The Urge for Empirically-Informed Design of Social-Oriented AAL applications – The Example of 2 AAL Projects

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Abstract

In this paper, we show that contrary to other AAL assistive technologies, which are somehow mandatory for an autonomous living at home, the use of social interaction services is not a necessity by itself, even if it contributes to a better quality of life. For this reason, the integration of the future end-users into the design process is all the more needed to get a continuous feedback and foster the usefulness and acceptability of the services. More generally, to ensure a higher acceptance and successful adoption of these AAL technologies, we claim that it is essential to adopt socio-technical approaches and methods, which take into account the needs of daily life and subtle aspects of the home into the design process. We therefore illustrate the Living Lab approach we have defined and applied within the framework of two projects from the second call of the AAL Joint Programme. These projects, FoSIBLE and PaLiLife, aim at designing Information and Communication technologies to effectively enhance the social engagement of the elderly. We finally discuss how these insights can inform the design process.

Keywords: AAL; Living Lab; Participatory Design; Social Interaction; Elderly

1. Introduction

Aging is a new step of life, which goes together with a lot of changes that could be related to physical, cognitive and social frailties. Physical and cognitive frailties have been addressed in several research initiatives focusing mainly on the development of a variety of assistive technologies - mostly health systems, ambient technologies, or monitoring tools - for assisting elderly with disabilities who want to stay at home as long as possible. However,
aging well cannot be reduced to physical and cognitive frailties; technologies should also tackle the quality of life of the elderly by improving their psychological well-being and self-esteem.

This is all the more needed, considering that social isolation of the elderly is getting worse, affecting 24% of people aged 75+ in 2013, against 16% in 2010. In France, 74% of elderly report suffering from loneliness related to relational and/or geographic isolation. Isolation is mainly due to a lesser involvement in affinity network (associations, clubs), greater difficulties in maintaining friendship relationships, and narrowing of the family network. Extensive research has established the strong relationship between social isolation and health, and recent studies have even shown that the lack of social relationships influences the risk of mortality for elderly people.

Therefore, it is not by chance that the AAL Joint Programme focused its second call for projects on Social Interaction and how it could be supported by ICT based solutions. The two projects presented in this paper, FoSIBLE and PaeLife, are part of the 23 projects funded under this call for proposals. The interest of making a parallel between these two projects is that they share the same research questions: how do we design and evaluate devices for the home; how to effectively support communication for a better quality of life at home; what are the uses and roles of technologies for seniors; how to integrate social rules in the design of communication tools?

These common research questions come from their shared objective which is to fight social isolation of the elderly by enhancing ICT-supported social interaction.

In this paper, we first argue that integrating socio-technical approaches and methods, that take sufficiently into account the needs of daily life and subtle aspects of the home to the design process, is important to have a higher acceptance and successful adoption of new technologies by a group of users. We then present the projects FoSIBLE and PaeLife and how they will propose solutions to support social interaction and therefore the social life of seniors. Then, we describe the Living Lab approach we adopt and how the user needs analysis allowed to define the services that will be provided, and how the specificities of ageing are taken into account in the design. Lastly, the evaluation perspectives will be questioned.

2. The urge for empirically-informed design

Older people are frequently perceived and portrayed as being resistant to technology. In fact, some of them are willing to accept novel digital technologies into their lives and take advantage of what a technological world has to offer. Understanding new technologies makes them feel connected to others and the world in general. When older adults reject technology, it tends to be due to not perceiving the benefit of the technology, not necessarily because it is too difficult or time-consuming to learn. The “not worth it” impression is more likely to be stressed by an unusable interface. Therefore, the objective is to design applications and services, which would be both usable, where simplicity and ease-of-use of the interface are ensured, and useful. In other words, while usability tends to be a common feature to all of the AAL products, when the aim is to enhance the social life of the elderly, other issues arise on top of the usability ones. Therefore, the methods used to design and evaluate this kind of applications must be adapted to tackle these issues raised by the specificity of these social-oriented applications. Indeed, the usefulness and acceptability of applications and services focusing on the social engagement of the elderly are key to their success: if an elderly does not perceive the benefit of using a communication system, he/she will simply not use it. In that sense, the constraints associated to the design of a communication system sensibly differs from other AAL technologies. Monitoring, surveillance, cognitive assistance, are either transparent in terms of usage, like shadow sensors, or absolutely necessary in terms of fall prevention or health issues. Social interaction issues are less self-evident in terms of direct benefit for the elderly, who is, by no means, compelled to use a device if the device does not provide the features that are needed. Therefore, concerning products and services designed for the elderly, the “need of use” – or rather the benefits of use – must be made clear before older adults will voluntarily adopt technology. The acceptance issue is relevant because older people construct their decision to use or not use

