AMbient COmmunication and Sense Of Presence

D8.3 “Exploitation Plan”

Project Number:	AAL-2009-2-047
Coordinator	Jukka Vanhala Tampere University of Technology, FI
Category:	Deliverable (restricted)
Reference:	D8.3; *V 2.0;*
Status:	Final
Responsible:	SPH
Participants:	TUT, CURE
Related to:	WP8: T8.2

Co-funded by the AAL Joint Programme

Document History

Version	Author	Date	Changes
V1.0	SPH with contributions from TUT and CURE	05.04.2012	1st Draft Intermediate Version to be taken into account for Mid Term Project Review
1.1	TUT	10.01.2013	Chapter "AMCOSOP project outputs and IPR issues" added
2.0	SPH		Proposed Final Version

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1 Scope of the Document

This Deliverable D8.3 is associated to the AMCOSOP Task 8.2 “Exploitation Plan”, whose main objectives are to acquire knowledge of the potential market for AMCOSOP type systems and new services, and to define business models based on utilization of the AMCOSOP system.

In this regard, the present document provides an introduction to the AAL market context in Europe, incl. its associated socio-economic trends and implementation barriers. A market analysis of existing commercial products and relevant AAL R&D projects of similar context to that of AMCOSOP is then provided which will be complemented by a comparative analysis highlighting the main added-value of AMCOSOP vs. its competition. Subsequently, special emphasis is put on AAL business models and the underlying questions which need to be addressed by a collaborative AAL R&D project with a similar scope to that of AMCOSOP. In this regard, indicative business models are defined for suitable AMCOSOP services, which refer both to baseline services but also to future services associated to a future system release. For each of the identified business model, the same design framework is elaborated which is based on the following four basic pillars:

- Product and service offerings (Which goods and services shall we offer to which customer segments?)
- Processes and organization (How and in which structure shall we create the products and services?)
- Marketing (How can we acquire and retain customers?)
- Revenue model (How shall we design our profit mechanism?)

All business models defined correspond to a Business-to-Business (B2B) approach, which fits very well to the AMCOSOP market context.

2 Introduction to AAL Market and Business Models

2.1 AAL General Situation in Europe

Europeans are living longer than ever thanks to economic growth and advances in health care. Average life expectancy is now over 80, and by 2020 around 25% of the population will be over 65. Spending on pensions, health and long-term care is expected to increase by 4-8% of GDP in coming decades, with total expenditure tripling by 2050.

The ageing population is a challenge for Europe’s social and health systems. But ageing is also an economic and social opportunity. Over 65s in Europe are consumers with an estimated combined wealth of over €300 billion.

New technologies and communication systems offer the potential to allow older people to stay active and productive for longer, to continue to engage in society with more accessible online services and to remain healthy and enjoy a better quality of life. ICT can help older people overcome isolation and loneliness, increasing possibilities for keeping in contact with friends and also extending social networks. As eGovernment and eCommerce become more important, it is vital that everyone can use new technologies to access public and commercial services.

Many older people face barriers in exploiting ICT products, services and applications to their full potential. For example, 21% of over 50s have severe hearing, vision or dexterity problems, making it difficult or impossible to use standard ICT equipment. Only 10% of people over 65 in Europe use the Internet.

Despite the potential of AAL, efforts to bring it into the mainstream have enjoyed little success to date. Remote care, for example, has not yet become a mainstream part of care delivery, despite thousands

of trials. This is fairly typical of AAL projects. Small scale successes do exist, but pockets of excellence do not spread and pilot projects are not sustained.

AAL requires a profound and sensitive understanding of human expectations, social systems, healthcare infrastructure, privacy and the role of families, communities and careers. There are sociological, psychological, economic and market issues to be considered alongside the technology issues. Importantly, sustainable and practical business models are required to successfully develop technologies and systems which provide real support for older people on a large scale.

Until now there has been a lot of government investment in AAL at a regional, national and European level, but it is unlikely to continue without evidence of sustainable results which can be commercially exploited. Similarly, investors will not support AAL without evidence of its financial viability.

2.2 AAL Socio-Economic Trends

2.2.1 Demographic Trends

In the next few years, European communities will face significant demographic changes. As in other industrialized countries, the average age of the population will increase dramatically. The "ageing society" is developing not only into a clear challenge for the social security systems but also for society as a whole. Recent European population projections for 2008–2060 published by the European Office for Statistics underlined these demographic developments. From 2015 onwards, deaths are projected to outnumber births in the 27 countries of the EU. Almost three times as many people will be aged 80 or more in 2060.

The social behavior and lifestyles, as well as the identity of the individual elder person, will change if current trends continue. Their requirements and consumer behavior will change both in quantitative and qualitative terms. With higher expectancies of life and rising retirement ages in European countries, the proportion of elder people at work will increase, as will the number of elderly people participating actively in social life. It is also significant to note that the number of elderly people living alone and those who live below the average subsistence level will increase.

Although older people in the future will remain self-sufficient for a longer time, more people will need high-intensity care in the end-of-life period and more people will need support in daily life operations before this phase due to more or less severe disabilities. Increasing life expectancy is accompanied by an increasing prevalence of health impairments and mental-health problems as well as dementia, e. g. Alzheimer's disease. The number of people who report they cannot properly fulfill ordinary daily activities will also increase. As for the labor markets, pension systems and social schemes in general, we also have to remember that demographic ageing means that the number of older people is increasing while the participation made by those of working age is decreasing. Not only will the income side of social schemes be affected but expenditures will be too: health-care systems will be affected as an ageing population will lead to an increase in the proportion of people with disabilities or chronic illnesses.

Thus, health-care systems and social care in general – which is typically organized on a national level and characterized by national differences as regards institutional design – will have to cope with increasing requirements both in quality and quantity and so lead to increasing expenses.

As a result of demographic and socioeconomic developments, the ageing European population will lead to:

- a growing number of older people living by themselves and in need of care, especially intensive care;
- a growing number of older people lacking basic financial and social resources, who will have difficulties obtaining a minimum of health and care services;

- a higher number of financially stable and wealthier senior citizens who are able to enjoy their retirement and spend their money on products that secure and enhance not only their wealth, safety and security but also their entertainment and communications needs;
- changing family relationships and living situations (e. g. larger geographic distances between relatives) affecting the level of support that family members can give;
- an ageing workforce in general and the need to keep older people active in the society and at work.

At the same time, these developments will be accompanied by changes in how healthcare and care is organized in the society in some countries – e. g. the trend towards a more decentralized care system in local-care centers and at home and the greater importance of self-managed care.

As we tackle these challenges and opportunities of ageing societies in Europe, we also see opportunities for technological and socioeconomic innovation to enhance the quality of life for older and disabled people, to mitigate the economic problems of an ageing population and to create new economic and business opportunities in Europe. It is assumed that Ambient Assisted Living (AAL) technologies and services for elderly people will play an important role in solving some of the increasing problems in the future. The European action plan “Ageing well in the Information Society” addresses ICT in the context of ageing. ICT can help older individuals to improve their quality of life, lead healthier lives and live longer, so extending their active and creative participation in the community. In some cases, a wider adoption and massive use of these technologies will be necessary to guarantee at least a minimum level of service for older citizens in the future.

2.2.2 Economic Trends

In the information society, companies try to offer a more individualized service in order to address new customer groups. Often, one company integrates the services of several suppliers, so reducing the complexity for end users and creating customized or tailored services. Ways in which services for AAL need to be individualized and flexible include:

- Hospitals – which play a significant role in the health system – are increasingly trying to differentiate their offerings from competitors. They offer a broader portfolio that is more tailored to individual customer needs. This trend is strong especially in private hospitals and hospital chains but is also starting to be evident in publicly owned hospitals.
- Tele-medicine companies are developing to complement existing stationary and ambulant treatment – a gap is being filled. Many European countries are currently restricting tele-medicine to a minimum. However, with the significant arguments of greatly lower costs and high quality, it is only a matter of time until tele-medicine plays an important part in every country’s health system.
- Services offered by care-delivery organizations in the broadest sense: – e. g. home-care organizations, security firms, community centers – are becoming more important than equipment and they result in a B2B business model.
- Integration of services at the site of care delivery organizations will become an important differentiator.

2.3 AAL Deployment Barriers

Besides the trends discussed in the previous section, it is also important to recognize that there are also barriers that hinder the deployment of AAL. These are outlined below.

The main barriers related to eHealth in general are well known:

- Market fragmentation
- Legal uncertainty
- Lack of availability and access to finance
- Lack of procurement

- Lack of interoperability

Particularly with respect to AAL and elderly, there are also obstacles such as:

- a general reluctance to use technology
- unclear evidence of real benefits of AAL
- an inability to use the appropriate technologies
- a misunderstanding of the requirements and objectives of devices and services
- the lack of standards and references for technological design
- the partial broadband coverage in various European geographical areas
- diversity of social, welfare and healthcare systems in Europe
- lack of visible value chains
- heterogeneous target groups (user/buyer)
- lack of standards and certification
- funding and reimbursement of AAL services
- low levels of ICT acceptance in homes
- privacy and security issues regarding personal information.

The main barriers in applying AAL technologies to older people and caregivers originate from psychological factors, especially the perception of quality of life, prejudices, habits and education.

Many elderly people are very attached to their memories and their previous lifestyle and so strongly reject anything that could ask them to change their life or habits. Often these people are not aware of the possibility that they could have an improved quality of life.

According to this negative view, technology is an element that could interfere with real habits and could require changes in their lifestyle and so technological solutions are considered invasive and troubling. The consequence is that people remain wary of technology, and they do not understand the real benefits that these devices can give them. They have prejudices about their usefulness and ease of use.

2.4 AAL Business Models

As of today, there is no or little AAL comprehensive solution commercially available or in operation on a wider than prototype scale. Many research, development and pilots have been the case so far; yet, little sustainable products exist for the elderly. Thus, there is a necessity for sustainable business models in the field of AAL.

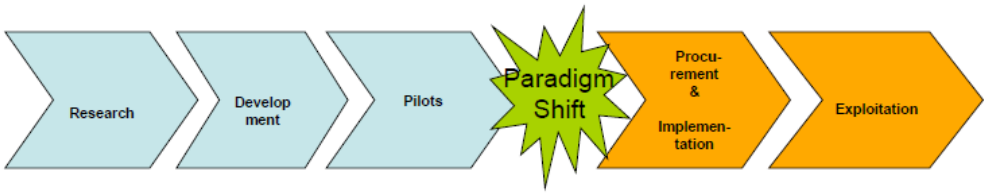

Figure 1: Paradigm Shift: From Product Innovation to Process & System Innovation

According to a quotation found in Empirica/Financing eHealth, "*The business model for research and development and pilots aims at subsidies and 'medical evidence'. The business model for exploitation is completely different and aims at 'economic evidence'*".

The term "business model" has become widely used in recent years, frequently in connection with the "new economy" and electronic commerce. However, no definition has become generally accepted so far. In the present document, as regards the components of a business model, we build on the

concept by Müller-Stewens & Lechner. According to them, a business model consists of four parts, each addressing a particularly important question:

- **Product and service offerings** (Which goods and services shall we offer to which customer segments?)
- **Processes and organization** (How and in which structure shall we create the products and services?)
- **Marketing** (How can we acquire and retain customers?)
- **Revenue model** (How shall we design our profit mechanism?)

The first three components (product and service offerings, processes and organization, marketing) determine the costs of the company's value creation whereas the revenue model defines how money is earned. The comparison of these two perspectives results in the business model's profitability.

