ALFRED

Personal Interactive Assistant for Independent Living and Active Ageing

WP9 – Impact

D9.7.3: Collaboration Report

Deliverable Lead: ESE

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This third and last report details the collaboration activities with other European projects and other research activities that have been conducted throughout the ALFRED project. These different cooperation activities enabled the ALFRED project partners to exchange knowledge and experiences with European stakeholders in the domain of ICT tools for active ageing.

SEVENTH FRAMEWORK PROGRAMME

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Project Partners

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Executive Summary

This report details the ALFRED project's collaboration and clustering activities with EU events and with other research projects. This report is the last one of three collaboration reports for the ALFRED project that are due in the projects months M12 (D9.7.1), M24 (D9.7.2) and M36 (D9.7.3).

The aim of collaboration with other initiatives operating in the same fields as ALFRED (these fields are identified in the D9.7.1, section 3.1) is to benefit from their experiences and to put in place exchange of know-how and best practices in order to make the ALFRED system as successful as possible. In addition, these exchanges enable to establish common synergies in the same fields of interest and to work the topic further together in a framework of a workshop, a paper or a conference.

The strategic goals about collaboration activities have been reached. During the last year of the project, the following activities have been carried out achieving the Key Performance Indicators (KPIs) settled by the consortium:

- Collaboration with 4 European projects
- Collaboration with 2 European networks
- Participation in 2 conferences organized by other initiatives
- Participation in 2 workshops
- Participation in 1 exhibition
- Meeting with 3 other initiatives

These activities are described later in this deliverable and an analysis of the KPIs is available at the last chapter of this deliverable.

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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 allow older people to live longer in their own homes with the possibility to act independently and to actively participate 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.
- A more **Effective & Personalized Care** by allowing medical staff and caretakers to access the vital signs of older people monitored by (wearable) sensors.
- **Physical & Cognitive Impairments Prevention** by way of serious games that help the users to maintain and possibly even improve their physical and cognitive capabilities.

Within this deliverable the collaboration activities of the ALFRED project will be described. The aim of such activities is to reinforce the ALFRED project dissemination among the European stakeholders acting in the field of active and healthy ageing. Also, it aims at sharing experiences with similar projects and exchanging knowledge related to ICT-tools designed for older adults. Furthermore, the collaboration with related projects, networks, organizations and events will enable the ALFRED consortium to reinforce their understanding of other similar ongoing activities and to be better positioned in the European scene for active ageing.

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 (a mobile device application also called ALFRED) for older people, 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

The purpose of this deliverable is to summarize all the collaboration activities that have been planned along the ALFRED project and to provide the results of the performed collaborative activities. The deliverable focuses on the relevant European research and innovation projects, networks and events that offer valuable experiences and knowledge for the ALFRED project. This is the third and last deliverable of the task 9.7 “Collaboration, Clustering and Cross-Disciplinary Cooperation” that resumes the activities carried out during the third project’s.

1.3 Document Status and Target Audience

This document is listed in the Description-of-Work (DoW) as “public”, as it provides general information about the goals and scope of collaboration and clustering activities in the ALFRED project and can therefore be used by external parties in order to get according insight into the project activities. While the document mainly aims at the project’s 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 Abbreviations and Glossary

A definition of common terms and roles related to the realization of the ALFRED project as well as a list of abbreviations is available in the supplementary document “Supplement: Abbreviations and Glossary”, which is provided in addition to this deliverable. Further information can be found at http://www.alfred.eu.

1.5 Document Structure

This deliverable is broken down into the following sections:

- Chapter 1 provides an introduction for this deliverable including a general overview of the project, and outlines the purpose, scope, context, status, and target audience of this deliverable.
- Chapter 2 summarizes the status of the collaboration plan of the third year of the project.
- Chapter 3 makes an overview of all the collaboration activities carried out by the consortium and an analysis of the KPIs.

2 Status of the Collaboration Plan

This chapter recapitulates the fixed objectives for the collaboration detailing the aimed results for the last year of the project.

2.1 3rd Project Year: Objectives of the Collaboration Plan

As stated in D9.7.1, the essential idea of the collaboration and clustering activities is firstly to create contacts with relevant European projects and events that operate in a similar field as the ALFRED project, and secondly to organize common events and activities with the different research projects. This kind of collaboration enables the ALFRED project to find synergies (i.e. common activities such as workshops or conferences) with other innovation and research initiatives, as well as to share experiences and knowledge in the related R&D fields.

The clustering activities offer a possibility for the ALFRED consortium to exchange about other relevant initiatives to see what other solutions are targeting the European AAL market, which can help the ALFRED partners to identify the most important value added of the ALFRED system compared to other solutions.

As illustrated in Figure 1, during the first project year, the specific goal of the collaboration activities was to get a deeper understanding about the running projects, events and conferences that are carried out in the field of adapted ICT services and solutions for healthy and active aging, which could offer collaboration opportunities (see D9.7.1).

