ALFRED

Personal Interactive Assistant for Independent Living and Active Ageing

WP2 – Concept, Requirements & Specification

Market and Applicability Watch Report

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This fourth version of the Market and Applicability Watch Report builds on the previous D2.2.3 and D9.1.2, with a focus on the latest results from the pilots with end-users and the market validation analysis. It also provides a further development on the exploitation strategy with the suggestions of a roadmap towards the achievement of a tested marketable product.

SEVENTH FRAMEWORK PROGRAMME

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Executive Summary

This deliverable describes the analysis developed during the last phase of the project to better understand ALFRED potential customers.

It builds on the deliverable D9.1.2 and the decision of addressing institutions offering healthcare and social care to the elderly population as potential payers of ALFRED. The scope of this deliverable is to look at factors which may pull institutions of seniors housing and care to acquire ALFRED services.

The analysis is based on a set of interviews undertaken with managers of nursing homes and other type of Senior Institutions. It also gets inspiration from the results of the last set of pilots with end users.

The result is the suggestion of a revision of the 'Value Proposition' targeting not only end users but also potential customers such as nursing homes.

Finally, a Road Map is proposed which includes a set of actions and learnings to move from a RD prototype to a fully marketable product.

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1. Introduction

ALFRED – Personal Interactive Assistant for Independent Living and Active Ageing – is a project funded by the Seventh Framework Programme of the European Commission under Grant Agreement No. 611218. It will support older people to live longer in their own homes with the possibility to act independently and to participate actively in society by providing the technological foundation for an ecosystem consisting of four pillars:

- **User Driven Interaction Assistant** to allow older people to talk to ALFRED and to ask questions or define commands in order to solve day-to-day problems.
- **Personalized Social Inclusion** by suggesting social events to older people, taking into account their interests and their social environment.
- **Physical & Cognitive Impairments Prevention** by way of serious games that help the users to maintain and possibly even improve their physical and cognitive capabilities.
- A more **Effective & Personalized Care** by allowing medical staff and caretakers to access the vital signs of older people monitored by (wearable) sensors.

1.1 ALFRED Project Overview

One of the main problems of western societies is the increasing isolation of older people, who do not actively participate in society either because of missing social interactions or because of age-related impairments (physical or cognitive). The outcomes of the ALFRED project will help to overcome this problem with an interactive virtual butler for older people, (a smartphone application that is also called ALFRED) which is fully voice controlled.

The ALFRED project is wrapped around the following main objectives:

- To empower older people to live independently for longer by delivering a virtual butler with seamless support for tasks in and outside the home. This virtual butler (the ALFRED app) aims for a very high end-user acceptance by using a fully voice controlled and non-technical user interface.
- To prevent age-related physical and cognitive impairments with the help of personalized serious games.
- To foster active participation in society for the ageing population by suggesting and managing events and social contacts.
- And finally, to improve caring by offering direct access to vital signs for carers and other medical staff as well as alerting in case of emergencies. The data is collected by unobtrusive wearable sensors monitoring the vital signs of ALFRED's users.

To achieve its goals, the ALFRED project conducts original research from a user-centred perspective and applies technologies from the fields of Ubiquitous Computing, Big Data, Serious Gaming, the Semantic Web, Cyber Physical Systems, the Internet of Things, the Internet of Services, and Human-Computer Interaction. For more information, please refer to the project website at http://www.alfred.eu.

1.2 Deliverable Purpose, Scope and Context

This deliverable is the result of a long process towards the study of market trends in mHealth and active ageing and healthy life, and the definition of an exploitation strategy for ALFRED. The scope of D2.2.4 is to offer the latest findings in terms of customer development and a roadmap for the future deployment of ALFRED in the market. It builds on the deliverable on exploitation strategy D9.1.2 and the project's decision to study caregivers as potential payers for ALFRED. This idea was suggested during the participation in the *Lean Launch Pad Event* in Rome on June 2015 (D2.2.3); the reason behind being the difficulty of targeting elderly people due to the digital gap and the reluctance of this population to use and pay for digital services. The silver economy covers new market opportunities. However, it also presents the challenge of addressing a target population which is difficult to access. The creation of innovative business models is critical in order to find indirect channels to access elderly people and offering them the benefits of mHealth in ageing.

D2.2.4 also takes the results of the pilot tests with end-users (D.8.3.2 and D8.4) as a reference. In addition it analyses how these might be translated into future actions towards the development of a marketable product.

1.3 Document Status and Target Audience

This document is listed in the Description-of-Work (DoW) as “public”, it provides a Market and Applicability information on potential customers, such as Seniors Institutions, targeting the mHealth and ageing sector. Therefore, it can be used by external parties in order to understand the market space of ICT technologies for independent living of elderly people.

While the document mainly aims at the project contributing partners, this public deliverable can also be useful for the wider scientific and industrial community. This includes other publicly funded research and development projects, which may be interested in collaboration activities.

1.4 Document Structure

This deliverable is divided into the following sections:

Chapter 1 provides an introduction, including a general overview of the project, and outlines the purpose, scope, context, status and target audience of this deliverable.
Chapter 2 describes the methodology used along the project implementation for the consecution of a market oriented product and service.
Chapter 3 describes the progress made with the analysis of the target customers of ALFRED. This includes a detailed market discovery phase addressing seniors institutions.
Chapter 4 provides a review of the 'Value Proposition' of ALFRED according with the recent findings of the market analysis.
Chapter 5 suggests a Roadmap with a set of actions needed in order to move to a marketable product.
Annex I gives details about the results of the customers' insights.
Annex II provides a revision of the business model for ALFRED, considering the new market analysis
Annex III present the template used for the market discovery interviews with managing directors of seniors' institutions.

2. Methodology: From Ideation to Adjustments

Three years of intense and collaborative work between experienced professionals has resulted in a successful integrated prototype of ALFRED, which is the first of this kind. In our analysis of the market space on ICT technologies for independent living of older people, ALFRED is the first ICT solution that integrates so many different technical components (social, health, and personal assistance) combined with the support of a voice system. Some of the components of ALFRED were not built completely from scratch but are based on the results of other research and development (RD) projects of project partners. However, the concept of integrating all these components and having them work in a single system was absolutely a novel concept per se.

Conscious of the challenge ahead, the consortium adopted a "lean start up" methodology: IDEA-BUILD-TEST-ADJUST[1]. Figure 1: Process Methodology - illustrates how this process has been applied to the ALFRED case.

[IDEA] - The first ideation of ALFRED occurred in 2013 when all the project's partners agreed on a first basis of what they wanted to achieve from the project: a competitive technical solution that aimed to solve a pressing societal challenge. This ideation phase is included in the Description of Work of ALFRED (DOW).

[BUILD - TEST - ADJUST] - ALFRED's different components have undergone continuous iterative tests with end users since the first apps were created. At each time, these apps have been adjusted according to the feedback collected from seniors in France, the Netherlands and Germany.

[TEST] - In May-June 2016, during the last year of the project, all these different components were integrated into a unique interface which is controllable through voice command. This has been the first prototype of ALFRED 'as a whole' that has been tested with end users to check its usability (June-July 2016). These pilots also act as a first assessment tool to evaluate what are the properties of ALFRED that elderly people like the most about (which app or component) and their willingness to use and purchase ALFRED in the near future.

[TEST] - Also in May-June 2016, a customer development analysis was undertaken to understand the main pain points and expressed needs of senior institutions, such as nursing homes. This analysis served to get a product-market fit and to finally adapt the initial Value Proposition of ALFRED to the needs of seniors and their caregivers (institutions and families).

[ADJUST] - The last phase of this process has been the final revision of the business model with a new proposal for the revenue stream and the suggestion for a **Roadmap,** which is aimed at guiding ALFRED from a RD prototype to a full marketable product.

This Roadmap is meant as a list of adjustments in terms of technical improvements and further iteration tests with end users and a new pilot with the first early adopters to pilot the final product.

[1] A. Osterwalder, Y. Pigneur, G. Bernarda, A. Smith, Value Proposition Design, 2014, Strategyzer Series, Wiley.

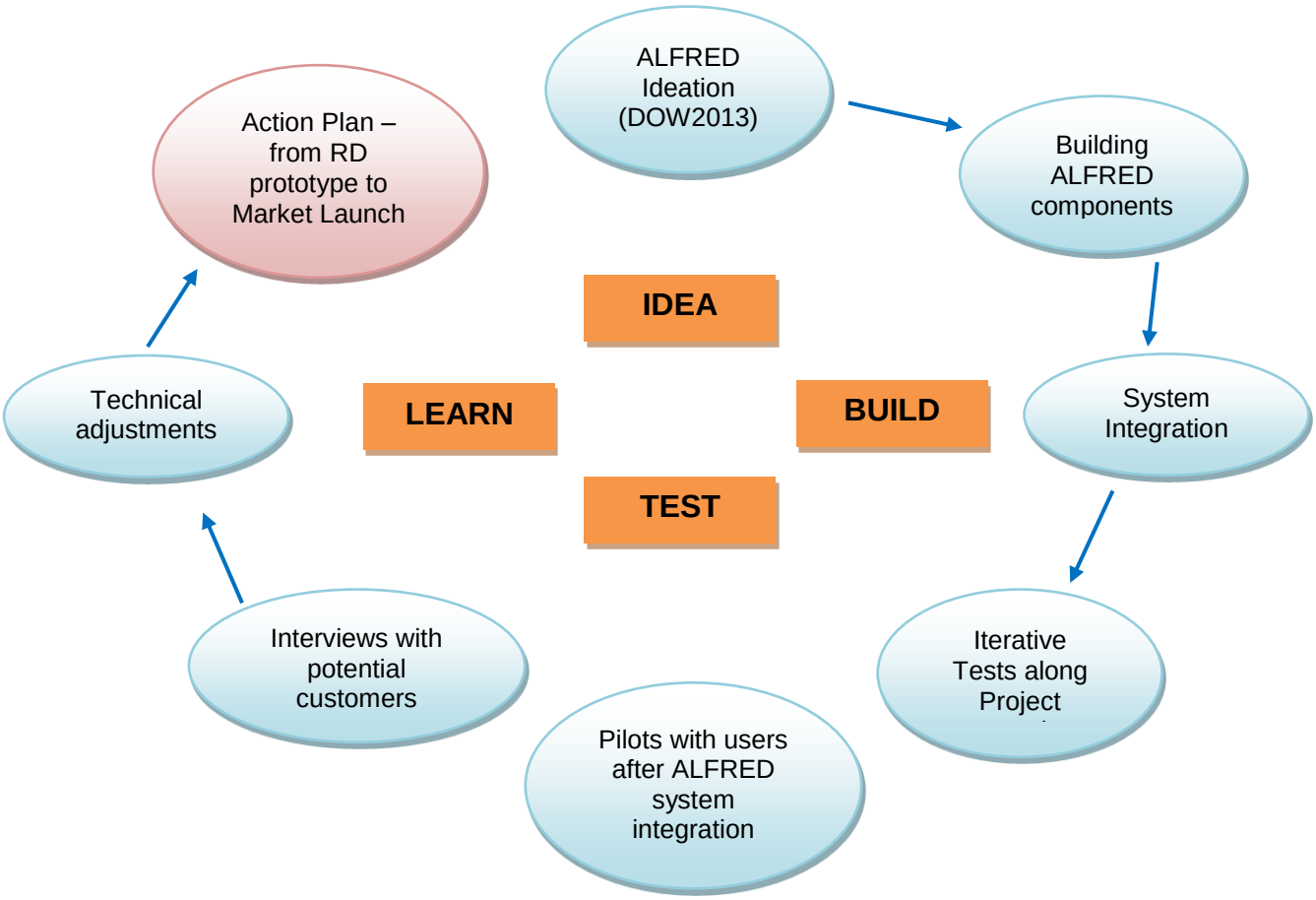


Figure 1: Process Methodology

3. Market and Customer Development Analysis

Following the analysis of deliverables D2.2.3 and D9.1.2, ALFRED project decides to embrace the strategy of approaching end users through the support of external stakeholders, such as caregiver institutions. With this idea, we aim at facilitating the access to a population segment that is oftentimes rather reluctant to such types of digital solutions in order to get insights on good-user-experience of ALFRED.

