analytics Europe and others.
2. As stated in deliverable 5.3.1 the business plan of E-NO FALLS and PROFOUND should be aligned and a close collaboration with the Action Group 2 of the EIP AHA should also be developed. After the analysis of this preliminary Business Plan the effort of should be focus on the design of a common Business Plan

3. By exploring other communities and knowledge networks to learn from their approach and to investigate possibilities to cooperate. An example of a community is the global community Open innovation marketplace Innoget, in use by thousands of professionals who have free access to technology requests and offers posted by the company's customers, companies and research centres.

1.1 Deliverable Objectives

The interim business plan investigates the possibilities for the continuity of the current E-NO FALLS network. The main topics that will be discussed are:

- Identification of results and outcomes of E-NO FALLS that can be exploited.
- Overview of current exploitation practices in relation to knowledge networks of E-NO FALLS partners and third parties like EIP AHA A2 and ProFouND.
- Steps to be taken towards the final version of the business plan.

The second chapter of this deliverable is a methodology section that describes the procedure used to write this interim business plan and models that can be used to reach the final version of the business plan. The third chapter focuses on stakeholders for the network, possible activities of the network, communication strategies to reach the stakeholders and important values of the network. The type of knowledge available within the network that can be exploited is described in chapter 4. Experiences of E-NO FALLS partners with other knowledge networks are described in chapter 5. Chapter 6 focuses on two important activities in the area of fall prevention and detection, namely EIP AHA and ProFouND. Finally chapter 7 describes the steps to be taken towards the final version of the business plan.

1.2 Summary

This interim business plan investigates the possibilities for the continuity of the current E-NO FALLS network. In this deliverable material already produced by the E-NO FALLS consortium has been clustered

into 5 areas: 1) Type of stakeholders that can become a member or customer of the network, 2) Activities to be conducted by the network, 3) Preferred ways of communicating with the customers and members of the network, 4) Knowledge that can be converted into services and 5) Important values of the network.
For each of the clusters several questions are formulated that needs to be answered by the consortium in the process of defining the exact scope and goal of the continuation of the knowledge network.

One of the major decisions that needs to be taken is to decide if the focus will be on a **commercial approach** where the network can become self-sustainable or if the focus will remain to be on a **research perspective** where it is more likely that at least part of the work will be supported by public funding.

In this interim business plan highlights several possibilities for the continuation of the knowledge that need to be discussed. The overall goal of the final business plan is to focus on the most promising business opportunities on an EU level. This could be a knowledge network that is based upon the work carried out within the E-NO FALLS project but also the possibility to integrate the work of the E-NO FALLS project in other networks will be considered. Within the project a close alignment with the other tasks if WP4 will be accomplished in order a coherent perspective towards the market uptake.

Within the E-NO FALLS project also a roadmap for market development will be developed. Four main topics essential for the construction of a roadmap for market development of ICT solutions for fall prevention and management are: conveying legal clarity, building-up awareness, driving prescription and engaging end-users. The final business plan will take into account the ideas from the roadmap.

2. Methodology

This chapter describes the methodology used to write this interim business plan. The main effort has been targeted at an inventory of already available material within the E-NO FALLS project. This has been done by clustering the available material into 5 main clusters:

1. Stakeholders in the network; focussing on the type of stakeholders that could either become a member of the network or could be a customer of the services of the network.
2. Type of activities; focussing on activities that have been conducted by the E-NO FALLS network and experiences with that and preferred activities from the point of view of stakeholders.
3. Communication strategies; information about how to reach the stakeholders of the network.
4. Type of knowledge that is available or generated; this could become the services can be offered by the network.
5. Important values of the network; a description of what is important for the network in terms of what the network wants to achieve and the image of the network.

Apart from this inventory of E-NO FALLS experiences, experiences from other knowledge networks could provide additional useful suggestions for the continuation of the knowledge network. This broad approach has been taken to first create an overview of what is already available within the network and the experiences that partners already have with knowledge networks. This broad overview will be the basis for a workshop that will be held to gain a better understanding of what the focus of the knowledge network should be. Once that focus is clearly defined the most promising way to continue the network will be selected and the final business model will be developed based upon that decision.

A business model is in essence, a description of the company's value creation. What we supply, how, to whom and how the money flows out. A popular template in use now to describe the business model is the Osterwalder's Canvas model [2] that will be used when developing the final business plan as a reference tool for the preparation of the network's value proposition.

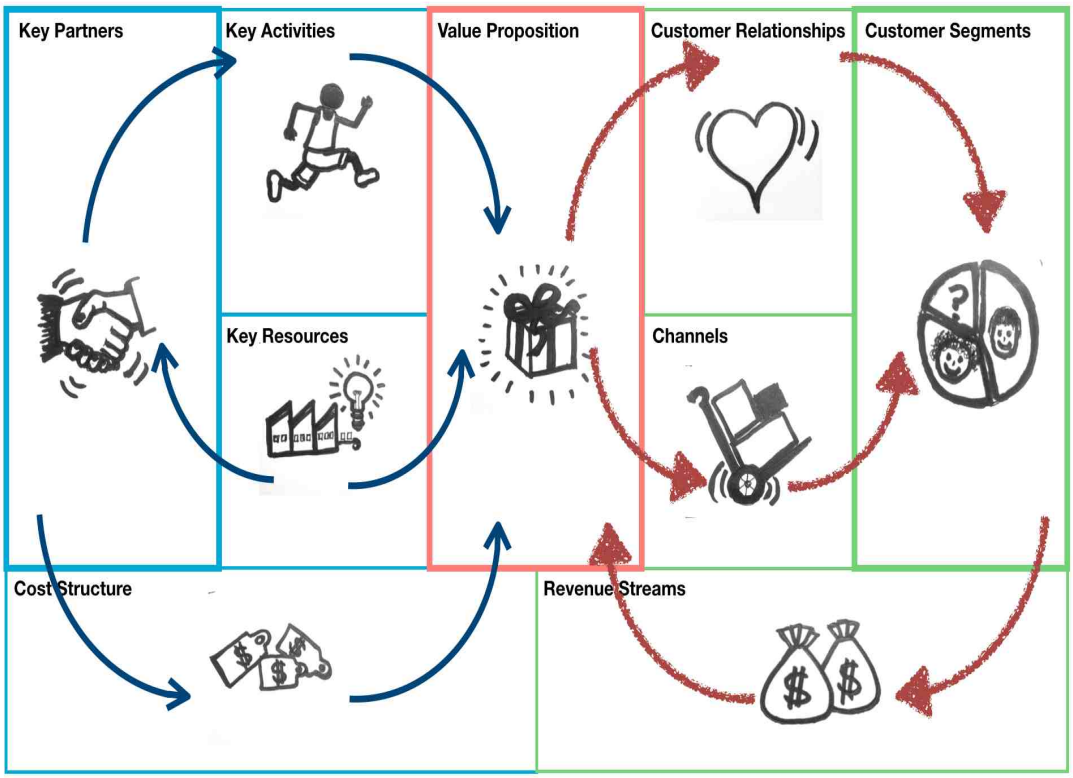


Figure 1 – Osterwalder's Canvas model

The model describes the business within the nine areas:

1. Customer segments: For whom are we creating value? Who are our most important customers?
2. Value Proposition: What value do we deliver to the customer? Which one of our customer's problems are we helping to solve? Which customer needs are we satisfying?
3. Channels: Through which channels do we reach our customers?
4. Customer Relationships: How do we maintain the relationship with our customer segments over time? (E.g. Personal assistance, self-service, automated services).
5. Revenue stream: For what are the customers paying? How are they paying?
6. Key resources: What Key Resources do our Value Propositions require? Physical, Intellectual, Human, Financial.
7. Key activities: What key activities do we have to do to deliver the Value Propositions?
8. Key partners: Who are our Key Partners? Who are our Key Suppliers? Who do we require strategic alliances with?
9. Cost structure: What are the most important costs in our business model?

All these aspects will be described in detail in the final business plan D4.4.2.

3. General Aspects of the Knowledge Network

This chapter focuses on the basic requirements of the knowledge network: The identification of the main stakeholders, the activities that can be performed by the network, communication strategies to reach the intended stakeholders and important values of the network. Chapter 4 will focus on the type of knowledge available within the network and that can be offered as service.

