Project FoSIBLE
Fostering Social Interactions for a Better Life of the Elderly

Deliverable

D8.3: Report on developed business models

Responsible

UDE (leading coordinator)

Contribution

All Partners

Version: 1.0
Date: 31/10/2012
Dissemination level: (PU, PP, RE, CO): Public

Abstract

This document reports on business models that have been initiated to show how the results gained from the FoSIBLE project can be exploited in different sectors.

The first presented business model refers to the FoSIBLE system as a whole, which can be seen as an interaction and communication service with different customer segments like end-users (families, friends, generation 50+), home care providers, service providers, TV manufacturers etc.

A second business model deals with products and services regarding the sensor integration. Involved FoSIBLE partners are AIT, IMS and Mauser Care. The targeted customer segments are service providers such as home care service providers, health insurance companies and "mediators" like interior design architects.

We also developed a business model for playful interaction services. Here, researchers from UDE are planning a spin-off. Another potential stakeholder in this field could be Kaasa. The main target group regarding the end-users are families, especially the generation 50+. Other stakeholders and possible customers are TV broadcasters, platform providers, TV manufacturers and TV advertising marketers.

To cover the research outcome of the project, a fourth business model was established for the living lab and SmartHome services as well as evaluation competence. Involved partners are UTT, USI, UDE and CURE.

Table of Contents

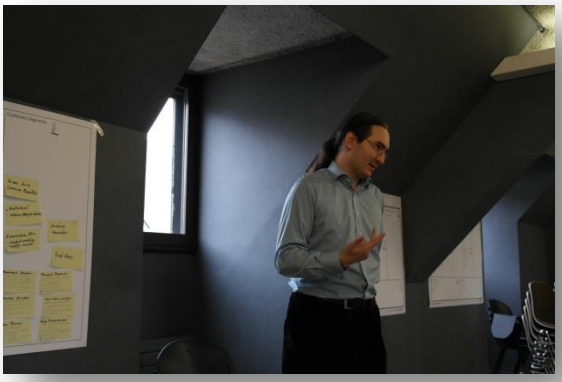
1. Introduction

1.1 Background and Related Tasks

Work package 8 aims to ensure the impact and outreach of the FoSIBLE project in academia, industry, targeted end-user organisations and the general public.

This document reports on business models that have been initiated to show how the FoSIBLE system can be exploited in Europe and worldwide. The main topic is the commercial exploitation. Furthermore, the business models refer to non-economic, but social values of the developed system, system components or the knowledge generated out of the FoSIBLE project.

To develop appropriate business models out of the FoSIBLE project, UDE organised an interactive business model workshop with all partners at the consortium meeting in Troyes. It was based on the business model development method “Business Model Canvas” (Osterwalder & Pigneur, 2011).



In a first step, we collected value propositions which the outcomes of the project (technical components, knowledge and expertise, services) provide for different customer groups. Also different marketing and business strategies were gathered.

Afterwards, in a second step, these collected components were structured by combining them to four integrated business model approaches. These business models refer to

- The FoSIBLE system as a whole
- Sensor-based products and services
- Playful interaction products and services
- Living Lab and SmartHome services

On the basis of these approaches concrete business models were developed as a follow up of the workshop. They are presented in the following sections.

The document illustrates the benefits from the perspective of the end-user, from a socio-economic point of view and with regard to the economic value for business partners.

Therefore, in a first step the products and services are described and benefits as well as problems are shown. Also the potential customer group is defined. The description of the core model includes the definition of the stakeholders, the sales strategy and rough market quantification. In the last step the roles of the consortium members as well as their market experience are illustrated.

1.2 Scope of This Deliverable

Objectives of the WP

Ensure impact and outreach of the FoSIBLE project in academia, the industry, targeted end user organisations and the general public.

Plan, coordinate and implement dissemination and exploitation activities.

Develop a business model that can be implemented in Europe and worldwide to commercially exploit the FoSIBLE system.

Description of work

All partners will be involved in the dissemination and exploitation activities.
Task 8.1: Definition of Exploitation and Dissemination plan: all partners contribute, but special input will be provided by the industry partners and end user organisations with the necessary domain expertise and experiences. The first version of the plan will be issued in month 6. Periodical updates will be performed with continuous analysis of changing market needs and consequent tuning of market channels suitable for FoSIBLE exploitation.

Task 8.2: Scientific dissemination and exploitation: All scientific partners contribute to the scientific dissemination to achieve the highest outreach of the project results in the research communities; in detail by the organisation of workshops and demos on related conferences (ACM CHI, GROUP, ACM CSCW, EuroITV, ECSCW, Measuring Behavior) and publication in the named conferences and in journals. Accordingly, scientific exploitation aims at fostering the project partners' publicly funded research projects with the gained knowledge and expertise from the FoSIBLE project. Additionally, the project results will be exploited by developing new and improved research tools (for scientists) and plug-in components (for OEM applications) that offer automatic detection of specific human behaviors or human-system interaction patterns.

Task 8.3: Market dissemination: Implementation of the commercial exploitation potential of the FoSIBLE project with promotion activities on exhibits and tradeshows and by organizing seminars, webinars, symposia and industrial workshops and advertisement and direct marketing campaigns.

Task 8.4: Announcement of new product prototypes in all relevant channels (printed leaflets, posters, website, emailing, RSS, etc.). Local authorities and interest groups (such as insurance companies, chambers of commerce, doctors, etc.) will be proactively contacted and asked to help disseminate the info materials. Also the end user organization Les Arcades will take a proactive role in the dissemination process, by the development of training sessions of the care staff and by disseminating the project results in its widespread network.

Task 8.5: Manage Intellectual Property issues in accordance with participation rules and the Consortium Agreement. This will include the new patents.

Deliverables of the WP

D8.1: Definition of exploitation and dissemination plan. Delivery date M6, periodical updates.

D8.2: Implementation of dissemination channels and development of information materials. Delivery date: M6, periodical updates.

D8.3: Report on developed business models. Delivery date: M30

D8.4: Consortium Agreement on IPR ownership. Delivery date: M12

D8.5: Overall and individual partners' exploitation plans. Delivery date: M30

2. Business Model "FoSIBLE System"

2.1 Product and customers

The FoSIBLE system mainly consists of the widget and the additional tablet interaction. These components integrate various elements:

- Communication Services e.g. to discuss the TV program
- Awareness Services
- Sensor Technology and Smart Furniture (see section 3)
- Playful Interaction Services (see section 4)
- Input via Tablet

It is important that the product compensates the users' physical limitations not only in respect to their immediate living environment, but also in more general terms as their range of action is increasingly limited to his apartment. Because of that, the system gives the users a chance to continue interaction with family and friends even though they can't meet them in person. Furthermore the social interaction allows the user to measure and share their health status. This integration of social networks is currently not available for known other systems.

Potential customers can draw benefit from the integrated system or specific elements in different ways:

End-Users (Families, Friends, Generation 50+):

As the FoSIBLE system is an integrative Smart TV application, it enables its users to use the TV as a media as well as a communication tool. The barriers especially for elderly people are very low as the TV is a common, well-known device.

The FoSIBLE technology with its communication and interaction tools, like chat, private messages, clubs, etc. offers the opportunity for maintaining and strengthening social ties and sharing interests. Users are able to have social interaction with their family members and peers even if living apart. Having in mind elderly people who are not able to travel long ways or even walk specific distances, the system can compensate these physical limitations by offering an alternative way for social interaction. Thus, the FoSIBLE system can bridge distance and avoid social isolation especially of elderly persons.

In whole the system is designed "for more" – more than just watching TV, more than just communication, more than just a social network. Thus, another value proposition consists in the integration of these components in one solution.

Institutions for elderly persons:

Institutions such as prevention centres of the type of "Les Arcades" can draw benefit from the FoSIBLE system as it supports their work and goals. As there is a social infrastructure even outside the centre, the effects of the institution's work with elderly persons are even more sustainable. Thus, such a solution can be beneficial to the institution's image.

Home Care Service providers:

For home care service providers, modern and progressive technologies are not only an image issue. It can also offer a USP and a market advantage against their competitors. Moreover, the functions of the FoSIBLE system can facilitate and accelerate their work, as some basic needs of their clients (e.g. communication) can (partly) be satisfied through remote services.

Insurance Companies:

As the FoSIBLE system can help to avoid loneliness and isolation of elderly people (and in consequence avoid mental diseases like depression) in an aging society, also insurance companies can benefit. Furthermore sensor-based observation technologies can reduce the need for permanent care.

TV Manufacturers:

As users need a smart TV (in this case a Samsung Smart TV) for using the FoSIBLE widget, it creates sales potential for this sector.

For TV manufacturers such an integrated system based on their TV sets, can lead to new distribution channels. It can be the entrance to the AAL markets, whereas the actual focus lies on the entertainment sector. When focusing the AAL market, new distributors (specialised in this sector) and client groups (institutions for elderly persons, home care service providers, insurance companies, etc.) can be made accessible.

The SmartTV market in whole is very new and promising as demonstrated in detail in the following section. This could be the reason why more and more SocialTV applications are designed. Nevertheless, the FoSIBLE system has special components that set it apart from other existing applications.

Comparing FoSIBLE with existing solutions in the area of social networking (even compared with social networks especially for elderly people), there are some pros for the FoSIBLE system. The system uses the TV as the centre of the interaction. This brings different advantages: First, a TV set is a well-known technology and widespread in the households. Thus, barriers (as there are when having to use a computer) for elderly persons to use this technology decrease or even disappear. On the other hand, people often watch TV when feeling lonely. Consequently, when sitting in front of the TV set, it is exactly the adequate

time for social interaction and for that reason TV is the adequate medium for this. Last but not least, watching TV can offer cues for social interaction (like discussions, etc.).

In comparison to existing social TV solutions, FoSIBLE is one of a few, which deals with the target group of elderly persons in research and especially on the market.