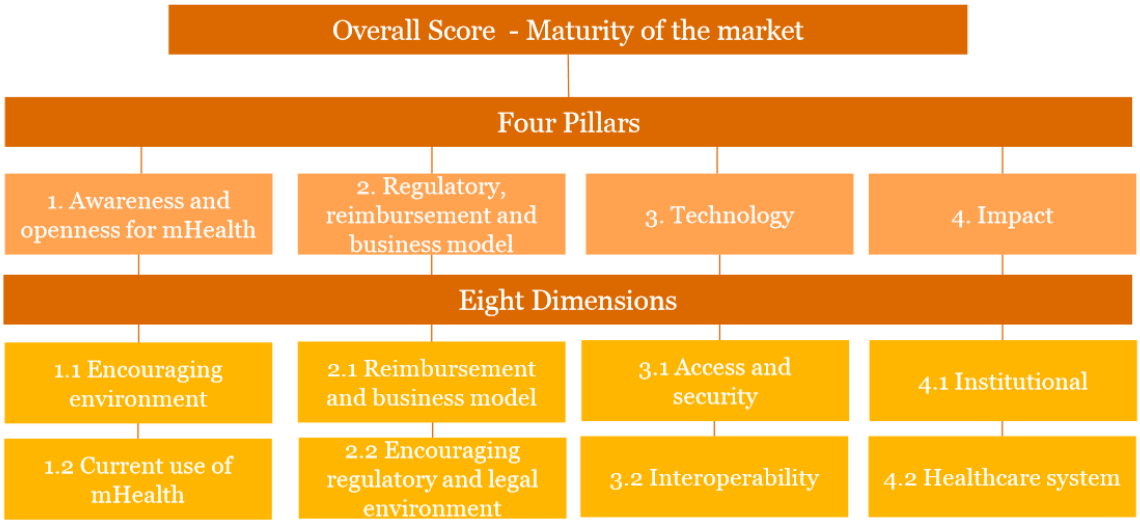
This chapter offers an overview of the latest trends in social acceptance and awareness of mHealth apps among seniors. The main points are the tendencies on mHealth for seniors, an update on digital literacy among elderly people, and their expectations for the near future.

Section 1.6.4 is fully dedicated to a specific analysis of senior institutions such as nursing homes, home care services or senior associations. This analysis is based on an extensive literature review presented already in D9.1.2.

Nursing homes have been suggested as potential payers for ALFRED (reference to D2.2.3 and the participation of ALFRED team to the **Lean Launch Pad Event**, Rome June 2015). Therefore, following the lean start-up method of Alex Osterwalder and colleagues[2], we undertook a ***'Customer Development Analysis'*** for Senior Institutions through interviews and on-site visits.

3.1 mHealth Readiness for the Ageing Market

This section provides a further analysis on the market opportunities and challenges for mHealth from the perspective of seniors and their caregivers. We refer to the mHealth scorecard pillars elaborated by PwC as a methodological tool to measure the maturity of the mHealth market in different countries[3]. The Figure 2: mHealth Scorecard - depicts the main features.

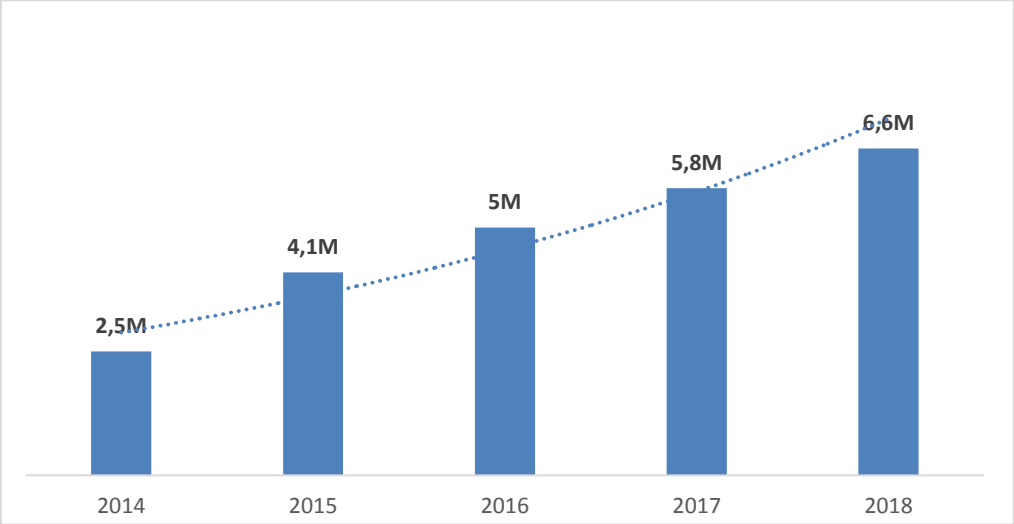


Source: PwC Analysis Based on EIU Research, 2012

[2] A. Osterwalder, Y. Pigneur, G. Bernarda, A. Smith, Value Proposition Desin, 2014, Strategyzer Series, Wiley.
[3] PriceWaterhouseCooper, Emerging mHealth: paths for growth. 7 June 2012.

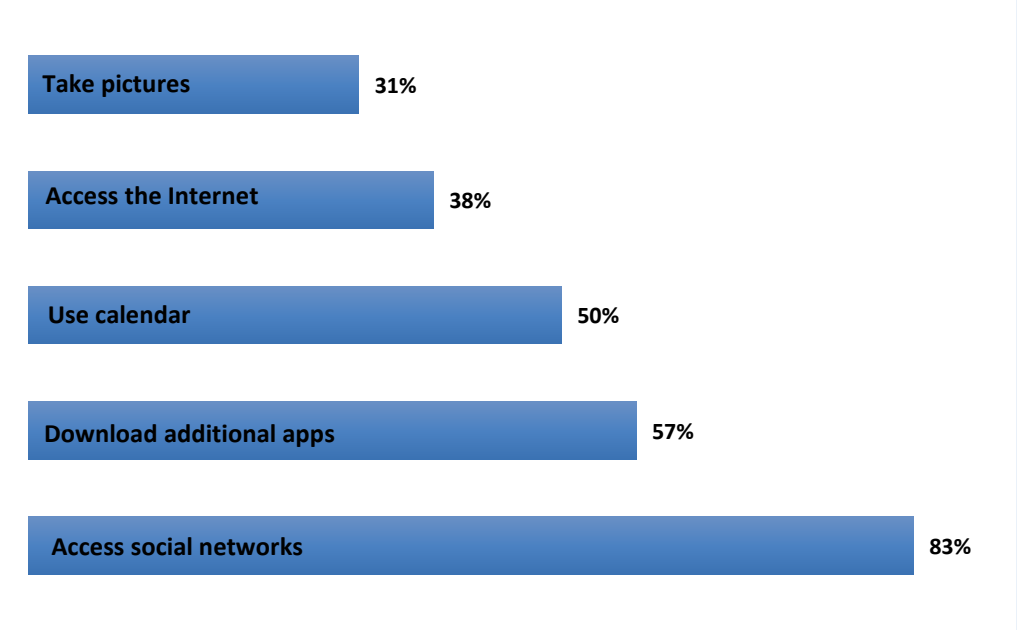
Figure 2: mHealth Scorecard

In order to measure the general awareness of the mHealth within the senior population, we analyzed data on the smartphone penetration among people aged 65+ years old, as shown in Figure 3: Smartphone Users in Germany +65 Years. The type of activities older people usually do with their smartphone (e.g. taking pictures, accessing the Internet, using the calendar, downloading more apps, and accessing social networks), is shown in Figure 4: Smartphone Activities of Users Ages 65+ in Germany - and Table 1: Social Network User Share in Germany, by Age, 2014-2020. The target country of the analysis was Germany, since it is one of the first countries where ALFRED will be tested and launched on the market.



Source: eMarketer, 2015

Figure 3: Smartphone Users in Germany +65 Years



Source: Bitkom survey conducted by Bitkom Research and AIRS as cited in press release, March 25, 2015

Figure 4: Smartphone Activities of Users Ages 65+ in Germany

	2014	2015	2016	2017	2018	2019	2020
12-17	9.8%	9.7%	9.5%	9.3%	9.2%	9.0%	9.1%
18-24	14.9%	14.3%	13.9%	13.5%	13.2%	12.9%	12.6%
25-36	22.0%	21.6%	21.3%	20.8%	20.4%	20.1%	20.1%
35-44	16.5%	16.3%	16.1%	16.0%	16.0%	16.0%	16.0%
45-54	17.9%	17.9%	17.9%	17.8%	17.7%	17.6%	17.6%
55-64	10.9%	11.4%	12.0%	12.6%	13.1%	13.5%	13.8%
65+	7.3%	8.0%	8.6%	9.3%	9.6%	10.0%	10.1%

Table 1: Social Network User Share in Germany, by Age, 2014-2020

Source: eMarketer, June 2016

Trends highlighted in the figures above show a promising future for the extension of ICT among the elderly population. Hence, the ALFRED prototype has certainly been produced at an appropriate moment for its deployment in the market.

However, it is evident that there is a distinction between seniors with low or severe cognitive or/and physical damage in terms of their capability to use ICT. Therefore, we assume that ALFRED offers services targeted to people who are not at an advanced stage of cognitive/health impairments and who do not have any severe physical or cognitive impairment. This assumption is driven by the type of activities that ALFRED's apps suggest to its users: these are mainly apps that foster mobility, and serious games that require physical action and in general good cognitive status. Severely impaired seniors will not profit at all from the potential of ALFRED, and hence should not be the first target customer group.