Business models are subject to continuous external factors. Among others, these include customer demands, the legal and technological environment as well as ethical aspects. Compliance with these external factors highly influences a business model's success.

Moreover, numerous definitions of business models address the aspect of cooperation and business networking by defining specific model components (e.g. "network of actors", "network of stakeholders", "network of partners" or "value network"). However, questions addressed in the other components massively depend on the company's inter-linkage with its business partners as well. For example, a revenue model cannot be designed without taking into consideration with whom the revenues need to be shared. It is therefore suggested not adding cooperation as a separate component but rather emphasizing a collaboration perspective within the other items. The Figure below shows the components of collaborative business models in the context of AAL, which will be followed throughout the remainder of the document.

Figure 2: Design Framework for Collaborative Business Models

In this regard, characteristic questions which need to be addressed by a sustainable business model in the context of ALL, as is the case of AMCOSOP, are as follows:

- Who are target segments?
- What needs do they have?

- How can they be reached?
- How do the products/services fulfill the needs of the target segments?
- Who will pay for the products/services?
- Who will deliver products/services?
- Who will do maintenance of products/services?
- Who are the stakeholders?
- Specific areas of attention regarding different countries/regions.
- Who to partner with to develop, implement and exploit determined products and services
- What's in it for *all* stakeholders? Business Case macro and per stakeholder.
- etc

Notably, the key question for innovative products and services in the end is not “Does it work?” but “**Who will pay for it?**”.

Based on the above, several business models in the context of AMCOSOP are detailed in the present document, incl. both baseline services as well as future services. In line with design framework for sustainable AAL Business Models (see Figure 2), for each of such AMCOSOP business model, all four basic components are analyzed, that is: Product and Service Offerings, Processes and Organization, Marketing, and Revenue Model.

3 AMCOSOP Competition

A market analysis of existing commercial products as well as relevant AAL projects in the context of AMCOSOP is provided below.

3.1 Relevant Commercial Products

Bigscreenlive
BigScreenLive is a service targeted at elderly. They provide a software application that turns a PC into an easy-to-use 'senior computer'. This software is so easy to use and supposed to be fun for the elderly. This software connects to a portal that provides the following services: • Simple email. • An address book to keep track of names and addresses. • Easy picture sharing. • A daily digest of newspapers from around the world. • Easy and secure online shopping. • A safe way to browse websites. • Online games. • Simple way for family and friends to share contacts, pictures, and websites. • Ability to magnify text for those with low vision. Bigscreenlive is a US company. Recently they teamed with clarity a UK company. Their service can be used by every English speaking customer. More information at: http://bigscreenlive.com
Angela tablet for elderly
Independa announced the launch of Angela, an integrated tablet and software offering for the independent elderly. The company plans to offer a 10-inch and a 22-inch tablet running the software. According to Independa, Angela is a “social interaction solution tailor-made for the non-technical elderly.” The software features one-touch shortcuts to video chats, email, the Internet, Facebook, games and puzzles, and other interactive content. The interface offers large screen fonts, higher contrast and bright colors for those with poor eyesight. Angela can also remind users to take medications; keep medical and personal appointments; and remember birthdays and anniversaries. Independa is a US company. They are interested in US market, but the product can be purchased internationally. More information at http://www.independa.com/angela

Pointerware for senior living facilities

This product is a full solution (service + software) targeted at senior living facilities. It contains software that makes a computer extremely friendly for the seniors and a portal where users can connect and form communities.
All features such as mail, video, chat, multiuser gaming etc. are supported.
Pointerware is a US company. Their products aim at senior leaving facilities and English speaking customers. More information at: http://www.pointerware.com/c/pages/home

SmartCare TV

This is a product from Smartcare a Finnish company. It provides regular contacts with friends and family prevents isolation and regular physical exercise sessions as live community network broadcasts or recently captured videos maintain mobility. Games & quizzes & crosswords are good for mental vitality. Independent living must be safe and a helping hand must be easily reachable.
Features include:

- Games
- Customizable address books
- News
- Videocasts
- Community videos

Smartcare is a finnish company. Their products aim at Finland and Europe. More information at: http://www.smartcare.fi/en/

Telikin

US based company Telikin has created computers which, although they are normally intended for the elderly, could be easily used by anyone.
Telikin has two main commercial products. The first is Telkin Touch with a 18" touchscreen, and the second is the Telikin Elite, also a touchscreen. Each one of them has similar features and an all-in-one design. Each is set up to respond to basic functions such as:

- E-mail
- Video chat
- Web browsing
- Wi-Fi Ready
- DVD
- CD player

They also have a custom interface to embedded applications, view photos via Facebook, MS-compatible word processor, calendar alerts, address book with easy connection and Adobe Flash support. It may not be the dream of every gamer or related to technology, but to have a machine that is enough to make all major business and your most essential are so simple, so that grandparents can use not so bad idea.
Further information is available at: http://www.telikin.com

SenioriPC

SenioriPC service enables a computer and Internet services in a secure and easy access to all regardless of age or experience.
The service includes everything you need. PC, peripherals and software, installed on all functional. In addition, it delivers a secure home network, and we offer training courses and caring service, now and in the future. SenioriPC service is suitable for all:

- A person who does not yet have a computer and does not experience it, SenioriPC service provides easy to use computer accessories and home accessories imported.
- A person who already has a computer, but that is not just "you" with it (for example Windows XP/Vista/W7), or he wants to present on their computers easier to use and faster. In this case, the solution SenioriPC software is offered.

Among others, SenioriPC Service has been installed in Kuusela Seniorcenter of the AMCOSOP End User partner “Pirkanmaan Senioripalvelut Oy” (PSP) in Finland.
SenioriPC is a finnish company. Their products aim at Finland and Europe. Further information is available at: www.senioripc.fi

3.2 Relevant R&D and Pilot Prototypes

T-Seniority
T-Seniority is a "SaaS"(“Software as a Service”) which will be acccesible in dedicated European areas via digital TV. Its main aim is to empower Independent Living for older people and meet their varied needs. The end game is to contribute to and improve independence for older people through a set of services that puts them as the central stakeholder. Services will be accessed via the TV, as it is the most widely used and in many cases the preferred electronic channel, needing little introduction or maintenance. T-seniority is a European ICT project involving multiple countries. The product will be available at Spain, Italy, Greece, UK, Cyprus and Finland. More information at: http://tseniority.idieikon.com/
3rD-LIFE
3rD-LIFE aims to improve the quality of life of ageing people providing them with a virtual tool for interacting with other users and other functionalities which will be achieved through the development of a tool consisting in a 3D virtual environment especially adapted to be used by ageing people. With only a computer and an internet connection, they will be able to, from their own homes and through their own voices, communicate with other users, make audio and video calls to real world terminals and have a more joyful and active live thanks to the applications that will be implemented.
AWARE
AWARE project aims at developing a Social Network totally designed basing on the requirements and the needs of the final users, and that will be integrated in the final platform with all the other modules. This social network will be built implementing MAHARA, a stand-alone open-source system that can be integrated into a wider virtual learning framework such as MOODLE. MAHARA present improved capabilities for Social Networks, providing social networking facilities that can be easily interfaced with MOODLE. This way these technological tools, designed under needs and requirements of the final users, will enable both social relationships between the elderly people and the creation of an intergenerational learning virtual environment between the older workers, the younger workers and the retired workers. This will contribute to close the gap between generations and to the integration of the ageing population through wide life learning strategies and by keeping connected different generations.
CVN
ConnectedVitality – The Personal Telepresence Network (CVN) – aims to link groups of senior citizens into a video communication network, enabling them to choose the activity as well as levels of social interaction according to their individual needs, abilities and lifestyle.
EasyReach
EasyReach is an innovative and sustainable ICT solution to allow elderly and less educated people to participate in the benefits of IT-based social interactions. The project builds a system, called EasyReach that supports many styles of social interaction between users provide them an easy way to organize groups of people that already know each other, create groups of people that care for a certain common topic, organize groups for the purpose of ‘interfacing’ with real world social groups and organize help sessions where a skilled user helps or train others. The services of EasyReach also provide elderly people with proper means for support of interactions like appointments and things to-do, automatic structure and maintain user’s information, monitor of users’ quality of interaction in order to provide feedback and foster new interactions. The use of TV as the core communication interface device and a simple remote control for accessing the services, EasyReach becomes an especially accessible system, easy to install, configure and apply in every-day life.
Elder-Spaces
The main goal of the Elder-Spaces project is to introduce a radical shift on the way social networking is delivered to and used by older adults (typically healthy individuals aged 55+), with a view to stimulate seniors to join social networks and accordingly benefit in terms of their social activation, active living and overall quality of life. To this end, Elder Spaces will design a novel ICT based social networking platform (beyond existing networks for seniors) along with a range of applications that will be delivered over this platform.
Express to Connect

The overall objective for the E2C consortium is to develop, test and deploy a web service, which stimulates and facilitates personal storytelling, and enable interest-based connections and communication among elders and thereby empower them and enrich their life.
The E2C project focuses on finding a solution to the very challenging issues:

- Preventing the internal experience of loneliness
- Develop a new innovative solution for an emergent EU market for "preventive social technology"
- Creating implementation strategies that allow the solution a place in the service ecology of elderly care

FoSIBLE

The FoSIBLE approach builds on TV-based Social Interaction technologies in the context of Smart Living Rooms, using entertainment console and social media technologies to provide communication, interaction & entertainment services.
FoSIBLE aims at the well-being and self-esteem of older people by supporting an active life-style to prevent loneliness. FoSIBLE aims at providing bridging spaces to foster social interactions and experiences by acknowledging the diversity of preferences, needs and interests. Fosible will develop a Social TV community platform with game technologies and smart furniture and will provide adapted input devices including gesture recognition fostering social support between peers through virtual communities and entertainment applications.

Go-myLife

Go-myLife aims to improve the quality of life for older people through the use of online social networks combined with mobile technologies.
The Go-myLife architecture consists of a core social networking platform connected to disparate social networking sites through middleware that essentially addresses personalization, security and integration-related requirements, with an easy and accessible interface.
Other than controlling user access and authentication, the core platform will also manage privacy, trust and reputation through identity management and reputation systems. This will ensure that during any group interaction, users are aware of the information being shared and have aids available to control it. To assure interoperability and ubiquity, Go-myLife will provide a web-based solution

HOMEdotOLD

HOMEdotOLD is an ICT-based project that uses the TV medium in order to deliver a number of cost-effective services to elderly people. The targeted services are expected to advance the social interaction of elderly people by bridging distances and reinforcing social voluntariness and activation, thus preventing isolation and loneliness.
The project main objectives are to provide a technological platform to provide services allowing the elderly to stay socially active and to bridging distances and supporting elderly people's existing roles.

Join-In

Join-In aims to support the AAL Joint Programme by setting up a social platform and thus creating an environment that enables elderly people to communicate; socialize; play communicative multiplayer computer games; and exercise either by exergames or by moderated exercises. Join-In will support people maintaining and setting up contacts to others sharing similar interests -foremost on a regional basis- and facilitate contact to family and friends. Multiplayer video gaming, exergames and exercising in a group are considered key activities for attracting senior citizens to the network.

Join-In will assess the user requirements aims to develop a methodology on how to best attract the target group to such a network. The technical developments of the project include:

- a technical platform that connects to PCs or TVs with an interactive web-enabled set-top box;
- the customisation of access facilities, such as controllers and adaptation of games which take
- into account the constraints of senior citizens;
- the development of computer-/ exergames and virtual exercising for the targeted user group.