Some research and industry examples are:

- **ConnecTV***:* Social TV application that provides communicative elements during watching TV. This includes information about the TV program watched by once friends, the possibility to follow friends' program switches, switching to the most popular program among ones friends. (Boertjes, 2007).
- **CollaboraTV**: Social TV application that includes synchronous and asynchronous interaction and communication mechnisms (Nathan et al., 2008).
- **Social TV 2**: Social TV application that includes an ambient display as awareness support (Harboe et al., 2008).
- **iNeighbour TV:** Social TV application with the target group senior citizens that promotes health care and social interaction. (Abreu et al., 2011)
- **Interactive TV with access to facebook**

While access to facebook is very common in the iTV market, our system creates a whole infrastructure for the specific demand of elderly. It has been developed on basis of the analysis of their needs when using such an interactive technology. Therefore adequate communication and interaction tools are integrated as well as information elements for the activity and health status.

In addition, existing Social TV applications, like ConnecTV, are often not designed and developed with focus on the use habits and usability demand of elderlies. This means, that the special needs and wishes of elderlies are not considered what could result in barriers to use these systems. FoSIBLE has integrated the requirements of this special target group using end-users in the whole evaluation and development process wherefore this problem was counteracted beforehand.

But also if the target group of the systems are elderlies, as with iNeighbour, FoSIBLE is enhanced by using different input devices as well as smart furniture. The integration of the different input devices tablet and gesture recognition in addition to the traditional remote control in the platform facilitates the input of text and the navigation through the system. Also smart furniture combined with the TV platform plays a relevant role in the project (see chapter 3). Furthermore, the enhancement of social interaction between elderlies and their friends and families through a playful component is particular (see chapter 4). The

combination of all these aspects is an added value in comparison with other existing social TV systems.

2.2 Model

The stakeholders are, of course, the platform and service providers of the system as well as the different potential customer groups as described in 2.1.

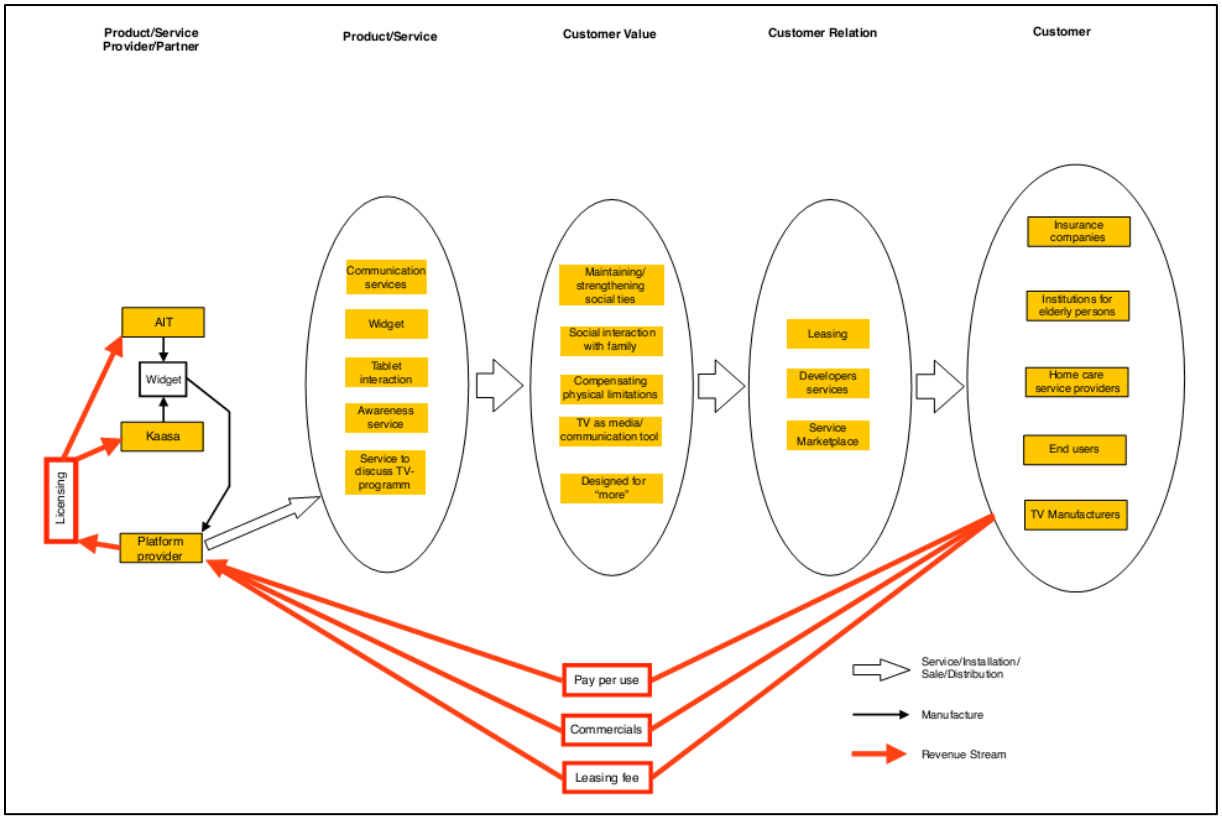


Figure 1: Business Model "FoSIBLE System"

As the single elements have been developed by different partners in the project, different partners could provide these elements. E.g. Kaasa has been responsible for the platform and the widget, AIT has been in charge of the tablet interaction and the sensors, IMS also developed sensor solutions and Mauser Care is the one responsible for the furniture system.

As the USP of the system lies in the system's integrative character offering a complete solution, it should be sold as a whole system. That means, that a distributor should provide the whole system or at least the system with all its core elements rather than fragmenting the system. This could be an external distributor or one of the project partners. One possibility is, that Mauser Care integrates the FoSIBLE system in its product range to offer

full service solutions. The advantage is, that Mauser Care already has the distribution infrastructure to the b2b target group. Other project or external partners would then act as business partners from Mauser, not as distributors towards the clients.

There are different possible business strategies connected to the different customer segments.

End-Users (Families, Friends, Generation 50+):

An appropriate strategy for the end-users could be a pay per use solution or an app-supported strategy for the widget.

In the age of free services via internet, the willingness to pay for services has decreased rapidly. Consequently, it will not be easy to create an end users' attitude that (financially) honours the value of the system.

Creation of the willingness to pay could be supported by combining the system (mainly the widget) with other products like the furniture, because this is a sector, where free-strategies are not usual. Consequently, the price acceptance will be higher.

An alternative is to offer such a free use to the end-users. In case of a free-use-strategy, this would be an ad-supported strategy or would be offered to the users by e.g. care and prevention institutions, insurance companies etc. (see below).

Institutions for elderly persons, Home Care Service providers and Insurance Companies:

Care and prevention institutions and home care service providers draw benefit from the system as described in section 2.1. Appropriate sales strategies here are pay-for-service solutions or a leasing strategy. The institutions as potential customers of the FoSIBLE system, would pay for a licence to distribute the system for free to their own customers (mostly elderly end-users). Insurance companies could participate in the costs.

Another possibility for shared costs is also an ad-based strategy. Regional providers of services like hair dressing, pharmacy etc. would meet their target group through this special medium. Of course, a blended strategy is possible as well and the most promising one.

TV Manufacturers:

TV manufacturers can increase their sales potential as well as their distribution channels with the FoSIBLE system. As the system could be their USP or their entrance to new markets, a possible strategy is that TV manufacturers pay (part of) the license fee and offer the system with reduced costs to their customers when they buy new TV sets.

However, the opposite strategy is possible, too. When selling the system, the TV sets will be provided (to mediators or end-users) with a reduced prize. Then, the TV manufacturer will act as a business partner, not as a customer.

The SmartTV market in whole is very new and promising. Figure 2 shows the forecast of the SmartTV shipment in different nations until 2014. It prognosticates that in 2014 more than 123 million SmartTV products will be shipped. Especially in Western Europe the market development is promising. In figure 3 the shipments and the penetration of SmartTVs in 2012 separated by region is presented. It shows a high penetration for Western Europe, Japan and China.

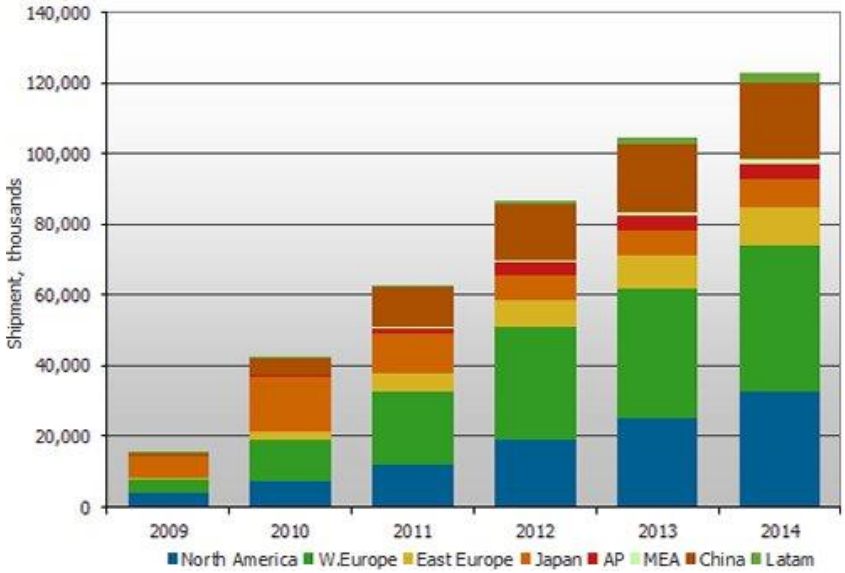


Figure 2: Development of the SmartTV market on the basis of the Shipment of SmartTVs
Source: NPD DisplaySearch[1]

[1] http://www.displaysearch.com/cps/rde/xchg/displaysearch/hs.xsl/110425_connected_tvs_forecast_to_exceed_123m_units_in_2014.asp