The Figure 5: Suggestions for ALFRED Target Users/Customers - briefly recaps the main suggestions taken regarding ALFRED target users:

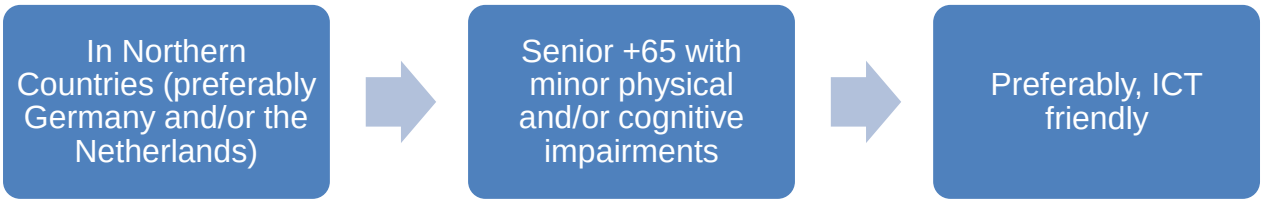


Figure 5: Suggestions for ALFRED Target Users/Customers

25 apps		

3.2 Customer Development Analysis

Considering caregivers as potential stakeholders interested in adopting and paying for ALFRED, this section if fully dedicated to explaining the steps that have been taken to discover the main problems that ALFRED potential customers are trying to solve, and to understand how the ALFRED concept could solve these problems. Therefore, the scope is to learn how to add value to the ALFRED value proposition by suggesting a set of actions for a successful placing of ALFRED onto the market.

3.2.1 ALFRED Value Map

A first approach to the target customer always implies a clear understanding of the overall potentiality of the service or product as a basis of the initial Value Proposition[4].

The

Table 2: ALFRED Original Value Map- shows, in just one picture, the overall services offered by the current ALFRED prototype. This overview serves as the basis to capture and add value to the ALFRED Value Proposition and to guarantee a good product/market fit.

[4] Alex Osterwalder, Value Proposition Design: How to Create Product/Services Customer Wants, 2014

Table 2: ALFRED Original Value Map

<table>
<tr><td colspan="2">25 apps</td><td colspan="2">  </td><td colspan="2">1 Web Portal
1 Marketplace</td></tr>
<tr><td colspan="3"> 
Seniors</td><td colspan="3"> 
Caregivers: Institutions + Families</td></tr>
<tr><td>User - Driven Interaction Assistant</td><td>1. Navigation
2. Battery Warner
3. Chat
4. News</td><td>5. Tutorial
6. Agenda
7. Questionnaire
8. Settings
9. Help</td><td rowspan="3">Web Portal</td><td colspan="2">User Management Profile: To manage data of care receivers and hot to get in contact with them.</td></tr>
<tr><td>Personalised Social Inclusion</td><td colspan="2">10. Calendar
11. Meet
12. Show Events
13. Rate Events
14. Profile
15. Contact</td><td colspan="2">Event Manager Profile: To populate events in the Recommendation Engine and to send personalized notifications to the users.</td></tr>
<tr><td>Serious Games for Physical and Cognitive Impairment Prevention</td><td>16. Dancicians
17. City Explorer
18. Balance Bike</td><td>19. Back Trainer
20. Puzzle Arena</td><td colspan="2">Health Manager Profile: To visualize and to manage health parameters from a large number of users. Data is stored in cloud-server system.</td></tr>
<tr><td>Effective and Personalized Care</td><td>21. Medical Reminder
22. Alarm Clock
23. Health Monitor</td><td>24. Body Posture
25. Weight Control</td><td>ALFREDO Marketplace</td><td colspan="2">Open platform that allows external developers to upload apps related to active ageing.</td></tr>
</table>

3.2.2 Customer Discovery

Often, RD projects focus on products and features and not on how they create value for customers. The Customer Discovery Phase from the Lean Start-Up Method of Steve Blank and Alex Osterwalder[5] is a process that forces researchers to highlight how their products and services can create a value for their customers and end-users. It pushes technological developers to be concrete about their intentions to create such types of customer value.

In order to centre products and services on customers and end users, it is fundamental to rigorously test ideas with customers and end users before implementing them. By doing so, we leverage the ALFRED technology and product RD by turning the ideas into great value propositions and business models[6]. Finally, our aim is to avoid the risk of working on products and services that do not matter to customers or end-users.

The integration of all the components into ALFRED was finished in June 2016. This process was complex and very challenging and probably one of the most interesting moment of the project. The integration suffered from delays due to the complexity of the process. However, many valuable learnings have been experienced with the final goal of adapting ALFRED to user expectations.

Once the integration was completed, eSeniors (ESE) in France, the National Foundation for Elderly (NFE) in the Netherlands, and the Charité Hospital (CHA) in Germany, organized a number of pilots in their respective settings. The main lessons learnt from each case are described in the following 3.2.3 Lessons Learnt from Our End Users

Meanwhile, first contacts and interviews with different types of senior care institutions were also undertaken in Germany, Spain and the Netherlands. These findings are laid out in 3.2.4 Lessons Learnt From Our Customers

3.2.3 Lessons Learnt from Our End Users

The overall process of conducting the pilot applications is described in the deliverables D8.4 and D8.3.2, where detailed information and raw data can be found. Here, we summarize the main findings and lessons learned in terms of market applicability.

According to ESE and NFE in France and the Netherlands, the **three most positive points** of the results are:

1. ALFRED encourages seniors to go out. The most used apps were Navigation, Calendar and Health Monitoring - especially for counting of the number of footsteps they take in a single day.
2. The voice interaction motivates seniors to use ALFRED.
3. The interface was considered easy to use by the end users.

Regarding the **three most negative points**, the results showed the following:

1. Seniors in a good physical and social status feel that ALFRED is not directly targeting at them. They feel that ALFRED is more suitable for isolated seniors.
2. In France the target group was more experienced with ICT. The seniors stated that they can find similar apps to those of ALFRED for free in other marketplaces. Hence, they did not wish to pay for an integrated version of ALFRED. In the

[5] Ibid; Steve Blank, The Four Steps to Epiphany, 2006.
[6] Ibid

Netherlands, the seniors were a bit older and less experienced than in France, hence the majority said that they would be interested in paying for ALFRED, however under certain conditions (if ALFRED works properly; if I could use it to call my contacts; if I could use it for when I fall, etc.). For the ALFRED solution as it currently stands, the intention to use it was low in the Netherlands.

3. Seniors were frustrated because of different errors experienced during the testing, preventing them to fully enjoy the solution. The success rate for performing tasks with voice interaction in the Netherlands was only 53%. In France, it was 87.5%. This gives a total average of 70%. It should be noted that the pilots were undertaken with a core set of commands for voice interaction. Due to ALFRED's extendible voice interaction component, this ruleset – and thus the success rate measured – can easily be extended during the commercialization phase.

According with the ESE and NFE, that performed these pilots, the main actions to undertake in order to improve the usability of the system are:

1. To make the **interface and the voice interaction** command even **simpler to use.**
2. To develop an ALFRED solution for **other devices rather than only Smartphone** (i.e. tablets, iPad).
3. To provide an initial **set-up guide** for the use of ALFRED.

The pilots in the Charité Hospital in Berlin, Germany (D8.3.2) involved a clinical study of older adults in order to test the effectiveness of the ALFRED Back Trainer (ABT) for the reduction of lower back pain associated with disabilities and function. The overall results of the pilots in terms of the biofeedback analysis were very positive:

1. The ABT has shown positive effects in **improving Low Back Pain associated with disabilities and other parameters** related to **increased life quality** (i.e. reduced fall risk, increased trunk muscle strength, sleep quality, mental wellbeing).
2. The ABT has been shown to be effective in **reducing the time** that a healthcare provider needs to take care of users when compared to a standard intervention.

Regarding the usability of the ABT, some further technical developments are suggested with the aim to obtain an increase in the comfort of the users and an easier process to **set up the system** (i.e. to prepare a user guide in German). Concerning the **willingness to pay** expressed by the users, the suggested amount is less than the proposed 200€ as a lump sum or 30€ as monthly fee.

In conclusion, the ABT app offers a good example of evidence based data showing the benefits not only in terms of better patient health, but also in terms of better resource management. Hence, at first glance, this subcomponent of ALFRED offers a good potential opportunity for developing an exploitation strategy suitable for clinical settings. Figure 6: ABT Components shows a picture of the elements used during the ABT test.

Figure 6: ABT Components

To conclude, remarkable is the interest expressed by the end users of the pilot study in an application such as ALFRED. They were excited with the use of a technology able to process their voice commands. The majority of them stated their willingness of using ALFRED once it will be available for the market and all the technical adjustments will be polished. This is an important point for the project, because the consent of elderly people of accepting ALFRED is a precondition for its deployment onto the market.

3.2.4 Lessons Learnt From Our Customers

This section introduces the analysis of potential ALFRED customers: seniors care institutions. The goal is to discover and to understand their main pain points and their requirements for the use of ALFRED services.

During the last consortium plenary meeting and third Advisory board meeting held in Goteborg, Sweden in April 2016, it became clear that there was a need to better identify the compelling pull factors necessary to encourage senior institutions, such as nursing homes, to adopt ALFRED in their daily work.

As a result, an extensive literature research was completed in D9.1.2, which looked at the recent trends in nursing homes and home care organizations and the adoption of ICT. Following that, semi-structured interviews with managers of different types of senior institutions/associations have been conducted in order to collect and observe their reactions in relation to ALFRED and to understand their pain points[7], expressed needs, management and healthcare processes in place and their key priorities. A template for the facilitation of such interviews was elaborated and is located in Annex II.

In **Spain** we additionally visited a foundation that provides three types of services to seniors: nursing home services, home care services and day care activities. The managing director and the president of the foundation, explained that the average age of seniors living in the nursing homes is 86 years old and that the level of cognitive and physical impairment at check-in get worse considerably compared to a few years ago. In his opinion this is due to the financial crisis that hit the country in 2008-2009, thereby reducing the economic possibilities of families to access nursing homes services. However, the cognitive impairment of seniors receiving care at the day centers is even higher compared

[7] Pain Points refer to the terminology used in the Business Model Generation book from A. Osterwalder & Y. Pigneur. Within the Empathy Map used to understand the customer insights, the pain points are those fears, frustrastions and obstacles that customers experience in their daily management.

to the nursing homes. Finally, the home care services are intended to serve those seniors living with other family members and it supports not only the senior him or herself, but also relieves the family's burden.

Regarding the digital literacy of their patients, about 50% of the seniors living in the nursing homes have a mobile telephone. The main use seniors make of these telephones is for phone calls to their families. However, the personnel of the nursing homes, mainly administrative personnel, receive continuously requests for help from the seniors to use their telephones correctly. For this reason, the interviewees expressed their interest in a technical solution that could help seniors to use their phones by using voice commands.

One of the main problems of the personnel working at the Foundation is to smooth the communication with patients' families. Some family members request continuous updates and feedback on the status of their loved ones, while others are not really involved. As a result, nursing homes personnel have to make the effort to get in contact with family members and try to build a better communication and keeping them informed. The managing director emphasized this point several times during the conversation and pointed to the need for a better triangle of communication whereby patients, health professionals and families are constantly connected and can share the same information, as shown in Figure 7: Triangle Communication.

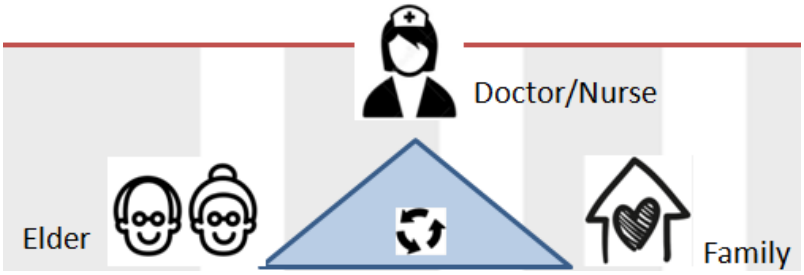


Figure 7: Triangle Communication

Interviewees also stressed the interest of using ICT for internal use in the nursing homes and to improve communication among professionals, which is an item that they do not have in place yet.