3.1 Stakeholders in the Network

The selected stakeholder categories within the E-NO FALLS network are the following:

1. Professional Bodies in Medicine
2. Professional Bodies in Nursing and Allied Health Professions
3. Bodies in Research, Education and Public Health
4. Bodies of Relevant User Groups
5. Commercial and Industrial Bodies
6. Public Administrations
7. Partners in EIP AHA A2

Currently this is a broad overview, possible ways to have more focus:

- Four broad groups of stakeholders with extensive involvement in ICT solutions for falls were identified by consensus among E-NO FALLS partners: Older Adults, Researchers, Industry and Clinicians.
- Small and medium-sized enterprises (SMEs) and start-ups play a crucial role in European competitiveness and job creation (European Commission 2009). They represent the overwhelming majority of enterprises in Europe and they are the source of dynamism and change in new markets, particularly those at the leading edge of technology.
- ICT based fall prevention & intervention devices are relatively new on the European market and still in a maturing phase. This area is largely driven by SME´s.
- Another target audience that is very important in the uptake of ICT for falls management is the family and carers of elderly. Awareness activities should be tailored to this particular group as it is the carers and family that are usually responsible for the wellbeing of the elderly.
- The senior service sector extends beyond traditional social care tasks and may be categorised in five broad areas:
    - 1. Primary care sector (e.g. medical care for older people in residential homes)
    - 2. Person related and household related services (e.g. home care, social assistance, cleaning)
    - 3. Company related services (e.g. concierge/property caretaker)
    - 4. Services related to the residential area (e.g. community helpers, district nurses)
    - 5. Not for profit social services (volunteers)
- Health insurance companies and municipalities/regional authorities play a crucial role in the changing landscape of the health and social care sector.

Each of these stakeholders require another approach to increase the market uptake for fall prevention and detection solutions. Therefore a different strategy needs to be developed for each intended target group. Partly this is related to the type of activities that can be undertaken by the knowledge network and that are described in the next paragraph. However also the way the message is presented to a specific stakeholder group is vital to align the offered service with the problem a stakeholder is facing. The final business plan will include a clear focus on the intended target group for the continuity of the network.

3.2 Type of Activities

This section describes different type of activities that can be undertaken by the knowledge network. This list is compiled based upon activities that are currently performed by the E-NO FALLS network and results from a questionnaire circulated to stakeholders as part of the work in the project.

3.2.1 Direct exchange of information, demonstrations, workshops

This activity can be targeted at gaining feedback during the development phase of products and services as well as be used for dissemination of existing products and services. Depending on the goal of the activity a different strategy must be adapted. For example to reach a wider audience relevant newspapers and magazines are an appropriate medium. To gain in-depth feedback on a service, a focus group where participants can gain hands on experience with the service is the preferred approach.

Health provider organizations and companies pointed out the importance of direct exchange of experience as well as evidence-based communications to raise awareness. Direct exchange of experience occurs during workshops and conferences as well as through training sessions for professional caregivers, public authorities, and the industry. The elderly population and their families are targeted through focus groups which offer a medium for brainstorming, and raising awareness about a specific theme.

Demonstrations and direct contact with end-users is considered successful because users have the opportunity to experience products hands on, engaging with them through seeing, feeling and testing. This can also occur within research studies that require usability and feasibility tests for technology development. While participants receive information about the technologies, developers can obtain opinions and adapt systems to the needs of the elderly population/end-users. When contacting end-users directly a substantial part of the demonstration should be targeted at clearly explaining the benefits for the user.

The more direct methods of workshops and focus groups are considered as more appropriate methods to promote technology adoption. This is probably due to the fact that through workshops and focus groups that involve smaller groups of people, target audiences have the opportunity for a more informal interaction with the organizers and a hands-on interaction with technologies. Informal interaction is in many ways the key to creating a change and enhancing dissemination while creating partnerships.

For healthcare providers, informal interactions can occur through a lecture, interview or a workshop followed by a World Café event. World Cafés are a method to involve experts who do not have prior contact with each other in a small group discussion for a specific issue. Informal conversations are mutually beneficial, the stakeholders involved can also enquire about current practices, policy developments and service provision in falls creating a two way route of information exchange.

3.2.2 ICT repository and Innovation Factory

Most attractive to the wider audience are considered websites that allow free access to the information rather than those that require signing up as a user. According to E-NO FALLS partner experience the media where the information is directly accessible (without complicate sign-in steps) are more attractive for the general public.

The content of the ICT repository can consist of an online database of falls-related data and statistics to aid research and the exchange of specific best practice and practical experience from organizations which have actually gone that way.

Due to the fact that besides E-NO FALLS also the ProFouND thematic network was funded it was proposed by the EC to gather all resources in one single access point (one-stop-shop) by implementing "fallsprevention.eu" as a public web portal where people can access to other initiatives being carried out (other networks, European and international projects-initiatives-programs) related to falls.

The "fallsprevention.eu" website should ensure that a reliable information base is established, offering access to relevant information about current activities and results emerging across Europe and worldwide. In this sense, the website will contribute to disseminate at European and cross-border level research findings, to share resources developed and will support to explore opportunities to combine resources in joint initiatives. The E-NOFALLS element will provide a databank of information about ICT based technologies for falls while ProFouND will provide a collaboration space to co-produce solutions and plan delivery (Innovation Factory)

E-NO FALLS provides a website repository of available ICT technologies for both falls prevention and detection. It will also include a revision of advanced prototypes developed in research projects (http://www.e-nofalls.eu/ictrepository/).
The coordination of all this web tools corresponds to the PROEIPAHA project recently founded by the EC.

3.2.3 Offer user experience and interoperability testing facilities

Usability aspects play a critical role for the acceptance of the systems and depending on the technical safety and stability of the system (e.g. reduction of transmission failures) and the user friendliness (fitting the user needs). Usability and feasibility testing methods range from controlled experiments in laboratory/controlled environments to studies with users in their own home.

A usability evaluation plan can be separated in two phases: (1) The expert-based evaluation phase, (2) The user-based evaluation phase. The first phase involves evaluation techniques that are done by experts/specialists on user interface design. These experts can be interface designers, human-computer interaction specialists, or usability, and accessibility specialists. The main purpose of this phase is to identify and correct any major design flaws and problems before they reach production and real user testing. The second phase involves real user tests, when an application has reached a more mature stage.

The rationale using a combination of expert-based and user-based evaluation is that these two techniques supplement each other. Each usually uncovers usability issues that the other one has missed. In fact, several studies were done on the effectiveness of usability evaluation methods and have shown that many usability problems are overlooked by user testing, but also that user testing finds problems that are often overlooked by experts.

A requirement to test interoperability is the development of test cases which can be run using the technologies involved. Interoperability is a requirement for the (technical) sustainability of a solution.

Due to the importance of usability/feasibility and interoperability tests the network can offer the testing facilities and expertise to perform the tests as service in order to stimulate the development of solutions that are aligned with the needs of users and can be integrated with other products.

3.2.4 Keep up-to-date

One of the activities of the network could be to provide up-to-date information on developments in the field for the members of the network. Some key issues that may affect the introduction of technological solutions in the future, and therefore qualify as potential topics to keep up-to-date about, include:

- Defining the new quality standards for the nursing and care services,
- The level of technological expertise required by staff at different levels,
- Educational/training opportunities to strengthen competences of staff and/or as job enhancement opportunity,
- Establishing who should have responsibility for smart home technology,
- Demand of experience-sharing and valorisation projects in this unstructured market of technological experiments,
- New collaborative models between research institutions and formal and informal care environments,
- Information on benefits of using ICT solutions for fall prevention and detection.

3.2.5 Assist organizations in defining Key Performance Indicators (KPI's)

Part of the work carried out in the project is to explore the potential of Pre-commercial Procurement (PCP) to contribute to the deployment of innovative Information and Communication Technology (ICT) solutions for elderly people, based on fall prevention and effective intervention. PCP enables public authorities to get new technologically innovative solutions that can address their specific needs. Part of identifying specific needs is the development of Key Performance Indicators to evaluate the effect of a certain solution. The knowledge network can assist public authorities in defining Key Performance Indicators to see if the innovative solutions meet their specific needs.

3.2.6 Guidance on applying methods/assessments/regulations

In deliverables produced by the consortium methods are presented in relation to risk detection and reduction, fall injury, health related quality of life, comprehensive geriatric assessments, psychological consequences of falling, and legal aspects in relation to ICT solutions for fall prevention.

The network could start a discussion about the best method/best practises or what combination of assessment tools is most effective and shows the best results. A service could be a quick scan or matrix that shows in one view what is the best tool for what situation or guidance on how to apply methods/assessments/regulations.

3.3 Communication Strategies

3.3.1 Intermediary role

In terms of involvement of some stakeholders it is clear that not all of them have the same engagement with the topic of ICT solutions for fall prevention and detection. The lowest levels of involvement and cooperation were reported for health insurance companies and investors, followed by government authorities and public organisations, which may give rise to concerns regarding the funding of devices and technology solutions.

The knowledge network can become an intermediary organization to connect all the relevant stakeholders and to enhance cooperation.

3.3.2 How to reach clinicians?

Colleagues were cited by respondents to the clinicians' questionnaires as being the most frequently accessed source of information on technology/devices for falls detection and prevention. Other healthcare professionals, researchers and institutions or organisations were sometimes used as information sources. Information was not very frequently obtained from sources in industry. Health insurance companies were the least frequently used source of information, while 'Other' sources such as older people and their families, catalogues, news articles and academic databases were also not frequently used to obtain information.