The second project year focused on continuous monitoring of relevant initiatives and, more importantly, carrying out new activities enhancing the visibility of ALFRED in the European innovation spheres.

Finally, the third year was the continuation of the work carried out during the two previous years of the project with some important additions. Contacts that have been taken during the two first years of the projects had to be maintained and updated; moreover, a dedicated attention to the project's updates regarding pilots was carried out by the consortium members. Finally, a specific focus on the exploitation of ALFRED has been implemented in the clustering activities.

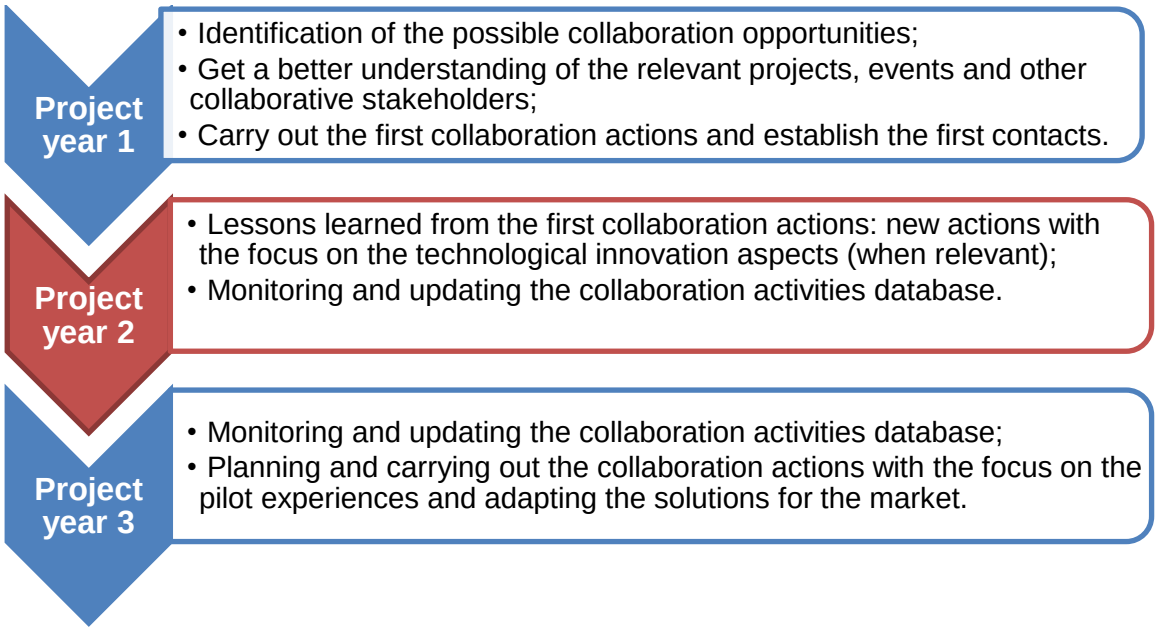

Figure 1: Collaboration Objectives for Each Project Year

3 Achieved Collaboration/Clustering Activities During the Last Year of the Project

D9.7.1 and D9.7.2 identified clustering opportunities (other EU projects, networks, conferences, etc.) for ALFRED. This chapter adds what have been done in terms of collaboration by the whole consortium during the last year of the project lifetime.

3.1 Research and Innovation Projects

The aim of this collaboration is to explore patterns and relationships between the project results in order to identify areas of commonality and shared interest across them. These collaborations have so far included organization of common events as well as participation in workshops and conferences; these aspects have been detailed in the previous deliverables (D9.7.1 & D9.7.2).

The table below lists other European and national level research projects that develop innovative solutions and services for active and innovation ageing and that are related to the ALFRED topic. The list focuses on ongoing projects that have a direct synergy with the ALFRED project and that have been contacted during the last year of the project. The results of this collaboration are detailed just below.

Project Name (funding framework)	Short Description	Relation with ALFRED (Pillar or WP)	Link
Projects at the European Level			
ICT4Life (H2020 – PHC25)	ICT4Life aims to provide new services for integrated care employing user-friendly ICT tools, ultimately increasing patients with Parkinson's, Alzheimer's and other dementias and their caregivers' quality of life and autonomy at home.	All	http://www.ict4life.eu/
ACANTO (H2020)	The project aims to spur older adults into a sustainable and regular level of physical exercise under the guidance and the supervision of their carers.	All	http://www.ict-acanto.eu/
Fun Walking for	The project aims to create	Pillar II	Not applicable

golden ageing (EIT Health)	a MOOC that motivates and encourages elderly people to carry out new activities with others and stimulates their physical capacities		
EhcoBUTLER (H2020)	The main objective of EhcoBUTLER is to demonstrate the socio-economic benefits from the deployment of several innovative and user led ICT pilot projects based on different business models in order to be able to translate promising results into scalable practice across Europe.	All	http://ehcobutler.eu/
Projects at the National Level			
Kitty by Hackathon Orange	The project aims to create a service targeting older people as an app to help them in their daily life.	All	http://www.orange.com/fr/Presse-et-medias/communiques-2016/Orange-lance-un-hackathon-le-numerique-pour-l-autonomie

Table 1: European and National Research and Innovation Projects

3.1.1 ICT4Life

ICT4Life is a project funded under the H2020-PHC25 program (http://www.ict4life.eu/). It aims to provide new services for integrated care employing user-friendly ICT tools, ultimately increasing patients with Parkinson's, Alzheimer's and other dementias and their caregivers' quality of life and autonomy at home.