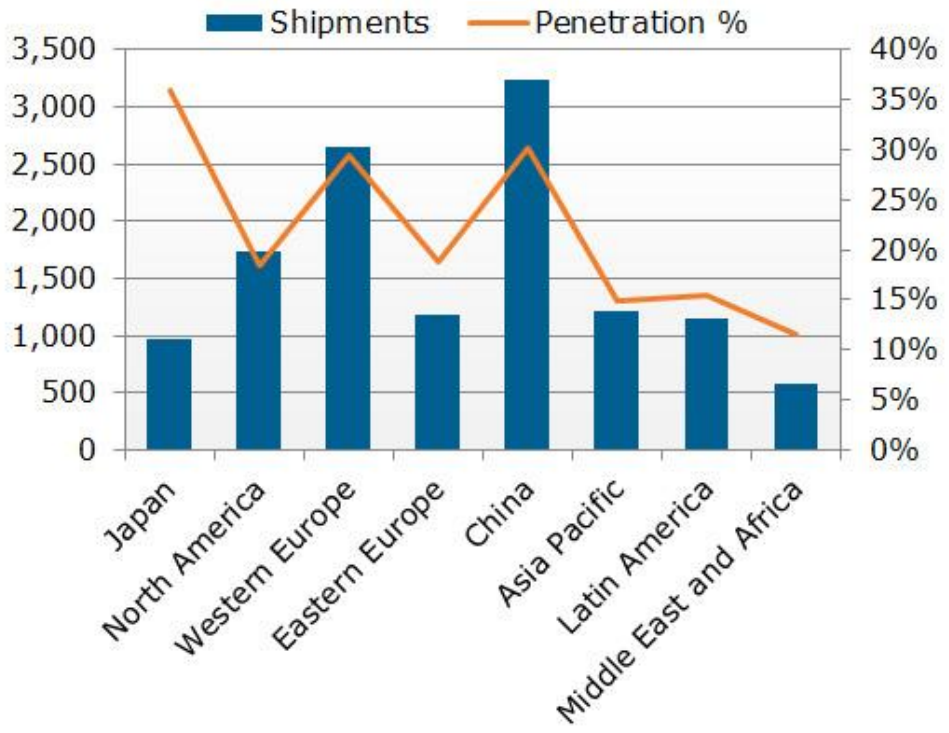


Figure 3: SmartTV Penetration and Q1'12 Shipments
Source: NPD DisplaySearch[2]

These statistical data indicate the high potential for the development of interactive TV solutions like FoSIBLE, because this market grows continuously.

2.3 Consortium

The consortium members involved in this business model are the developing partners AIT and Kaasa.

Kaasa's role in the project was the development of the social media platform software on the SmartTV and the integration of the hardware components together with the software solution. Based on long-term experience in the sector of innovative software development for different platforms, the role within the business model is to offer development services and adding their sales and marketing experience for such products. Kaasa expects financial benefits from the products resulting from the project.

The AIT Austrian Institute of Technology GmbH is a not-for-profit, limited liability Corporation according to Austrian law. AIT develops technological innovations, methods and solutions for industry and customers from public institutions. An interdisciplinary team of about 150 scientists and engineers work at the Safety & Security Department on future-

[2] http://www.bigpicturebigsound.com/We-re-All-Connected-Smart-TV-Market-Share-Surges-in-2012.shtml

oriented technologies along with innovative procedures and sophisticated processes fostering research, development and roll-out of national and international ICT-infrastructures. As the developer of the tablet interaction and the sensor-based signal analysis software for automated movement tracking and recognition of specific behaviours, they have a developing part in the business model.

AIT's benefits from the project results are an increased know-how and a prototypical solution for multi-input environments. Together with industrial partners this enables AIT to provide solutions for complex interaction scenarios for a wide range of age groups.

The market risks and barriers are primary caused by technical advances. As we have seen over the recent years, new technological concepts emerge quite rapidly. This opens new possibilities for enhancing the overall user experience, but may also provide a hurdle for elderly people who have not yet adopted to the new possibilities. Thus, AIT is aiming to gain experience with a wide range of different input devices, to provide the most appropriate solution for specific needs. In case of the social platform of FoSIBLE, the tablet seems to be very widely accepted and will thus hopefully be used in final products derived from the project, as well.

To provide the whole system with the sensor environment and furniture, also Mauser Care and Fraunhofer IMS are key partners. The strategy regarding these components is described in detail in section 3. Section 2.2 already showed that Mauser Care could build the centre of the system distribution.

Further stakeholders are the customers described in section 2.1 and advertising agencies as well as Social Networking Companies.

As the TV is a medium that is widespread in the households, advertising agencies could be interested in providing news for the target group of elderlies in the FoSIBLE system. Especially geo marketing could be an interesting issue, for example if the system will be integrated in institutions for elderly people. This would allow target group advertising and geographically specific advertising with minimal wastage.

Social Networking Companies, especially social networks for elderlies, could be interested in cooperating with the FoSIBLE platform. As the base of the system is such a social network structure, an integration of an existing network rather than creating a new one would be possible and reasonable.

3. Business Model "Sensor-based products and services"

3.1 Product and customers

In an aging society there is an urgent need and market potential in the AAL sector. One promising solution in this field is a sensor-based environment.

The main idea of a sensor-based environment (hard- and software) is to give elderly people a chance to continue autonomous and self-determined life despite physical challenges due to their age or other factors. The FoSIBLE AAL sensor-based services and products help users with these limitations to stay in their familiar environment and improve the condition of aging at home by supporting their everyday life. It provides possibilities to measure and share health status and extracts information about specific user needs.

Thus, the product aims at private customers who would like to actively extend the time they can autonomously spend in their familiar living environment despite limitations because of age or other factors.

They shall however be introduced to the product at an earlier stage in their lives, which will allow them to get acquainted with the possibilities of the system and its future potential. They could then start with the acquisitions of some basic components, which will keep the entry level low and make the decision to buy the system more attractive. Consequently, the target groups of the system are users with and without home care support in the age group 50+.

Besides offering the system directly to end-users, a further option is the integration of external service providers into the system to offer provisioning, caretaking and security functions. That means a large advantage for external providers because of work and time saving aspects.

Consequently, the different potential customer groups are:

- End-Users
- Home Care Service Providers /Service Providers
- Health insurance companies

How these potential target groups can draw benefit from the system and the revenue streams are described in detail in section 3.2.

As additional benefit the system modules will be designed to be adaptable to varying types of user profiles and limitations. The sensor-based system includes the following components:

- The **furniture systems** (planned designs and services) will basically be derived from components of the Mauser product portfolio. Selected furniture elements will be redesigned to fit into the private user environment - in the first step this will be the bed with its immediate environment, further steps will include storage, bathroom and comfort seating.

  To physically compensate the users' limitations selected operational elements will be motorized.

- To control and operate mechanized functions it is necessary to integrate **sensors for status information**. In further steps it is planned to include sensors to register environmental and vital function data. Based on these parameters the user can proactively control his immediate environment as well as other health- and community related activities. Sensor information like people counting (generated by the smart eye UCOS) also provide a basis for further awareness mechanism.

- While the above-mentioned sensors deliver status information, additional **sensors as control devices** can be integrated. Here, 3D vision sensors which utilize the dynamic vision sensor (DVS) concept will be used.

- To register and control system status and derive control commands from this information, specific software needs to be developed.

  This **middleware (Mauser Runtime)** collects and stores sensor information forwards and/or displays the information and can be programmed to execute control functions. Alternative users will be provided with input media to control the system directly.

The exploitable products and services presented here, is a complete smart environment solution including furniture, extensible sensor environment with AAL functions and a social platform. The peculiarity of the system is the combinability of different elements to create a construct defines the assistance. The system is modular and allows that individual demotic elements can be replaced. A further added value of the system is the integration of a social platform (see section 2). The integration of social networks into the home environment is currently not available for known other systems. The system allows various applications. At a launch elementary functions such as the control of the home environment on the furniture would be conceivable. Then the display of any information on the television, for example, via the connection of the social network is also conceivable.

Current solutions in the area of sensor-based living environments have a focus mainly on energy and home automation. Solutions in the field of Ambient Assisted Living are already closer to our solution. The focus of AAL solutions located, however, mainly in the care.

The system which was developed in the FoSIBLE project, puts the focus on the user interaction with its surroundings in order to gain access to digital social networks.

Moreover, existing solutions mainly focus on services limited to the respective providers of specific business/service activities (e.g. commercial TV, institutional or outpatient care etc.). Each of these services requires its specific and separate set of hardware and software components.

The value added to the market is the idea of offering a cross-system solution, which does not only include the actual living space/furniture related components, but also offers the user the integration of socializing and relationship building functions which give the system its generic and innovative qualities.

3.2 Model

The stakeholders are the FoSIBLE partners AIT, Fraunhofer IMS and Mauser Care as developers of the system. Their roles are described in detail in section 3.3. Since the product aims directly at the private customer, Mauser will only account for part of the distribution, it is necessary to find distribution partners who are in immediate contact to potential end-users. This network of distribution partners will promote the system and provide advice and service at the point of sale.