They have also warned that, whatever type of ICT they will introduce in their processes, this should be integrated with the health data collected by their software and the personnel should be able to filter the data to be shared with families.

Finally, when interviewees were shown the benefits and functions of ALFRED, they paid attention to the serious games by highlighting the potential for playing these games in cooperation with family members. This could increase the stimulation of the elderly residents and have a better impact on the cognitive results of the seniors. A brief summary of the most interesting points from the interview is given below:

1. The foundation prior interest, in relation to digital technology, is for their **internal use**: they seek an improvement in the communication among professionals to better manage time and resources.
2. The foundation is interested in **increasing the social interaction** of their residents, by means of participating in more activities offered in the neighborhood.

3. Regarding the **serious games**, the institution suggested to play these in cooperation and interaction with family members to increase the stimulation for the elderly residents and better cognitive results.
4. The issue of **integration** of any new digital application with their own software was also expressed.
5. They dedicate a lot of time in communicating with the families of their residents. They need a better solution to enhance triangular communication flow: nurse/doctor/patient/family, replacing the current use of phone calls, emails and Whatsapp.

A second interview was done in the **Netherlands** in an activity centre for seniors located in a rural area**.** This activity centre is a non-profit association meant as a meeting point for seniors living in the surrounding areas. One of their most attended activity are ICT related training sessions, in fact it is one of the most successful training. The age of people attending the centre ranges from 65 to 93 years.

It is interesting that this association already pays the basic package for an app called **SOCIE**[8] that facilitates interaction among their members and helps to administrator to send information about the activities organized by the centre and check on who will attend. This app has an annual fee for the centre that ranges from 360€ for the most basic services up to 650€ for the premium version. According to the coordinator of the centre, seniors might not be in favour of sharing their health status with other family members. In fact, he said that the need for privacy in the Netherlands is quite relevant.

The key messages from this interview are described below:

1. The institution gives great importance to **increase the social interaction** of their members through a digital based technology.
2. **ICT related training sessions** are of great interest to their senior members.
3. Their concern is to improve the **understanding of the most isolated people** or those at risk of social exclusion, and improve their involvement in social life. These kind of seniors are difficult to reach.
4. **Non-profit association as them, usually suffer from limited financial resources.** These type of centres looks for financial support from the public administration (scarce resources, volunteer base organization).

Finally, the last interview concerned an interesting company in **Germany** that offers specialized home care services to seniors with diabetes or in need of wounds' care**.** This company offers high quality services with high fees compared to the general market. The average age of the patients ranges from 75-80 years old.

The company is interested in telemedicine solutions because these have a great potential to improve the management of their processes, finally saving time and money. Actually, the company is planning to introduce a telemedicine system in 2017.

These are the most relevant points taken from the conversation with the manager:

[8] https://www.socie.nl/en/

1. **Telemedicine** is a tool to **speed up communication flow** between physicians and nurses.
2. **Telemedicine** is a tool for physicians to **prescribe instructions and medications**.
3. There is a need for **standardization and synchronization** of new tools with their own software, but also they have to be compatible with others.
4. **Costs and technical stability** of new ICT products is highly considered.
5. When introducing a new product/technology, it is important to look for ways to **motivate health professionals and patients to adopt it**.

3.2.5 Conclusions

To summarize the results of these interviews with potential customers, we have classified the key insights collected from seniors and caregivers' institutions in the classic 'Customer Delivery Box' suggested by Alex Osterwalder[9]. More detailed information can be found in Annex I, while the main key points are listed below:

Senior Institutions:

1. They are quite advanced with software for healthcare processes and patients' needs assessment. However, the **use of ICTs is still not at its full potential,** especially with regards to **sharing data among different stakeholders** and the **involvement of patients and families**.
2. They want ***ad hoc*** **and personalized ICTs** and to have full control of the services they offer to their patients. In addition, they stress the need for **integration and interoperability** with other software.
3. They like **ICTs that improve and foster communication flow** among health professionals and their patients/families.
4. **Telemedicine** is their first priority in terms of better resource management. Especially when the care is provided at the home of the recipient it has increased benefits.

Seniors:

1. The majority expressed interest in ALFRED and the possibility of using an application run through voice commands. Their **intention of using** ALFRED in the future is high.
2. The majority experience some difficulty in operating digital technology. This shows the importance of offering **additional services of setting-up trainings to** address either seniors or their caregivers.
3. Visual impairment is common in this population. In the future, an increased use of **tablets** is foreseen.
4. In general, there is **no great willingness to pay** for any app. It may therefore be a good option to analyse the (public)health systems of the different countries during the commercialization and market introduction phase to see if **health insurance schemes** might be willing to take on all or part of the fees.
5. Seniors want to keep pace with the digital revolution and there is a great interest in understanding digital technology and requests for **ICT related trainings**.

[9] Osterwalder, Value Proposition, 2014.

4. Adjustments to the Value Proposition: Product/Market Fit

This section proposes a set of adjustments to the initial definition of the value proposition as presented in section 3.2.1 of this deliverable. Hence, the scope is the match between the ALFRED prototype and the customers' expectations and needs. Thanks to the iterative tests with end users, that were developed since the beginning of the project, some technical adjustments already occurred during the life-cycle of the project.

The suggestions proposed below are more focused on the way ALFRED is structured (concept idea), than on the usability of the features. In fact, if we look for usability adjustments, we have to refer to the deliverables D8.3.2 and D8.4.

The responsibility of an exploitation plan and market development analysis is to propose types of revisions or adjustments to the actual value proposition. This is what this section does.

The four pillars of ALFRED (User-Driven Interaction Assistant, Personalized Social Inclusion, Effective & Personal Care and Physical & Cognitive Impairments Prevention) fit perfectly with the main needs of seniors and their caregivers. However, depending on the stakeholder using ALFRED or paying for ALFRED, there might be different preferences among these four pillars.

For example, we have seen these preferences in the case of seniors with limited capacity to use smartphones. These type of seniors are generally more interested in the most basic functionalities such as making telephone calls. Moreover, even for such types of basic functions, seniors need support from a caregiver to activate the call.

Another example is the case of a nursing home, or even a senior association, where the nurse or social assistant might want to use ALFRED to organize social activities offered in the neighbourhood. They can use ALFRED to look for interesting proposals and then send notifications to their patients/members.

In conclusion, the customer might focus his or her attention only on one or a few features of ALFRED, depending of his or her individual interests. Hence, to better capture the attention of this customer and not confuse him/her with many functionalities, it would be a good solution to **offer a "set of services", adapted to the customer needs**.

Of course, the concept of the four basic pillars of ALFRED is still valid, as confirmed by the interest that end users showed in ALFRED during the tests/pilots. However, what is suggested is a small simplification of the business offer through a system of four different packages as shown in *Figure 9*. Each package offers a set of apps related to ALFRED specific pillars. The Basic Package includes the services related to the User-Driven Interaction Assistant pillar. The Health Package includes the services related to the Effective & Personal Care pillar. The Social Package includes the services related to the Personalized Social Inclusion pillar together with the Physical and Cognitive Impairments pillar. And finally, the Premium Package includes all services plus extra training sessions for the caregivers' personnel.

This suggestion is also supported by the fact that, seniors generally need a system that is easy to use. Even if they like the simple interface of ALFRED, they still need a simple set-up process that guides them to use the system correctly. In this way, seniors will become

familiar with the first package (the basic package), and hopefully then will have a good user experience that will motivate them to keep using ALFRED, and accept the idea of using more set of apps.

Finally, **a package solution might also be a good approach from the point of view of the business model that applies to ALFRED**. In fact, a set of services can better offer the option of a **premium model** where the first package attracts new customers by offering a relative low price and basic services that help them to get started. While the additional packages offer extra services and keep the customers engaged.

Moreover, **ALFRED is conceived as an open platform** that allows continuous updates and renewal of the apps offered by the ALFREDO marketplace. External developers will be very interested to upload their apps in a scope-specific marketplace, tailored to the needs of a specific target population. Consequently, the initial offer of apps (20 apps in total) will grow, offering new insights and value to customers.

A NEW VALUE PROPOSITION FOR SENIORS CARE INSTITUTIONS

Simplify the concept of ALFRED!

Option to select different packages with set of apps, according to each institution needs.

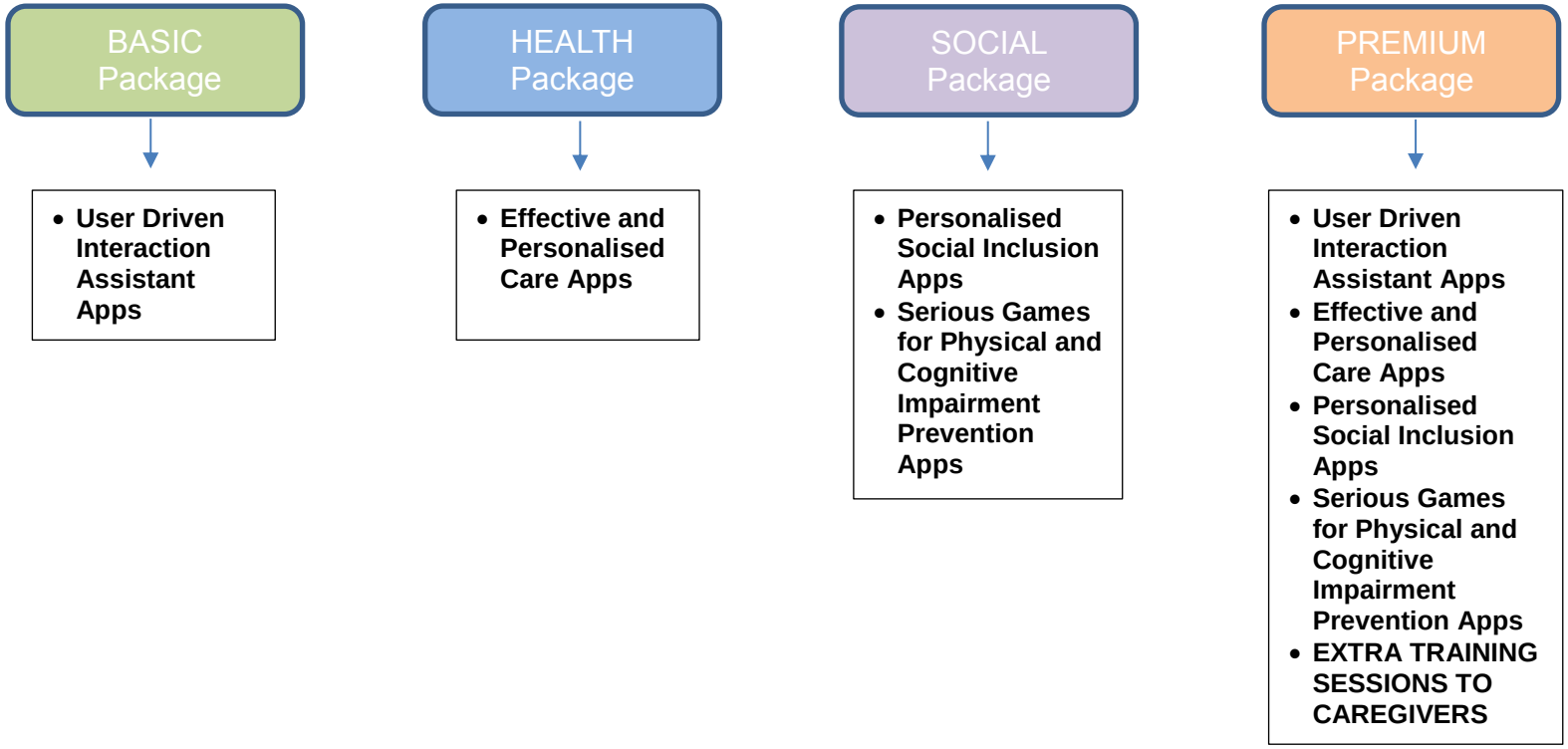


Figure 8: Adjustment to the Value Proposition

5. Roadmap for Exploitation Strategy: from RD Prototype to a Full-Marketable Product

To conclude, this last section describes how to move from a RD prototype to a fully marketable product. At the end of the ALFRED project, it is fundamental to draw up an action plan defining how to capitalize the main learnings and to conform to a start-up leading to the launch of the ALFRED solution in the market.