Nostalgia Bits

Reminiscing is a pleasurable activity for seniors and can improve their well being by providing rich opportunities for communication with peers and family. The Nostalgia Bits (NoBits) project aims at fostering social interaction between elderly and their family, through capturing their memories, personal, family and local history embodied by letters, newspapers, postcards, photos and other documents. A web-based platform is being developed where tangible artefacts of an elderly person's life experience can be uploaded and become a significant resource for use by other generations, and a means for connecting the elderly users with members of own generation. Nostalgia Bits will thus be more than an "on-line community" service. It aims to be one of the first examples of what we call an "*augmented community*" service. Augmented communities combine the benefits of *interest-bound communities* (typically supported by on-line services) with the benefits of *geographically-bound*

communities (which lead to rich, face-to-face interactions).
PaeLIFE
Starting with an analysis of the existing Internet services and household ICT devices/gadgets targeted to the citizens and, in particular, to the elderly, that enhance social life and productivity, we will study the existing HCI gaps that hinder their effective adoption by the elderly. From these international studies we will select a set of Internet services and domestic ICT devices and will generate credible usage scenarios and derive corresponding user requirements and pilot applications. The project expects to empower the elderly users with a Personal Life Assistant (PLA) that will mediate and facilitate the interaction of senior citizens, with technological devices such as computers, tablets, game consoles, smartphones and home automation modules. PLA will improve the accessibility to existing services in the web, such as interactive online courses, social and entertainment media. All this will be made possible at people's homes, since elderly have sometimes some level of impairments caused by age, which reduces their mobility.
PeerAssist
PeerAssist will provide an accessible, adaptable, multimodal and multilingual user interface and integrate behind the scenes the appropriate knowledge and context management and peer-to-peer interaction as needed to allow elderly people using the system to build virtual communities on demand, based on interests and needs that they share among themselves and/or with people in their supporting environment. The main effort of this challenging project is to design a Peer-to-Peer (P2P) platform helping the elderly fulfil their everyday needs in a user-friendly, effective, and totally safe manner. Use of PeerAssist by an elderly end-user should not require computer literacy. User supporting entities (e.g. family members, friends, caregivers, etc.) that participate in PeerAssist may use similar terminals or more powerful off-the-shelf computers as needed, depending on their role and function, level of computer expertise and services they provide. All terminals will be connected to the Internet and communicate via a peer-to-peer overlay technology.
SeniorChannel
SeniorChannel will give elderly care professionals an innovative approach to developing and managing the specific social needs of the elderly in the wider community. To achieve this goal, SeniorChannel will develop an Interactive Internet Protocol Television Channel (SENIORCHANNEL) that will not only provide elderly people with a method of interacting but also with a unique means of access to the range of diverse activities in their community including the opportunity to share knowledge and experience, the ability to participate in topical debates, entertainment services, work-shops and discussion groups regardless of their geographical location. The integrated system will be tested and evaluated, setting up a TV studio and production centre in Spain and broadcasting programs to a pilot user group. The feedback generated during user testing will provide the basis for modification and refinement thus bringing the design of the application more into line with the preferences and needs of those involved
SENIORENGAGE
SENIORENGAGE will provide a practical networking platform which seniors and new professionals may network with each other, and wich comprises the following: • RetiredProf System: This module will allow retired seniors to continue to their professions through shared knowledge, becoming mentors of young professionals and guiding them through the challenges of their career. • ProfBuddies: Retired seniors of a certain professional area will be able to interact and network with each other, through the use of groups, message boards, instant messaging and a variety of Web 2.0 features. • SeniorConsult: Older adults prior to retirement will be able to provide their advice to businesses or non-profit organizations in need of answers to simple question. In this way, professional seniors will be able to provide support to younger ones, contributing to their sense of self-worth.
SI-SCREEN
The core idea is to integrate new web based services such as internet telephony, instant messaging (e.g. Skype), group calendars (e.g. Google Calendar) and various types of social software (e.g. facebook.com, flickr.com, youtube.com, twitter.com) as well as applications of non-electronic service providers (leisure local offers, theatre, cinema…) into intuitively usable touch screen devices e.g. in form of digital picture frames. The SI-Screen project aims to make technology tool useful, attractive and usable by every user, especially elderly people. Therefore the SI-Screen is focusing on images and new concept far from the old WIMP paradigm (Window, icon, menu, pointing device), which is very easy to understand and provide together with the touch screen an intuitive handling. In addition, the age-related cognitive changes require an additional focus on accessibility and usability.

To include the needs and interests of the elderly end user will be heavily involved.
Silvergame
The envisioned platform is conceived as an integrated solution which combines sensor-controlled serious gaming, web-based information services and interactive entertainment and which brings all that onto a standard television set – a technological environment elderly people are so much more familiar with than a PC. Regarding an appropriately intuitive controller, the Silvergame consortium has been doing successful user acceptance tests with a specially interfaced touchscreen application running on an iPad or tablet PC. Using open standards and allowing for interoperability the Silvergame platform wants to make future upgrades of the pilot applications just as easy as the integration of new applications at a later point in the development. The Silvergame prototype will include three interactive modules on one central platform: • A virtual silver song club, where people meet to sing with each other • A multimedia driving simulator for cognitive training of traffic situations • A sensor-based dance and fitness training application
SoMedAll
A prototype service will be implemented and tested among the seniors over national borders. SoMedAll project produces a platform that offers social media focused on the needs of the elderly with a variety of easy-to-use user interfaces including web, PC, IPTV and mobile phone (equipments already at home) taking into account the skill levels of the users. We implement a prototype service, test use it among the elderly over national borders. We study the usability and the impact of the services to the life quality of the elderly. End-users' point of view will be taken into account in practice in Italy, Finland and possibly in Slovenia. One important issue is also to analyze possible cultural effects on the acceptance and desire for these kinds of social media services.
TAO
Older persons (aged 60 and above) are underrepresented both in online social communities and online collaborative projects. Considering the increasingly important role and the potential benefits of social media in most societies this poses a serious challenge. The TAO project aims on the one hand to develop efficient methods to **raise the number of older persons using and benefiting from online social communities**. On the other hand, its goal is to **develop strategies for online collaborative projects** to successfully integrate older contributors.
Trainutri
The Trainutri Consortium provides IT based end-user services, combining intelligent wireless sensor network technologies, data processing, Web 2.0 and social network models and a web portal providing user feedback on goals achieved and supporting interaction with peers. End-users can communicate using the web portal, their smart phone or both. Through analysis of acceleration meter activity, an estimation of walking activity and used calories, per day will be provided An extension with activity recognition technology and a global positioning module makes it possible to advice the user about integrating exercise goals and nutritional goals in daily life The older adult target group is focus on those to choose to carry out a healthy lifestyle : • They will be able to build a healthy personal environment configuring their activities according to their condition and preferences • They will count on direct professional support to make this healthy personal environment consistent
WeCare
WeCare is a collaborative European project which primary goal is to encourage older people to create, participate in and continue their social networks in order to prevent isolation and loneliness. By increasing their autonomy older people will be able to live at home longer, will preserve their quality of life and will continue to give their input and contribution to the neighbourhood and the larger society. Furthermore, by planning family or informal care to older people in a more efficient way, the demand for professional care and social services will decrease. A service, WeCare 2.0, will be developed, evaluated and deployed to accomplish these goals.

3.3 AMCOSOP Competitive Benchmarking

Based on the market analysis of existing and new commercial products as well as of relevant AAL R&D and pilot projects addressing ICT-based Social Interaction of Elderly, all in the context of

AMCOSOP, a competitive benchmarking analysis of AMCOSOP has been devised in order to define the AMCOSOP Added-Value vs. its Competition. The results of this analysis are shown in the matrix below.

Product	Type		Platforms				Independent of Existing Products
	Social Networking	Games	TV	Desktop PC	Mobile Device	Web	
AMCOSOP	X			X	X	X	X
Bigscreenlive	X	X		X			X
Angela tablet for elderly	X	X			X		X
Pointerware for senior living facilities	X	X		X			X
SmartCare TV	X	X	X				X
Telikin	X			X			
SenioriPC				X			X
T-Seniority	X		X				X
3rD-LIFE	X			X			X
AWARE	X					X	
CVN	X			X			X
EasyReach	X		X				X
Elder-Spaces	X					X	
Express to Connect	X					X	X
FoSIBLE	X		X				X
Go-myLife	X				X	X	X
HOMEdotOLD	X		X				X
Join-In	X	X	X	X			X
Nostalgia Bits	X					X	X
PaeLIFE	X		?	?	?	?	?
PeerAssist	X		X				X
SeniorChannel	X		X				X
SENIORENGAGE	X					X	X
SI-SCREEN	X				X		
Silvergame	X	X	X		X		
SoMedAll	X		X	X	X	X	X
TAO	X					X	
Trainutri	X				X	X	X
WeCare	X					X	X

Conclusions:

- All of the competing projects, including AMCOSOP, support social networking functions
- A few projects provide games. AMCOSOP doesn't include any games since it focuses on social networking and aims to provide a clear, focused and simple experience to seniors.
- A few of the products extend of existing services (e.g. facebook) but most of them provide standalone applications. AMCOSOP provides an independent product so that it can be customized without constraints to the specific needs of senior citizens.
- The platforms used vary greatly but most products support only a few of them. AMCOSOP supports the majority of platforms giving it a platform independent nature.

The aforementioned comparison proves that AMCOSOP is very well positioned with regard to the competition. Ease of use, communications ubiquity and deployment flexibility have been the three main goals of the AMCOSOP platform and constitute its key competitive advantages. The developed platform is based on Web technologies and thus can be easily fit in any presentation device, including fixed touchscreens, tablets or smartphones.

4 Business Model for AMCOSOP Baseline Services: Messaging and Presence Services

4.1 Product and Service Offerings

4.1.1 Customer Demands

See AMCOSOP Deliverable D2.1 “Value Sensitive User Requirements”.

4.1.2 Service Concept

The AMCOSOP baseline services refer to Messaging and Presence Services. Through the AMCOSOP system, elderly (primary users) can sense from a distance the availability of their relatives and friends (secondary users), express their communication willingness to them and exchange contextual and status information with them. On top of that, secondary users can communicate short messages to their primary users and provide also some location-based services (LBS). Moreover, tertiary users can provide messaging and information type services to the primary users, such as consultancy and care services (e.g., meals on wheels, drug order service, info from pharmacies, janitors, physiotherapists or coiffeurs, etc).

Thus, the AMCOSOP baseline service involves three kind of users: the elderly (primary users), their friends and relatives (secondary users), and third parties providing relevant information (tertiary users). Each user has his/her own device component to communicate:

- Primary users have a home terminal with an effective user-friendly GUI. This terminal is co-located with the home gateway which undertakes the communication task. Although the home terminal allows its interface with various external home devices, no such interface is considered in the baseline services described here.
- Secondary users access the system through the Web with an effective user-friendly GUI or through a mobile device (e.g., Smartphone, PDA) with appropriate software installed and an effective GUI.
- Tertiary users access the system through the Web with an effective user-friendly GUI.

All the above terminals connect to the AMCOSOP Service Platform, which executes the core software, delivers the actual service and provides usage records.