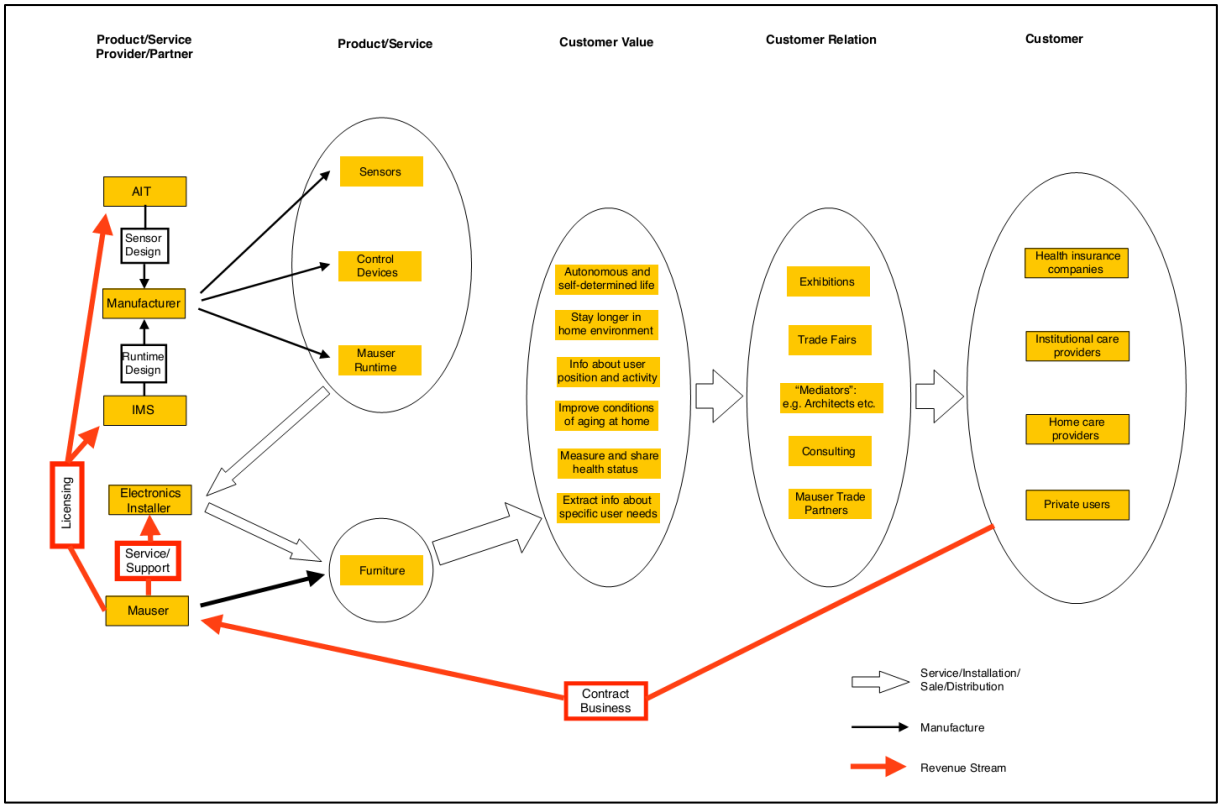


Figure 4: Business Model "Sensor-based products and services"

Delivery and installation will initially be carried out by Mauser directly, in a longer perspective distribution partners could stock selected components and take care of delivery and installation, as well as service. Consequently, further key partners will be distribution partners, manufacturers and electronic installers.

The revenue streams from the different target groups, described in section 3.1, are presented in the following.

End-Users:

The benefits for this target group are the opportunity to live autonomously and self-determined, and improved conditions of aging at home as described in section 3.1.

The customer will make the decision for buying the product and will also be bearing the cost. At this point there is no financial support available from public funds, this may change in the future, however, as the German has expressively encourages efforts to care for the elderly in their homes rather than in institutional care-taking environments.

Home Care Service Providers /Service Providers:

As also mentioned in 3.1 external service providers can draw benefit from the system through provisioning, caretaking and security functions. Essential parts of their work consist of routine work like checking out the health state of a person, offering social contact etc. These issues can partly be executed or at least supported by the FoSIBLE technology which leads to less workload. As work and time saving aspects are an important issue for these providers, there will be a certain willingness to pay.

Another advantage for Service Providers is that offering innovative technologies can increase their image. It can even be a USP and thus an advantage against the competitors in the market. This is another aspect that can make it profitable for the service providers to pay for the FoSIBLE system.

Health insurance companies:

Like home care service providers, also health insurance companies can draw benefit from work and time saving aspects of the system as it decreases the demand on care stuff. It could also be more cost efficient offering such a system that helps elderly people to stay longer at home autonomously than having to pay for care facility.

As shown before, there are different potential customers for the sensor-based technology. Because of this, there can be various conceivable distribution channels.

- The main distribution channels, which are actually in use by Mauser, are the sale by **trade fairs** and **exhibitions**. The most important customers for these channels are

service providers and health insurance companies, because of their professional interests in those technologies as shown before.

- One alternative possible distribution strategy is through "Mediators" like Interior Design Architects and other full service providers. For them, the FoSIBLE system could be a possibility of product range enlargement. Thus, they can offer full service to their customers. This could be a way to reach new customer segments. Moreover, offering smart technology is an image issue for mediators and could be a USP for them.

- Another part of the distribution could be the **consulting** of the sensor-based services, because of various adaptions to different customers and individual consulting demand. Mainly business customers could count to this contribution field.

- Other conceivable distribution paths are the **existing trade partners of Mauser**. These are mainly operating in the institutional care market but are not confined to operators of permanent care homes. They also include operators of service apartments (with a range of service and care options), day/temporary care installations and outpatient care providers or combinations of the above-mentioned services.

For Mauser Care, the main revenue stream will be through contract business. Besides of the main distribution a special care of the products is necessary to install and support the certain technology. The system will require the implementation of components from various sources - that is from Mauser production as well as from external suppliers. The functional integration and the control of these components as service support will be a major aspect in the process of product development. Because of this, a cooperation with electronic installer is conceivable in a service support strategy. This service could be included in the contracts towards the above-mentioned customers.

In contrast, AIT's and Fraunhofer IMS' strategy would be a licensing strategy. As for liability reasons, the Fraunhofer IMS does not receive income from direct sales. A participation in the final product may be made by licensing. For this purpose, with the contractors a one-time payment per installed version will be agreed that cover the costs of developing the system. In addition, a service contract for the following years will be agreed to perform necessary adjustments.

The market prognosis for smart home environment is very promising. According to a census which was carried out as part of a survey by Deutsche Telekom and F.A.Z Institute ("Themenkompass Älterwerden in Deutschland" 2011) 75% of interviewees stated their wish to stay in their living environment (owned or rented) as long as possible. In order to do so, they are willing to go some way towards investing into adapting their homes to the

respective requirements (approx. 60% would be willing to invest around EUR 2400 p.a. for operational costs alone). Similar results are known from other European studies.

Given that first components of the product could be installed at about 50 to 60 years of age, there would be approximately 15 million potential users only in Germany (Demografiebericht der Bundesregierung 2011). Should only 1% of these potential customers decide to invest into our product it would be possible to place 150.000 units in the market in a first step.

3.3 Consortium

Possible key partners for the sensor-based system are the Austrian Institute of Technology (**AIT**), **Mauser Care** and the Frauenhofer Institute for Microelectronic Circuits and Systems (**IMS**).

The AIT Safety & Security Department has the mission to develop next generation technology for safe and secure ICT-solutions in image processing, quantum technologies, e-health, information management and autonomous systems.

AIT could exploit its user-interface and dynamic vision sensor technologies extended by special functionality for enhancing user-experience and gesture recognition licensing these software extensions to its industrial partners. AIT has investigated within the FoSIBLE project to extend its 3D vision sensor build around a biology inspired vision sensor technology that utilizes the dynamic vision sensor (DVS) concept. Advanced prototypes of a monocular embedded sensor system for traffic monitoring (smart eye TDS) and a stereoscopic embedded sensor for people counting (smart eye UCOS) have been developed to mature hardware in the past years which have built the technological basis for the developments in the FoSIBLE project. Consequently, AIT will act as a grantor of the licence in this business model constellation.

Mauser Care develops, builds and sells furniture and system components for various furnishing sectors. Particularly, Mauser produces intelligent furniture for the health care market. Mauser's product portfolio covers furniture for the actual resident as well as public rooms, nurse's stations, as well as working and social areas within nursing home. The furniture focused on enabling elderly people an autonomous and self-determined life.

Mausers' role in the presented business model is the one as provider of the sensor-based furniture, as distribution partner and realizing delivery and installation in the primary phase as described in section 3.2. As also mentioned, additional partners like electronic installers, distributions partners, manufacturers etc. will be needed.

The Fraunhofer Institute of Microelectronic Circuits and Systems (IMS) has several competences in the fields of CMOS semiconductor components and technology, sensors and microsystems, circuit design and ASIC production as well as transponder systems.

The role of the IMS could be the support for the development of a final product. Furthermore, the IMS could support the development of a technical commissioning concept. As the IMS has large experience in the market launch of research developments. There are already several companies supported in this target. Furthermore, spin-off companies with this objective have already been established.

The above-described existing networks of the partners as well as their experience in this sector provide a stable basis for the exploitation. Nevertheless, there are some barriers left - mainly concerning the acceptability of the envisaged products and services in combination with the willingness to pay.

This specifically includes risk may be a lack of willingness of the care facilities to make new investments. In case of new and remodelled buildings, new televisions are part of the planned expenditure. Therefore in this case, it would be not a problem. Access to the domestic market also contains risks, because the investments would have to be made by the end user. A grant for a technical equipment of the apartment by health insurance is currently too low. The financial charging for the end-user could be minimized by the opportunity to borrow the system from a service provider. This would also solve the problem of acquisition, but would have to bring a certain added value to the service provider. Because service offerings can be integrated into the system, this could, however, be conceivable for the provider.

Even with this minimized amount of investment for the end-users, the risks of low acceptance and low willingness to pay remain. Although there is no method of generating dependable feedback and solid financial commitment from potential customers beforehand Mauser´s and IMS´s protoype presentations on various fairs have generated a high degree of interest and further request from institutions and private visitors alike. This makes the sensor-based products and services developed in the FoSIBLE project very promising.

4. Business Model "Playful Interaction"

4.1 Product and customers

Reasearchers of University of Duisburg-Essen are planning a spin-off with a service of playful interaction via iTV.