*Rapport “Les solitudes en France”, Juin 2013, Fondation de France
†According to a survey done by the group “Combattre la solitude des personnes âgées”
these technologies in a fundamentally different way to younger adults. Inappropriate design is a mechanism through which society disables people with impairments by ignoring them. Designing digital technologies for older people is not simply a matter of addressing the immediate consequence of the most obvious functional impairments. In practice, the designers are ill equipped to design technologies for older people, and it can lead to a feeling of marginalization for the elderly.

Aiming to fight this phenomenon, we need to adopt approaches that allow both to have a good comprehension of elderly social practices, habits and what they value about interaction and mediated communication, and to involve the elderly in the design process. According to Eisma et al., traditional methods of user-centered design need to be adjusted if we want to enable researchers to effectively gather the requirements of the elderly. A participatory design approach, specifically aimed for older users and that focuses on collaboration with future users throughout the process of design and development, is the most appropriate for our project. Participatory design reflects a change in attitude from design for users to design with users. It is a participatory experience that represents a state of mind and a belief that all individuals have something to offer in the design process and that they can be expressive and creative when they were given the proper tools. We claim that this idea of democratization, initially created for the design of Information Systems in companies, can be applied in the AAL context. Direct and autonomous involvement of the future users in the technical design of functionality and in evaluation will promote a proactive role by bringing – from their experience – ideas, practices, desires and frustrations. Such participation ensures that a broad range of interests, needs and values are addressed in the design work. For so doing, we are adopting a living lab approach. It will allow us to put the users’ perspective at the forefront of every design decision. The real challenge of adopting a living lab approach consists in involving all the stakeholders in the design process by taking into account the micro-context of their everyday contexts for discovering emerging scenarios, usages and behaviors. This approach is particularly promising due to the opportunity it gives to try out and obtain user feedback on services, at different levels of development, where relatively large numbers of users may be involved in the innovation process.

Therefore, instead of addressing only the usability issues, the aim is to tackle usefulness issues – using empirical, mainly ethnographic methods – to inform the selection of the services that are really needed by the elderly. Combining in-depth qualitative interviews and observations, it is possible to understand the users’ context of use of the technologies they already use at their home as part of their daily life. We will now present the two AAL projects for which we have adopted this empirical approach.

3. Two AAL projects aiming at enhancing social interaction

3.1. FoSIBLE

The AAL project FoSIBLE (Fostering Social Interactions for a Better Life of the Elderly) aims at defining how ICTs could alleviate elderly loneliness, in order to cope with their social frailty. A major challenge is to develop non-intrusive services based on a Smart TV system providing adapted interfaces that match the living worlds of the elderly people. The idea is to create an easy and usable way for communicating and interacting to increase elderly well-being and self-esteem.

The issues we are focusing on are:

1. Could we consider the development of innovative services based on an interactive Smart TV platform as a solution to fight isolation of elderly people? In general, elderly are reluctant to use computers and most of them consider computers as a working tool rather than a communication media. We then make the hypothesis that TV is a good alternative for the elderly reluctance about using computers. Moreover, knowing that their relatives are watching the same program than them could be a good opportunity to start a discussion whereas it is not always obvious for them to start an interaction, as they may be afraid to disturb.

2. Acknowledging that it is technically possible to develop online applications for social interaction among older people, will the feelings of mutual trust and belonging be sufficient to build a virtual community among elderly who are used to face-to-face interactions?
The FoSIBLE application is developed on a Smart TV platform. The Smart TV service makes possible to extend the functions of the TV, so that users can obtain useful information and interesting contents. A Smart TV application is a special type of widget that is implemented on a browser and runs on the TV screen. The background is slightly transparent so the image of the TV program can still be visible. Screen resolution, hardware specifications and remote control make the difference between TV applications and web pages. With the FoSIBLE widget, users will be able to use a tablet PC as an additional terminal to navigate on the TV menu, but also to enter text. The tablet can additionally be used to display messages, when the TV is switched off or to be able to read messages in another room (e.g. read a recipe sent by a friend in the kitchen).