Clinicians primarily gained information on falls-related ICT solutions from other healthcare professionals or via internet searches and conferences or scientific journals, and did not report gaining such information frequently from industry. However, both researchers and industry respondents reported frequently providing information to clinicians. This discrepancy suggests that current communication strategies used by stakeholders in research and industry are not effective in reaching healthcare professionals.

Clinicians frequently provide information on falls-related ICT solutions to older adults, their families/carers and other healthcare professionals. Therefore, they are a vital stakeholder group in the process of raising awareness among potential end users of such solutions.

Questionnaire findings indicate that clinicians are highly receptive to accessing online information about technology for falls; therefore a greater knowledge and use of such marketing strategies and techniques could offer less costly, more rapid, more effective methods of publicising research findings in relation to technology for falls. Keeping in mind that clinicians require evidence based information and currently focus their search for that information in scientific journals.

3.3.3 How to reach older adults?

Combined responses from all questionnaires that were used in the E-NO FALLS project indicate that a lack of awareness of the existence of falls-related ICT products is the foremost barrier to the usage of technology among these older adults. Concerns regarding the costs and upkeep of technologies were also expressed, as was a lack of interest in such products, but to a lesser extent. Product providers must therefore focus primarily on raising awareness of their products among end-users. Ensuring that low-cost solutions are available and providing support to users in the upkeep of these solutions should also be considered.

The older adults surveyed displayed a very strong preference for obtaining this information from healthcare providers. Family and friends were also considered to be largely acceptable sources of information. However, most respondents displayed negative attitudes towards receiving information via mass media outlets, online and particularly via telephone calls from relevant companies. A lack of trust has been noted as a major barrier to health technology usage among older adults, which may explain these negative attitudes towards gaining information from unfamiliar sources. It is clear that older adults prefer known and trusted information sources, and thus raising awareness of the existence of ICT solutions for falls among healthcare providers and family/carers and communicating information to these stakeholders regarding the costs, benefits etc. of using such products is vital to achieving awareness and uptake of falls technology among older adults. Communication and awareness strategies need to be geared towards health professionals who will then transfer this knowledge to the older people.

3.3.4 Current strategies from researchers

Researchers indicate the following partnerships in the area of fall prevention and detection:

- The strongest partnerships reported by researchers were with other researchers.
- Strong collaborations with funding agencies and healthcare professionals (primarily in the areas of nursing and allied health) were also reported.
- Collaboration with industry and patient/user groups was reported by researchers, with varying effectiveness in their levels of cooperation.
- Researchers reported mainly disseminating information on ICT solutions to their research colleagues, but also frequently to older adults, their families/carers, healthcare professionals, and government agencies.
- However, researchers primarily disseminated information via scientific publications and conferences, and via press releases. Such methods were not listed as preferred sources of information by clinicians or older adults, and thus researchers may be underestimating the effectiveness with which they engage with these stakeholder groups.
- Demonstrations for users were also noted by researchers as being effective in providing information, although extensive time and resources would be required to reach a large target audience using this method.

3.3.5 Recommendations on how to reach stakeholders

Based upon the questionnaires conducted as part of the E-NO FALLS project the following recommendations can be made:

- Healthcare professionals are a vital source of information on falls and related solutions for older adults and their families/carers. Therefore, stakeholders in research and industry should aim to develop strong collaborative partnerships with healthcare professionals, and those in healthcare management and policy-making positions, in order to ensure that up-to-date, reliable information on ICT solutions for falls is being effectively disseminated among potential end users of these solutions.
- Researchers and industry respondents appear to overestimate the effectiveness of their current communication practices in raising awareness of developments related to ICT solutions among other stakeholders outside of their own domains.
    - Researchers need to consider using methods other than scientific publications, conferences in order to raise awareness effectively among those outside of academia. Health care professionals often don't have time to visit conferences and have to educate themselves via reading specific journals or follow courses.
    - Industry stakeholders should consider more targeted or personal approaches to communicating with clinicians and older adults, as impersonal mass media approaches are not viewed favourably by these groups.
- Responses from both research and industry suggest that end-user involvement in the design and research and development processes is not consistently sought. Consultation with users throughout these processes should be considered to facilitate awareness-raising among potential users and to ensure that the ICT solutions being developed meet the users' needs.

3.4 Important Values of the Network

When scanning deliverables for aspects that are important for the image the knowledge network the following aspects can be highlighted.

3.4.1 Trusted information source

It is clear that older adults prefer known and trusted information sources. Thus raising awareness of the existence of ICT solutions for falls among healthcare providers and family/carers and communicating information to these stakeholders regarding the costs, benefits etc. of using such products is vital to achieving awareness and uptake of falls technology among older adults.

3.4.2 Promote standardization and interoperability

According to IEEE, interoperability is the ability of two or more systems or components to exchange information (functional interoperability) and to use the information (semantic interoperability) that has been exchanged.

To not only list possible products but to also indicate interoperability among the products can be an added value of the knowledge network.

3.4.3 Raise awareness

Data from the elderly questionnaires identifies the lack of awareness of ICT for falls related products as the greatest barrier for using these technologies. Education and training in relation to ICT products for falls appears as the important facilitator for adoption of these technologies from the elderly. Proper education and training will also help alleviate the anxiety of several elderly people about the upkeep of the technology. Therefore, actions which raise awareness among older adults about the benefits for falls-related ICT solutions to improve their safety and facilitate independence within a user-centred, self-management context are highly recommended. Actions should also seek to raise awareness among older adults of the costs, potential funding sources, methods of access, usability and benefits of technology to address these concerns.

3.4.4 Not only technology

Excessive use of ICT – both in prevention and detection of falling of elders – might increase the costs at the end user, making this business unsustainable financially. Instead, a more people oriented approach could help building a sustainable business model – providing both an affordable and effective mean to reduce falling impact on general well being of elders. Therefore the network must use a balanced approach; the focus should not be too much on the technology.

Such technology-based care models should be observed/supervised by health care professional who could react if something happens and would also enhance the acceptance of elderly people. A fall prevention system should be used as part of a bigger remote patient management system to enhance the acceptance. Many elderly people have several chronic diseases that could also be monitored and since they also influence falls, e.g. high blood pressure, pneumonia, depression, dehydration.

The heterogeneity of the network and the degree of confidence between the partners covers a great extension of knowledge related to falls prevention, detection and intervention that could be very useful for the deployment of ICT based systems and the scaling up of the best practice detected.

4. Results and Outcomes of E-NO FALLS

This chapter covers the exploitable outcomes collected by studying the deliverables currently produced by the consortium. This has resulted in seven major areas of interest that will be described in the following paragraphs. During the alignment of E-NO FALLS, PROFOUND and EIPAHA A2 process it was paid much attention to the design of the correlation and complementarity of the outcomes of the Thematic Networks (ENF, PFN) and use them as a source of knowledge and experience for the EIPAHA. In this sense, and for the rest of the document it will be highlight the most suitable collaboration.

4.1 Development of a toolkit

Information - both oral and written - should be given to patients, family members and carers and should include:

- Measures that can be taken to prevent further falls.
- The importance of persevering with fall prevention strategies such as exercise or strength and balancing components.
- The physical and psychological benefits of modifying falls risk.
- Sources of further information.
- How to behave in the event of a fall.

Standardised fall-risk assessment and screening tools were also frequently noted as being important methods of communicating levels of fall-risk effectively among HCPs. An overview of these assessment tools are provided in D2.1.

The development of this material/toolkit and keeping the information up-to-date can be a task of the knowledge network. (ENF+PFN)

4.2 Fill the gap between expertise on fall prevention and fall risk estimation solutions

The projects that are used as a basis for the E-NO FALLS project (CAALYX-MV, e-CAALYX, FARSEEING, WIISEL, CONFIDENCE, FATE and I DON'T FALL) were concerned primarily with falls detection – mainly through a range of sensors. Activity monitoring devices and the use of sensors or gait analysis systems to assess fall risk were also frequently described. The use of technology for fall prevention interventions e.g. via serious gaming, was also described by a number of respondents.

A range of ICT solutions were described by industrial respondents, primarily sensor-based solutions concerned with fall detection and physical activity monitoring. Alarm systems were also frequently described, both as fall detection alarms and as bed/chair monitoring alarms. A lesser number of solutions were concerned with fall risk estimation and fall prevention, either based on sensor data or electronic questionnaires and assessment scales.

The knowledge network can focus on innovative solutions like serious gaming and also target the psychological aspect of trust in doing exercise after a fall has occurred. Furthermore it can fill the gap in expertise on fall prevention and fall risk estimation solutions. (PFN+ENF)

4.3 Evidence based information

There is good evidence to show that some interventions are more effective than others and those when tailored to individual risk profiles in community, residential and acute care settings are most effective. By improving balance, strength and agility, the physical exercise helps in preventing falls that may lead to fractures.