IESE has a face-to-face meeting, the 1st of May 2016, with the coordinator of the ICT4Life project, Alejandro Sanchez Rico from ARTICA (http://www.articatelemedicina.com/EN/index.html), to exchange each other project's objectives and the progress status. Potential cross-cutting collaboration in the dissemination activities of both projects has been identified. As a result, ICT4Life has been invited the 16th of September 2016 as a guest speaker to the second workshop organised by ALFRED (detailed in section 3.2.7) to share their experience on the provision of ICT services for elderly (see section 3.2.2). The intervention was about "Information fusion and algorithm training framework".

3.1.2 ACANTO

ACANTO is a European project funded under the H2020 program (http://www.ict-acanto.eu/).

ATOS is partner in both projects, allowing synergies between them. ACANTO aims to develop a low cost robotic friend to engage older adults in a regular and sustained physical activity. This will include a tablet with specific apps. Synergies found allowed ALFRED project to benefit from their experiences and to put in place exchange of know-how and best practices.

3.1.3 Fun Walking for Golden Ageing

Fun Walking for Golden Ageing is a European project funded by the EIT Health, a European consortium of interested stakeholders in the field of health (http://eithealth.eu/). The objective is to create a Massive Open Online Course (MOOC) available on the French platform FUN (https://www.fun-mooc.fr/) that motivates and encourages elderly people to carry out new activities with others and stimulates their physical capacities. Since ATOS and E-Seniors are a part of the Fun Walking for Golden Ageing project, direct synergies, especially regarding the pillar II (social inclusion), and IV (physical and cognitive impairments prevention) of ALFRED have been identified: by providing tips and good practices to stimulate seniors' physical activities, the MOOC will encourage active ageing and social inclusion by putting seniors in relation with each others.

3.1.4 EhcoBUTLER

EhcoBUTLER (http://ehcobutler.eu/) is a project funded under the Horizon2020 programme (PHC 20). The EhcoBUTLER project addresses the challenge of the independence and quality of life of elderly people with physical or mild cognitive impairments by developing an ICT technological platform with both leisure and care apps. The main objective of EhcoBUTLER is to demonstrate the socio-economic benefits from the deployment of several innovative and user led ICT pilot projects based on different business models in order to be able to translate promising results into scalable practice across Europe.

Since E-Seniors and NFE are end-users partners in the EhcoBUTLER project, they have created opportunity of exchange of knowledge between the two projects.

3.2 International and European Conferences and Workshops

The ALFRED partners continuously update a list of interesting conferences and workshops that could either be a location to carry out collaboration activities with other initiatives or be an opportunity to tie up new interesting contacts. During the third project year, the ALFRED project was invited to take part in several international conferences and workshops to present its' innovation to other similar projects and stakeholders in the field of assistive technologies and active ageing. This chapter details the different conference and workshop collaboration experiences of the last year of the project.

The table below list the major events in which the ALFRED consortium has taken part during the timeline covered by this deliverable (September 2015 – September 2016). These contributions are detailed below.

Event Name & Organisation	Short Description	Dates and Location	Link
AAL Forum	European event about health products	22-25th of September 2015, Ghent	http://www.aalforum.eu/
ICT Day 2015	Event about European Commission's policies and initiatives with regard to R&I in ICT	20-22 of October 2015, Lisbon	https://ec.europa.eu/digital-single-market/en/ict2015
Mobile World Congress	Gathering of mobile industry	22-25 of February 2016, Barcelona	https://www.mobileworldcongress.com/
Digital Enterprise Show	European event about digital transformation	23-25th of May 2016, Madrid	https://www.des-madrid.com/
eHealth week	European conference about healthcare IT	09th of June 2016, Amsterdam	http://www.ehealthweek.org/
EIT Health Summer School	Summer course on Innovation and Business Creation	11-15th and 25-29th July 2016, Dublin & Barcelona	http://ibc.summerschool.eithealth.eu/en
IEEE HealthCom	International conference on e-Health, Networking, Application & Services	14-17th of September 2016, Munich	http://ieeehealthcom2016.com/

Table 2: Summarize of Relevant Conferences, Summits and Exhibitions attended by partners

3.2.1 AAL Forum 2015 (Belgium)

During this event, ALFRED was represented by Mona Marill, European project manager from E-Seniors in a workshop entitled "Requirement meet solutions – How to transfer stakeholders' needs in AAL projects?" (See annex 1).