3.2. PaeLife

PaeLife (Personal Assistant to Enhance the Social Life of the Seniors) aims at developing a software – temporarily named Personal Life Assistant (PLA) – that will be a multimodal assistant for senior citizens that will enhance their social life. Acting as a virtual presence, the PLA application will help the older user to stay “connected” in every sense of the term: enhancing and facilitating social communication with family and friends, but also by simplifying the interaction with technology, promoting learning and entertainment online. It integrates, on a unique easy-to-use interface, a unified multimodal communication system and a bunch of useful services.

The platform of the PLA comprises a personal computer connected to a TV-like large screen for maximized visualization, and a portable device (tablet) for mobility. It will be possible to control the PLA using one or the other device, which will interact with each other, and which will have the same interface. Therefore this will allow an increase in the types and modes of interaction and the maximizing of learnability and ease-of-use.

PaeLife values usability, thus the efforts in developing a “natural” user interface with the main modalities – touch, gesture, or speech based commands – that are adapted to seniors’ needs. Therefore, speech input and output in the local languages play an important role in the system. The PLA will have speech input and output enabled for several European languages: French, Hungarian, Polish, English and Portuguese. Regarding recognizing spoken commands, PaeLife’s main goal is to improve the performance of standard speech recognizers, through large-scale elderly speech data collection. Regarding speech output, the project already created the conditions to integrate in the PLA a variety of voices for the target languages, as well as personalized voices.

Following user needs analysis, a number of services are being considered for the system. Their integration will be finalized following the user tests and field trials, which would confirm their usefulness. These services are: Unified support for different kinds of common messages (Email, Twitter, Facebook, etc.), Calendar services with agenda, Social activity status, TV Schedule, Weather information, Support to handle photos, images and videos in an integrated way, Simple access to various sources of information, such as latest news or Social community of interest (using Facebook).

4. How to empirically-inform the design of social-oriented AAL applications

As we have stated in section 2, usability issues are prerequisites for the usage of AAL applications. They should be taken into account during the design process, as early as the first prototype is ready. According to Otjacques et al11, the deployment of a first version of a system in the field with real users raises some precautions. Usability tests in a laboratory environment cannot lead to identify the factors of acceptance of a new system. The overall appearance of the system must be well defined and should not vary over the design process, so that users do not consider each new version as a new independent system. It means that usability issues should be checked first, by deeply testing the application and debugging the initial version of the system. Indeed, the first impression made by the end-users about a prototype is important for the acceptance of the new system.

4.1. Usability issues in the FoSIBLE and PaeLife projects

In order to deal with usability issues during the design of Social TV services in the FoSIBLE project, we have looked at the ergonomic guidelines which are available to support the design of TV applications for the elderly12,13.
Their use provides a real added value in terms of accessibility. In fact, even if the television is frequently used by elderly people and offers them the feeling of not being alone, existing systems of Social TV do not provide them with an interface and features tailored to their needs and their age-related difficulties. For the elderly, vision and hearing are subject to a variety of changes, which tend to degrade the accuracy of the information transmitted to the central nervous system. For example, elderly who are visually impaired have difficulty interpreting interactive elements displayed on digital interfaces based essentially on graphics. The main problems elderly face with modern TV is related to the fact that current display interfaces for interactive television are designed in the same way as personal computers. Contrast sensitivity and color perception differences constitute a whole variety of needs to be taken into consideration when designing the TV interfaces. However, developers of interactive services for television still do not take into account the limits of cognitive, sensory and/or physical potential users of the system. For example, browsing in a profound way through hierarchical menus is impossible for elderly with memory problems, or an inappropriate choice of color can make the text invisible or unreadable. Also, the conventional television remote control device in an interactive environment is problematic. Text input, research or sharing of content becomes a complex operation. Some of these difficulties are directly related to cognitive abilities (the correspondence between the features available or and those desired, and which buttons to press). The remote control requires a combination of complex sequences with buttons to access interactive services. There are also a variety of difficulties related to the design of the remote itself, which raises some navigation problems related to the number, size and keys layout.