Information on effective intervention is important knowledge within the network that can be exploited. (PFN+ENF)

Less is known about the economic efficiency of IT-supported treatment concepts, but their evaluation is crucial for the translation of such services as they defining also the business concepts of the services.

Knowledge network to gather/generate information on economic efficiency.

The limited large-scale evidence of the cost-effectiveness of eHealth tools and services is one of the main reasons used for different agencies and governments to justify the introduction of telehealth is the cost-reduction and the increase on quality of service that those technologies can bring. In this scenario, credible and solid demonstration of the cost-effectiveness of the new fall detection and prevention management solutions is expected to be critic in order to ease its up-take and implementation as a basic service in telehealth solutions for elderly people. Large scale trials of the new systems shall demonstrate the capability of those systems to dramatically reduce the risk of falling as well as the economic benefit of their use for the stakeholders involved.

Economic assessment methods are described in D2.1. This can be a starting point to gain the large-scale evidence to justify the introduction of telehealth and fall prevention ICT based.

4.4 Technology as a part of a multifactorial approach

It is important to note that there is no "one size fits all" strategy and some approaches are better suited for elderly adults in certain stages of life, people with disabilities, those with specific chronic conditions, or particular care settings. Therefore, implementation of fall prevention technologies in isolation is unlikely to be effective at reducing falls. Rather, technology-focused interventions may be most beneficial if implemented in tandem with other environmental, behavioural, and clinical fall prevention strategies.

Knowledge on how technology enabled solutions can be part of a multifactorial approach can be an important part of the knowledge network.

TechnolAGE (www.technolage.org) project has recently published "ICTechnicolage. Study on business and financing models related to ICT for Ageing well", one of the scarce studies available which tries to identify successful business models in Europe in the sector of ICT solutions for Ageing. One conclusion of this report is the fact that different Europe areas tend to adopt different solutions (i.e. more "off-the-shelf" solutions or innovative ones, adjusted in any case to the particular framework of the region, the elderly users as well as the careers providing the service and the budget available for the payment of the service); most of the systems reported as successful by TechnolAGE have in common the fact that they provide solutions/service for diverse ageing needs in one system, so they offer a "complete service pack" for elderly people and not just one solution for a particular problem.

How is this in line with the focus on falls? Should we present the information we have on falls as part of a larger service package?

4.5 Database of available solutions

In terms of specific aims of technology or products that participants would like to use, popular choices were technology solutions that allow improved communication with other health care professionals and with older people. For example, ICT solutions to facilitate online group participation, mobile reminder systems for older people (e.g. text messages for medication, exercise etc.), education packages (e.g. smartphone apps) for use with older clients.

Suggestions were also made in relation to existing technologies, such as improved usability, and reduced costs of personal alarms, and additional features to encourage compliance. The use of activity monitors was also cited, particularly to monitor exercise adherence, and potentially included a feedback or reward system for adherence. Other monitoring technologies mentioned were physiological monitoring systems to determine the optimal times to exercise with regards to medication and its effects, as well as sleep monitoring, including monitoring outcomes to detect effects on users of poor sleep. Participants also listed the use of gaming for exercise, with monitored usage and feedback for users and health care professionals on usage and performance at home.

Participants also expressed an interest in currently popular technology solutions in the falls domains, such as smartphone apps and the development and usage of sensor technologies. Purposes listed for the use of these and other technologies included the measurement of gait, with one novel suggestion in this area to measure the force users apply through walking aids. Participants also expressed an interest in using technology to provide tools that assist in client assessment and/or outcome measurement, particularly if they improve objectivity and reliability.

The knowledge network can provide an up-to-date database of available solutions.(ENF+PFN)

4.6 Overview methodology/sharing experiences

In relation to the different measurement methods for effectiveness of the treatment the knowledge network can create clear guidance on which method is applicable in a certain situation and focus on the role of technology enables measurements.

The network should start a discussion about the best method/best practices. Or what combination of assessment tools is most effective and shows the best results. Provide some quick scan or matrix that shows in one view what the best tool for what situation is.

Developing business models for value-creating eHealth systems involves the exchange of specific best practice and practical experience from organizations which have actually gone that way.

Information-sharing and best practice identification should involve specific topics such as security, privacy, data protection and safety. Usually the elements are solved with appropriate regulations and protocols; however, it is important to remember that these requirements are often neglected when designing and developing a business model for an eHealth system.

The knowledge network can become a vital source for information on assessments methodologies and best practices.(PFN+ENF)

4.7 Expertise that provides input for the E-NO FALLS roadmap

4.7.1 Conveying Legal Clarity

As seen previously, legal provisions on ICT-based solutions are at different stages in the different countries of EU and lacks a homogeneous framework for what patients' beneficiaries as well as professionals and companies, providing such services, enjoy of a favourable environment. The implementation of a standardized and widely accessible platform that would reduce the existing information gap between the different stakeholders. This platform would allow that any organization or individual could have access to the description of their rights and duties. Moreover, higher awareness of existing legal limitations would be raised and these could be mitigated prior to the adaptation of the ICT solution for fall prevention to the specific characteristics of the market. Finally, this platform could include the standards, specifications, use cases, workflows, subset of terminologies, interoperability agreements and guidelines developed by standards development organizations meaning the expansion of knowledge about the entire background inherent to the adoption of fall solutions. A similar platform can be found in the European Commission site regarding the laws on electronic health records in the EU Member States.
(http://ec.europa.eu/health/ehealth/projects/nationallaws_electronichealthrecords_en.htm).

Joining efforts with EIPAHA and PROEIPAHA the legal and platform framework could be developed. (ENF+PFN)

4.7.2 Building up awareness of ICT solutions for Fall and Management

Regarding the necessity to establish a set of practices that allow an increase of the existing awareness of ICT solutions among the different stakeholders, especially the elderly, the healthcare providers and the elderly´s family it is important to stress:

- The dissemination of Fall ICT solutions through the participation in national and international scientific events, as well as by publishing of scientific papers in peer-reviewed and indexed journals;
- The organization of regular workshops with stakeholders, paralleled by press and media conferences in order to raise the awareness about ICT solutions for falls prevention and intervention;
- Online platforms (similar to E-NO FALLS platform) providing the stakeholders with information related to the beneficial impact of platform use at the level of the individual, but also at the level of patient's family, professionals as well as of the elderly care segment of health systems, by easing the caring activities and care costs. Once promoted and installed, the platforms may lead to a remarkable improvement of the care of people at fall risk, as well as of the networking of various stakeholder and the binding of the stakeholder network;
- Getting preventing falls on the public agenda (primary or secondary prevention);
- Raising funds for innovation and research on ICT solution for fall preventions;
- Developing reimbursement concepts by stakeholders (e.g. health insurance companies, patients);
- Implementing standardization of ICT fall prevention solutions;
- Being innovative and carefully selecting the most effective solutions at the same time;
- Implementing the selected health care solutions in the care giver practices.

PFN is leading an awareness campaign for all EU with the support of EIPAHA-A2 and ENF. The analysis and improvement of the results should be a crucial point for the final business plan. (PFN+ENF)

4.7.3 Driving Prescription of Fall Prevention and Management Solutions

Despite of the importance of increasing the awareness of the existing ICT solutions for fall prevention and management solutions it is also vital to convince healthcare providers to effectively adopt those solutions. In this sense, to reach this goal some measures can be taken such as:

- Providing clinical stakeholders with objective information about the clinical impact and results of ICT solutions for falls prevention and management. This can be achieved by cooperating with National or International medical associations (e.g. providing information in their member journals), face-to-face meetings (e.g. in nursing homes).
- Dissemination of information and experience related to the ICT role in falls prevention and management at the clinical academic level, by including relevant contents or by inviting experts in falls-related ICT solutions to lecture in clinical training programmes, such as geriatrics and psychogeriatrics degrees.

(PFN+ENF)

4.7.4 Engaging end-users

Besides healthcare providers it is also important to engage the end-users of the ICT solutions. Therefore, reduce the resistance of the community members, particularly the elders to technological solutions and the demonstration of the benefits of those solutions for the elderly and remained society are central and for that matter it can be implemented such initiatives:

- An education process and management programmes for healthcare management in respect of falls prevention and management could reap immediate rewards since very often the recommendations of the healthcare professional is implemented by the family.
- Promotion of several workshops and roadshows which can be undertaken on a national basis with active discussions and demonstrations of equipment in order to allow an Engagement with national patient advocacy groups and other non-governmental caring organisations and promote the falls prevention programme through them.
- Adoption of a press campaign with a local and national presence would assist in getting the falls prevention message to spread further into the community. Feature interviews on magazine type publications are beneficial in particular and have proven most successful in previous projects. This would be crafted in a manner which would engage with family members and final users in particular.
- An online campaign and specific links with websites of relevant stakeholders would prove beneficial and assist the recruitment process and widen the footprint of the project.
  (PFN+ENF)

5. Current Exploitation Practices of Partners

When investigating current practices of the E-NO FALLS partners in maintaining networks and the revenue models used for that it became clear that the majority of the partners has extensive experience with funded networks and less experience with self-sustainable networks.