3.2.2 ICT day 2015 (Portugal)

On October 2015, ALFRED team participated in ICT 2015 - Innovate, Connect, Transform (http://ict2015.fct.pt/), a European event held in Lisbon in order to present the ALFRED system and in which speech controls and serious games have been tested by the participants. ALFRED's stand was positioned amongst the top EU research projects.

3.2.3 Mobile World Congress (Spain)

During the Mobile World Congress (https://www.mobileworldcongress.com/), WORLDLINE had a stand where Santi Ristol, director of WORLDLINE Mobile competence center, introduced ALFRED and its connected T-shirt. It allowed establishing a connection especially with political stakeholders since ALFRED was introduced to the vice-president of Belgium, Alexander de Croo.

3.2.4 Digital Enterprise Show (Spain)

On the 26th of May 2016, ATOS participated in the Digital Enterprise Show (http://www.des-madrid.com/), a global event about how technology is changing business world. In this event Lydia Montandon, Atos Research and Innovation business development director, presented examples of ICT projects and technologies, among them ALFRED, to empower elderly people and people with disabilities and took part in a roundtable with other stakeholders.

3.2.5 eHealth Week (the Netherlands)

NFE represented ALFRED consortium in the eHealth week organized in Amsterdam in June 2016 (http://www.ehealthweek.org/ehome/128630/information/). NFE has presented the ALFRED project the 9th of June in front of policy makers, developers, researchers and end-users organizations. Two seniors were involved in the presentation to share their experiences as test participants within the ALFRED project.

3.2.6 EIT Health Summer School (Ireland and Spain)

In accordance with the collaboration plan, the part of the event dedicated to ALFRED was focusing on its exploitation.

During two sessions of 4 days organized in Ireland and Spain (http://ibc.summerschool.eithealth.eu/en), coordinated by IESE, some students have worked on innovation and business creation in health. ALFRED was introduced to the participants and its business model idea was discussed among participants.

3.2.7 IEEE eHealthCom'16 (Germany)

The 16th of September 2016, TIE has organized a workshop during the international conference. The title of this workshop was "Open platform for Active Ageing" (http://ieeehealthcom2016.com/). ALFRED, in collaboration with invited speakers as Steren Giannini from Google Germany, Lars Rölker-Denker from Offis e.V. Germany and Alejandro Sanchez Rico from ARTICA Spain, has presented and discussed the following topics:

- possibilities for interoperability and open frameworks to bring solutions together
- research results concerning interoperability and standards in the field of active ageing
- needs of end users of technology and how these can be tackled within research
- business modeling and implementation of active ageing solutions in the market

The program of the workshop is available in annex 2. It has been a successful event since 31 participants registered in the workshop.

3.3 Other Relevant Communities and Networks for Cooperation

The table below list other relevant communities and networks that have offered valuable contacts and new clustering activity opportunities for the ALFRED project. Through these activities the consortium has identified additional key actors belonging to the industry, academy, public administration, end-users (both healthcare and social caregivers, and ageing people associations). The objective is to side with the needs coming from industry, public administrations and end-users, as well as to promote future research or business collaborations.

Name	Short Description	More Information (link)
EIT Health	EIT Health promotes entrepreneurship and innovates in healthy living and active ageing, with the aim to improve quality of life and healthcare across Europe.	http://eithealth.eu/
Spanish Technological Platform for Health and Active & Independent Living (Spain)	Network of multiple organizations focusing on health and social technologies.	http://ametic.es/es/innovacion/plataformas-tecnologicas/evia

Table 3: Relevant Communities and Networks integrated by the ALFRED project team

3.3.1 EIT Health

Three partners of the ALFRED consortium are partners in the EIT Health community; ATOS and IESE are core partners in the Spanish node of the community and E-Seniors is associate partner in the French node. Within this initiative the three partners have disseminated ALFRED objectives and results.

Moreover, ATOS and E-Seniors, together with an academic partner - Université Grenoble Alpes (UGA) –, have started a project partially funded by the EIT Health “Fun Walking for Golden Ageing” in 2016 (see further details in section 3.1.3). This project makes use of the knowledge generated by the two ALFRED partners and is focused on developing a fun “serious” game that motivates the senior players, encourages them to carry out new activities with others and stimulates their physical capacities.

IESE maintained contacts with the EIT Health Accelerator (http://eithealth.eu/programmes/accelerator-2/) to assess any entrepreneurship opportunities for ALFRED and the consortium.

3.3.2 Spanish Technological Platform for Health and Active and Independent Living

eVIA is the Spanish technological platform for eHealth, eWellness and Social Cohesion. eVIA gathers stakeholders, end-users, associations, public administrations, industry and researchers, intending to promote effective and market oriented R&D. Atos Spain S.A. is part of this platform. In this platform ATOS has cited ALFRED as part of their project portfolio and presented it.