However, following existing guidelines is not sufficient, since they are focused on interactive TV and not on Social TV applications: they do not reflect the functional needs and are not focused on sharing content among different stakeholders. Recent research attempts to provide answers to this issue: Geerts and Grooff introduced heuristics to support the social practices through interactive television services. The FoSIBLE project has slightly adapted these interaction design guidelines and Social TV heuristics for its SocialTV applications.

In order to assess the usability of the FoSIBLE system, we conducted several experts testing sessions in a controlled environment each time a new version of the prototype was sent by the development partners, and maintained a continuous communication between the development partners and the FoSIBLE consortium. While testing the FoSIBLE widget before the installation in the home environment, we planned to guarantee a running and usable system, which meets the user expectations and delivers an adequate user experience.

For the PaeLife system, a more “natural” interface is designed, based on speech (input and output), touch and gestures. A first user “testing” of the prototype is conducted at the middle of the project. It aims at gaining feedback of the perceived usefulness of the services already included in the prototype. Since the first evaluation will be done using what is just a prototype, the objective is to question the usefulness of the services and functions rather than doing a usability evaluation per se. Interviews will supplement the insights in order to improve the usefulness of the functions and services of the PLA.

The idea is to take into account the state-of-the-art guidelines concerning the design for older adults, that is, considering the normal age-related declines in abilities, while contributing to the state-of-the-art in Speech Recognition (SR) systems, through the adaptation and integration of multimodal interfaces, which are specific to the application designed as part of PaeLife. Testing the prototype will result in preparatory user feedbacks about the quality and usability of speech and gesture modalities, the proposed mixed interface and the PLA services. This feedback will be used in development work packages to adjust the proposed techniques.

In order to get a deeper understanding on how users perceive the developed services, it is important to evaluate them in real world settings. In an iterative framework like the one we have defined during the FoSIBLE project, the evaluation identifies areas for improvement and prepare for the next version of the prototype to be tested. An evaluation limited to usability and conducted in a controlled environment does not reflect the complexity of everyday life. Therefore, we consider that this is not sufficient to ensure the acceptability of the proposed features. We propose to complement the evaluation protocol by including participants’ homes. The aim is to evaluate future users’ usages in their everyday life. We adopt video-ethnographic techniques in real-life settings and situations to collect insights about the senior participants’ existing communication practices and the social rules that guide these interactions, the difficulties they meet in using the prototype or existing devices, and most of all, what is the perceived benefit for them in using the applications. Based on this understanding of what matters for seniors, we
will be able to design a product version of the applications that is coherent with the senior users’ habits and usual social practices, and that can therefore easily integrate their way of life and support their activities in a simple and easy-to-use way.

4.2. A Living Lab approach

Although most researchers agree on the importance of taking into account social practices in the design process, through the participation of older adults in developing a new technology, there are relatively few examples or guidelines for successful participation. In this section, we present the approach we have defined and adopted in the FoSIBLE project. This is the first step into the definition of a common methodological framework for all of the AAL projects we are involved in.

Our Living Lab approach (Figure 1) integrates users home in the design process. This approach is founded both theoretically and empirically: 1) it is based on existing models and studies, 2) benchmarking of existing technologies for elderly, and 3) it integrates users in the design process and ensures their active participation. Within the Living Lab, designers use a set of tools from the field of participatory design to develop applications on Smart TV. These applications are evaluated at participants' homes in real life conditions.

![Fig. 1. FoSIBLE Living Lab Approach](image-url)

During the first month of the project, we started recruiting participants. For the selection of 10 potential end-users in France, we organized a first meeting with the help of our partner “Les Arcades”, a gerontology prevention center, which is the end-user association. It took place on June 30, 2010 in the conference room of Les Arcades, in Troyes. The project was presented to more than 50 retired persons living alone. The involvement of the end-users is based on voluntary participation and the selection was made upon their age and family situation. During this meeting, we presented the project. Two brochures were made for this occasion and given to the participants. One gives a general overview of the project and the other includes a set of usage scenarios of social television, so that participants can get an idea on some potential opportunities for using the system that we intend to design. Ten volunteers were recruited: eight women and two men, aged between 65 and 90. Two participants were never married and the others are widowers who have children and grandchildren. Almost all the participants do not suffer from chronic physical disability, except one who suffers from arthritis affecting her hands and feet. Four of them are basic computer and Internet users.
The volunteers did not feel isolated and so, were not really convinced that the project objectives are related to their situation and directly relevant to their interests. But they stated that they were widely interested in new technologies and defining services which could be helpful for the future.