Some are also not part of a specific network but meet their stakeholders at congresses, workshops and fairs. These kind of activities result in informal contacts.

EURECAT has participated in a network that focussed on supporting standardisation for smart textiles by synthesising and prioritising needs and releasing a standardisation roadmap. Strength of this network is the fact that it is very well connected to standardisation working groups. For the continuity of the E-NO FALLS network it is therefore important to cooperate with standardisation bodies in the area of ICT solution for fall prevention and detection.

EURECAT is also involved in a network called Commercialization of OLAE (Organic & Large-Area Electronics) technologies. One of the strengths of this network is that is covers partners from across Europe. The E-NO FALLS network would be strengthened when members are from different parts of Europe.

An example provided by E-NO FALLS partner NEN is the possibility to provide support to a network. NEN organizes platforms on specific topics. The Medical Device Directive platform and the Detailed Clinical Models Platform are examples of platforms that exchange information on a certain subject. In the social responsibility platform companies can express their achievements in implementing the social responsibility guidelines. Platforms can organize information seminars or training sessions, have a website or publish a newsletter. The objectives of the platform are defined by the members. Stakeholders and interested parties can become a member of the platform. NEN facilitates the platform and holds the secretariat. In comparison with standards committees platforms do not have the objective to develop a standard. Members pay a yearly fee for the NEN support to the platform. The E-NO FALLS network could also provide these type of facilitating services.

Smart Homes highlighted a knowledge network on fall prevention for seniors. Goal of that network is to enhance fall prevention by connecting practice, science and policy around this topic, and to bridge the worlds of research and practice by exchange of knowledge and best practices. These national initiatives could become an expert member of the E-NO FALLS network. Besides the knowledge that they bring to the network they also ‘deliver’ a large group of interest stakeholders.

Once the overall focus of the knowledge network is defined more clearly this overview will be enhanced with examples also from other partners like Foundation Anan Aslan International and Seniornett Norge clearly targeted at the approach chosen for the continuity of the knowledge network.

6. Inventory Current Exploitation of Third Parties

Besides information from the E-NO FALLS partners also other existing knowledge network will be analysed from the perspectives of potential business models for a sustainable knowledge network. In this chapter a short description of the EIP on AHA and the ProFouND initiative are presented.

6.1 EIP on AHA

The European Innovation Partnership on Active and Healthy Ageing (EIP-AHA) is a pilot initiative launched by the European Commission to foster innovation opportunities in the field of active and healthy ageing [3]. One of the main specific actions around the EIP-AHA is to "Improve the uptake of interoperable ICT independent living solutions through global standards to help older people stay independent, mobile and active for longer". [4]

The European Commission has identified active and healthy ageing as a major societal challenge common to all European countries, and an area which presents considerable potential for Europe to lead the world in providing innovative responses to this challenge [5]. The European Innovation Partnership on Active and Healthy Ageing will pursue a triple win for Europe:

- Enabling EU citizens to lead healthy, active and independent lives while ageing;
- Improving the sustainability and efficiency of social and health care systems;
- Boosting and improving the competitiveness of the markets for innovative products and services, responding to the ageing challenge at both EU and global level, thus creating new opportunities for businesses.

The concept of European Innovation Partnerships (EIPs) is a new approach to EU research and innovation. The partnership aims at bringing together key stakeholders (end users, public authorities, industry) and all relevant actors from the entire research and innovation value chain along with those engaged in standardisation and regulation.

The partnership provides these actors with a forum in which they can cooperate, united around a common vision that values older people and their contribution to society, identify and overcome potential innovations barriers and mobilise instruments and to streamline efforts to accelerate market take-up of innovations that address key challenges for Europe. [5]

6.1.1 Action Group A2

Personal health management is a key aspect within the integrated care model and was identified as one of the priority areas to realise innovation through validated programmes and good practices for early diagnosis and preventive measures (including health promotion). The integrated care model provides a framework for new organisational, process and technical innovations which are needed to maximise the impact of preventive measures and services. This framework includes the development and deployment of ICT- enabled personal guidance systems and services that promote a healthy lifestyle, as well as organisational and social innovation. Technology and ICT facilitate better use of scarce healthcare resources, with appropriate application of business models and services. [7]

E-NO FALLS is an active member of the Action Group 2 and act as a driving force for the implementation of the A2 action plan. In addition, E-NO FALLS is expected to be a catalyst for community building within the domain of fall prevention. The A2 AG is a crucial forum/instrument to achieve this goal. [6]

On the other hand, the Thematic Network is a core member of the A2 coordination team and has committed to coordinate the Action Area 4 (AA4) of the A2 action plan: Governance: innovation, sustainability and scaling-up.

6.1.2 Funding opportunities

It is important to understand that the EIP-AHA partnership is neither a new programme nor a funding instrument, and thus does not seek to replace or duplicate the work of existing programmes or initiatives. It aims to bring stakeholders together to exchange ideas, seek synergies, create and partner in projects which produce concrete deliverables. [8]

The EIP-AHA provides a summary of EU funding sources which could be relevant to the work on active and healthy ageing. The list of EU funding that may be accessed to fund EIP on AHA projects is not exhaustive, and there may be relevant and appropriate funding sources at national and regional level.

Programme	Duration	Amount
Active and Assisted Living Research and Development Programme (AAL)	2014-2020	Maximum contribution from the EU: EUR 175 million
Programme for the Competitiveness of Enterprises and small and medium-sized enterprises (COSME)	2014-2020	EUR 2.3 billion
Erasmus +	2014-2020	EUR 14.7 billion
European Regional Development Fund	2014-2020	The whole regional policy budget amounts to EUR 351,8 billion
European Social Fund	2014-2020	The global regional policy budget amounts to EUR 351,8 billion
Health Programme	2014-2020	EUR 449, 4 million
Horizon 2020	2014-2020	Total :EUR 77 028,3 million
The Innovative Medicines Initiative 2 (IMI2)	2014-2020	The EU will contribute up to EUR 1638 million from Horizon 2020
Joint Programming Initiative (JPIs) More Years, Better Lives - The Potential and Challenges of Demographic Change	Ongoing initiative started in 2011	Budgetary commitments of all countries that participate in the calls
The EU Joint Programme Neurodegenerative Disease Research (JPND)	Ongoing initiative launched in 2008	JPND funding is based on a virtual common pot, made of the budgetary commitments of all the countries that participate in the call. Each country funds its own national project participants.
Knowledge and Innovation Communities (KICs)	2014-2020	EUR 2.7 billion from Horizon 2020
PROGRESS Programme	2014-2020	The total amount for the EaSI programme is of 919.5 million Euro

Table 1. EU funding opportunities

In addition to the information above, the following EU funding for projects could support indirectly the European Innovation Partnership on Active and Healthy Ageing:

6.1.2.1 Horizon 2020

Horizon 2020 is the new Framework Programme for Research and Innovation. Its first annual Work Programme was adopted on 11th December 2013. The first call for proposals (first funding round) were published at the same time. [9]

The first calls under Societal Challenge "Health, demographic change and wellbeing" (SC1) have now closed, relevant calls still open include "Promoting mental wellbeing in the ageing population" [10], "Piloting personalised medicine in health and care systems" [11], "Advancing active and healthy ageing with ICT: Early risk detection and intervention" [12], "Advanced ICT systems and services for integrated care" [13]. Also of interest, funding is available for Pre-Commercial Procurement (PCP) or Public Procurement of Innovative solutions (PPI) [14] and for SMEs [15].

6.1.2.2 Health Programme

Supporting activities related to Adherence, Frailty, Integrated care and Multi-chronic conditions, Prevention of Chronic Diseases-Innovative Approaches, Early diagnosis & Screening of Chronic diseases in the workplace are all earmarked for 2014. A budget is also foreseen for Joint Actions to follow up on the Joint Action on Alcove focusing on dementia and a Joint Action on Healthy Eating Habits & Physical Activity. [9]

6.1.2.3 European Structural and Investment Funds (ESIF)

The detailed management of programmes which receive support from the Structural Funds is the responsibility of the Member States. For every programme, the Member States designate a managing authority (at national, regional or another level), which will inform potential beneficiaries, select the projects and generally monitor implementation. EIP on AHA stakeholders who are interested in mobilising Structural Funds for the deployment of innovative AHA services may contact their corresponding Managing Authorities for more information on available opportunities. [9]

6.1.2.4 Open Calls

In addition to the information above, the “List of open calls for funding: Update August 2014” [16] document provides a summary of the current open calls with potential relevance for the stakeholders of the EIP on AHA.

6.2 ProFouND Business Plan priorities

ProFouND is funded for 36 months, but fall prevention is a long-term activity and the work of the EIP-AHA AG2 group will extend long beyond the funding period for ProFouND [17]. Its objective is to embed evidence based fall prevention programmes for elderly people at risk of falls using novel ICT solution. In this way, ProFouND will also directly address the objectives of the EIP on AHA A2.