Implementing playful interaction in an iTV environment seems very promising regarding the impact for fostering social interaction as the inHaus evaluation has shown (see deliverable D6.1). The evaluated application "Gameinsam" (Herrmanny et al., 2012) follows a simple game principle. It is a widget for the Samsung Smart TV, which is also used for the FoSIBLE system. It has been developed by the researchers of UDE and presented at the international conference EuroITV 2012 in Berlin. The interaction design puts the TV program into the center of the social interaction and combines it with playful elements also based on the TV program. Through this application elderly people can interact with their family members and peers in a game-based way while watching TV. The starting point is the TV program, e.g. a quiz show, as part of the playful interaction. The application offers the opportunity of "shared shoutability" (shoutability = the need to e.g. answer questions (aloud) while watching quiz shows), allowing each participant to watch the program at home and share his or her guessed answer using the standard remote control. The four colored buttons of the remote represent the three possible choices and a question mark, maybe used for signalising the other player(s) that one doesn't know the correct answer. The information which family members do watch the same program and which answers they choose is displayed in a buddy list. Players can correct their answers all the time as long as the question is active. This allows them to react to the answers of the co-players as they play together. Family members commonly achieve joint high scores offering a collaborative playful interaction. When the solution of a question is given in the program, the question is set inactive, the correct answers are colored green, the others red and the family score is updated. When there is a new question in the TV program, the interaction is set on active again, so that the users can make their input.

The application is designed for remote family interaction. Thus, the target group contains users of all age: Kids, mid-aged adults and the generation 50+. To make the application usable even for elderly persons who are not used to interactive technologies, the interface as well as the rules are very simple. Without exception, the participants of our evaluation confirmed that there were no problems in usages and that the interface was usable and self-explaining. To avoid fear of contact with the technology (especially for elderly), the well-known devices TV and remote control are used.

The results of our study indicate that there is a need for sociability while watching TV (at least certain TV genres). Social changes effect that different generations often do not live together in one household anymore. More and more people live alone. Especially elderly

persons suffer from this situation. Increasing feelings of loneliness combined with their fixation on the family underline the urgent demand for solutions bridging distance. The presented form of social interaction is a pragmatic and easy to use solution to help solving this problem.

The USP of this playful iTV interaction application lies in the ability to foster (family) interaction and sociability while it can be easily integrated in daily life of the users.

Having a closer look at the values provided to the end-users, the service can ease communication and reduce communication barriers, improve the mental fitness, prevent loneliness and isolation, bridge distance, create the feeling of watching TV together with family members living apart and offer the opportunity to share entertainment experiences.

From an economic point of view, we see high potential for this kind of service to be successful due to the great user acceptance revealed in our study.

There are similar concepts or services in research or industry.

Existing solutions from research:

- **Communication Services on Interactive Television** (CoSe) (Siemens)
  Social TV system without playful elements

- **Amigo TV** (Coppens et al., 2004)
  Social TV system without playful elements

- **Social TV** (Harboe et al., 2008)
  Social TV system without playful elements

- **ConnecTV** (Boertjes et al., 2008)
  Social TV system without playful elements

- **Telebuddies** (Luyten et al., 2006)
  Like “Gameinsam”, this solution refers to the TV program as the center of the interaction. Existing TV content (e.g. quiz shows) is used to make guesses in a distributed TV reception situation. A buddy list and a text chat are the implemented interaction elements. Another focus is the group building, following a friend of a friend principle (FOAF) (Brickley & Miller, 2005) to find out common interests of the players. In contrast, “Gameinsam” is based on a social network structure and refers to a closed group of people like family members or friends.

- **WIZE** (Almeida et al., 2012)
  The application „WIZE“ also combines TV entertainment and Social TV based on existing content. It contains buddy lists and user profiles, which can be used for team

building based on differences and common interests. The game mechanic consists of two modes, a synchronous and an asynchronous one. In the synchronous mode the user answers questions related to the TV content via remote control. In this mode he can collect points to use them for a betting game which is the asynchronous mode.

Existing solutions from industry:

- **BBC Quiz at „Test The Nation“** (Two Way Media)
  BBC recipients who watched the program “Test The Nation” could make guesses via remote control to find out about their IQ. The average answers and IQs of all recipients taking part are displayed. The comparison with a single person or teamplay is not possible.

- **Galileo Next Level** (Pro7)
  The German TV channel Pro7 also provides a possibility to answer quiz questions asked in the show and compare one’s own answers with the rest of the recipients. Here, you can just see the percentage, how many members of the audience chose which answer. The input device is a smart phone. When a new question is asked, the recipient has to hold the phone in direction of the different answer possibilities on TV. An app then converts them to interactive buttons.

None of these existing solutions provides social playful interaction for a closed group of users knowing each other, like the family. As described above and shown in our study, this is an important aspect for the users, especially the elderly.

Consequently, the customer segment is a very wide range of end-users. The application is designed with regard to the special needs of elderly people. But it is also meant to be used by younger people as it should be a tool for family interaction. The results of our study confirm that there is high interest and acceptance in all ages (tested persons: 19 - 60 years M = 24.59 SD = 8.225). It also shows that not only people living alone would buy the application.

Potential customers of the service are also TV broadcasters and their advertising marketers. They gain profit from the service as it is an upgrade of the TV show which can attract more recipients and lead to better selling of advertising times. It is also possible to combine the service with data collection of the end-users which is also an important factor for the marketing of advertising slots.

As the service requires an internet-enabled TV set, also the manufacturers of such TV sets gain profit from the service and are potential customers.

4.2 Model

The stakeholders are the end-users, the TV broadcasters, TV advertising marketers, TV set manufacturers and the provider of the service.

End-Users: TV recipients of all age and family background as described in 4.1.

TV broadcasters: A cooperation of the broadcasters is needed to provide a signal with the correct answer (e.g. of a quiz question) synchronously to the TV program. As the broadcasters benefit from the service as described in 4.1, they are also potential customers.

TV advertising marketers: As already mentioned in 4.1, TV advertising marketers are potential customers, too. In that section, we described how they draw benefit from the service.

TV set manufacturers: TV set manufacturers could also be customers as described in 4.1.

Provider of the service: The company formed by the spin-off will be the developer and provider of the service.

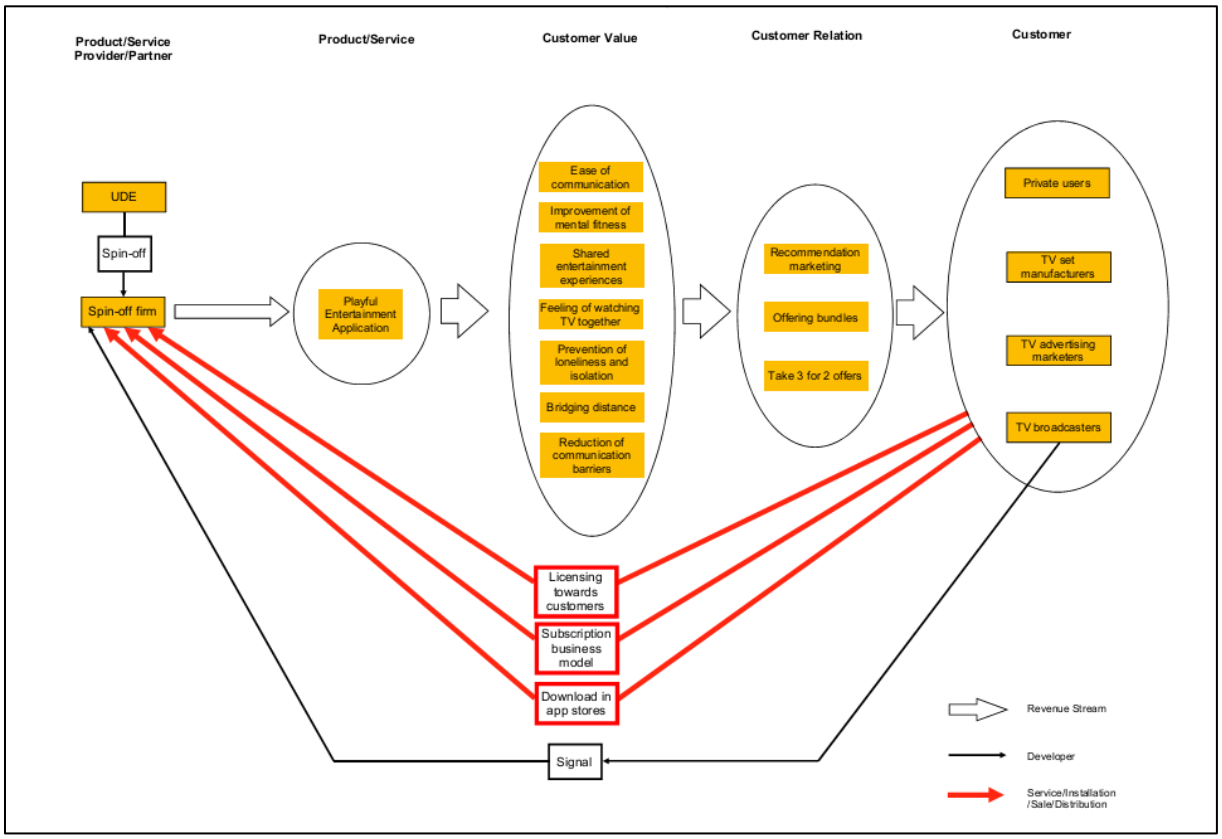


Figure 5: Business Model "Playful Interaction"

As shown before, there are different possible customers for the playful application. Different contribution ways are possible, like download in an app store or a subscription business model towards the end-users and licensing towards other customers. The app-based strategy is easily realizable as the whole infrastructure already exists in form of an app store.

There is one special thing about the product, which should be considered in the business and marketing strategy: The more people use the service and explicitly the technical solution of the application (platform / TV), the more increases the provided value for each end-user. This leads to the demand of quickly establishing a huge client base. To meet this demand, special offers like bundles should be used to get many clients in short times. Examples are bundles (app for free when buying a new TV), take 3 pay for 2 offers or recommendation marketing (for each new end user, a customer recruits, he/she will get a benefit).

As also described in chapter 2, the SmartTV market in whole is promising. Figure 6 shows the forecast of the SmartTV market development (market share) in Germany until 2016. It prognosticates that SmartTV will reach a penetration of 20,1% within the next four years. In figure 7 the worldwide shipping forecast of SmartTV until 2016 is shown. In figure 8 the current shipping is presented separated by region. It shows a high penetration for China and Western Europe.