Semi-structured interviews lasting between one to two hours were conducted at participants’ homes right after the recruitment in the first step of the project. To understand the needs and expectations of the future end-users, semi-structured interviews were tailored in accordance to the interview grid. It was composed of selected questions focusing on:

- Trace switching between working life and retirement to determine the social changes;
- Participants’ daily life: What activities do they perform? How? (Collective or individual);
- Their family and friends entourage, and the means they use to communicate and to keep in touch with their relatives;
- How they use their television;
- Their degree of use of new technologies, mainly of the Internet.

Coherent with our empirical approach, the interviews revealed the picture of the daily activities and current use of existing technologies in the life of our participants. The information obtained also provided us with design implications and user requirements in a user-centered and iterative design approach.

For our participants, social interactions mostly take place in societies, and especially in Les Arcades. The research confirms that certain relationships appear to reduce subsequent loneliness: going to church, volunteering, seeing friends or neighbors, and talking to them on the phone. Interviewees expressed needs in relation to the use of their TVs to allow sharing real-life moments: grandchildren making drawings for them, sharing comments while watching their favorite programs and also after (water cooler effect), instead of doing it on the phone. For the participants who have friends at the retirement home, they would appreciate communicating with them through television (as they say TV is the main occupation in the retirement home). The idea of communicating with other people than family or friends to discuss various topics (television programs, shared interests) seems also a good opportunity from their point of view.

In terms of cooperative activities, our interviewees proposed some very interesting features that would be useful in their daily lives and would help them feel better:

- Learning things on television and sharing their comments and impressions with others – for instance exchanging recipes during or after a cooking course. They would also like to exchange reading tips and to share advices.
- Participating to dedicated and tailored sessions on television (e.g. yoga), and especially virtually attending sessions at the same moment than their friends from Les Arcades.
- Virtually sharing games (crosswords, sudoku, bridge) with their relatives and friends.
- Benefiting from on-line poems written by one of their friends.
- Importance of common interests, which was mentioned by another participant. For example, a support group for those suffering from a health problem, or for informal caregivers.

Participants expressed the need for more accessible and less complicated interfaces than computers. Participants who do not have disabilities think that using a keyboard would be possible but not very practical. They would prefer a digital tablet with digital pen, even if they find that the voice control is also a simpler interface than the keyboard. For the participant suffering from arthritis, the digital tablet with digital pen is also difficult to use.

The interviews allowed creating a set of personas (Cooper, 1999) describing attributes of our users and allowing us to keep in mind their needs during the development process. Although personas are fictional, they describe attributes of our real users. Each persona has a name and a picture. They are carefully described in terms of needs, goals and tasks. Such detailed persona is key to the suppression of any tendency for the developer to usurp or distort the real end-user. These personas were used to create scenarios describing how potential end-users will use or may use the services. Scenarios allow rapid communication on the potential uses and needs and especially about the technical feasibility with the developers.

Mockups illustrating scenarios were then built to help in collecting feedback (Figure 2) and were presented to the participants six months after the interviews. The mockups helped the future users to imagine the alternative design features and interface of the Smart TV widget. They also allowed to focus on problematic areas of the
project and to verify the adequacy of design choices to the needs of future users. They evolved following interactions with end-users and technical partners.

Fig. 2. FoSIBLE widget mockup

These mockups and their presentation to the end-users lead us to define the prototype, which is working as a widget. When looking at a TV show, the user can decide if one of these four services should appear: “Online Friends”, “Chat”, “Stay in touch” and “Participate in clubs”. When the user selects “Online Friends” using the tablet or the blue button of the remote control, s/he will be able – during the TV program – to see a buddy list with all the friends who are watching TV at that time, with the channel information and their recent activities on the platform. “Chat” can be opened and closed via the tablet or the red button on the remote control. It allows sending short messages to the online friends, for instance to initiate a discussion when watching a TV program. The messages are typed on the tablet. When the user selects “Stay in touch”, using the green button of the remote control or the tablet, s/he will be able to access a mailbox where he can find messages sent by his contacts when the TV was off, and also send messages to them. “Participate in Clubs” is launched using the yellow button of the remote or the tablet. It shows the list of existing clubs (yoga, philo cafe, cooking, poetry, reading...). After entering a club, one can comment or create a new topic by using the tablet. For example, in the reading club, one can browse existing reviews, comment them or add a new one (figure 3).