3.4 Other activities

Besides these activities, the ALFRED consortium partners have contacted different structures that operate in the field of ambient assisted living technologies or any related field. The goal of this type of contacts is to firstly present our project to the external stakeholders and secondly to be able to compare other technological initiatives that are done in the field in order to collect good practices/advices to position ALFRED on the European market.

3.4.1 Meeting with Robosoft, Paris, 15th of October 2015

As announced in conclusion of the D9.7.2, E-Seniors has organized an event to celebrate its 10 years anniversary and invited local and international stakeholders working in the field of active ageing. Patricia Commarieu, who works for Robosoft (http://www.robosoft.com/fr/) presented the Kompaï robot. Kompaï, which received a Worldwide Innovation Challenge (http://telecareaware.com/robosofts-kompai-2-debuts-wins-award-fr/) is an assistive robot for vulnerable people, representing the KEPA consortium (composed by Robosoft, Radhius and Agfa Healthcare). Kompaï improves the level of comfort and independence of frail or vulnerable people at home or in institutions.

3.4.2 Meeting with AIJU, Paris, 15th of October 2015

E-Seniors has met AIJU – Cesar Carrion and Rocio Zaragoza – during the event organized in October 2015 to celebrate E-Seniors' 10 years anniversary. A synergy was created around serious games; E-Seniors had the opportunity to present and introduce ALFRED and to make a demonstration of the serious game Dance with ALFRED while AIJU introduced its serious game Activa (http://www.aiju.info/en/projects/421e9869-dd2a-4154-9f65-b5e599546e48/3374379a-1b3a-41c2-b6b0-8965ebfad351/d53e7c77-b643-4e76-b73a-0fbe06d1537d) that aims to improve the quality of life of people suffering from the Parkinson disease.

3.4.3 Meeting with INRIA, Paris, 1st of August 2016

On the 1st of August 2016, E-Seniors' team represented by Ariane Girault has met Philippe Gesnouin, project manager at the INRIA institute. INRIA is a national research institute focusing on the digital field (https://www.inria.fr/en). During this meeting ALFRED was presented and introduced. A specific attention was given to serious games since INRIA has a substantial experience in this field.

3.5 Key Performance Indicators for Collaboration

The table below list the defined key performance indicators for task 9.7 enabling to follow up that the ALFRED partners reach the fixed goals for clustering and collaboration activities.

Collaboration Activity type[1] (Metrics)	**KPI Goal** (by the end of the project)	**Reached KPI** (at the end of the project)
# collaborations with other EU projects	15	16
# collaborations with European networks/ communities	6	6
# participation in conferences organized by other initiatives	5	5
# participation in workshops organized by other initiatives or co-organized with other initiatives	3	5
# participation in exhibitions to meet other initiatives	3	3
# publication of a paper or poster	1	11
# meetings with other initiatives	3	4

Table 4: Collaboration KPIs - goals and results

3.5.1 Collaboration with other EU project

The consortium settled the strategic goal of collaboration with 16 other EU projects. This has been achieved thanks to the collaboration with the following projects:

First year of the project	Second year of the project	Third year of the project
AAL JP: ASSISTANT AAL JP: vASSIST ICT PSP: reAAL FP7 ICT: HAIVISO ICT PSP: AgeingWell	FP7: FI-STAR Open platform for e-Health services ICT PSP: RENEWING HEALTH: Telemonitoring of chronic patients	H2020: ICT4Life H2020: ACANTO H2020: EhcoButler EIT Health: Fun Walking for Golden Ageing

[1] All the cited activities are running in the relevant fields for ALFRED: AAL, eHealth, ICT for active ageing etc.

AAL JP: SONOPA AAL JP: TOPIC AAL JP: GAMEUP AAL JP: AHEAD	LIFE +: LiveWell	

Table 5: Overview of the Collaboration with Other EU projects

Details about the EU projects that have been contacted by the ALFRED consortium are available in D9.7.1 Collaboration report, section 3.3, regarding the first year of the project and in D9.7.2 Collaboration report, section 4.1.3 for the second year of the project. As for the third year of the project, details are available at the section 3.1 Research and Innovation Projects.

3.5.2 Collaboration with European Networks/ Communities

The strategic goal of collaboration with 6 European networks/communities has been achieved. Details of European networks contacted by the ALFRED consortium for the second year of the project can be found in D9.7.2 Collaboration report, section 4.3. As for the third and last year, further details are available in section 3.3 Other relevant communities and networks for cooperation.