(a) **(b)** **(c)**

Figure 3: UI for Primary Users (a) and Secondary Users (b and c)

4.1.3 Target Customers

Target customers are the primary and secondary users who will use the AMCOSOP system. Tertiary users are the business partners (of the AMCOSOP Service Provider). They can sell their services (content, consultancy, care etc.) to their clients (primary and secondary users) through the AMCOSOP system. Thus, the ones who pay for the AMCOSOP baseline service are the Tertiary Users.

In this sense, AMCOSOP represents an effective way for the Tertiary Users to enrich their service portfolio (with respect to current state-of-the-art) and become more competitive towards their clients (with respect to their competitors).

Representative **tertiary users** include the following organizations:

- End-user organizations (mainly private)
  - Elderly Care Centers
  - Geriatric centers
  - Day-care centers
  - Tele-care centers
  - Nursing homes
  - Social support centers
  - Open Care Community Centers (public/private)
  - Communities / Cities / Regions responsible for organizing (elderly) care services
- Healthcare organizations
  - Responsible healthcare professionals: These persons are the main responsible for the healthcare of the older person diagnosis, and treatment
  - Healthcare professionals: professionals and caregivers from related disciplines, e.g. psychologists, psychiatrists and physicians
- Other organizations
  - Social workers
  - Voluntary workers

4.2 Processes and Organization

4.2.1 Business Concept

The AMCOSOP baseline services are created and managed by using the AMCOSOP service platform.

The operator of the service platform (Service Provider) is responsible to promote and sell these AMCOSOP services. Service Provider receives his fee from the Tertiary User. He is also responsible for service provision, AMCOSOP system installation and maintenance.

Tertiary users are the business partners of the Service Provider. They will **pay** a fee to the Service Provider and can sell their services (content, consultancy, care etc.) through the AMCOSOP system to their clients (primary and secondary users). Thus, charging will take place through the Service Provider who receives his fee from the Tertiary users (Business Partner).

Thus, the resulting business model corresponds to a Business-to-Business (B2B) business model.

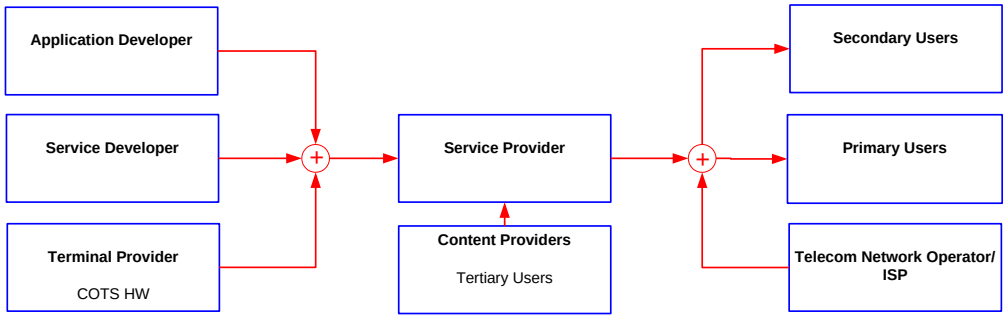

Figure 4: Service Value Chain for AMCOSOP Baseline Services

4.2.2 Service Value Chain Stakeholders and Roles

The service value chain for the B2B business model under consideration here is depicted in Figure 4. The main stakeholders involved together with their roles are described hereinafter.

4.2.2.1 Application Developer

The one who develops in SW and owns the associated rights for the following components:

- Home Terminal Application for Primary Users
  - ~~As part of~~During the AMCOSOP project, this role ~~is~~was covered by TUT.
- Client Application for Secondary Users
  - ~~As part of~~During the AMCOSOP project, this role ~~is~~was covered by SPH (Web) and TUT (Mobile).
- Web Application for Tertiary Users
  - ~~As part of~~During the AMCOSOP project, this role ~~is~~was covered by SPH.

4.2.2.2 Service Developer

The one who develops in SW and owns the associated rights for the following components:

- Service Platform
  - ~~As part of~~During the AMCOSOP project, this role ~~is~~was covered by SPH.

4.2.2.3 Terminal Provider

The one who provides the following COTS (Commercial-Off-The-Shelf) available HW equipment:

- Home Terminal PC for Primary User Application
  - ~~As part of~~During the AMCOSOP project, this role ~~is~~was covered by CURE who procured the related COTS HW equipment from a 3rd Party Retail Store.
- Smartphones for Secondary User Mobile Client Application
  - ~~As part of~~During the AMCOSOP project, this role ~~is~~was covered by TUT who procured the related COTS HW equipment (i.e., NOKIA phones) from a 3rd Party Retail Store.
- PC Station for Secondary User Web Client Application
  - ~~As part of~~During the AMCOSOP project, this role ~~is~~was covered by Secondary Users involved in the project who possess their own PC stations.
- PC Station for Tertiary User Web Application
  - ~~As part of~~During the AMCOSOP project, this role ~~is~~was covered by Tertiary Users involved in the project (PSP) who possess their own PC stations.

4.2.2.4 Service Provider

The operator of the service platform who is responsible to promote and sell the AMCOSOP services.

Service Provider receives his fee from the Tertiary User. Service Provider is responsible for the service provision. He is also responsible for procurement of other necessary system components from 3rd party retail stores (e.g., Home Terminal PCs, Smartphones, PC stations) and installing the AMCOSOP system at the User premises. Apart from system installation, Service Provider is also responsible for system maintenance as well as for User Training. The Service Provider is also responsible for signing an SLA (Service Level Agreement) with the Tertiary User for the quality of services offered to him.

~~As part of~~During the AMCOSOP project, this role ~~is~~was covered by SPH.

4.2.2.5 Content Provider

Tertiary users are the business partners (of the Service Provider) who use the AMCOSOP information and messaging type services provided by the Service Provider, enrich them with the exact content based on a per case basis (e.g., consultancy and care services, meals on wheels, drug order service,

info from pharmacies, janitors, physiotherapists, hairdressers, etc) and sell them to their clients (mainly, primary users) through the AMCOSOP system. As such, they pay a fee to the Service Provider which covers Service Provision, System Installation, System Maintenance and User Training.

~~As part of~~During the AMCOSOP project, this role ~~is~~was covered by PSP.

4.2.2.6 Primary Users

Elderly people who reside either at the Tertiary User's premises or at their own homes.

Through the home terminal with an effective user-friendly GUI, they use the AMCOSOP system to sense from a distance the availability of their relatives and friends (secondary users), express their communication willingness to them and communicate contextual and status information to them.

~~As part of~~During the AMCOSOP project, this role ~~is~~was covered by elderly people involved in the project who reside in the premises of PSP or in their own homes.

4.2.2.7 Secondary Users

Friends and Relatives of Elderly People.

Through the Web with an effective user-friendly GUI or through a mobile device (e.g., Smartphone, PDA) with appropriate software installed and an effective GUI, they use the AMCOSOP system to communicate with their primary users and provide them some LBS.

~~As part of~~During the AMCOSOP project, this role ~~is~~was covered by friends and relatives of the elderly people involved in the project.

4.2.2.8 Telecom Network Operator/ISP

Internet connectivity is necessary for the operation of the AMCOSOP system. In the case that Users (either Primary or Secondary or Tertiary) do not have Internet connections already available within their premises, a billing agreement with a Telecom Network Operator/ISP (Internet Service Provider) is needed for the provision of the respective Internet services, that is, Internet connectivity for Home Terminal App, for Secondary User Web Client App and for Tertiary User Web App. In the particular case of the Mobile Client App for Secondary User, a billing agreement with a Mobile Network Operator (MNO) is needed for the provision of the respective mobile Internet services.

Depending on the case, the assumed business model is flexible and allows for the following possible options, which may differ from country to country:

- Agreement between the Service Provider and the Telecom Network Operator/ISP to cover for the total amount of Internet connections needed by the Users (Primary, Secondary and Tertiary) for the amount of period required. This corresponds to a centralized approach which makes Users' life easier.
- Agreement between the Content Provider (Tertiary User) and the Telecom Network Operator/ISP to cover for the total amount of Internet connections needed by its Clients (Primary and Secondary Users) for the amount of period required. This is more applicable in the case where the Primary Users reside within the premises of the Tertiary User.
- Agreement between the User (Primary, Secondary and Tertiary) and the Telecom Network Operator/ISP to cover for the total amount of Internet connections needed by each User himself for the amount of period required. This is the baseline case assumed as part of the AMCOSOP project.

4.2.3 Interaction between AMCOSOP Partners

See Section 9 below.

4.2.4 Partnerships with External Stakeholders

- Partnership with **Telecom Network Operator/ISPs** for the provision of fixed and mobile Internet connectivity services

  Apart from the possible option to set-up partnerships with well-established Telecom Network Operator/ISPs, there is also a possibility to cover this role internally within the AMCOSOP consortium, particularly in Greece. Specifically, SPACEPHONE (www.spacephone.gr/) has been incorporated in Space Hellas as an independent business unit and provides:

  - Fixed Telephony & Internet services in co-operation with CYTA, COSMOTE, VODAFONE and WIND (Telecom Network Operator/ISPs in Greece)
  - Mobile Telephony services in cooperation with COSMOTE, VODAFONE, WIND (Telecom Network Operator/ISPs in Greece)

  SPACEPHONE has today an extensive network of "SpacePhone" brand-named and collaborating shops all over Greece:

  - 30 SPACEPHONE shops
  - 51 collaborating shops

- Partnership with **Terminal Equipment Manufacturers/Vendors** for the procurement of COTS available HW equipment to be integrated within AMCOSOP system. E.g., partnership with
  - ASUS for the procurement and provision of Home Terminals of the Primary Users
  - NOKIA for the procurement and provision of Smartphones for Secondary Users Mobile Client Applications
  - HP for the procurement and provision of PC Stations for Secondary and Tertiary Users' Web Apps
  - 3rd party Retail Shops (e.g., PLAISIO) for the procurement and provision of PC Stations, mobile devices, etc.
- Partnership with **External Entrepreneurs** (e.g., consultants, caregivers, hairdressers, physiotherapists, pharmacists, etc) for the provision of content to Tertiary User, if not already available within the Tertiary User services portfolio.

See also Section 9 below.

4.3 Marketing Strategy

AMCOSOP partners will adopt an aggressive market strategy launching campaigns to promote and propose AMCOSOP vertical solution to all potential customers. In this regard, AMCOSOP will pursue both direct and indirect channels to markets.

AMCOSOP business partners will take advantage of their already well established direct channels to market in order to employ a sales force, advertise, promote its product/services and receive and implement customer orders. Specifically, AMCOSOP partners will pursue direct agreements with private Tertiary Users, such as:

- Elderly Care Centers
- Geriatric centers
- Day-care centers
- Telecare centers
- Nursing homes
- Social support centers
- Private Open Care Community Centers

With regard to related public customers, such as State-owned Open Care Community Centers, AMCOSOP partners will target majority of tenders issued by the respective public bodies. E.g.,

particularly in Greece where there are National Institutions for Elderly Common-wealth Purposes (so-called “ΚΗΦΗ”) and Public Open Care Community Centers (so-called “ΚΑΠΗ”) which are funded by the Hellenic Ministry of Health and Welfare and are managed at a local/regional level by the respective Municipalities, Space Hellas will continuously monitor and correspondingly tender all related financial calls and programmes, such as those issued as part of the National Strategic Reference Framework (NSRF, “ΕΣΠΑ”) programme (http://www.espa.gr/en).