There are several options on how sustainability can be achieved which will need to be considered. Example strategies can be summarized in the next sections.

6.2.1 Income from fees

ProFouND could levy a user fee with differential fees for non-profit or for-profit users of ProFouND services. This could be either a flat annual membership fee providing access to e.g. the website and services, or fees for specific service, e.g. a charge for producing each management plan using the PFPApp information tailoring service and other income generation from e.g. training service provision. [17]

Currently ProFouND does not charge any fees for access to any of the resources or activities provided. However, there are a number of activities and resources identified which could feasibly provide fee income following the end of the project in March 2016:

- ProFouND could run meetings, workshops and conferences and charge for attendance. This could be done either by using administrative resources available to ProFouND and ensuring fees suffice to cover all expenditure and create a surplus, in conjunction with a third party agency (subcontract) on the basis of some profit sharing arrangement or by using a sponsorship model which generates income alongside fees.

- Access to website services and resources could be organized as either a flat annual membership, providing regular small payments to the network, or fees for specific services.

- The best practice guidance could include live chatting with accredited practitioners providing counselling to other practitioners requiring assistance on a per case basis.

- The PFPAPP is a clear specific item that could be made available for a fee. Further development of the ProFouND training application which may prove a steady source of income as users would be required to pay a minimal fee (as many apps do charge) and download it on to smart phones for access anywhere. This would allow the user to access and customise (per patient) the exercises already uploaded on the ProFouND Training Platform and show the videos directly to the patient and/or their carer.

- The on-line marketplace and innovation factory platform could allow the possibility of charging fees for companies to put additional information about the product or ICT technology. In addition, fees for third parties wanting access to falls data collected as part of the project work could be charged.

6.2.2 Commercial opportunities

ProFouND could look at soft-advertising opportunities provided by a website and other adverting revenue potentials. ProFouND will explore other commercialisation opportunities that implementation developments may provide, e.g. licensing opportunities and income generation opportunities from intellectual property of the consortium.

Several commercial opportunities have been identified by ProFouND: advertising and trade stands at conference/meetings; advertising on the website; product placement and advertising in outputs; and advertising via the online innovation Factory.

6.2.3 Sponsorship

By preference sponsorship should be sought for ProFouND as a whole, not for individual tasks or Work Packages. That said there may be advantages to seek funding for specific components. ProFouND could look for sponsorship from commercial organisations, national or regional governments, NGOs etc. Product placement and advertising in outputs and sponsorship to allow cheaper/free CT training across Europe is a potential to allow extended reach of the network.

6.2.4 Profit sharing

ProFouND will be particularly interested in identifying profit generation by constituent parties of the consortium, which can be attributed to added value from membership of the ProFouND consortium. ProFouND will look for mechanisms which will allow us to enter into binding agreements for a percentage of any attributable added value profits.

- Identification of profit generation opportunities based on ProFouND Exploitable Outcomes identified in Business Plan matrix

- The crowdfunding process could be an important pool of money where ProFouND could continue to fund operations. The process will take place via an online portal which will be equipped to handle the financial transactions involved.

6.2.5 Further grants

ProFouND could look for future grant income from relevant national, European and international funding agencies. Further collaboration with other EU funded projects may well maintain the project for the following years and help develop its services and potential products.

There are many funding opportunities in H2020. Of particular interest is the call "ICT-10-2015: Collective Awareness Platforms for Sustainability and Social Innovation. c. Digital Social Platforms (DSP)" [18]. The total available budget of this call is 7 million € and the submission deadline is April 14, 2015. (17h Brussels local time).

7. Initial version business model

Based upon the information presented in the previous chapters an initial version of the business model is made and presented in this chapter. This initial version will serve as a discussion document for the consortium to reach consensus about the continuity of the network and to gather commitment from the partners. The questions raised in this document will also be discussed with the consortium members to gain deeper insight into the value proposition.

When defining the possibilities for the continuity of the network the state of the current market for ICT for fall detection and prevention must be taken into account. As reported in D4.1 many different ICT solutions for fall detection and prevention management exist or are being developed in the scope of public or private projects. The devices that are marketed nowadays are the most basic versions, i.e. user-activated alarms and pendants as well as automatic wearable fall detectors (FATE). More sophisticated or innovative systems for fall detection, such as video monitoring-based fall detectors, floor vibration-based fall detectors and acoustic fall detectors are still under development and not commercially available. Furthermore, solutions capable of offering a service to help the user to improve/modify his behaviour to achieve a real fall prevention system are still being developed (i.e. WIISEL or FARSEEING) and no commercial versions are available. Many pilot projects and research projects regarding fall prevention and fall detection are in the process of being implemented and evaluated. Nevertheless, many e-health projects fail because of a too strong infatuation with technology and incapacity of formulating a clear value proposition and revenue model.

Based on the ICT environment and enabling environment for eHealth[3], the national context can be described in the following way:

- *Experimentation and early adoption*, where both the ICT and enabling environments are at an early stage
- *Developing and building up*, where the ICT environment grows at a faster rate than the enabling environment
- *Scaling up and mainstreaming*, during which the enabling environment matures to support the broader adoption of ICT.

The case if using ICT solutions in fall prevention and management is still in the stage of experimentation and early adoption.

The proposed business model takes the current state of the market into account and can therefore be considered as a starting point for the continuity of the network. As the market evolves the business model needs to be adapted to the new situation. The overview of possible exploitable outcomes of the network will serve as starting point for additional activities.

Moreover taking into account the PFN priorities and the ENF analysis the following steps should be directed to find out the possibilities of the development of a common business plan joining efforts of both Thematic Networks.

7.1 Customer segments

Falls in the elderly population is a societal problem and needs to focus on prevention, screening, early diagnosis, as well as treatment and management of falls. As a multifaceted societal challenge, dissemination of activities and products in the field of falls needs to address:

- Elderly users and their families;
- Hospitals, health organizations, care service providers;

[3] WHO. National eHealth Strategy Toolkit • Part 1: eHealth Vision

- The scientific community;
- Citizens and society at large;
- ICT-for-Health value chain stakeholders: R&D centres, ICT product developers, medical device producers, health service providers, physicians and public authorities (D1.3).

The customers of the E-NO FALLS knowledge network (ENN) all belong to the value chain but have different needs and problems.

Elderly can best be reached via face-to-face discussions with their physicians or other healthcare providers. Elderly are most likely to use a specific technology for fall management if their health care provider recommends it. Younger family members can also play an active role (D1.3). This leads to the consequence that elderly are not a direct customer of the output of the ENN.

Communication links are not well established among all the relevant stakeholders throughout the value chain of ICT for falls. Furthermore it is noted that there are many discrepancies noted between the assumed effectiveness of communication between different stakeholder groups and the actual effectiveness as noted by the target audience (D1.3). This is extremely important since falls prevention and management is a collaborative effort and collaboration enhancement is at the core of reaching the desired outcomes for the majority of the elderly population. It is important to identify the network in its entirety and also the ways that each node of the network can be reached.

Researchers can only reach a wider audience when having the support of public authorities in all levels including budget, communication strategies, awareness campaigns, and projects.

The ENN will function as a **hub for all relevant stakeholders in the ICT-for-Health value chain** (D3.2.1). In addition to applying specific operational guidelines, there is also a need for public policy initiatives supporting the development of value-creating business models for eHealth. These require the involvement of all stakeholders such as national healthcare authorities, health professional associations, healthcare delivery organizations, industry and the research community as well as European perspectives, so as to foster the sharing of applicable best practices and experiences (D4.1). In line with the selection of reference sites (European Scaling-up Strategy in Active and healthy Ageing) this value chain will be targeted at a **regional/local level**.

7.2 Value propositions

The ENN should focus on **collaboration enhancement**. Research projects provide a framework for enhancement of collaborations and sharing of information. To gain common understanding and common vocabulary (D1.3). The ENN will provide a **meeting place** for stakeholders to indicate their interest in a certain topic related to fall prevention and a corresponding research call to be able to jointly submit a proposal.

As part of the E-NO FALLS project an **ICT repository** has been developed. The content of the ICT repository consist of an online database of falls-related data and statistics to aid research and the exchange of specific best practice and practical experience from organizations which have actually gone that way. Background information from the project as presented in deliverables is made available as part of the ICT repository. Information-sharing and best practice identification include specific topics such as security, privacy, data protection and safety. Usually the elements are solved with appropriate regulations and protocols; however, it is important to remember that these requirements are often neglected when designing and developing a business model for an eHealth system (D4.1). In parallel PFN is developing the innovation factory complementary to the ICT repository

Furthermore a catalogue of assessment methods has been made. The catalogue makes no claim to be complete. But the catalogue shows the entire spectrum of different aspects and methods which should be considered for socio-economic assessment of new (technology-based) services. Assessment standards varied between organization, national authorities and countries and are also depending on the interests of different stakeholders. The next step should be to a discussion about the catalogue with different experts and stakeholders to develop a **pocket version of the catalogue** for different stakeholders.