Fig. 3. Browsing reviews in the Reading Club

In the PaeLife project, the same approach is adopted; the evaluation is organized in two phases. The type of qualitative and observational analysis – mainly based on ethnography and video recordings – will hopefully enable the identification of specific needs and requirements and general usability “problems” in order to improve the interface.
As soon as the pilot application will be available, the next evaluation phase will be achieved, examining the usage of the final application during field trials. The one-month field trial will be organized around step marks every week, taking the precaution to find the balance between prescribed tasks – so that we make sure that the participants actually use the device – and not altering the real-life situations. In-home observations and interviews allow researchers to see the participants in context, to observe them using their current technology, and to note unexpected points.

5. Discussion

Monitoring is a solution for elderly to be able to live in their environment as long as possible, especially for those suffering from disabilities related to age or diseases. Their use of assistive technologies is some kind of mandatory, if the person wants to stay autonomous at home. On the contrary, even if social isolation could also lead to critical health situations, the use of services dedicated to social interaction by elderly people is not a necessity by itself. For this reason, designers need to integrate the future end-users into the design process to get a continuous feedback and foster the usefulness and acceptability of the services. It is clear from our experience that the involvement of the elderly from the beginning of a project was necessary for designing services that will be accepted and adopted. However, to get their engagement and motivation, it requires convincing them about the usefulness of the project, something that was more complicated than we thought. Indeed, we needed to find the right argument, which can be done only if we have a good understanding of the daily lives of the elderly and their actual use of technologies.

Our participants are enthusiastic and enjoy the opportunity to provide their perspectives and influence. But they also have some doubts and anxiety about their ability to successfully perform or complete study tasks and activities. Two participants from the FoSIBLE project quit before the in-house rollout; One because of family issues with their children and a second who was afraid not to be able to perform the experience. She argued that she is ok with her TV and does not want a new one. Thus, it is important to make the Living Lab environment as stress-free and relaxing as possible. Incorporating elderly in the evaluation process involves creating clear task instructions for the test, being aware of differing levels of technology experience, and recognizing that the testing session will take longer, and that more practice could be necessary.

The focus on the results of the tests, which were performed during the usability lab evaluation, is important to ensure a good roll-out. During the development of the FoSIBLE prototype for the real environment tests, all consortium partners used a Bug Tracking System to collect bugs, feature requests and general feedback while testing the prototype before the empirical work started. Feedbacks are related to main usability problems and especially to check if the developed widget meets the proposed functionalities, which were specified by analyzing the end-users’ needs, before the evaluation starts at home.

An important question – both methodological and organizational – has been raised and discussed among the PaeLife consortium. It concerns the way the insights in the first phases of evaluation were going to inform the development and implementation of the technologies and the application, so that there is an iterative progression. It appeared absolutely necessary to create clear bridges between these work packages in terms of planning and coordination, so that the insights of the evaluation work could efficiently inform the implementation work. Through this coordination and collaboration in between work packages, it would be possible to make the most of (i) the prototype as an artefact for reflective practice and (ii) user participation in the iterative design approach.

6. Conclusion

Nowadays, the field of health technologies extends beyond professional circles to the homes, bringing more challenges for the designers. These technologies aim to provide a higher level of well-being, by allowing people to stay at home and helping them live autonomously as long as possible. Integrating socio-technical approaches and methods, which sufficiently take into account the needs of daily life and subtle aspects of the home to the design process, is important to have a higher acceptance and successful adoption of new technologies by a group of users.
Developing technologies for the home requires taking into account different aspects that are anchored in the course of everyday life.

In this paper, we have presented our proposal to tackle these issues: a Living Lab approach including the real households of the elderly end-users. The work presented is a work in progress. In the FoSIBLE project, a first prototype of the applications is ready to be installed in the home of our participants. Participants are now equipped at home with the FoSIBLE system (set-top box for Internet connection, SmartTV and tabletPC) and we are still working on the evaluation protocol. Information about the capabilities, limitations, and needs of older adults will be collected during this evaluation phase. The first usability questioning of the PaeLife prototype have started and will be followed by the evaluation of the different modules that are continuously being developed.

The evaluation of the two services: FoSIBLE and PaeLife will help understand the acceptability of AAL products.

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