Second year of the project	Third year of the project
EHCAlliance Ageing Well EIP-AHA Networld2020	EIT Health Spanish technological platform for health and active and independent living

Table 6: Overview of the European Networks

3.5.3 Participation in Conferences Organized by Other Initiatives

The KPIs settled by the consortium has been achieved since ALFRED was represented in 6 conferences as listed below (details regarding the second year of the project are available in D9.7.2 Collaboration report section 4.2):

Second year of the project	Third year of the project
Ageing Wealth Conference International conference for elderly and technology Quality of life technology conference	ICT day 2015 Digital enterprise Show

Table 7: Overview of conferences attended

3.5.4 3.5.4 Participation in Workshops Organized by Other Initiatives or Co-Organized with Other Initiatives

The consortium has reached its strategic goal of participation in 3 workshops. The details of the activities held during the first year can be found in D9.7.1 section 5.2 and for the second year, in D9.7.2 section 4.2.1.

First year of the project	Second year of the project	Third year of the project
AAL forum 2014: Exergames workshop HAIVISIO workshop at eHealth forum	HAIVISIO workshop at 12th European week of region and cities	AAL forum 2015: Requirement meet solutions – how to transfer stakeholders' needs in AAL projects IEEE HealthCom

Table 8: Overview of the Workshops Attended

3.5.5 Participation in Exhibitions to Meet Other Initiatives

The consortium achieved its objective of participating in 3 exhibitions. The details of the exhibitions attended during the first year are available in D9.7.1 section 3.4 and for the second year in D9.7.2 section 4.2.2. The details of the third exhibition appear in section 4.2.

First year of the project	Second year of the project	Third year of the project
Ehealth Forum 2014	Ageing Wealth Conference	Mobile World Congress

Table 9: Overview of the Exhibitions Attended

3.5.6 Publication of a Paper or Poster

The consortium has achieved its strategic goal of publishing a paper or a poster. A poster has been elaborated for the Home Automation and Smart Living Event 2014 in the Netherlands. Further details can be found in D9.4.5 Dissemination Report section 3.1.2.3.

Regarding scientific publications, 11 papers were submitted and 10 accepted. Additional information is available in D9.4.5 Dissemination Report section 4.3.1.

3.5.7 Meetings with Other Initiatives

The consortium has achieved its strategic goal of meeting 4 other organizations in ALFRED framework. Further details about the first meeting during the second year can be found in D9.7.2 section 4.4.1 and for the third and last year in D9.7.3 section 3.4.

Second year of the project	Third year of the project
Meeting with Aldebaran	Meeting with Robosoft Meeting with AIJU Meeting with INRIA

Table 10: Overview of Other Initiatives

4 Conclusion

Collaboration activities have been fruitful since the beginning of the ALFRED project. The project has been widely disseminated thanks to the commitment of all partners.

Through the synergies found during the three years of the project, ALFRED has been disseminated widely allowing its recognition within the EU projects. This has been made concrete by the settling of the ALFRED booth during the ICT day in Lisbon, among the best EU research projects.

Thanks to the strong involvement of all the partners, the project has reached its KPI's in the field of collaboration since the following activities have been carried out over the three years of the project:

- 16 collaboration with other European projects
- 6 collaboration with European networks
- 5 participation in conferences organized by other initiatives
- 5 participation in workshops
- 3 participation in exhibitions
- 4 meetings with other initiatives

Annex 1: Abstract of the AAL workshop in Ghent (September 2015)

Requirements meet solutions: How to successfully transfer stakeholder needs in AAL projects[1]

Markus Garschall[2], Katja Neureiter[3], Mona Marill[4], Christiane Moser[5], Lex van Velsen[6]

Developing Active and Assisted Living (AAL) products and services is a challenging process. A multidisciplinary team of researchers, developers, user representatives, and other stakeholders are involved in the development process, aiming at designing and implementing solutions that meet the actual needs and wishes of the users. One of the biggest challenges in this process is to make sure that user requirements are successfully communicated and implemented. However, this process is often difficult since the involved parties have different backgrounds, experiences and expectations.

Within the interactive session, we discussed how these challenges can be met best for the benefit of future users. We specifically addressed the following questions: How to deal with multidisciplinary project teams? What are useful methods for communicating user requirements? How to ensure the implementation of user requirements in the development process? What can we learn from failures regarding the communication and implementation of user requirements?

The topics were discussed in small groups of 6-8 people. Each participant could join two groups during the interactive session. The main findings and central issues of the discussions are described in the following paragraphs.

Topic 1: Dealing with Multidisciplinary Teams

During the discussion the tension between benefits (from working in multidisciplinary teams) and the threat of miscommunication due to different backgrounds of group members was discussed. A key success factor that has been identified was a proper project management. A variety of different issues that need to be considered when working in a multidisciplinary team were raised:

- **Diverse Tasks**: People in different organizations have different tasks outside the project, these may interfere with (the progress of) their project work;
- **Different Expectations and Needs**: Different organizations have different views towards a research and development project. Where a research institute may see a project as a great way to explore new technological advances, it may be a way to make money for an SME. This leads to different expectations and needs among team members;
- **Different perspectives**: Different organizations tend to deviate from the working plan.