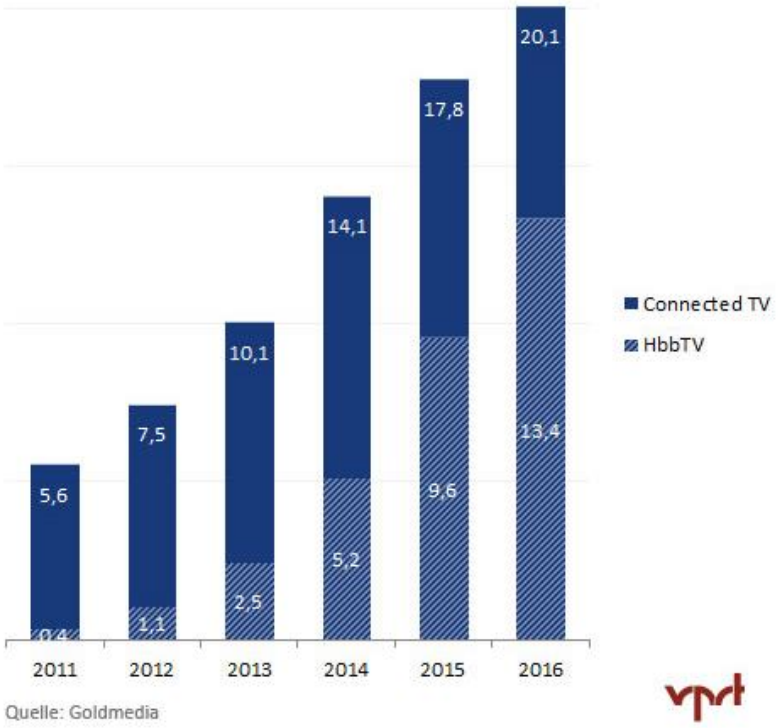


Figure 6: Forecast of market share of Connected TV (Households in Germany, in million)
Source: Goldmedia[3]

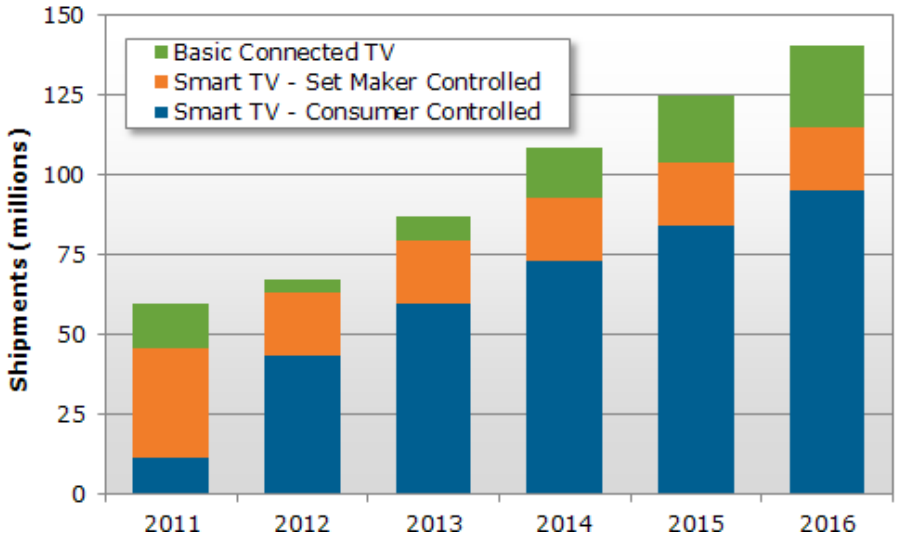


Figure 7: Smart TV Shipment Forecast
Source: NPD DisplaySearch *Quarterly Smart TV Shipment and Forecast Report*

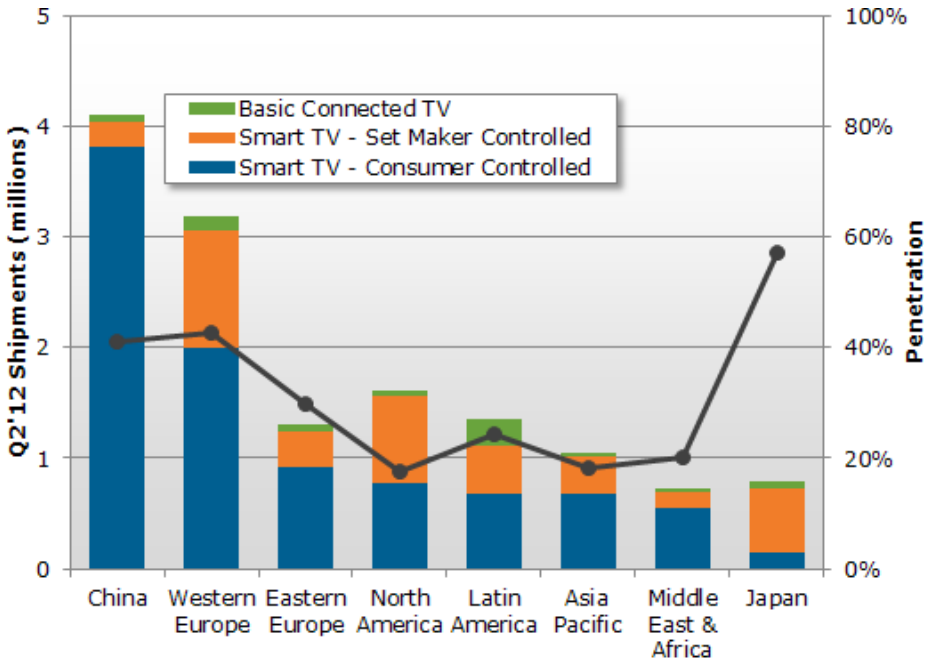


Figure 8: Q2'12 Smart TV Shipments by Region (000s)
Source: NPD DisplaySearch *Quarterly Smart TV Shipment and Forecast Report*

[3] Retreived 19.10.2012 from: Verband privater Rundfunk und Telemedien e.V. http://www.vprt.de/thema/verbreitung/endger%C3%A4te-technik/hybride-endger%C3%A4te/content/verbreitung-von-connected-tv-steigt-bi

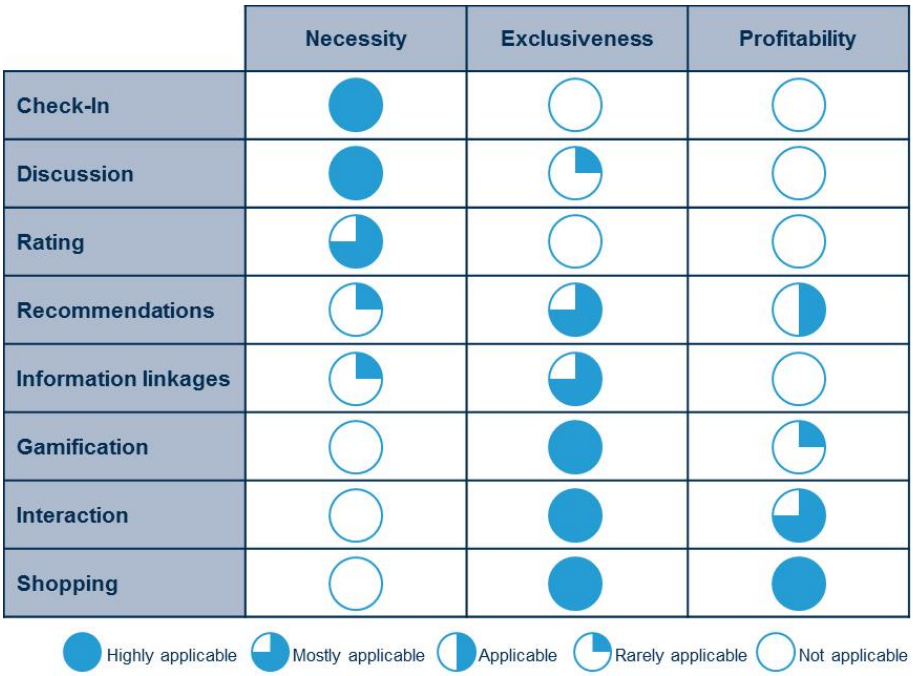


Figure 9: Assessment of the diverse social TV app features
Source: http://social-tv.muecke-sturm.de/social-tv-apps?lang=de

As shown in figure 9, interaction is one of the app features that is forecasted to be highly applicable regarding exclusiveness and mostly applicable concerning profitability.

4.3 Consortium

The spin-off is planned by researchers of the University of Duisburg-Essen. A possible stakeholder could be Kaasa due to the long experience in the game segment. Having access to additional external stakeholders such as telecom or cable network companies as well as hardware manufacturers could help to introduce the system to the market.

The research group “Interactive Systems” at the University of Duisburg-Essen carries out research in the areas of human-computer interaction and user interface technology, with a particular focus on information visualization, context-aware interaction, user interface engineering and game technologies.

In the field of entertainment computing the research group has long-term experience in the conceptualization and implementation of games. Recent developments have addressed, for example, improving the health condition in juvenile diabetics or involving citizens in urban planning.

Moreover, UDE with their study programs in "Applied Computer Science" and "Applied Cognitive and Media Sciences" has extensive experience in the education of new talents as well as with technological research projects for the games industry.

Furthermore, the research group “Interactive Systems” at the University of Duisburg-Essen contributes to the project GDI.Ruhr (Game Developer Initiative Ruhr). The mission of GDI.Ruhr (started in 2010) is to intensely support the games industry in the Ruhr region over three years to tap growth potentials and to increase the visibility and reputation of the region’s firms within and outside the region. Various networking events (conferences, workshops and seminar)s in the Games Factory Ruhr in Mülheim are co-organized by UDE. They facilitate cooperation within the games industry and with traditional industry sectors.

The company built in the spin-off will draw financial profit as described in 4.2.