In events organized by E-NO FALLS participants expressed an interest in using technology to provide tools that assist in client assessment and/or outcome measurement, particularly if they improve objectivity and reliability. One of the most important criteria for the assessment for falls prevention/intervention/security ICT-based solutions are medical benefits, as without medical benefit no further assessment becomes necessary. Medical benefit could be defined as reduction of duration of illness, extension of life expectancy, reduction of adverse effects and improvement of quality of life. Especially reduction of morbidity effects and improvement of quality of life are relevant issues for falls prevention. The presented methods are assessing changes in motor function, central sensory organization, health related quality of life, geriatric and psychological aspects. Most of the presented methods do not need further technical equipment (D2.2). In practice there is a mismatch between clinicians that are looking for evidence based information and the sort of information that is available from pilots. This is partly caused by the fact (as reported in D4.2.2) that an ICT based fall prevention device is not necessarily a medical device, it is the responsibility of the manufacturers to classify the device as a medical device or not. This decision has strong influence in the verification and validation phase of the product design (medical devices usually result in additional costs and regulatory requirements) and also affects the approachable market segments. In fact, despite the many advantages of interoperability and the use of standards, many of the ICT based fall prevention and management solutions have not chosen to be medical devices and hardly comply with the requirements in the standards. These devices do not follow a standardized data architecture and, therefore, cannot exchange data with the electronic health record.

Furthermore due to the complex and disruptive nature of the interventions in the health and care area it is often difficult to measure their effects in terms of efficacy and efficiency directly. It often takes a long while before the results of large scale changes can be assessed. That is why European Scaling-up Strategy in Active and Healthy Ageing proposes to assess the viability for scaling up by using comparability frameworks rather than classic evidence, such as that come from randomised controlled trials (European Scaling-up Strategy in Active and Healthy Ageing).

Therefore as interesting as the topic of creating additional evidence related to the use of ICT for fall detection and prevention is that will not be the main priority of the value proposition of the ENN at this stage.

7.3 Channels

Finding the right mix of channels to satisfy how customers want to be reached is crucial in bringing a value proposition to the market. Awareness and communication actions should be targeted to the specific groups of stakeholders. The most important and successful actions are considered to be **focus groups**, **clustering events**, and **networking events**. These actions help to bring stakeholders together with different backgrounds and start to introduce a dialogue, connecting and learning with each other and establishing a common vocabulary (D1.3). All to be organized at a local level. Announcements are done via the website and local networks.

Besides physical meetings the **website** of the ENN will be the virtual meeting place for stakeholders in the ICT-for-Health value chain.

7.4 Customer relationship

The relationship that will be established with the customers of the ENN will mainly be based on **co-creation** and by building a **community**. Depending on the type of knowledge that will continue to be generated in the network personal assistance from network members to specific customers is also a possibility but not the main focus for the initial steps towards the continuity of the network.

7.5 Revenue streams

For the network there are three possible revenue streams.

1. To charge members of the network a **subscription fee** to become part of the ENN, e.g. a specific amount for one year membership;
2. To have a community part of the ENN that is **free of charge and have a usage fee** for specific services offered by the ENN;
3. To create a community where its members **provide knowledge** to other network members and **actively take part in discussions** as a 'fee' for being part of the network

In D4.1 it is concluded that what is required is a coordinated central point where specific knowledge and experience in relation to fall detection and prevention is collected, organized and made available to all interested stakeholders. **This activity should be led by the European Commission** (EC) and involve stakeholders including legal counsellors and the chief technology officers of healthcare delivery organizations. The ENN could be appointed by the EC to serve as this central point and could receive the needed funding to maintain the network.
Further work is needed in this field specifically with PFN and EIPAHA

7.6 Key resources

Key resources of the ENN is the **knowledge generated in the E-NO FALLS project** and the **expertise of the members of the network** that will continue to be gained as part of their day-to-day work. The current members of E-NO FALLS all represent a part of the value chain and have their own specific expertise. The knowledge that they gain carrying out their 'normal' work can serve as input to the network. This input will be enhanced by new members that join the network.

7.7 Key activities

The business model is designed with a platform as key resource and dominated by platform or networking related key activities. The physical activities will take place on a regional/local level and focus on a local value chain. The virtual activities will focus on a EU level by sharing information between regions. All activities have in common that they focus on **sharing knowledge, experiences, and best practices**.

7.8 Key partnerships

Developing business models for value-creating eHealth systems involves the exchange of specific best practice and practical experience from organizations which have actually gone that way (D4.1). Therefore the main partnership that needs to be established is with **Reference Sites** that can provide actual experiences with the use of ICT for fall prevention and detection.

Furthermore alignment with activities from **EIPAHA** is essential to make sure that there is no duplication of work. Especially since with the project PROEIPAHA will also develop an on-line repository with information

that will help interested partners to reach the goals of EIPAHA. There is also an online marketplace as part of EIPAHA and also another one from PFN
Summarizing it is essential to coordinate all the existing repositories and the digital resources available for Fall Prevention. The project PROEIPAHA should lead this effort.

As a proposal should be desirable to have only one portal with clear responsibilities for each participant group in a federal structure.

7.9 Cost structure

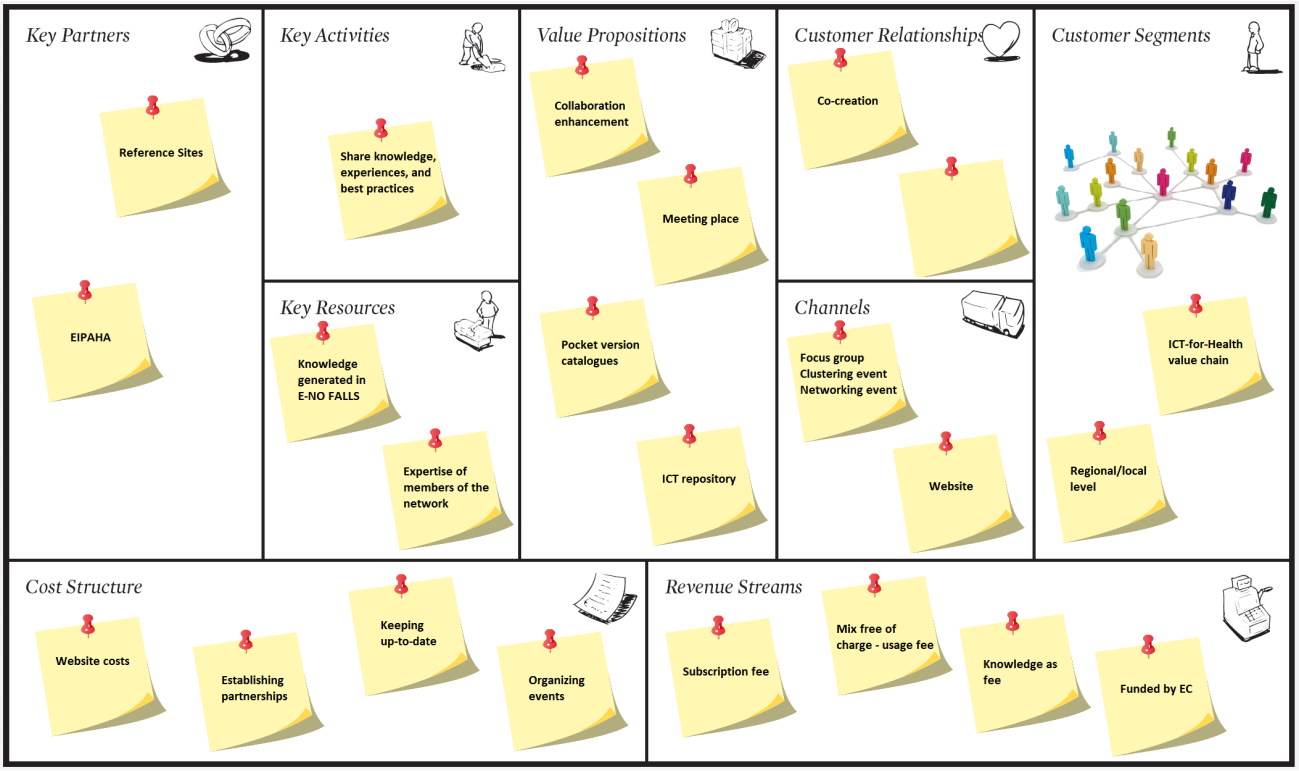
The ENN focuses on value creation for its members. Costs are variable. It starts with costs of keeping the network active. If a **website** is used there will be the costs for hosting the website and **keeping it up-to-date**. There are costs related to the human resources for posting information, motivating other members to be provide content, and for **establishing partnerships** with reference sites.

For networking activities costs can be charged that cover the expenses for the preparation of the event and costs for the location and catering.