Workshop participants agreed that it takes some time during the project to see how each team member and organization find its role within the multidisciplinary team. A list of actions to improve the communication and to align the interests and needs of the different team members has been developed.

- **Regular face-to-face meetings** during which the team members speak out their mind: What are their interests? What are their ways of working?
- **Find a balanced way.** As the project manager it is important to find a middle course between the interests of the project and the different interests of the team members. And

keep in mind that these interests may change over time, and therefore, the balance may need to be adjusted.

- **Give people ownership and responsibility** for a part of the project plan so that they are forced to take action and collaborate.
- **Communication.** Ask team members to work closely together to learn enough about each other's subjects so that they can communicate on more or less the same level.

Topic 2: Useful methods for communicating user requirements

The discussion upon methods to communicate requirements when developing AAL solutions revealed a variety of interesting findings as well as challenges. "Focus groups" were mentioned as one of the most well-known methods to gather user requirements. However, the recruitment of the end-user participants was identified as complex process and it was discussed that it is not always easy, e.g., to find participants, who bring in different perspectives. Diverse groups that include primary end-users (i.e. seniors) and their caregivers trigger even more fruitful ideas within the system development. However, it was also discussed that it is important to avoid too high numbers of users during one session in order to take into account all the different needs. Face-to-face interviews were identified as another valuable method, however, can easily increase the resources that are needed.

Workshop participants also discussed the importance of use case scenarios, however, pointed out that it is valuable to have "open scenarios" that leave space for users' imagination and creative ideas.

One idea to present a system and to get users feedback is to include the stakeholders, who are developing the system (SMEs, developers, technicians, etc.). This way the system creators can give pitches of their systems and the end-users can interact directly with them without any intermediate communicators. On one hand, the developers directly receive user feedback to improve their products or services and, on the other hand, the end-users can see the different services that have been developed for them.

Topic 3: Ensuring the implementation of requirements in the development process

Within the third group it was discussed, how to ensure that requirements are actually addressed and implemented within the development process. On one hand, participants shared experiences how they normally make sure that user requirements are addressed, on the other hand challenges participants face were discussed.

With regard to our first question *"How do workshop participants "normally" make sure that they actually address the user requirements they have identified in the beginning of the project?"* the following issues were part of our discussion:

- **Iterative Evaluation Circles.** Most of the participants agreed that they apply iterative evaluation circles, i.e., several focus groups, pilots, and workshops throughout the whole development process. However, it was discussed that although this approach helps to stay focused on the user it does not actually ensure that their needs are addressed.
- **Research through or in design.** Hardly anyone was familiar with approaches such as "research through design"[7] or "participatory design"[8] nor has ever applied one of these approaches. One workshop participant stated that these kinds of methods seem to be easily

applicable in the area of AAL, however, have potential to ensure that user requirements are addressed.

- **Involvement of different stakeholders.** Involvement of all kinds of different stakeholders within the process was considered important. One workshop participant, for example, reported about a project in which they developed an app to support older adults managing their daily life. They included older adults, their formal and informal care giver, and other family members, who are part of older adults' life, but forgot about including the perspective of service givers (e.g., supermarket chains).
- **Including potential users in the proposal writing process.** With regards to users' requirements one participant raised the idea of including potential users actually in the proposal writing process. This would allow potential addressees to actually articulate their needs/requirements and could influence the scope of the proposed solution.
- **Check points.** Another mechanism that was suggested to ensure that requirements are actually addressed, were so called "check points". One workshop participant, for example, suggested quantifying requirements (through objective and subjective assessment) to make it possible to "measure" requirements. Although it might be difficult to operationalize qualities such as trust, it might be an approach to make sure that user needs are addressed.

With regard to our second point of discussion, i.e., *"What are challenges within the process?"* the following issues were discussed.

- **Appropriate translation of user requirements.** Within the discussions, one of the biggest problems was the translation of requirements between project partners. In this context participants discussed that it is important that partners in the project actually agree on requirements that are identified in the beginning of the process. This means that these requirements are not taken for granted. A negotiation process is required in which, for example, the technical partners need to agree on the requirements, i.e., that these issues are addressed in the development process. Consequently, the negotiation process was mainly discussed with regard to communication process, i.e., the way the requirements are communicated.

Topic 4: Failures and Lessons Learned from the requirements analysis and development process

Within regard to the fourth topic, failures in the requirements assessment, communication and implementation as well lessons learned were discussed. Several issues around working with requirements were identified:

- All too often, there is a **conflict between the project interests and the own ones** (e.g., company's). This can lead to different expectations between the stakeholders in terms of the implementation of the requirements and its outcome. The outcome then fails to meet the different expectations. This is also often accompanied by missing trust in other partners.
- **Developers often do not communicate with the researchers** (who assessed the requirements), if they are unsure about certain requirements and take decisions on their own. Another potential problem can be a missing prioritization of requirements, which can result in the implementation of unimportant or easy to implement requirements first. Additionally, it can be that technological limitations overrule the requirements.
- Developers can also be stuck with **user requirements that are not fitting anymore**. This issue could easily be solved with communication and iteration of requirements with all stakeholders, but all too often developers are stuck in their linear (waterfall) thinking/working and are not agile enough.