As described in 4.2, at least cooperation with the TV broadcasters would be helpful in the realization. For the proposed type of playful interaction there must be information about content (for examples solutions of quiz questions). This cooperation is not essential as there are other, technical ways (e.g. detection methods) to solve this challenge. Nevertheless, cooperating with the broadcasters would be the easiest way.

The major risks lie in the fast development of the market of Social TV and in the uncertainty regarding different platforms. The market development contains the risk that competitors offer comparable services first and so have an advantage in building a stable client base. The uncertainty of which platform will become accepted in the long run is hard to prognosticate. Developing for the Samsung Smart TV, one of the leading technological solutions (at the moment), may minimize this risk.

5. Business Model "Living Lab and SmartHome Services"

5.1 Product and customers

The main outcome of activities of the research partners lies in the **elaborated scientific knowledge** including:

- an original framework for designing assistive technologies for elderly at home
- a framework for evaluating assistive technologies for elderly at home
- the enhanced understanding of the involved user groups in the domain of AAL i.e. older adults performing with novel interaction techniques
- the advanced methodological know how from applying different user centred techniques for ideation, scenario and concept development, as well as evaluation with end-users.
- practical knowledge on the approach of gesture-based interaction techniques (e.g. State-of-the-Art analysis, implementation using MS Kinect, ergonomic factors and technical constraints to be considered, etc.)
- valuable study insights from the evaluation of the gesture-based interaction prototype for TV menu control which allowed a detailed analysis of performance and user experience and acceptance data from different user groups.

The FoSIBLE project was the occasion for UTT to define an original framework for designing and evaluating assistive technologies for elderly at home. This framework permits to take into account the end-users perspective which is a necessary condition for the adoption of these technologies. The market for assistive technologies at home is in growing expansion but no existing technology or service providers succeeded in taking the lead. The framework we offer could help them to offer technologies and services which could really benefit to the elderly and their family, which could help them to have a clear competitor advantage.

Following the framework, two types of evaluation could be conducted:

- User acceptance (elderly, caregivers and homecare workers or health professionals)
- Overall Assessment: organizational model of technological solutions for healthcare professionals (geriatricians, general practitioners, occupational physician ...) and / or elderly and their families.

The evaluation process and the methodologies used and defined aim to check with different users and all stakeholders in the project, that the political (public health), technological, organizational, and economical aspects are aligned before the deployment of the solution.

UTT has – together with Les Arcades – established a senior Living Lab that includes eight test households. In this way, the whole FoSIBLE system can be tested in a real life context. Constant visits in the households as well as user inquiries and diaries should give an overall impression on user acceptance and the overall assessment of the system.

Similarly with UTT, FoSIBLE has enabled USI to establish another senior Living Lab in portfolio, "AlterAktiv" in Siegen, Germany which has been used so far in the definition/requirements analysis project phase, and is presently utilized for the evaluation purposes (at the point of writing). Continuous visits and maintenance of the Living Lab is assured for the project duration. In addition to "AlterAktiv" Living Lab in Siegen, USI has established other Living Labs as of past and present EU FP7 and BMBF projects developing assistant technologies and solutions for elderly caregivers and directly elderly people. Overall, they are positioned in Cologne, Siegen and Dortmund with overall access and reach to substantial number of senior households (approx. a few hundred). USI is currently in ongoing phase of definition of professional Living Lab evaluation service which will mobilize all Living Labs from present and past projects. The service will be used to test early prototypes and technologies from industry by scientifically evaluating them what gives important information to producers before absorbing their technology into the business model. Also, as such the service will offer and assure initial market visibility/entrance from the senior households or caregivers angle. The service brings additional value to USI, Siegen and Germany as being novel and unique in this region, to bolster solutions and products to a higher quality level and assure their reach within elderly or caregivers.

In addition to Living Labs, FoSIBLE uses a SmartHome approach enabling an evaluation of concrete research instances (e.g. social presence and awareness) and the analysis of how specific functionalities should be built for the platform. In Germany, IMS offers a smart, sensory based environment in which the user studies of UDE on playful interaction concepts and sociability through visualisations (see D6.1) were conducted. The IMS's SmartHome consists of two living rooms as semi-realistic lab environments. The advantage of these SmartHome living rooms is that participants can "feel at home" and behave similar to as in real life (in contrast to traditional laboratory studies that are often conducted in abstract labs). Also CURE uses the SmartHome approach for their studies on gesture recognition. They offer different types of Experience Labs, like the living room Leisure Lab that is conducted for usability tests.

The results from the evaluation of the gesture-based interaction prototype for TV menu control gained by CURE, give valuable insights in user experience and acceptance data from different user groups. These insights can be used as a basis for further evaluations or to support stakeholders in future research projects or individual work contracts by providing fundamental knowledge in form of support activities offering guidelines and elaborating implications.

The concrete values proposed through these research results and knowledge are

- Information about the specific characteristics of elderly ICT users
- Methodological knowledge
- Design principles

The gathered insights can be employed by different customer segments, such as

Developers and providers of AAL products and services:

The framework for designing assistive technologies for elderly at home could be offered mainly to technology providers aiming at entering this market. Applying this framework could help them gain a lot of development time. UTT has developed a highly specialized and tailored approach for the identification of the needs of the elderly, their families and the health-related professionals who accompany them in their homes.

The framework for evaluating assistive technologies for elderly at home could be applied by the same actors to assess their findings. But it could also be used by service providers and/or insurance companies to evaluate a technology that they are planning to offer to their clients.

Developers and providers may also benefit from study insights by considering performance and acceptance results of the user research in order to answer more accurately to the actual needs and barriers of the user group with their new interface ideas and designs which should exploit the advantages of involving natural motion behaviour i.e. gestures as a promising way to interact with all day technology.

Considering these insights in future product development may avoid though characteristic problems and barriers in relation with gestural interface design overall, as well as especially when designing for older adults, who differ from younger adults not only in their sensorimotor capacities but also in their individual understanding and mental models toward gestural interaction with technologies.

SMEs and Start-Ups:

SMEs and start-ups which are dealing with high-tech prototypes, targeting elderly people and/or their caregivers, also aiming for initial market positioning are possible customer groups. They can draw benefit from trainings (knowledge transfer), insights about the target group for product development and marketing.

Another way SMEs and Start-Ups can draw benefit is through a partnership for funding out of EU accepted projects and for cohort recruiting. University of Siegen tech-transfer department will be utilized as Start-Up contacts.

Insurance Companies:

Insurance companies can benefit from research knowledge by special trainings. Certificates or course subscriptions are possible ways for the revenue.

Industry, big companies:

Industry and big companies willing to evaluate their current prototype or new product in re-development phase, aiming elderly seniors or their caregivers are possible customer groups.

Past and present industrial project partners:

Past and present industrial project partners to sustain or further evolve shared project solution or technology for better adopting the market reach.

Academia:

Gathered insights are offered to the whole HCI research community by being disseminated in form of scientific publications such as conference papers or contribution in HCI topic related journals or through workshops on conferences. A detailed State-of-the-Art base is made available examining

- methods for evaluating and designing assistive technologies
- needs of elderly people regarding Social TV
- acceptance of Social TV by elderly people
- gestural interaction for controlling interactive TVs
- with special focus on gestures and older adults
- and on the comparison between younger and older adults (age related differences and intergenerational requirements)

Furthermore, the insights related to the chosen study designs, operationalization and lab setups, from prototype development to the evaluation strategy e.g. using the Wizard of Oz technique, offer particular and practical know-how for researchers and study facilitators.

5.2 Model

UTT aims at providing support and guidance around the above described frameworks in the context of the ActiveAgeing Living Lab which is under construction. The cost of this support and guidance service will depend on

- The nature of the evaluation
- The ability of the project leaders to get involved in the evaluation process
- The scope of the project

Depending on the budget, UTT will be able to conduct the whole evaluation in relation with all the stakeholders or to provide a methodological support.

The context is clearly favourable:

- The need to support the autonomy and the quality of life of elderly is largely admitted.
- Technology and Service innovators are looking for methods and tools for developing and evaluating solutions.
- The Champagne-Ardenne region is positioned proactively in the health and autonomy domain.
- UTT has already been able to establish a first circle of partnerships for the creation of the ActiveAgeing Living Lab and the MADoPA association, labelled as an expert centre for evaluation.

As mentioned above, CURE will be able to support stakeholders in future research projects or individual work contracts by providing fundamental knowledge in form of support activities offering guidelines and elaborating implications. Hence, CURE aims at addressing the following stakeholders:

- AAL product and service developers by providing relevant insights on user needs in future projects and collaborative activities
- Researchers of novel interaction techniques from AAL and interactive TV research communities by providing UID implications to favour positive user experience
- End-users and study participants, by actively involving them into project activities and enhancing their personal understanding and interests toward new interaction techniques.

Overall products to be provided consist in the different directions of the acquired knowledge base especially in the area of i) awareness of older adults and user needs for interactive TV interaction, ii) insights on leading user experience and acceptance factors of freehand gestures, as well as iii) results of performance evaluation of gestural interfaces.

As a major research activity in projects CURE specialises in the utilisation and development of **user experience engineering and user-centred design methods**, the study of user experience and its influencing factors, and research of diverse contextual situations as well as the methodological transfer of the attained knowledge into alternative interface design approaches within future research projects with industrial involvement. So CURE will be able to support industrial efforts to further advance the user centred development of new ways of natural interfaces.

Through its interdisciplinary approach, UDE is aware of different research areas. The university cooperates with academic partners and industry and can therefore transfer the gained knowledge (existing knowledge in HCI, but also specific knowledge out of FoSIBLE) to

other research institutions, but also to companies that can include the know-how in the development process of their products. Furthermore, UDE has the possibility to communicate their knowledge to students as potential new researchers. Also when developing new projects other project partners can profit from the know-how of UDE. Especially in the context of social presence and awareness support as well as playful interaction (in the AAL context), UDE obtained a lot of experience and can offer their empirical values to other researchers, for instance through workshops, publications or direct exchange with others. In general, the expertise of UDE can be used for the design and development of new ICT solutions for elderlies, but also for overall HCI issues.