The ALFRED project consortium is already evaluating future financing opportunities and calls for proposals aiming at advancing the technical status of the prototype and create a space for this innovative solution to thrive on the market. The SME Instrument 2016-2017 Call (Phase 2) from HORIZON 2020[10] and the accelerator activities within the newly conformed EIT Health consortium[11] are just some of the possible funding opportunities that ALFRED will seek to move to a market-oriented project.

What are the key issues to tackle in the next phase of ALFRED?

1. **Improve the system integration,** usability and voice system according to the results from the last pilots with elderly people (D.8.3.2 & D8.4)
2. Implement new technical adjustments for the adoption of the **different packages** (**basic**, **health**, **social**, **premium**). Adapt the interface to the suggested business model.
3. Implement new technical adjustments in **the interface for caregivers** (web portals) and include features that boost communication within families.
4. Set up **iterative usability tests** with end-users and **caregivers**.
5. Organize a full-fledged **pilot project within a nursing home setting**. Test and collect data for evidence-based analysis and measure the social and economic impacts.
6. Re-design and adapt the **business plan idea.**
7. **Launch with early adopters, preferably in Germany,** but also in border countries such as the Netherlands but also 'new' EU Member States in Eastern Europe.

Project partners have already expressed their intent to keep progressing with ALFRED. Their letter of Intention can be found in Annex IV.

[10] Topic: SMEInst-06-2016-2017: Accelerating market introduction of ICT solutions for Health, Well-Being and Ageing Well. Next cut-off date 18 January 2017.
[11] www.eithealth.eu

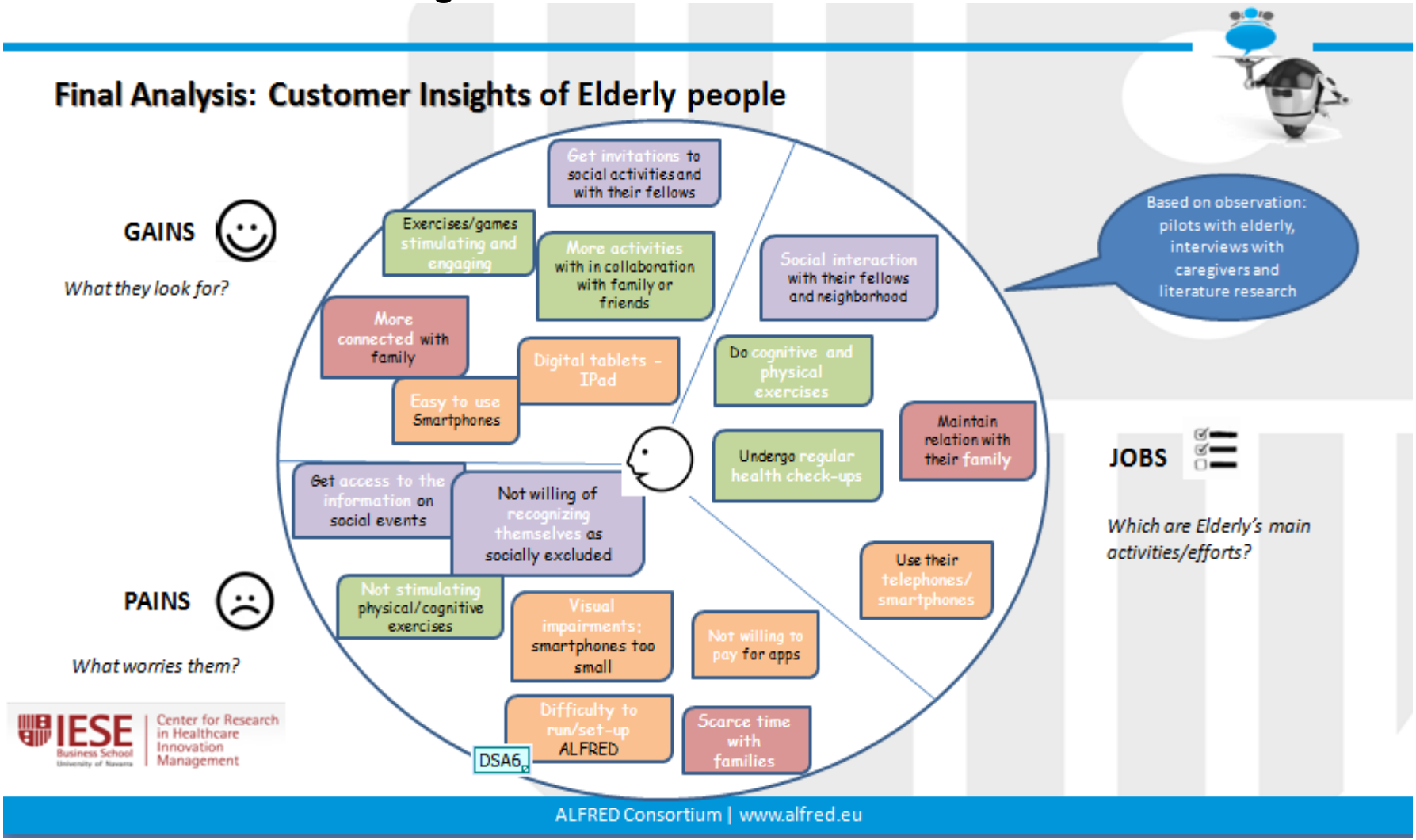
5.1 General Recommendations and Learnings for Future Actions

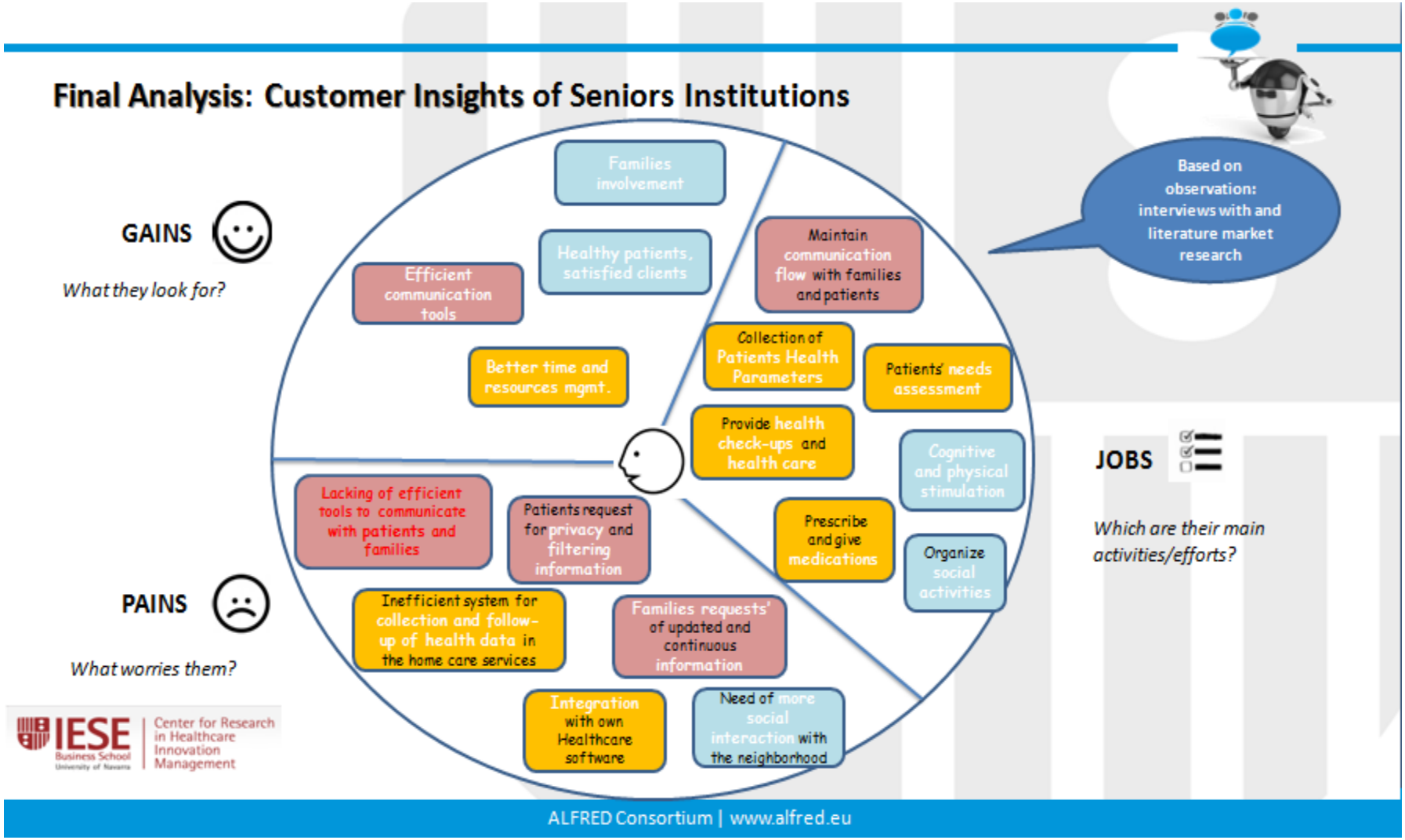
Finally reaching the end of the project, it comes necessary to share with other stakeholders of the RD sector and/or innovations units, some general insights lessons learned during the implementation of the project and respective recommendations developed.

- Define and interact with users but also with potential customers from the very beginning of the project: get close to them through on-site visits, interviews, observations, etc. the “patient journey” map is a good tool to shape project findings[12].
- Challenge the idea and product by testing the potential product not only with users, but also with payers.
- Define a clear method to translate test and pilot results directly into technological developments.
- Organize not only usability tests and pilots with end users but also pilots with other potential customers, when appropriate.
- Use the strategized business model canvas as a living document that you constantly adapt to your new findings.
- Boost the link between the exploitation activities, users’ involvement and technological development.