Figure 5. Snapshots of “ΚΑΠΗ” in Greece

AMCOSOP partners will also pursue direct channels to market via key associations and unions of Elderly Care Centers. E.g., in Greece there is the National Union of Elderly Care Centers (so called “ΠΕΜΦΗ”, www.pemfi.gr) and the Hellenic Society of Gerontology and Geriatrics (www.gerontology.gr) through which channels will be pursued.

Moreover, AMCOSOP partners will target direct channels to market via the Web. Due to loneliness and increased spare time, old people are getting more and more familiar to the Internet and related Web applications and social networks. Thus, Primary Users will be addressed directly through e-mails but also through Facebook, which is rapidly expanding. Web portals of particular relevance to elderly people will also be addressed.

Furthermore, AMCOSOP partners will directly address Primary and Secondary Users through direct mails, SMS and calls through a call center. Particularly, for secondary users who are more familiar with technology and, especially, mobile communication technologies, SMS and phone calls will be pursued in order to advertise and promote the AMCOSOP solutions for their elderly relatives.

In addition, advertising to target customers will be used to generate further awareness of its product/services through appropriate magazines and journals of particular readership as well as Newsletters. Public awareness campaigns via press, Internet and other media means (e.g., company newsletters) in a two-way approach, first targeting secondary users and second targeting primary users, will also be pursued. In this regard, of particular importance are events taking place with End User participation such as the 12th Hellenic National Conference of Gerontology and Geriatrics (http://www.gerontologycongress2012.gr/) taking place in Autum 2012 in Athens.

Along the same lines, advertising and promotion of AMCOSOP solution via informative events and implementation of relevant seminars within private clinics, geriatric centers and Open Care Community Centers is another direct channel to market to be pursued. Of particular interest are the *AAL Forum* events (http://www.aalforum.eu/), organized by the AAL JP on an annual basis for the increasing European AAL community (incl. users) to meet and discuss several topics, relevant for improving the AAL JP as well as the adoption of AAL solutions in the market.

In addition, the highly experienced and certified sales personnel employed by AMCOSOP partners in the product commercialization will also target at the appropriate training and instruction of the end user human resources (e.g., employees of Tertiary Users) in order to tackle their possible lack of technical experience and ICT illiteracy. An important aspect also to be dealt with during user training is the possible lack of a background and resulting networking effect in the AAL area.

Furthermore, AMCOSOP partners will take advantage of the indirect channels to market established from their key business partners, with whom strong working relationships have been built as part of other ICT related projects. E.g., this is the case in Finland where a tight cooperation has been established between TUT and NOKIA. It is also the case in Greece where a tight cooperation has been established between SPH and Telecom Network Operator/ISPs.

Apart from that, indirect channels to AAL market will also be pursued through related NGOs and Elderly Homecare programs supported by the local Ministries of Health. E.g., in Greece there are already Elderly Homecare programmes established which are funded by the Hellenic Ministry of Health and Welfare and are managed by NGOs, such as the "Life Line Hellas", (http://www.lifelinehellas.gr/), the "50+ Hellas" (http://www.50plus.gr/), and the "Help at Home" programmes. These are already well-known in the elderly care community and constitute a suitable indirect channel to market for AMCOSOP related product and service offerings.

4.4 Revenue Model

4.4.1 Pricing Strategy

As elaborated above, the assumed business model is a B2B business model in the sense that the Service Provider promotes and sells the AMCOSOP services to the Tertiary User who is the business partner (of the Service Provider) and pays a fee to the Service Provider. That is, the Tertiary User is the main Customer assumed (i.e., the one who will pay for the baseline AMCOSOP product).

Charging is assumed per "service" provided/offered to the Customer and not per system/SW sold to/procured by the Customer. The Tertiary User will have a flat rate monthly/yearly billing agreement with the Service Provider which covers: Service Provisioning, System Installation and Maintenance, and User Training. In this respect, note that although the baseline AMCOSOP service platform is capable of keeping and monitoring the user statistics, charging will not be based on the actual use of the service but on a fixed monthly/yearly amount as long as the users wish to use the service. In any case, the product will have a nominal market value in order to charge extra services.

Therefore, the pricing strategy for the identified AMCOSOP baseline services is as follows:

- The Customer (Tertiary User) is charged by the Service Provider for the provision of the AMCOSOP services which covers:
    - Provisioning of Messaging and Presence Services on a continuous 24/7 basis in line with a commonly agreed SLA.
    - Procurement of the COTS HW system components by 3rd parties and integration into overall AMCOSOP system. These components can be subjected to a sale mark-up value, e.g., 10-20% of their cost.
    - Development of the related SW applications and integration into overall AMCOSOP system.
    - Installation of the AMCOSOP system amounting to 10% of its nominal price.
    - Maintenance support of the AMCOSOP system amounting to 8% of its nominal price. It is used to meet the user needs over time and ensure that the developed product and services offered are "future proofed" and user-oriented to the extent possible. It includes features such as:
        - Repair and fixing of any kind of system damage;
        - Repair and fixing of any kind of system operation problem;
        - Upgrade of system SW;
        - Device replacements after failures or destructions;
        - Replacement of existing components with new releases.
    - Training of end user's personnel.

- All costs related to necessary actions to be taken by the Service Provider prior to the system installation, such as site surveys and infrastructure preparation, are at no charge of the Customer.
- The Customer has a monthly billing agreement with the Telecom Network Operator/ISP to cover for the total amount of Internet connections needed by the Customer itself and the Primary Users residing within its premises for the amount of period required. The Primary Users residing at their own homes and their friends/relatives (Secondary Users) are free to have their own monthly billing agreement with a Telecom Network Operator/ISP.
    - Alternatively, a centralized approach can be followed in order to make Users' life easier. I.e., a direct billing agreement between the Service Provider and the Telecom Network Operator/ISP can be established to cover for the total amount of Internet connections needed by the Users (Primary, Secondary and Tertiary) for the amount of period required. However, in that case, the Customer (Tertiary User) will be charged a higher fee by the Service Provider for the provision of the overall AMCOSOP services (incl. Internet connectivity services).

4.4.2 EU-wide Exploitation

The assumed B2B Business Model does not restrict the AMCOSOP commercialization to the geographic region of a specific AMCOSOP partner but – on the contrary - allows an EU-wide commercial exploitation of the AMCOSOP products, incl. both North and South Europe.

Furthermore, the field trials conducted during the AMCOSOP project with the participation of all of the partners from three different countries, have verified that EU-wide Exploitation is feasible.

5 Business Model for AMCOSOP Future Services: Social Network Services

5.1 Product and Service Offerings

5.1.1 Customer Demands

See AMCOSOP Deliverable D2.1 "Value Sensitive User Requirements".

5.1.2 Service Concept

This future service will provide social networking services mainly to the elderly. It builds upon the AMCOSOP baseline services. New features (beyond communication willingness) such as profiles, calendar, events, polls etc will be implemented. Furthermore the service platform will be enriched with graphics and video.

Specifically, profiles will be extended, to contain much more data such as detailed user profiles, emotional status, groups, virtual events, polls, etc. Calendar capability will be added in order regular events to be scheduled. This means each AMCOSOP user will be provided with such features on the AMCOSOP Terminal so that they can be informed about their contacts and at the same time provide their contacts also with their information. Rich content such as pictures and video will also be added as personal albums facility and will be possible to share/view. Events that someone can virtually participate will also be available. Moreover, there is also a search option to look for AMCOSOP Users located in the same area or sharing similar interests.

5.1.3 Target Customers

Same as in Section 4.1.3 above.

5.2 Processes and Organization

5.2.1 Business Concept

After a while, when the AMCOSOP product will be in its commercial roll-out phase and the AMCOSOP service platform databases will contain a reasonably high number of elderly (primary users) and their safety net of friends and relatives (secondary uses), this would be the correct timing to add social networking capabilities to the AMCOSOP system.

The Social Network Services build upon the AMCOSOP baseline services and the existing users connected through the AMCOSOP systems. All the functionality related to these AMCOSOP Future Social Network Services will be offered for free to the existing customers of the AMCOSOP Baseline Services. However, cash will come from advertising and promotion activities. Tertiary users will be able to promote their products and services through an extended graphical rich environment to be exploited by Advertisement Companies.

Advertisement Companies will participate in an automated bidding process. Winners will place their banners first and within preferred context on the AMCOSOP screens (e.g., healthcare institutes, SPA offers, assistive devices, healthy food, etc.). Through the extended graphical rich environment, Primary Users (Elderly) will see them immediately as soon as they enter the appropriate section in their Home Terminal device.

Contrary to the AMCOSOP Baseline Services which provide a flat rate billing scheme, charging in these AMCOSOP Future Social Network Services will be per customer click. When the system is augmented to provide advertising, promotion and content usage billing, the functionality of the AMCOSOP Service Platform to keep and monitor the user statistics based on the system's usage should be exploited. In this regard, the system will contain the advertising module that will do the banner placement and will count the clicks. The system will also do the settlements between the Service Provider and Business Partner.

As in the case of AMCOSOP baseline services, a B2B business model is considered here, as well.

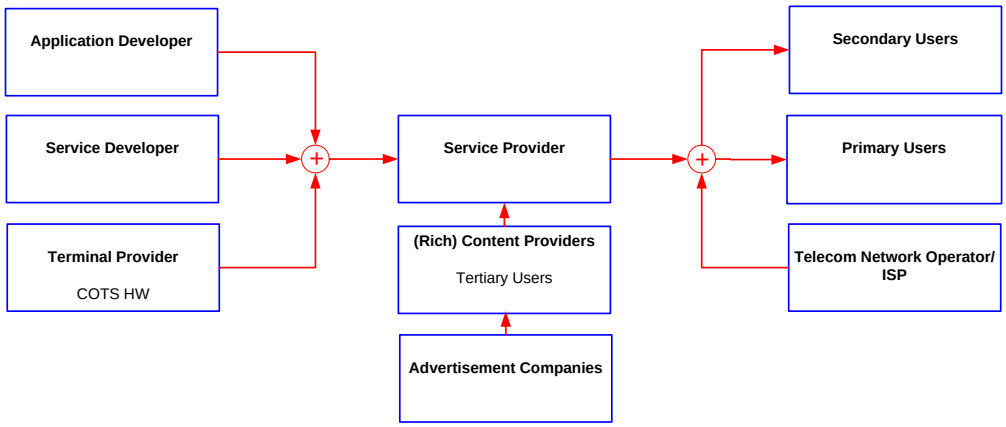

Figure 6: Service Value Chain for AMCOSOP Future Services: Social Network Services

5.2.2 Service Value Chain Stakeholders and Roles

The service value chain for the B2B business model under consideration here is depicted in Figure 6. The main stakeholders involved together with their roles are described hereinafter.

5.2.2.1 Application Developer
Same as in Section 4.2.2.1 above.

5.2.2.2 Service Developer
Same as in Section 4.2.2.2 above.

5.2.2.3 Terminal Provider
Same as in Section 4.2.2.3 above.

5.2.2.4 Service Provider
Same as in Section 4.2.2.4 above.

Contrary to the AMCOSOP Baseline Services which provide a flat rate billing scheme, charging in these AMCOSOP Future Social Network Services will be per customer click. Thus, the Service Provider will monitor and store the user statistics based on the system's usage which will be used for Tertiary User's charging.

5.2.2.5 (Rich) Content Provider
Same as in Section 4.2.2.5 above.