Participants reported also about successful AAL project that failed to come to the market. For example, by developing a too global solution that tries to meet all assessed user requirements,

instead of focusing on one feature/function that can more easily brought to the market. Another example is developing a too innovative solution that is then too expensive. The reported issues related to the last phase of the project, where the often missing transfer of user requirements into business requirements (which should happen as early as possible) and that there is often a problem with intellectual property (IP), i.e., who ones what?

The participants agreed that a good project management could take care most of these issues, if they are known. Therefore, sharing such experiences with others is very valuable to prevent other project from failing.

Summary

The discussions within the groups revealed a variety of different topics, whereas some of them were considered important in all the different groups, e.g., stakeholder involvement. Addressing their needs as well as varying interests were, for example, not only identified as challenge when working in multidisciplinary teams, but also considered as an important prerequisite to ensure the implementation of valuable AAL solutions. In this context, communication between all involved parties was considered important. Thus, we could identify a tension between challenges and potential pitfalls.

The discussions revealed that the transfer of stakeholder needs is a complex process and that is it not only about applying appropriate methodological approaches but to recognize and accept different stakeholder needs. Therefore, also framing conditions such, for example, a proper project management, were identified as key factors in the development process.

Overall, the discussions allowed participants to reflect upon their experiences, to exchange best practices and to develop first approaches to improve the transfer of stakeholder needs.

References

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Annex 2: Program of the ALFRED workshop held during the IEEE event (September 2016)

IEEE Healthcom'16

OPAA Workshop (http://alfred.eu/opaa-workshop/)

16 September 2016

Munich, Germany

Title: 1st International Workshop on Open Platforms in the Field of Independent Living and Active Ageing

With speaker from Google about Big Data and Machine Learning

Europe is ageing. As a consequence products and services, which support active ageing, are increasingly overflowing the market. Many of these products and services comprise IoT (Internet of Things) and IoS (Internet of Services) that can track, monitor and support health and wellbeing at home and on the road. They are often built up by components or products of different providers with different or no industrial standards. Solutions are difficult to integrate due to these interoperability-issues and they are scattered on the market. This makes it for businesses and developers difficult to expand their offer. And for consumers it is difficult to choose the solutions that can best support their health and wellbeing according to their specific needs.

The ALFRED project organizes a workshop in collaboration with invited speakers to present and discuss:

- possibilities for interoperability and open frameworks to bring solutions together
- research results concerning interoperability and standards in the field of active ageing
- needs of end users of technology and how these can be tackled within research
- news from Google and it's Google Cloud Platform and Google's Big Data Solutions

About the ALFRED Project (http://alfred.eu/):

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 allow older people to live longer at their own homes with the possibility to act independently and to actively participate in society by providing the technological foundation for an ecosystem consisting out 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, considering her interests and her social environment.

A more *Effective & Personalized Care* by allowing medical staff or carer to access vital signs of older people monitored by (wearable) sensors.

Physical & Cognitive Impairments Prevention by incorporating serious gaming to improve the physical and cognitive condition by offering games and quests to older people.

Workshop Chair: Dr. Peter Merz, TIE Kinetix GmbH, Germany (peter.merz@tiekinetix.com)

Workshop co-Chair: Michael Krummen, Ascora GmbH, Germany (krummen@ascora.de)

Programme:

10:50	Welcome
11:00-11:30	Serious Games for Personalized Health(care) (Dr. Stefan Göbel, Technical University Darmstadt, Germany)
11:30-12:00	Sensor Abstraction Framework Architecture for Wearable Devices (Josue Ferri, AITEX (Textile Industry Research Association, Spain)
12:00-12:30	TDM: An Open Dialogue Platform for Active Ageing (Dr. Frederik Kronlid, Talkamatic AB, Sweden)
12:30-13:30	Lunch
13:30-14:00	Containers as a Service with Docker to Extend an Open Platform (Tobias Hardes, Ascora GmbH, Germany)
14:00-14:30	Information fusion and algorithm training framework (Alejandro Sánchez-Rico, Artica Telemedicina, Spain)
14:30-15:00	Interoperability in the Field of AAL. Integration Profiles and Latest Results (Lars Rölker-Denker, Offis e.V., Germany)
15:00-15:30	Market Opportunities in Active Ageing and eHealth (Federica Righi, IESE Business School, Spain)
15:30-16:00	Involvement of End Users in Design and Development of Products for Active Ageing (Dr. Florian Feldwieser, Charité-Universitätsmedizin Berlin, Forschungsgruppe Geriatrie, Germany)
16:00-16:30	Handling Big Data (Genomics project as an example) and Machine Learning with Google Cloud Platform (Steren Giannini, Google)