[12] T. Trebble, N. Hansi, T. Hydes, M.A. Smith, Process mapping the patient journey: an introduction, BMJ 2010; 341.

Annex I – Customers Insights




Final Analysis: Customer Insights of Seniors Institutions
GAINS
What they look for?
PAINS
What worries them?
JOBS
Which are their main activities/efforts?
Based on observation: interviews with and literature market research
Families involvement
Healthy patients, satisfied clients
Efficient communication tools
Better time and resources mgmt.
Maintain communication flow with families and patients
Collection of Patients Health Parameters
Patients' needs assessment
Provide health check-ups and health care
Cognitive and physical stimulation
Prescribe and give medications
Organize social activities
Lacking of efficient tools to communicate with patients and families
Patients request for privacy and filtering information
Inefficient system for collection and follow-up of health data in the home care services
Families requests' of updated and continuous information
Integration with own Healthcare software
Need of more social interaction with the neighborhood
IESE Business School University of Navarra
Center for Research in Healthcare Innovation Management
ALFRED Consortium | www.alfred.eu

Annex II – ALFRED Business Model

Following the analysis of stakeholders and the new value proposition, a slight revision of the business model of ALFRED as compared to the one described in D9.1.2 is presented below.

ALFRED is a software start-up venture which will provide a technological solution to solve a societal challenge using a Software as a Service (SaaS) model. Seniors institutions, ALFRED's main payers, will receive a service based cloud system. The SaaS model guarantees not only the set-up of the ALFRED platform but also its maintenance and 'how to get-started' training sessions.

The model for ALFRED's revenues is based on a premium model. This concept is based on offering high end products and **services** that are appealing to selective consumers. In fact, the ALFRED business model is thought of as having a specific target population and very specific customers. The **basic fee** comprises the set-up of the system and the basic package consisting of the Personal Assistant app. Through this package, seniors become familiar with ALFRED and receive basic help with such activities as activating calls with the voice system. The caregivers use such basic functionalities as the Chat apps to send basic information not only to the seniors but also their families or the Alarm app that can be used to set up reminders to the whole community. The price for this basic package will be appealing to payers to capture their first interest in ALFRED. The price range will be from 200€ to 300€ per month and per institution, depending on the number of users.

The **health and social fees** are calculated at a price range from 350€ to 500€ per month. The benefits of senior institutions of adopting the health package is a set of apps to monitor the basic health values of patients and to share this information with the family, having previously gained the consent of the patient. Moreover, the health package has the possibility of including the extra gadget of the **smart T-shirt** that helps to keep accurate and constant control of the health values of seniors while they do their physical exercises. The price for the T-shirt is 600€ each, due to the high accuracy of the technology use. An option for reducing the price is leasing the T-shirt, or studying other funding options with health insurance companies and schemes.

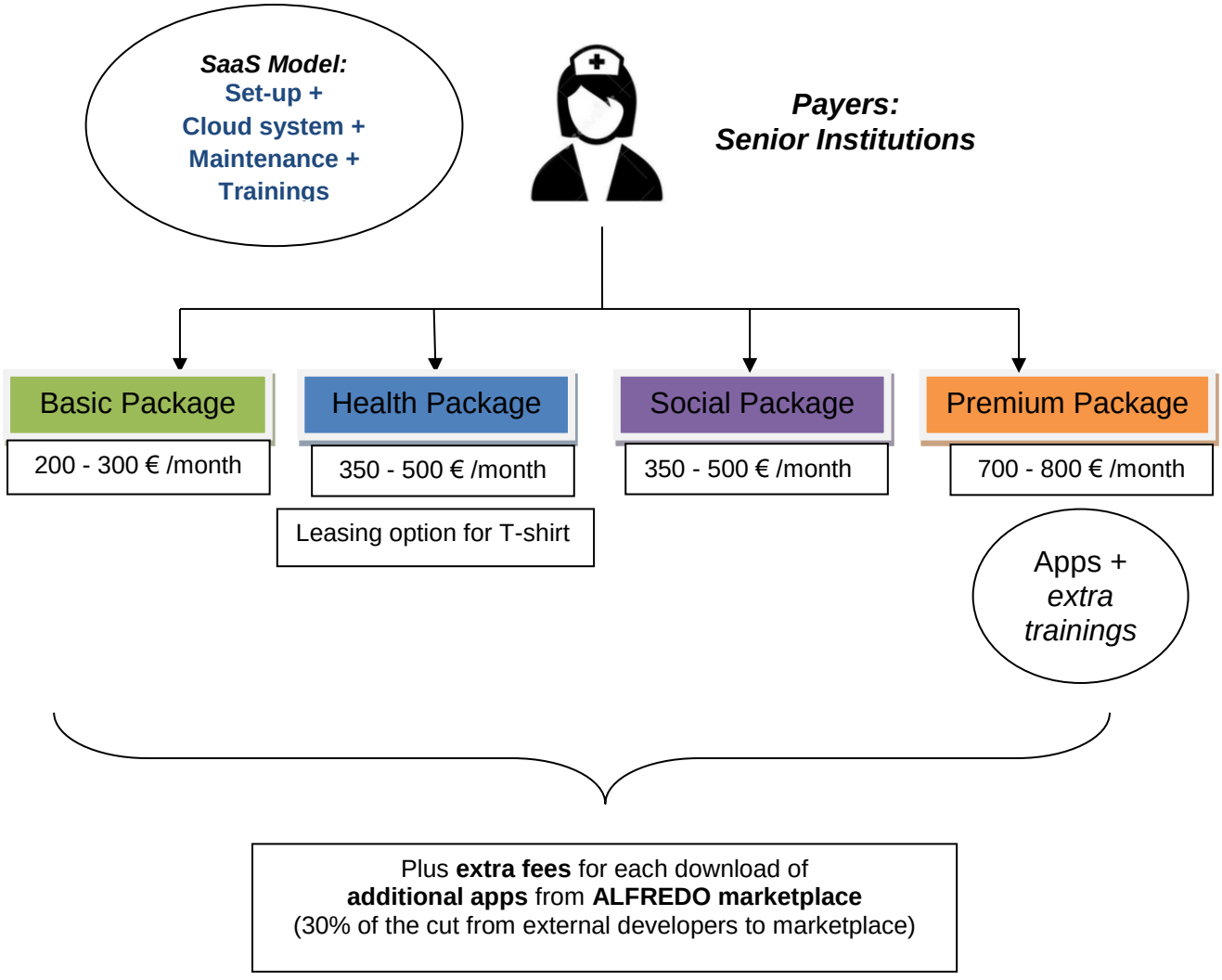
The benefits to senior institutions of the adoption of the social package is the provision of a set of apps that foster the social interaction of seniors through the search for activities organized in the immediate neighbourhood and their notification to their members. Moreover, a set of **serious games** are also included in this package aimed at improving the state of any cognitive impairments. These games can also be played in cooperation with family members or among seniors.

To conclude, the **premium fee** encompasses all the benefits of previous packages, plus the added value of receiving **extra and personalized 'how to get started' training sessions**. The pilots with end-users and even the interviews with managers of senior institutions have shown how relevant a correct set-up process of the platform is to guarantee an excellent experience of the services. The training sessions are addressed to professionals working in those institutions that will handle directly the web portals of ALFRED. The premium fee is estimated at around 700€-800€ each month per institution.

The range of prices depends mostly on the number of residents or patients receiving care from the institutions concerned. The range of proposed prices have been studied by taking into account the average costs of other software on the nursing homes market. A much

more complex software that offers various services such as invoices, health data records, human resources management, etc. can cost up from 1,500€ to 2,500€ each month.

ALFRED is an open platform where external developers can promote their apps. Hence, apart from the (basic, health, social and premium) fees mentioned above, additional and **optional costs are foreseen for the download of extra new apps that will be uploaded in the ALFREDO marketplace**. The price will depend on the developer's decision and on the latest market trends. The industry average for how much marketplaces take from external developers is 30% of the total cost of the app.



Target Market Size

In deliverable D.9.1.2, it is proposed a revenue model of monthly fees based on the number of users. Given the concept of the SaaS and Premium models, it is important to have an overall picture of the total number of institutions operating in the countries where ALFRED will be launched, starting with Germany and followed by other European countries.

Table 3: Target Market Size

	GERMANY[13]	THE NETHERLANDS[14]	FRANCE[15]	SPAIN[16]
Population	82.M	16.3M		47.M
> 65 years	16%	14%	15%	18%
Nº Nursing Homes	12,400	330	10,200[17]	5,420
Nº Seniors in Nursing Homes	876,000	60,000	657,000	373,000

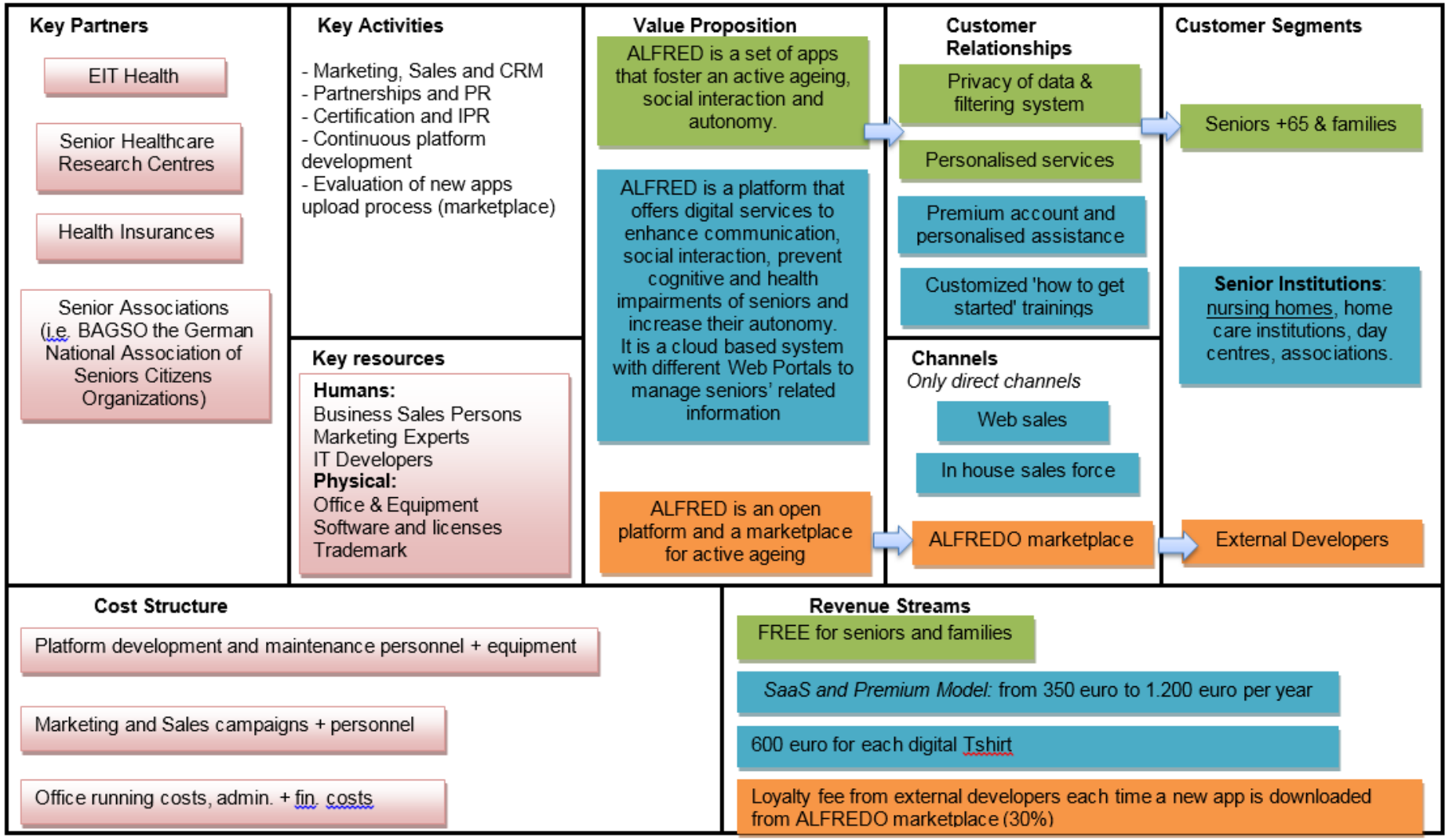
A key aspect of the go-to-market strategy in Germany starts from the involvement of key actors. Initially we are planning to get in contact with:

- **AOK** Health Insurance
- **BAGSO** - German National Association of Senior Citizen's Organisations. This association can offer support in the search for institutions interested in piloting ALFRED ideas and to test ALFRED market applicability[18].
- European Association of Homes and Services for the Ageing (EHASA).
- **EIT Health, German Collocation Centre** (CLC), can support ALFRED to boost its prototype to the market and participate in several entrepreneurial activities[19].