Tertiary users will still be the business partners (of the Service Provider) who will use the AMCOSOP services provided by the Service Provider, enrich them with their content and sell them to their clients (mainly, primary users) through the AMCOSOP system. As such, they pay a fee to the Service Provider which will remain stable (with respect to the Baseline Case). Moreover, depending on the system's usage by each user (mainly Primary Users), i.e., by counting customer's clicks, there will be additional charging which will be compensated in this case by Advertisement Companies. That is, cash will come from the Advertisement Companies to the Tertiary Users (Rich Content Providers).

Moreover, contrary to the Baseline Case, note that Tertiary users will be able to promote their products and services through an extended graphical rich environment, i.e., rich content will include graphics, video, pictures to be added as personal albums facility to share/view, etc.

5.2.2.6 Advertisement Companies
Advertisement Companies will be the business partners of the Tertiary Users (Rich Content Providers). Advertisement Companies will participate in an automated bidding process. Winners will place their banners first and within preferred context on the AMCOSOP screens (e.g., healthcare institutes, SPA offers, assistive devices, healthy food, etc.). Depending on the system's usage by each user (mainly Primary Users), to be monitored by the Service Provider through the Service Patform extended functionality, Advertisement Companies will pay a fee to the Tertiary Users (Rich Content Providers).

5.2.2.7 Primary Users
Same as in Section 4.2.2.6 above.

On top, note that this Future Service targets mainly Primary Users (e.g., access through their Home Terminal to extended user profiles with much more data, emotional status, groups, polls, calendar capability for virtual events, richer content services, etc).

5.2.2.8 Secondary Users
Same as in Section 4.2.2.7 above.

5.2.2.9 Telecom Network Operator/ISP
Same as in Section 4.2.2.8 above.

5.2.3 Interaction between AMCOSOP Partners
See Section 9 below.

5.2.4 Partnerships with External Stakeholders

- Partnership with **Telecom Network Operator/ISPs** for the provision of fixed and mobile Internet connectivity services
- Partnership with **Terminal Equipment Manufacturers/Vendors** for the procurement of COTS available HW equipment to be integrated within AMCOSOP system.
- Partnership with **Advertisement Companies** who will interface with the Tertiary Users (Rich Content Providers) and, after an automated bidding process, will place their banners within the preferred context on the AMCOSOP screens (e.g., healthcare institutes, SPA offers, assistive devices, healthy food, etc.).

See also Section 9 below.

5.3 Marketing Strategy

Same as in Section 4.2.3 above.

This service targets the already existing users.

On top, the partnership with Advertising Companies (external stakeholder to the AMCOSOP Service Value Chain) will constitute an additional indirect channel to market. Such companies will correspond to key business partners who will further help to promote the AMCOSOP solution to all potential customers and boost their awareness of its services and benefits.

Moreover, extensive use of Facebook is expected in order to further promote and advertise the AMCOSOP Future Social Networking Services to the target users. By the time of commercial roll-out phase, even Primary Users will have become more familiar with such technologies and so, they will find it much easier to use a "customized" tool to serve their social networking needs.

5.4 Revenue Model

5.4.1 Pricing Strategy

Contrary to the AMCOSOP Baseline Services which provide a flat rate billing scheme, charging in these AMCOSOP Future Social Network Services will be per customer click. When the system is augmented to provide advertising, promotion and content usage billing, the functionality of the AMCOSOP Service Platform to keep and monitor the user statistics based on the system's usage should be exploited. In this regard, the system will contain the advertising module that will do the banner placement and will count the clicks. In any case, the product will have a nominal market value in order to charge extra services.

The Social Network Services under consideration build upon the AMCOSOP baseline services. The existing number of AMCOSOP contacts (Primary and Secondary Users) connected through the AMCOSOP system constitute the customer base upon which the service will commence its roll-out phase.

Thus, the pricing strategy which was elaborated in Section 4.4.1 above for the AMCOSOP baseline services is modified here for the respective B2B Business Model of the considered AMCOSOP Future Social Network Services as follows:

- The Customer (Tertiary User) is charged by the Service Provider for the provision of the AMCOSOP services which covers:
    - Provision of AMCOSOP Services on a continuous 24/7 basis in line with a commonly agreed SLA.

- Procurement of the COTS HW system components by 3rd parties and integration into overall AMCOSOP system. These components can be subjected to a sale mark-up value, e.g., 10-20% of their cost.
- Development of the *extended* related SW applications and integration into overall AMCOSOP system.
- Installation of the AMCOSOP system amounting to 10% of its nominal price.
- Maintenance support of the AMCOSOP system amounting to 8% of its nominal price. It is used to meet the user needs over time and ensure that the developed product and services offered are "future proofed" and user-oriented to the extent possible. It includes features such as:
  - Repair and fixing of any kind of system damage;
  - Repair and fixing of any kind of system operation problem;
  - Upgrade of system SW;
  - Device replacements after failures or destructions;
  - Replacement of existing components with new releases.
- Training of end user's personnel.

- All costs related to necessary actions to be taken by the Service Provider prior to the system installation, such as site surveys and infrastructure preparation, are at no charge of the Customer (Tertiary User).
- *All costs related to necessary actions to be taken by the Service Provider in relation to keeping and monitoring the user statistics based on the system's usage (i.e., counting user clicks and providing statistic reports every month), will be at no charge of the Customer (Tertiary User).*
- *Depending on the system's usage by each user (mainly Primary Users), to be monitored at no charge by the Service Provider, Advertisement Companies will pay a fee to the Tertiary User. Thus, the Tertiary User (: Customer of Service Provider) has a billing agreement with the Advertisement Company (: Customer of Tertiary User), who has won the automated bidding process and placed its banners within the preferred context on the AMCOSOP screens (e.g., healthcare institutes, SPA offers, assistive devices, healthy food, etc.).*
- The Customer (Tertiary User) has a monthly billing agreement with the Telecom Network Operator/ISP to cover for the total amount of Internet connections needed by the Customer itself and the Primary Users residing within its premises for the amount of period required. The Primary Users residing at their own homes and their friends/relatives (Secondary Users) are free to have their own monthly billing agreement with a Telecom Network Operator/ISP.
  - Alternatively, a centralized approach can be followed in order to make Users' life easier. I.e., a direct billing agreement between the Service Provider and the Telecom Network Operator/ISP can be established to cover for the total amount of Internet connections needed by the Users (Primary, Secondary and Tertiary) for the amount of period required. However, in that case, the Customer (Tertiary User) will be charged a higher fee by the Service Provider for the provision of the overall AMCOSOP services (incl. Internet connectivity services).

5.4.2 EU-wide Exploitation

See Section 4.4.2 above.

6 Business Model for AMCOSOP Future Services: Social Network Games

6.1 Product and Service Offerings

6.1.1 Customer Demands

See AMCOSOP Deliverable D2.1 "Value Sensitive User Requirements".

Gaming is not a kid’s only activity. Elderly also tend to play games that do not require immediate action or fast reflexives. E.g., educational and training games designed especially for various interests or purposes, such as “cognitive training games”, “Brain trainers” such as Sudoku, multiplayer games (e.g. card games, chess, backgammon), etc.

6.1.2 Service Concept

This future service will provide social network gaming services mainly to the elderly. Elderly will benefit from specific games. The proposed games will be elderly oriented and will be associated with interest or entertainment groups. There are also educational and training games designed especially for various interests or purposes, such as “cognitive training games”. However, “Brain trainers” such as Sudoku are not the only kind of games available through the system. Even multiplayer games will be available for entertainment. Especially, card games involving at least 2 players are good candidates. Also, games such as chess, backgammon and strategy games (e.g., farmerama) will be taken into consideration for elderly for entertainment. A network version of games already installed in existing AMCOSOP devices (Home Terminals, PCs, smartphones etc) will be considered.

The Social Network Gaming Services build upon the AMCOSOP baseline services and the existing number of users (AMCOSOP contacts = Primary and Secondary Users) connected through the AMCOSOP system.

6.1.3 Target Customers

The main target users of the proposed AMCOSOP Future Social Network Gaming Services are the Elderly (Primary Users) and their friends and relatives (safety-net members, Secondary Users).

6.2 Processes and Organization

6.2.1 Business Concept

After a while, when the AMCOSOP product will be in its commercial roll-out phase and the AMCOSOP service platform databases will contain a reasonably high number of elderly (primary users) and their safety net of friends and relatives (secondary uses), this would be the correct timing to add social network gaming capabilities to the AMCOSOP system.

Service Provider will not develop games for its customers. He is going to conduct a market survey in order to identify existing games that are already available and will be of interest and use by the elderly. When this list of games identified, service provider will contact the game developer and negotiate a policy to make games available to service platform. This means that some of the game developers will become tertiary users that are going to offer entertainment services

As such, the assumed business model is exactly the same model as the baseline one. Game developers will be business partners (of the Service Provider) and will provide a percentage of their profits to service provider. The difference relies to the need for a new billing and statistics collection component of the service console. That is, contrary to the AMCOSOP Baseline Services which provide a flat rate billing scheme, charging in these AMCOSOP Future Social Network Gaming Services will be per customer click. The functionality of the AMCOSOP Service Platform to keep and monitor the user statistics based on the system’s usage should be exploited. In this regard, the system will contain the usage module that will be used to bill online games for future system use. The system will also do the settlements between the Service Provider and Business Partner.

As in the case of AMCOSOP baseline services, a B2B business model is considered here, as well.

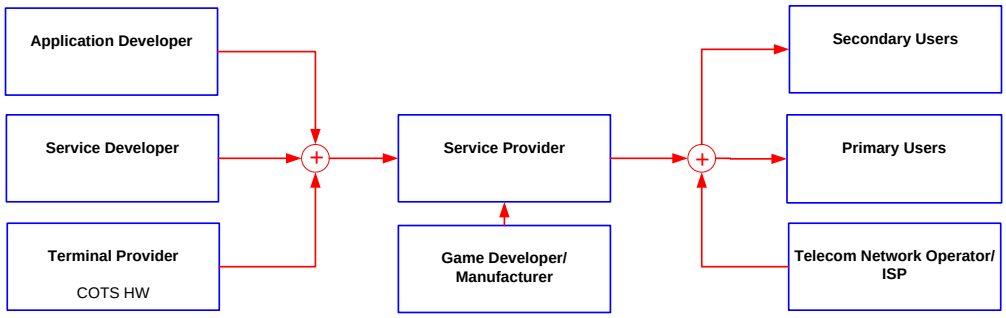

Figure 7: Service Value Chain for AMCOSOP Future Services: Social Network Games

6.2.2 Service Value Chain Stakeholders and Roles

The service value chain for the B2B business model under consideration here is depicted in Figure 7. The main stakeholders involved together with their roles are described hereinafter.

6.2.2.1 Application Developer

Same as in Section 4.2.2.1 above.

6.2.2.2 Service Developer

Same as in Section 4.2.2.2 above.

6.2.2.3 Terminal Provider

Same as in Section 4.2.2.3 above.

6.2.2.4 Service Provider

Same as in Section 4.2.2.4 above.

Contrary to the AMCOSOP Baseline Services which provide a flat rate billing scheme, charging in these AMCOSOP Future Social Network Services will be per customer click. Thus, the Service Provider will monitor and store the user statistics based on the system's usage which will be used to bill online games.

Service Provider will not develop games for its customers. He is going to conduct a market survey in order to identify existing games that are already available and will be of interest and use by the elderly. When this list of games identified, service provider will contact the game developer and negotiate a policy to make games available to service platform.