As mentioned in 5.1, USI is currently being utilizing all Living Labs (across projects), as well as "AlterAktiv" of FoSIBLE as an integral part of unique German market service. As described, such USI Living Lab service will be able to sustain and will open the door to the FoSIBLE system for further penetration to senior households, or evolution with industry partners.

Besides these project partners, the different customer groups are the main stakeholders in the value chain as described in 5.1. These are developers and providers of AAL products and services, SMEs and Start-Ups, insurance companies, industry / big companies, past and present industrial project partners and Academia.

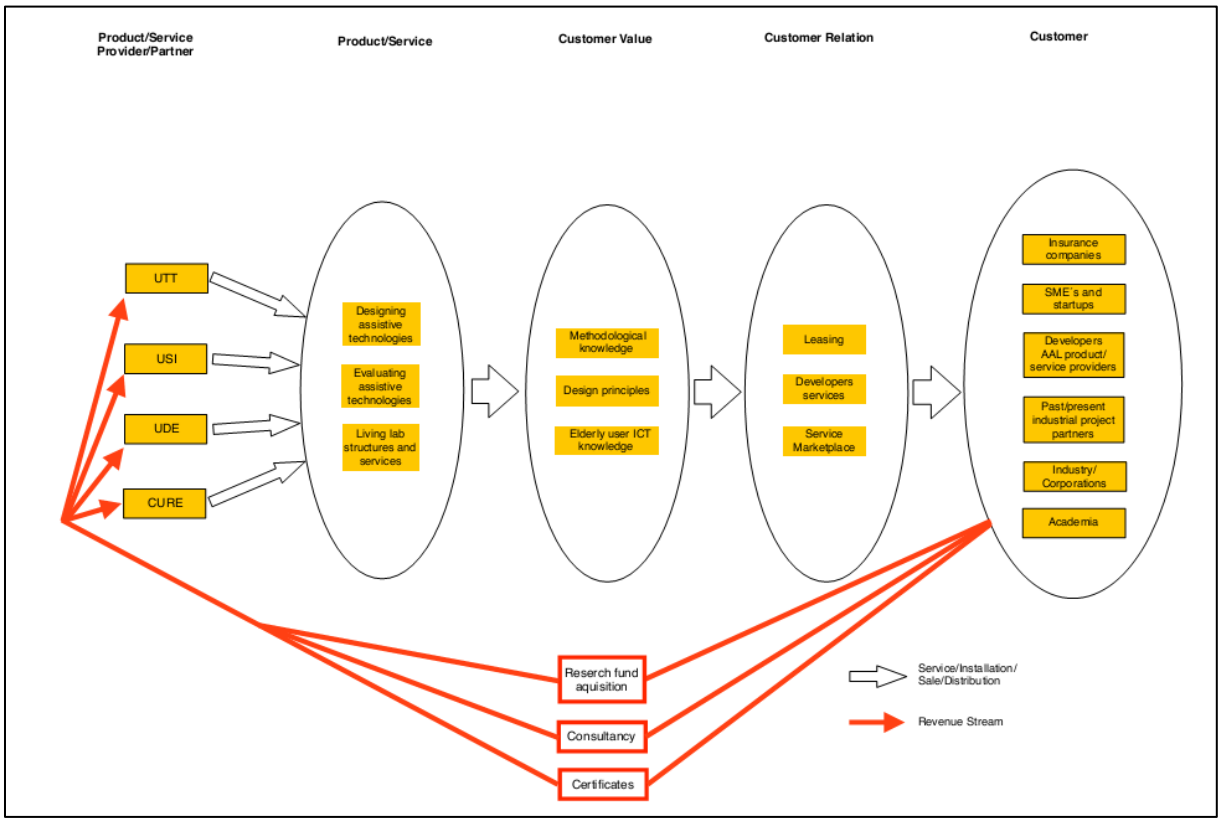


Figure 10: Business Model "Living Lab und SmartHome Services"

Considering the different potential customer groups, there are also various ways to generate revenues, including non-profit strategies:

Developers and providers of AAL products and services:

Technology developers and providers draw profit from the gained expertise and developed framework as described in section 5.1. A potential way for them to use this knowledge is by usability assessments in the field or the lab.

Consequently, one possible revenue stream is that these stakeholders pay for these services, for consultancy, for the methodology or for course subscription.

SMEs and Start-Ups, industry:

The revenue from SMEs and start-ups as well as from big industry can also be drawn through consultancy fees for the assessment in field studies or by paying for the method of evaluating their products.

If SMEs use the knowledge for acquiring new EU projects, UTT, UDE, USI and CURE can benefit from this by getting part of the consortium.

Insurance Companies:

Certificates or course subscriptions for special trainings can be adequate ways for the revenue stream from insurance companies.

Past and present industrial project partners:

Partnerships with industrial project partners can help to build a valuable network for further research projects.

Academia:

The academic exploitation bases on a non-profit strategy. Nevertheless it is important for the partners to demonstrate their expertise in this research area for strengthening their profiles, for acquisition of further projects and for fostering young academics.

5.3 Consortium

By the help of trained research engineers affiliated to the ActiveAgeing LivingLab, it will be possible for UTT to offer the defined framework. UTT is clearly visible at the national level in this area: the first congress from the French society of autonomy and gerontechnology took place in Troyes in 2009, UTT is member of expert centre around Homes, UTT participates in the national collective around Living Labs for health and autonomy, is a founding member of the regional project of Domomédecine (integrated care at home), and is a member of the scientific council of the national centre for research on Health and Autonomy. Regarding the

evaluation UTT works together with the project partner Les Arcades. If more support is needed and/or if a strong market arises, the UTT will be able to define a partnership with MADoPA association.

As USI is currently being utilizing all Living Labs, as well as "AlterAktiv" of FoSIBLE as an integral part, a unique German market service is being planned and formed. As described, such USI Living Lab service will be able to sustain and will open door to FoSIBLE solution for further penetration to senior households, or evolution, given appropriate industry partners.

In the consortium CURE will ensure that the FoSIBLE technology is aligned to the needs from end-users. In particular CURE's user experience research, technology acceptance and assessment methods shall be used to perform detailed requirements analysis, as well as they will contribute to the lab and field trial evaluations to ensure the validity of the project, and hence to favour the successful impact of the project outcome.

CURE is one of Europe's leading organisations in the area of User Experience Research comprising the fields of Usability Engineering, Human-Computer Interaction (HCI), User Interface Design, User Centred Design and Ambient Assistant Living Research. CURE has been working on the development and application of user centred design methodologies, innovative user interfaces and natural interaction environments for several years. CURE's research concerning usability, accessibility and user experience ensures that the user needs and end-user acceptance of FoSIBLE are properly addressed throughout the project. CURE takes a leading role in the evaluation field trials in Europe, and particularly setting up and leading the trials taking place in Austria.

Finally CURE seeks for permanent increase of expertise in user experience research and engineering, and user interface design within collaborative projects with research and industry, in order to use this knowledge to support AAL product and service developments.

UDE has a high knowledge in the area of HCI and has contact to different research institutions. For that reason, the project ideas and results of FoSIBLE can be distributed and used for new project acquisitions. Especially the various contacts gained during the life span of the project are important for further research on usability aspects and design implications for elderly. Based on the project results and the experience of UDE, further research questions can be developed and evaluated. In this context, UDE can work together with the industry or other research institutions for evaluating and testing usability issues of platforms for elderlies.

Because of the spatial proximity of UDE and IMS, a cooperation of both institutes beyond the end of the project could also be conceivable. As the IMS has offered the testing environment for the usability studies of UDE during the project, further cooperative evaluations could take place in the Fraunhofer InHaus2 Centre. This would be important to pursue the SmartHome approach of the project that allows the participants to feel at home while being

tested. Especially the experiences with this SmartHome approach can be publicized and widespread using the example of the InHaus testing environment.

6. Literature

Abreu, J., Almeida, P., Afonso, J., Silva, T. & Dias, R. (2011). Participatory design of a social TV application for senior citizens – the iNeighbour TV project. In *Proceedings of the HCist 2011 – International Workshop on Health and Social Care Information Systems and Technologies, CCIS series (Communications in Computer and Information Science)* (pp. 49-58). Vilamoura, Portugal.

Almeida, P., Abreu, J., Pinho, A., & Costa, D. (2012). Engaging Viewers through Social TV Games. In *Proceedings* of *European Conference on Interactive Television 2012* (pp. 175-183). Berlin, Germany.

Boertjes, E., Klok, J., & Schultz, S. (2008). ConnecTV: Results of the field trial. In *Adjunced Proceedings of European Conference on Interactive Television 2008* (pp. 21-22). Salzburg, Austria.

Coppens, T., Trappeniers, L., & Godon, M., (2004). AmigoTV: towards a social TV experience. In Masthoff, J. Griff iths, R., & Pemberton, L. (Eds.) *Proceedings from the Second European Conference on Interactive Television "Enhancing the experience",* University of Brighton.

Harboe, G., Metcalf, C. J., Bentley, F., Tullio, J., Massey, N., & Romano, G. (2008). Ambient social TV: Drawing people into a shared experience. In *Proceeding of the SIGCHI Conference on Human Factors in Computing Systems 2008* (pp. 1–10). Florence, Italy.

Luyten, K., Thys, K., Huypens, S., & Connix, K. Telebuddies: social stitching with interactive television. In *CHI 2006 Extended Abstracts*. ACM Press, New York, NY, 1049-1054.

Nathan, M. Harrison, C. Yarosh, S. Terveen, L. Stead, & L. Amento, B. (2008). CollaboraTV: Making television viewing social again. In *Proceeding of the International Conference on Designing Interactive User Experiences for TV and Video* (pp. 85–94). Silicon Valley, California, USA.

Osterwalder, A., Pigneur, Y., Wegberg, J. T. A. (2011). Business Model Generation – A Handbook for Visionaries, Game Changers, and Chall. Deutschland: Campus.