When specific knowledge needs to be generated there will be costs associated with that. However at this stage the business model focuses on knowledge that will be generated by members anyhow so the 'only' thing that needs to be taken into account is whether or not they want to share the information free of charge.

7.10 Graphical representation business model

The figure below graphically shows the proposed business model. As mentioned in the introduction of this chapter this model is based on the current state of the market for ICT for fall detection and prevention. Within the E-NO FALLS project more content is generated that could potentially become a value proposition of the network. This potential is described in the chapters of this preliminary business plan but the business model itself focuses on a realistic starting point for the continuation of the ENN.


Key Partners
Reference Sites
EIPAHA
Key Activities
Share knowledge, experiences, and best practices
Key Resources
Knowledge generated in E-NO FALLS
Expertise of members of the network
Value Propositions
Collaboration enhancement
Meeting place
Pocket version catalogues
ICT repository
Customer Relationships
Co-creation
Channels
Focus group
Clustering event
Networking event
Website
Customer Segments
ICT-for-Health value chain
Regional/local level
Cost Structure
Website costs
Establishing partnerships
Keeping up-to-date
Organizing events
Revenue Streams
Subscription fee
Mix free of charge - usage fee
Knowledge as fee
Funded by EC

8. Process towards Final Version of Business Plan

This chapter describes the steps that will be taken to reach the final version of the business plan. It starts with a conclusion based upon the inventory of currently available deliverables within the E-NO FALLS project. The second paragraph focuses on questions to be answered in order the make concrete decisions on how to move forward towards a final business plan. Part of that process is to gain input from experts in a workshop. The chapter ends with a paragraph describing the overall goal of the final business plan.

8.1 Conclusion from Inventory

When looking at the stakeholders that have been involved in the work of the E-NO FALLS project a lot of information has been gained on older adults, clinicians and the research community. Less information has been gathered on local/regional authorities, SME's and family members. In case these are also considered to be important stakeholder groups the current inventory needs to be expanded.

Direct exchange of information is considered to be effective from the point of view of raising awareness, to promote technology adoption, and a two way route for information exchange. Most attractive to the wider audience are considered websites that allow free access to the information rather than those that require signing up as a user. For that purpose a single access point has been created by implementing "fallsprevention.eu" as a public web portal where people can access to other initiatives being carried out (other networks, European and international projects-initiatives-programs) related to falls.

Due to the importance of usability and interoperability tests the network can offer the testing facilities and expertise to perform the tests as service in order to stimulate the development of solutions that are aligned with the needs of users and can be integrated with other products.

Pre-commercial procurement enables public authorities to get new technologically innovative solutions that can address their specific needs. Part of identifying specific needs is to develop Key Performance Indicators that can be used to evaluate the effect of a certain solution. The knowledge network can assist public authorities in defining Key Performance Indicators to see if the innovative solutions meet their specific needs.

A lot of scales and assessments are discussed within the deliverables written by the consortium. Also from a legal/regulatory perspective information has been collected. Can we offer guidance on how to apply methods/assessments/regulations as a service? For that a deeper understanding needs to be established on the expertise within the consortium on this specific aspect. Is the current expertise gained from desk research or from actually applying the methods?

It has been highlighted that the cooperation between different stakeholders isn't optimal. The knowledge network can become an intermediary organization to connect all the relevant stakeholders and to enhance cooperation. For example current communication strategies used by stakeholders in research and industry are not effective in reaching healthcare professionals.

Clinicians frequently provide information on falls-related ICT solutions to older adults, their families/carers and other healthcare professionals. Therefore, they are a vital stakeholder group in the process of raising awareness among potential end users of such solutions. In terms of the type of information clinicians are looking for it is evidence based information. Their preferred channel for retrieving that kind of information is scientific journals.

Communication and awareness strategies for older adults need to be geared towards health professionals who will then transfer this knowledge to the older people.

Researchers primarily disseminated information via scientific publications and conferences, and via press releases. Such methods were not listed as preferred sources of information by clinicians or older adults, and thus researchers may be underestimating the effectiveness with which they engage with these stakeholder groups. Demonstrations for users were also noted by researchers as being effective in providing information, although extensive time and resources would be required to reach a large target audience using this method.

In terms of the image of the network to their customers important values are being seen as a trusted information source, to be considered as a promoter of standardization and interoperability, focusing on raising awareness, to see technology as an enabler not as a solution by itself and to focus on providing confidence to older adults.

Based on the work done the following categories of possible exploitable outcomes have been selected: Development of toolkits, Information that fills the gap between expertise on fall prevention and fall risk estimation solutions, evidence based information, Technology as a part of a multifactorial approach, Database of available technologies, overview of methodology/best practices.

8.2 Discussion based upon Inventory

In terms of stakeholders for the knowledge network the following questions can be asked:

- Some of the stakeholders like SME's and public administrations currently get little attention, could this become our focus?
- Who will be part of the network? Is that the same group as the group that we offer services to?
- Who do we offer services to, who from the list of stakeholders is our customer?
- Can the current stakeholders who provided answers to the questionnaire be consulted again? Can they become an expert reference group for the knowledge network?
- Who do we consider to be the target group of the knowledge network? It could also be a step-wise approach where we don't target all interesting parties at once but focus first on easy to reach stakeholders and then expand.

In terms of type of activities the following questions can be asked:

- Direct exchange of information is a good method to establish a strong relationship with stakeholders. It is however a time-consuming activity that members of the network must be willing to undertake.
- From the point of view of reaching a wider audience a public web portal "fallsprevention.eu" has been created. Currently the focus of this web portal is on other initiatives being carried out (other networks, European and international projects-initiatives-programs) related to falls. The suitability of this web portal for other type of activities needs to be investigated.
- Developments can be monitored and the repository can be kept up-to-date. For visitors of the web-portal this will serve as a quick scan of all that is available. Do we want to add advice on what too choose as a service?
- When offering test facilities as a service do we have issues with the independence of the network?
- Do we have enough expertise within the consortium to be able to define Key Performance Indicators for public authorities?
- In case expertise of how to apply methods and regulations in available within the network this can be offered as a service.

In terms of communication strategies the following questions can be asked:

- Do the current partners within the network envision this group to become an intermediary organization in the field of fall prevention and detection?
- In order to be able to provide the evidence based information clinicians are looking for an alliance with scientific journal needs to be investigated. For example would those journals offer that specific parts of their database with articles related to fall prevention and detection can be accessed via the knowledge network. Also a strong relationship with scientific journals can increase the change that those journals will devote attention to research about ICT solutions for fall prevention and detection.
- Since older adults are best reached through health professionals it needs to be determined whether or not it is wise for the knowledge network to work on a B2C relationship with the end consumer or that the knowledge network should only focus on B2B relationships.
- The current strategy from researchers to disseminate their knowledge and reach stakeholders isn't always in line with what stakeholders prefer. So when focussing on the continuity of the network it needs to be carefully taken into account that the communication strategy should incorporate more than the current strategies from a research point of view.
- In-depth information has been collected on communication strategies of clinicians, older adults and researchers. How about reaching local authorities and the SME's and the strategies that they use?

In terms of the values important to the network they must be aligned with what the network has to offer. Therefore it is important to look at the knowledge and services provided from that point of view.

In terms of the type of knowledge available within the network the following questions can be asked:

- Check if the selected possible exploitable outcomes reflect the need of intended stakeholders of the network.
- How expert are the current partners of the network in relation to the selected exploitable outcomes. Are additional experts needed?

When taking into account current experiences of partners with knowledge networks one of the major decisions that needs to be taken is to decide if the focus will be on a commercial approach where the network can become self-sustainable or if the focus will remain to be on a research perspective where it is more likely that at least part of the work will be supported by public funding.

8.3 Market Uptake Workshop

This workshop is planned to take place during the EU Falls Festival on the 24rd of March in Stuttgart. In preparation of the workshop a business model canvas will be completed based upon the information presented in the interim business plan. This will serve as a basis to start the discussion with the persons present at the workshop. Persons who register for the fall event have the possibility to sign up for the workshop. Persons attending the workshop will be asked for their background to gain a better understanding of the point of view they have when providing input to the business canvas model.

8.4 Final Business Plan

The overall goal of the final business plan is to focus on the most promising business opportunity on an EU level. This could be a knowledge network that is based upon the work carried out within the E-NO FALLS project but also the possibility to integrate the work of the E-NO FALLS project in other networks will be considered. Within the project a close alignment with the other tasks if WP4 will be accomplished in order a coherent perspective towards the market uptake.

Within the E-NO FALLS project also a roadmap for market development will be developed. Four main topics essential for the construction of a roadmap for market development of ICT solutions for fall prevention and management are: conveying legal clarity, building-up awareness, driving prescription and engaging end-users. The final business plan will take into account the ideas from the roadmap.
As stated in many different points of these deliverable, strong alliances are necessary in fall prevention in order to achieve a great impact in the society.

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