6.2.2.5 Game Developers/Manufacturers

Same as in Section 4.2.2.5 above.

Game Developers/Manufacturers are business partners (of the Service Provider) who use the AMCOSOP system to sell their developed gaming services to customers of the Service Providers, i.e., the primary (mainly) and secondary users. As such, they will provide a percentage of their profits to Service Provider.

Game Developer/Manufacturer will develop games for Service Provider's customers (primary and secondary users). These online games will include elderly oriented games associated with interest or entertainment groups, educational and training games designed especially for various interests or purposes, cognitive training games, Brain trainers, Sudoku, card games, backgammon, strategy games, farmerama, chess, etc. After negotiating a policy with the Service Provider, Game Developer/Manufacturer will make available its games/services through the service platform.

6.2.2.6 Primary Users
Same as in Section 4.2.2.6 above.

6.2.2.7 Secondary Users
Same as in Section 4.2.2.7 above.

6.2.2.8 Telecom Network Operator/ISP
Same as in Section 4.2.2.8 above.

6.2.3 Interaction between AMCOSOP Partners
See Section 9 below.

6.2.4 Partnerships with External Stakeholders
- Partnership with **Telecom Network Operator/ISPs** for the provision of fixed and mobile Internet connectivity services
- Partnership with **Terminal Equipment Manufacturers/Vendors** for the procurement of COTS available HW equipment to be integrated within AMCOSOP system.
- Partnership with **Game Developers/Manufacturers** who will use the AMCOSOP system to provide their developed online games (e.g., Brain trainers, Sudoku, card games, backgammon, strategy games, farmerama, chess, etc) to Service Provider's customers (primary and secondary users).

See also Section 9 below.

6.3 Marketing Strategy
Same as in Section 4.2.3 above.

This service targets the already existing users.

On top, the partnership with Tertiary Users and End-user organizations, such as Geriatric centers, Day-care centers, Telecare centers, Nursing homes, Social support centers, etc, will be deemed necessary and will constitute an additional indirect channel to market. Such End-user organizations having direct contacts with Primary Users (and also Secondary Users) will correspond to key business partners who will further help to promote the AMCOSOP solution to all potential customers and boost their awareness of its services and benefits. In this regard, key support will be provided by PSP who will allow marketing channels to its clients.

6.4 Revenue Model

6.4.1 Pricing Strategy
Contrary to the AMCOSOP Baseline Services which provide a flat rate billing scheme, charging in these AMCOSOP Future Social Network Services will be per customer click. When the system is augmented to provide content usage billing, the functionality of the AMCOSOP Service Platform to keep and monitor the user statistics based on the system's usage should be exploited. In this regard, the system will contain the usage module that will be used to bill online games for future system use. In any case, the product will have a nominal market value in order to charge extra services.

The Social Network Gaming Services under consideration build upon the AMCOSOP baseline services. The existing number of AMCOSOP contacts (Primary and Secondary Users) connected through the AMCOSOP system constitute the customer base upon which the service will commence its roll-out phase.

Thus, the pricing strategy which was elaborated in Section 4.4.1 above for the AMCOSOP baseline services is modified here for the respective B2B Business Model of the considered AMCOSOP Future Social Network Gaming Services as follows:

- *Depending on the system's usage by each user (Primary and Secondary Users), to be monitored by the Service Provider, Game Developer will be business partner (of the Service Provider) and will provide a percentage of their profits to Service Provider.*
- The Customer (Game Developer) is charged by the Service Provider for the provision of the AMCOSOP services which covers:
    - Provision of AMCOSOP Services on a continuous 24/7 basis in line with a commonly agreed SLA.
    - Procurement of the COTS HW system components by 3rd parties and integration into overall AMCOSOP system. These components can be subjected to a sale mark-up value, e.g., 10-20% of their cost.
    - Development of the *extended* AMCOSOP related (not Gaming Apps) SW applications and integration into overall AMCOSOP system.
    - Installation of the AMCOSOP system amounting to 10% of its nominal price.
    - Maintenance support of the AMCOSOP system amounting to 8% of its nominal price. It is used to meet the user needs over time and ensure that the developed product and services offered are "future proofed" and user-oriented to the extent possible. It includes features such as:
        - Repair and fixing of any kind of system damage;
        - Repair and fixing of any kind of system operation problem;
        - Upgrade of system SW;
        - Device replacements after failures or destructions;
        - Replacement of existing components with new releases.
    - Training of end user's personnel.
- All costs related to necessary actions to be taken by the Service Provider prior to the system installation, such as site surveys and infrastructure preparation, are at no charge of the Customer (Game Developer).
- *All costs related to necessary actions to be taken by the Service Provider in relation to keeping and monitoring the user statistics based on the system's usage (i.e., counting user clicks and providing statistic reports every month), will be at no charge of the Customer (Game Developer).*
- *All costs related to necessary actions to be taken by the Service Provider in relation to Internet connection availability at the premises of the Users (Primary and Secondary) will be at no charge of the Customer (Game Developer). This is because a direct billing agreement can be assumed between each User (Primary and Secondary) and the Telecom Network Operator/ISP to cover for the total amount of Internet connections needed by each User himself for the amount of period required.*
    - *Alternatively, a centralized approach can be followed in order to make Users' life easier. I.e., a direct billing agreement between the Service Provider and the Telecom Network Operator/ISP can be established to cover for the total amount of Internet connections needed by the Users (Primary and Secondary) for the amount of period required. However, in that case, the Customer (Game Developer) will be charged a higher fee by the Service Provider for the provision of the overall AMCOSOP services (incl. Internet connectivity services).*

6.4.2 EU-wide Exploitation

See Section 4.4.2 above.

7 Business Model for AMCOSOP Future Services: Sensor-assisted Services

7.1 Product and Service Offerings

7.1.1 Customer Demands

See AMCOSOP Deliverable D2.1 “Value Sensitive User Requirements”.

7.1.2 Service Concept

This future service will exploit the AMCOSOP Home Gateway functionality (see Figure 8) which allows its interface with various external home devices and sensors (hereinafter all called in a unified way as “sensors”). Sensor API offers a generalized interface for using Sensors present or connected to the system. It is only used by add-on components and is not used in the implementation of Amcosop basic functionality. The sensor API does not support any standard interface technologies in itself and therefore all sensors offered through the sensor API require a specific driver for connecting the actual device. As part of the AMCOSOP project, sensor API is designed as a future extension and will only have a limited implementation.

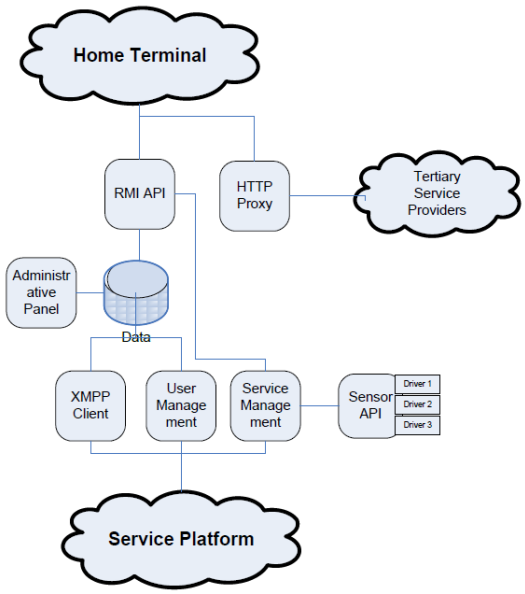

Figure 8: Home Gateway with Sensor API

Thus, the proposed AMCOSOP Future Sensor-assisted Services exploit this Sensor API functionality of the AMCOSOP Home Gateway. Through this sensor API, the extended AMCOSOP Home Gateway can connect to sensors, process their output and transfer preselected information to the AMCOSOP Service Platform. The processed results will be immediately available to all users of the services if, of course, they have the right permissions.

Indicative such sensor-assisted services could be as follows:

- A basic service in this context could be one related to motion sensors installed at suitable points within elderly users’ homes (e.g., at doors and windows). The motion sensors will be programmed to monitor motion of elderly and if there is no motion during daylight, an alarm will be issued and transferred to predefined secondary users. Similar sensors can be used to

monitor intruders during the night and during periods of absence by using the sensors installed at doors and windows. In case of sensor activity, selected contacts of the elderly will be informed through the AMCOSOP system. Correspondingly, if the elderly user is at home in the night or on holidays, his family members or friends in the neighborhood can call the elderly user for verification or come by to have a look if everything is all right.

- Another such sensor-assisted service could also be one related to networked sensors installed at homes of the elderly users, and associated to external security firms cooperating with the AMCOSOP Service Provider. In a similar context to the abovementioned one, the system can be used with the security contact provided by the security firm. An alarm will be set at home and the security firm will be informed accordingly.
- Another such sensor-assisted service could also be one related to tele-health and telecare devices installed at homes of the elderly users or even wearable sensors. This service can be associated to external e-health/telecare providers cooperating with the AMCOSOP Service Provider. These can be about tele-monitoring the health condition of the AMCOSOP user, or about guidance and coaching for a special diet or behavioral precaution – e.g. giving up smoking. In this way, the AMCOSOP elderly user will have a health coach as a contact on his AMCOSOP Home Terminal and will report to him periodically the measurements he does at home himself over the AMCOSOP System. Depending on the changes in the measurements, the health coach will be able to tell the elderly user what to do, e.g., if the high blood pressure is normalized telling to stop taking the medicine or offering an appointment with the doctor for a control.

Albeit the different context of the sensor-assisted services outlined above, they will all be treated under the same umbrella hereinafter. This is mainly because the resulting business model is common in most use cases.

These sensor-assisted services can be developed either by a Third Party or by an Application Developer. The preferred choice would be the second one as the required expertise for such SW development exists already within AMCOSOP consortium capabilities. Therefore, the Sensor API of the AMCOSOP Home Gateway will be made available to third party sensor device vendors, who will develop device drivers for their sensors, whereas the relevant SW development needed for the sensor-assisted application development will be undertaken by AMCOSOP Application Developer.

7.1.3 Target Customers

The main target users of the proposed AMCOSOP Future Sensor-assisted Services are the Elderly (Primary Users) and their friends and relatives (safety-net members, Secondary Users).

7.2 Processes and Organization

7.2.1 Business Concept

This service targets the already existing users.

The assumed business model is exactly the same model as the baseline one. Third Party Service Providers (e.g., security service providers, telehealth/telecare organizations, etc) will be business partners (of the Service Provider) and will provide a percentage of their profits to Service Provider. This means that Third Party Service Providers become Tertiary Users that are going to offer their sensor-assisted services through AMCOSOP.

As in the case of AMCOSOP baseline services, a B2B business model is considered here, as well.

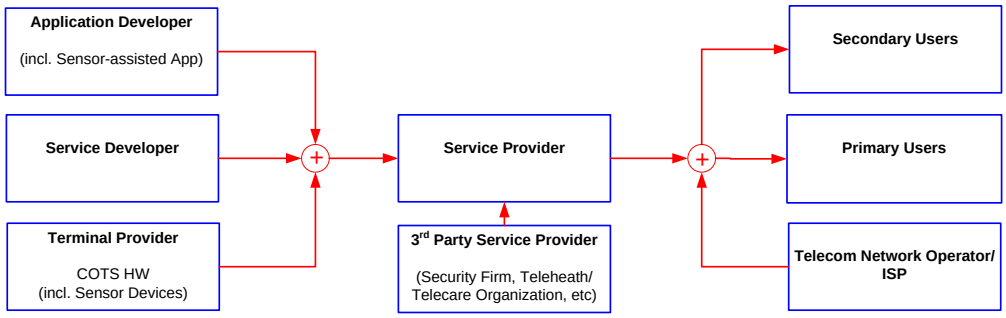

Figure 9: Service Value Chain for AMCOSOP Future Services: Sensor-assisted Services

7.2.2 Service Value Chain Stakeholders and Roles

The service value chain for the B2B business model under consideration here is depicted in Figure 9. The main stakeholders involved together with their roles are described hereinafter.