The contact with the above mentioned actors will be initiated by *Ascora* (Alfred Coordinator) with the support of Charité Hospital and IESE Business School.

[13] European Healthcare. Care Homes Report, Knight Frank Research Series, 2014.
[14] End of Life Care in Dutch Nursing Homes: Dying with Dignity?, Prof. Dr. Luc Deliens, VU University Medical Center.
[15] OECD, Help Wanted? Providing and Paying for Long-Term Care, Paris, 2011.
[16] European Healthcare. Care Homes Report, Knight Frank Research Series, 2014.
[17] Residential institutions include about 6,500 traditional homes for the elderly, about 2,800 sheltered housing facilities and about 900 nursing homes.
[18] http://www.bagso.de/bagso-german-national-association-of-senior-citizens-organisations.html
[19] http://eithealth.eu/clc/eit-health-clc-germany/

Table 4: Business Model Canvas



Annex III – Template for Interview with Seniors Institutions.

Introduction

This document is intended as a tool for the verification of nursing homes and home care services as a target market for ALFRED services. It serves as guidelines for researchers to help them to conduct semi-structured interviews with key managerial actors within the sector.

Goal of the interviews

The aim of these interviews is to understand the underpinning jobs, pains and gains of ALFRED target market. With the term **jobs** we mean the tasks they are trying to perform and complete, the problems they are trying to solve, or the needs they are trying to satisfy. ***Pains*** describes anything that annoys the customers before, during, and after trying to get a job done or simply prevents them from getting a job done. Finally, by ***gains*** we describe the outcomes and benefits the customers' desire.

The outcome of the interview discussion will help researchers to better focus the business exploitation strategy for ALFRED and to update the market analysis research.

Target interviewees

The interview is designed for managers/administrators working in the following types of organizations:

- **Nursing Homes:** refers to the place of residence of people who require continual nursing care, usually 24 hours a day. Elderly people living in such facilities typically have difficulty coping with the required activities of daily living (and have different degrees of physical or mental disability).
- **Senior Day Care Centers:** there are three types of adult-day care centers: social, medical, and specialized. The social centers promote interactions with other residents through planned activities and meals. Medical daycare centers are focused mostly involved with rehabilitation, and specialized centers can focus on all sorts of conditions from Alzheimer's to managing diabetes.
- **Home Care Services**: refers to professional services enabling people to live in their own home environment (housekeeping, personal aid, nursing care, rehabilitation care).

On some occasions, these centres are affiliated with multi-service entities such as home care, nursing facilities, and day care services.

Note for the researchers

The researchers should remain as discreet as possible so as **not to influence customers' answers**. A researcher should **not lead a question**, but let the person interviewed express his or feelings or opinions as much as possible. Another tip while framing questions is to put on a **sceptical hat** as this will give you a perspective on how easy (or not) it will be to sell your proposition to customers. Do not reveal the services that ALFRED may offer at the beginning of the interview, because this will somehow influence the answers given to you.

"Remember that **WHY?"** Is the most important question you can ask because its answers underlie the reasons behind your interviewee's statements.

If possible, record the voice of the interviewee, in order to be able to verify the comments made or quote them.

Practical organisation

The focus group should last one hour approximately, divided as follows:

- Welcome and present yourself: 10mn (do not give many information about ALFRED at this stage, rather stay generic and only say you are looking for feedback on a research project you are running together with other European partners and that you want to create a product/service that can be useful to nursing homes and the elderly market.
- Interview itself: 40mn
- Wrap up and conclusion: 10mn

QUESTIONS:

1. ***Understanding the organization's structure, services offered, processes managed, finance structure:***

1.1 Please tell us about your **services portfolio** and the relevance of each service in terms of number of subscription and revenues. (How many users/patients do you serve?)

1.2 What is the average health/mental status of your users in each of the service provided?

1.3 What is the average **income/profit** for each of the described services? Which is the most profitable?

1.4 What are your relations with the public/community administration? Do you have any agreements with national health/social organizations for the provision of any service? Are you considered as an “associated/trust centre”?

1.5 Do you have any **quality management certification**, such as EFQM? Which is the added value of having such types of quality processes? How would you improve the process?

1.6 Within your **care process model**, which is the most critical phase in terms of resources used (both human and financial)? Have you identified any bottleneck? Are there any improvements you would like to make to your current care process model?

Figure 9: Care Process Model

1.7 What type of **software tools** or software development do you use to manage/store patients' data? Do you have in place any sort of telemedicine technology that measures the health values of your users on a constant basis and that allows you to have remote control of the data? (health devices, emergency calls, etc.)

1.8 What about **social activities** offered in your facilities (in the case of nursing homes and seniors day centres)? What is the general perceptions of these activities among your users? What is the general attendance? Have you ever measured the impact of these types of activities? Do your social activities also include any ICT related workshops?

1.9 Do you feel comfortable with the **channels of communication** for these social activities? Is there any possibility to increase their outreach?

1.10 What are the preferred channels of **communication with the family members** of your users? Is there a request/need for improving this communication? (More feedbacks and constant updated info?)

1.11 What is the level of technology literacy of your users? Do they use smartphones on a daily basis?

2. *Understanding the 'pains' of your interviewee: bad outcomes, risks and obstacles related to his/her job.*

2.1 What is the most frustrating thing in the daily management of your organization? (Understand whether is related with patients' satisfaction and company reputation, competitors, internal process management, etc.)

2.2 What are the main difficulties and challenges for your users? And for your families? How do you manage to solve these challenges?

2.3 How do you feel about your current solution for users' health monitoring? How it works?

2.4 How do you feel about your current solutions for users' prevention related activities and social activeness?

2.5 What risks do you fear in the future? How do you foresee your positioning in relation with your competitors?

3. Understand the 'gains' of your interviewee: the outcomes he/she wants to achieve or the concrete benefits he/she is seeking

3.1 How do you know you had a successful year? (This helps you understand the values and metrics that your interviewee gives to his or her business and what is really important for him/her and the impact he/she claims to have.)

3.2 What would make your users/yourself/your employees' lives easier?

4. Now, describe more in detail what ALFRED consists of, its objective and the added value for elderly organization management and for their users. Then ask some specific questions.

4.1 How would your day be different because of a service like ALFRED? Do you foresee it could save you time, resources? Why do you think so?

4.2 If ALFRED would be available today, would you use/buy it? (Try to look and observe your interviewee in case of uncomfortable silence.)

4.3 How much you would spend on ALFRED? (Monthly subscription fee? Only for free?).

Conclusion

As a conclusion the research team should inform the interviewees that they will be kept informed of the next steps of the project. It is important to ensure that the interviewees know that they have been helping the consortium team.

Annex IV – Letters of Intent

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Prof. Dr. med. E. Steinhagen-Thiessen
Leiterin

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Elisabeth.steinhagen-thiessen@charite.de

22.09.2016

ALFRED Project – Letter of Intent

Dear Dr. Abels,

As Head of the **Geriatrics Research Group of the Charité – Universitätsmedizin Berlin**, I would like to express our interest to take an active part in future activities related to ALFRED project development.

The CHARITÉ is one of the largest university hospitals in Europe, with a history of more than 300 years of state-of-the-art research, patient care and education. It includes more than 100 clinics and institutes spread over four campuses. The CHARITÉ's Geriatrics Research Group consists of a multidisciplinary team conducting comprehensive research in the fields of gerontology, aging, and technology. Aim of this research is the identification, development and evaluation of interventions for age-associated diseases and conditions, such as dementia, metabolic syndromes, stroke and frailty. The Geriatrics Research Group is located on the premises of a geriatric hospital (Evangelisches Geriatriezentrum Berlin) with different in- and outpatient facilities. Within technology developing projects the Geriatrics Research Group has expertise in user testing and support for the user-centred design approach with seniors living at home or in clinical setting and in implementation research.

The ALFRED project is in line with research areas of the Geriatrics Research Group (i.e. integrated care, patient involvement, AAL, eHealth) and will allow us to further develop our knowledge in this field. We will be able to contribute with our large experience in bringing together evidence, know-how, and ideas in striving for better and more efficient care, while creating real value for patients and professionals. It will also allow us to build on our extensive expert network and further develop on our collaboration with different European SME, research teams and institutions within Europe.

For all the above, we would like to reiterate our endorsement and interest for ALFRED in the implementation of future activities towards its development, dissemination and/or further research. It will be an honour and a pleasure to continuing collaborating with the ALFRED Consortium.

Yours sincerely,

Steinhagen-Thiessen

Prof. Dr. med. E. Steinhagen-Thiessen

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E-SENIORS

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Association E-Seniors
19 cité de Phalsbourg
75011 Paris
France

Att. **Dr. Sven Abels**
Ascora GmbH
Birkenallee 43
27777 Ganderkesee
Germany

Subject: **ALFRED Project – Letter of Intent**

Dear Dr. Abels,

As managing director of the Association E-Seniors, I would like to express our interest to take an active part in future activities related to ALFRED project development.

Since 2005, E-Seniors is acting as a major local stakeholder in Paris to provide ICT courses specially dedicated to seniors citizens. Through its work for elderly people and with them the organization also tries to increase awareness about the importance of ICT solutions in everyday life. Our aim is to increase the quality of life of the elderly and this is why we have started to work in European projects developing innovative solutions for an active and healthy ageing. By representing older citizens in the consortium, we provide our expertise and our network of seniors to adapt the technological developments to the expectations and needs of the target population of the project.

The ALFRED project is in line with this goal and will allow us to further develop our knowledge in this field. We will be able to contribute with our large experience in bringing together know-how, and ideas in striving for better and more efficient care, while creating real value for end-users and professionals. It will also allow us to build on our extensive expert network and further develop on our collaboration with different European stakeholders within Europe.

For all the above, we would like to reiterate our endorsement and interest for ALFRED in the implementation of future activities towards its development, dissemination and/or further research. It will be an honour and a pleasure to continuing collaborating with the ALFRED Consortium.

Yours sincerely,

Monique Epstein,
Managing director of Association E-Seniors

E-Seniors Adresse postale : 19 Cité de Phalsbourg 75011 Paris Tel. 06 24 39 64 34
Siret : 491 282 364 00018 - NAF 8559A
Prestataire de formation agréé auprès de la Préfecture de Paris sous le no. 11 75 41714 75
Agrément de l'association no. : 2006/1/75/0049 par DDTEFP

Talkamatic
FREE DIALOGUE

Talkamatic AB
Andra Långgatan 19
413 28 Göteborg
Sweden

Att. **Dr. Sven Abels**
Ascora GmbH
Birkenallee 43
27777 Ganderkesee
Germany

Subject: **ALFRED Project – Letter of Intent**

Göteborg, September 14th 2016

Dear Dr. Abels,

As the Managing Director of Talkamatic AB, I would like to express our interest to take an active part in future activities related to ALFRED project development.

Talkamatic, founded in 2009, is the technologically leading provider of dialogue technology for use in chat-based and spoken dialogue systems, and we are constantly striving to sustain and extend the technological gap between our product and the products of our competitors.

The health sector is strategically important to Talkamatic, touching on many different interesting areas, such as IoT, e-care, independent living, etc. The ALFRED Project, with its focus on older users, is particularly interesting for Talkamatic, as it helps us building an inclusive dialogue platform for a wide range of users. It also allows us to continue building our network of SMEs and corporations across Europe, a network that will be essential in Talkamatic's success on the dialogue technology market.

For all the above, we would like to reiterate our endorsement and interest for ALFRED in the implementation of future activities towards its development, dissemination and/or further research. It will be an honour and a pleasure to continuing collaborating with the ALFRED Consortium.

Yours sincerely,

Fredrik Kronlid,

Managing Director, Talkamatic

TIE KINETIX
total integrated e-commerce

TIE Kinetix GmbH | Neumarkter Str. 61 | 81673 München

Dr. Sven Abels
Ascora GmbH
Birkenallee 43
27777 Ganderkesee
Germany

Subject: ALFRED Project - Letter of Intent

Breukelen, 28.09.2016

Dear Dr. Abels,

As Chief Technological Officer of **TIE Kinetix** I would like to express our interest to take an active part in future activities related to ALFRED project development.

TIE Kinetix transforms the digital supply chain by providing Total Integrated E-Commerce solutions. These solutions maximize revenue opportunities by minimizing the energy required to market, sell, fulfil and optimize online. Customers and partners of TIE Kinetix constantly benefit from innovative, field-tested, state-of-the-art technologies, backed by 30 years of experience and prestigious awards. TIE Kinetix makes technology to perform, such that customers and partners can focus on their core business. TIE Kinetix is a public company and has offices in the United States, the Netherlands, France, Germany, United Kingdom and Australia.

The focus of TIE Kinetix is providing solutions as SaaS and consultancy in the field of analytics, optimization, user experience, DWH and e-commerce.

The ALFRED project is in line with TIE Kinetix's solutions and professional services in the area of DWH, reporting and web-technologies. We will be able to contribute with our large experience in bringing together know-how, professional services and ideas in striving for better and more efficient care, while creating real value for older people and professionals.

For all the above, we would like to reiterate our endorsement and interest for ALFRED in the implementation of future activities towards its evolution in a commercial development and further research in the area described above. It will be an honour and a pleasure to continuing collaborating with the ALFRED Consortium.

Yours sincerely,

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Juan Vicente Vidagany Espert

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Amtsgericht: München | Handelsregister Nr. : HRB 119498 | UST ID-Nr. : DE182196339 | Geschäftsführer: Erik Jan Hengstmengel & Jan Sundelin
Rabobank | IBAN: NL10RABO0157181197 | BIC: RABONL2U

TECHNISCHE UNIVERSITÄT DARMSTADT

TUD | FB18 | KOM | Rundeturmstr. 10 | 64283 Darmstadt

Att. **Dr. Sven Abels**
Ascora GmbH
Birkenallee 43
27777 Ganderkesee
Germany

Subject: ALFRED Project – Letter of Intent

Dear Dr. Abels,

As head of the Serious Games research group at Technische Universität Darmstadt (TU Darmstadt), I would like to express our interest to take an active part in future activities related to the ALFRED project.

The Serious Games group, part of the Multimedia Communications Lab – KOM at TU Darmstadt, continuously elaborates new methods and concepts on how to combine game technologies and ideas with information technology, communication, multimedia scenarios and other domain-specific concepts for its use in a broad range of application domains. The health sector is one of these domains, where Serious Games, in this case through Games for Health, continuously strive to have a transformative impact in the health and wellness of users. During the ALFRED RTD project we were able to develop new concepts and scenarios in Games for Health, such as Dancicians and the ALFRED back trainer, which have provided us a new perspective on how to develop these concepts further.

The ALFRED project is in line with the Serious Games Group research areas (i.e. integrated care, eHealth, rehabilitation, behaviour changing games) and will allow us to further develop our knowledge in this field. We will be able to contribute with our large experience in bringing together evidence, know-how, and ideas in striving to increase the impact of our contributions, while creating real value for patients and professionals. It will also allow us to build on our extensive expert network and further develop on our collaboration with different European partners, research teams and institutions.

For all the above, we would like to reiterate our endorsement and interest for ALFRED in the implementation of future activities towards its development, dissemination and/or further research. It will be an honour and a pleasure to continuing collaborating with the ALFRED Consortium.

Yours sincerely,
Dr. Ing. Stefan Göbel
Head of the Serious Games Research Group
KOM – Technical University of Darmstadt

Dr.-Ing. Stefan Göbel

Multimedia Kommunikation (KOM)

Institut für Datentechnik

Fachbereich
Elektrotechnik und Informationstechnik

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Datum
27. September 2016

Unser Zeichen

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Center for Research in Healthcare Innovation Management
IESE Business School
Barcelona, Spain

Att. **Dr. Sven Abels**
Ascora GmbH
Birkenallee 43
27777 Ganderkesee
Germany

Subject: **ALFRED Project - Letter of Intent**

Barcelona, September 09th 2016

Dear Dr. Abels,

As Academic Director of the ***Center for Research in Healthcare Innovation Management***, of ***IESE Business School***, I would like to express our interest to take an active part in future activities related to ALFRED project development.

Since 1958 IESE Business School develops the widest range of vocational training in all aspects of leadership and management for businesses and non-profit entities; being at the forefront of research innovation in management of companies and public administrations.

The health sector is one of the strategic areas where IESE continuously strive to have a transformative impact by developing management skills and applied research. For this purpose, the Center for Research in Healthcare Innovation Management (CRHIM) was created, based on over 30 years of IESE experience in this sector. CRHIM counts on the experience of IESE Professors of different departments: Operations Management, Health Economics, Marketing and Entrepreneurship; and includes a Research Team of members with different background on Engineering and Life and Political Sciences. By increasing managerial knowledge and capacity, CRHIM enables health sector actors to address challenges and realize opportunities to deliver more effective healthcare while creating real value for patients and professionals.

The ALFRED project is in line with CRHIM's research areas (i.e. integrated care, patient involvement, health economics, eHealth) and will allow us to further develop our knowledge in this field. We will be able to contribute with our large experience in bringing together evidence, know-how, and ideas in striving for better and more efficient care, while creating real value for patients and professionals. It will also allow us to build on our extensive expert network and further develop on our collaboration with different European SME, research teams and institutions within Europe.

For all the above, we would like to reiterate our endorsement and interest for ALFRED in the implementation of future activities towards its development, dissemination and/or further research. It will be an honour and a pleasure to continuing collaborating with the ALFRED Consortium.

Yours sincerely,

Magdalena Rosenmöller
CRHIM Academic Director

aitex
textile research institute

Att. Dr. Sven Abels
Ascora GmbH
Birkenallee 43
27777 Ganderkesee
Germany

Subject: **ALFRED Project – Letter of Intent**

Alcoy, 19 September 2016

Dear Dr. Abels,

As General Manager of **AITEX – Asociación de Investigación de la Industria Textil, Textile Research Institute,** I would like to express our interest to take an active part in future activities related to ALFRED project development.

AITEX, was set up in 1985 as an initiative of the Valencian Regional Government, through the Valencian Institute for Small and Medium Industry (IMPIVA). It is currently, the leading Spanish centre for research, innovation and advanced technical services available to the textile, manufacturing and technical textile sectors. AITEX is a private non-profit association that encompasses textile and textile-related companies. Its ultimate aim is to make this sector more competitive. To achieve this, the Institute promotes modernisation and the introduction of new and emerging technologies by developing R&D projects and, in general, any initiatives that will contribute to the industrial progress of the sector.

The generation and dissemination of knowledge is a key AITEX aim, to increase the competitiveness of the companies, so they have new business opportunities. Consequently, the work carried out by the Textile Research Institute is closely linked to the sector industries, either through the advanced technical services offered by the Institute, the confidential research projects developed at the request of different companies or the projects financed by public funding, in which case, the results benefit the sector as a whole.

Health and ICT sectors are two strategic areas for AITEX (i.e. medical textile, ICT technologies for health management, eHealth, etc.) in which the Centre is working continuously, innovating and researching into new products to improve competitiveness in the textile sector. The RTD department is structured into 6 research groups: 1-Nanotechnology and Technical Fibres, 2-Materials and Sustainability, 3-Biotechnology, 4-Technical Finishes, Health and Environment, 5-Innovation in Fashion and Design and 6- ICTs (including Intelligent and multifunctional textiles). Its main research lines in Smart Textiles include thermal comfort, functional and intelligent textiles for home and automotive textiles, tele-medicine applied to the textile sector, electro-active polymers, actuator and conductive yarns, integration of standard devices into textile applied to e-Health in order to control physiological parameters; respiration, heart rate, etc. The

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participation of AITEX in ALFRED project offered a great opportunity to show the experience and know-how of the Centre acquired during all these years of continuous research and innovation.

The ALFRED project is in line with AITEX research areas (i.e. ICT, eHealth, Smart Textiles) and will allow us to further develop our knowledge in these fields. We will be able to contribute with our large experience in bringing together evidence, know-how, and ideas in striving for better and more efficient results, while creating real value for companies and professionals. It will also allow us to build on our extensive expert network and further develop on our collaboration with different European SME, research teams and institutions within Europe. The research lines of ALFRED are very important for AITEX. For this reason, we will continue working to bring ALFRED to the market, converting it into an industrial business and carrying on different activities which permit ALFRED to grow by including more developments and new solutions which make ALFRED more powerful. In addition, this will contribute to use the knowhow acquired by AITEX for other possible applications.

For all the above, we would like to reiterate our endorsement and interest for ALFRED in the implementation of future activities towards its development, dissemination and/or further research. It will be an honour and a pleasure to continuing collaborating with the ALFRED Consortium.

Yours sincerely,

Vicente Blanes
AITEX General Manager

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