7.2.2.1 Application Developer

Same as in Section 4.2.2.1 above.

On top, the Application Developer will do SW development for the new Sensor-assisted Applications related to the Sensor API of the AMCOSOP Home Gateway.

7.2.2.2 Service Developer

Same as in Section 4.2.2.2 above.

7.2.2.3 Terminal Provider

Same as in Section 4.2.2.3 above.

On top, Terminal Provider will be the one who provides the following COTS available HW equipment:

- Sensor devices to be installed at homes of elderly people (e.g., motion detectors, other security or emergency sensors, tele-health and telecare devices, wearable sensors, etc). These are easily interfaced to the AMCOSOP Home Terminal PC through the AMCOSOP Home Gateway and its Sensor API.

7.2.2.4 Service Provider

Same as in Section 4.2.2.4 above.

7.2.2.5 Third Party Service Providers

Same as in Section 4.2.2.5 above.

Third Party Service Providers (e.g., security service providers, telehealth/telecare organizations, etc) are business partners (of the Service Provider) who use the AMCOSOP system to sell their related services to customers of the Service Providers, i.e., the primary (mainly) and secondary users. As such, they will provide a percentage of their profits to Service Provider.

7.2.2.6 Primary Users

Same as in Section 4.2.2.6 above.

7.2.2.7 Secondary Users

Same as in Section 4.2.2.7 above.

7.2.2.8 Telecom Network Operator/ISP

Same as in Section 4.2.2.8 above.

7.2.3 Interaction between AMCOSOP Partners

See Section 9 below.

7.2.4 Partnerships with External Stakeholders

- Partnership with **Telecom Network Operator/ISPs** for the provision of fixed and mobile Internet connectivity services
- Partnership with **Terminal Equipment Manufacturers/Vendors** for the procurement of COTS available HW equipment to be integrated within AMCOSOP system.
- Partnership with **Sensor Device Manufacturers/Vendors** for the procurement of COTS available HW sensor devices to be integrated within AMCOSOP Home Gateway.
- Partnership with **Third Party Service Providers** (e.g., security service providers, telehealth/telecare organizations, etc) who will use the AMCOSOP system to sell their related services to Service Provider's customers (primary and secondary users).

See also Section 9 below.

7.3 Marketing Strategy

Same as in Section 4.2.3 above.

This service targets the already existing users.

On top, the partnership with Tertiary Users and End-user organizations, such as Geriatric centers, Day-care centers, Telecare centers, Nursing homes, Social support centers, etc, will be deemed necessary and will constitute an additional indirect channel to market. Such End-user organizations having direct contacts with Primary Users (and also Secondary Users) will correspond to key business partners who will further help to promote the AMCOSOP solution to all potential customers and boost their awareness of its services and benefits. In this regard, key support will be provided by PSP who will allow marketing channels to its clients.

7.4 Revenue Model

7.4.1 Pricing Strategy

The Sensor-assisted Services under consideration build upon the AMCOSOP baseline services. The existing number of AMCOSOP contacts (Primary and Secondary Users) connected through the AMCOSOP system constitute the customer base upon which the service will commence its roll-out phase. In any case, the product will have a nominal market value in order to charge extra services.

Thus, the pricing strategy which was elaborated in Section 4.4.1 above for the AMCOSOP baseline services is modified here for the respective B2B Business Model of the considered AMCOSOP Future Sensor-assisted Services as follows:

- *Third Party Service Provider will be business partner (of the Service Provider) and will provide a percentage of their profits to Service Provider.*
- The Customer (Third Party Service Provider) is charged by the Service Provider for the provision of the AMCOSOP services which covers:
    - Provision of AMCOSOP Services on a continuous 24/7 basis in line with a commonly agreed SLA.

- Procurement of the COTS HW system components by 3rd parties *(incl. Sensors devices*) and integration into overall AMCOSOP system. These components can be subjected to a sale mark-up value, e.g., 10-20% of their cost.
- Development of the *extended* AMCOSOP related (incl. Sensor related) SW applications and integration into overall AMCOSOP system.
- Installation of the AMCOSOP system *(incl. Sensors devices at elderly people's homes)* amounting to 10% of its nominal price.
- Maintenance support of the AMCOSOP system amounting to 8% of its nominal price. It is used to meet the user needs over time and ensure that the developed product and services offered are "future proofed" and user-oriented to the extent possible. It includes features such as:
  - Repair and fixing of any kind of system damage;
  - Repair and fixing of any kind of system operation problem;
  - Upgrade of system SW;
  - Device replacements after failures or destructions;
  - *Perioridocal battery replacement for sensors;*
  - Replacement of existing components with new releases.
- Training of end user's personnel.

- All costs related to necessary actions to be taken by the Service Provider prior to the system installation, such as site surveys and infrastructure preparation, are at no charge of the Customer (Third Party Service Provider).
- *All costs related to necessary actions to be taken by the Service Provider in relation to Internet connection availability at the premises of the Users (Primary and Secondary) will be at no charge of the Customer (Third Party Service Provider). This is because a direct billing agreement can be assumed between each User (Primary and Secondary) and the Telecom Network Operator/ISP to cover for the total amount of Internet connections needed by each User himself for the amount of period required.*
  - *Alternatively, a centralized approach can be followed in order to make Users'life easier. I.e., a direct billing agreement between the Service Provider and the Telecom Network Operator/ISP can be established to cover for the total amount of Internet connections needed by the Users (Primary and Secondary) for the amount of period required. However, in that case, the Customer (Third Party Service Provider) will be charged a higher fee by the Service Provider for the provision of the overall AMCOSOP services (incl. Internet connectivity services).*

7.4.2 EU-wide Exploitation

See Section 4.4.2 above.

8 Business Model for AMCOSOP Future Services: Telecom Services

8.1 Product and Service Offerings

8.1.1 Customer Demands

In general, telecommunication services are beyond the scope of AMCOSOP which focuses on the "willingness to communicate" (see AMCOSOP Deliverable D2.1 "Value Sensitive User Requirements"). However, since AMCOSOP is related to ICT technologies, it could be seen as an alternative way to provide to Elderly Users access to Telecom Networks and, thus, access to Telecommunication Services through their AMCOSOP Home Terminals.

8.1.2 Service Concept

In all AMCOSOP services described above, both baseline and future ones, “telecommunication” plays a key role. However, it is addressed by a Third Party since AMCOSOP focuses mainly on the “willingness to communicate” services and not the “communicate” per se.

The future services proposed here refer to a future extension of AMCOSOP system where the AMCOSOP Home Terminal can also be seen as allowing its Elderly Users to access the Web and, thus, communicate with their relatives and friends (secondary users) through the Internet. As such, Internet communication services already available, such as Skype and VoIP, could be integrated to the AMCOSOP Home Terminal together with the necessary telecom equipment (access network router, modem, etc). Thus, in this way, AMCOSOP Home Terminal could be seen as an elderly-suited access point to the Web and the AMCOSOP System as an effective way providing enhanced Telecom Services particularly customized to Elderly people, together with other Value-Added Services.

Although, as stated above, such service features are beyond the scope of AMCOSOP project (see AMCOSOP Deliverable D2.1 “Value Sensitive User Requirements”), the business model of such AMCOSOP-combined Telecom Services are outlined hereinafter for the sake of completeness.

8.1.3 Target Customers

The main target users of the proposed AMCOSOP Future Telecom Services are the Elderly (Primary Users) and their friends and relatives (Secondary Users).

8.2 Processes and Organization

8.2.1 Business Concept

The operator of the service platform (Service Provider) is responsible to promote and sell these AMCOSOP services. Service Provider receives his fee from the Telecom Network Operator/ISP. He is also responsible for service provision, AMCOSOP system installation and maintenance.

Telecom Network Operator/ISPs are the business partners of the Service Provider. They will **pay** a fee to the Service Provider and can sell their communication services through the AMCOSOP system to their clients (primary and secondary users). Thus, charging will take place through the Service Provider who receives his fee from the Telecom Network Operator/ISP (business partner).

As in the case of AMCOSOP baseline services, a B2B business model is considered here, as well.

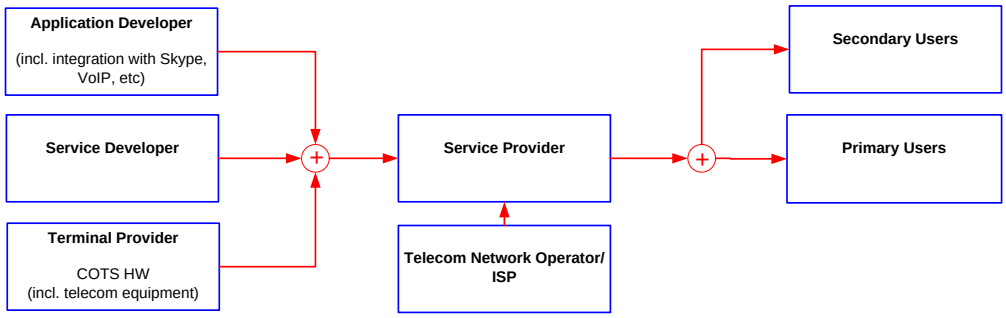

Figure 10: Service Value Chain for AMCOSOP Future Services: Telecom Services

8.2.2 Service Value Chain Stakeholders and Roles

The service value chain for the B2B business model under consideration here is depicted in Figure 10. The main stakeholders involved together with their roles are described hereinafter.

8.2.2.1 Application Developer

Same as in Section 4.2.2.1 above.

On top, the Application Developer will do SW development for integration of AMCOSOP Home Terminal with online Internet communication services, such as Skype and VoIP. This could be done through Web services.

8.2.2.2 Service Developer

Same as in Section 4.2.2.2 above.

8.2.2.3 Terminal Provider

Same as in Section 4.2.2.3 above.

On top, Terminal Provider will be the one who provides the following COTS available HW equipment:

- Telecom Equipment for elderly people's home allowing their access to the Internet, such as Access Points, Network Routers, Switches, Modems, etc.

8.2.2.4 Service Provider

Same as in Section 4.2.2.4 above.

8.2.2.5 Telecom Network Operator/ISP

Contrary to the AMCOSOP Baseline Services, where a Telecom Network Operator/ISP corresponds to a Third Party, the assumed Future Telecom Service considers him as the Business Partner (of the Service Provider). Thus, the role of Telecom Network Operator/ISPs is similar to that described in Section 4.2.2.5 for Tertiary Users. That is, Telecom Network Operator/ISPs are the business partners of the Service Provider who will **pay** a fee to the Service Provider and can sell their communication services through the AMCOSOP system to their clients (primary and secondary users).

8.2.2.6 Primary Users

Same as in Section 4.2.2.6 above.

8.2.2.7 Secondary Users

Same as in Section 4.2.2.7 above.

8.2.3 Interaction between AMCOSOP Partners

See Section 9 below.

8.2.4 Partnerships with External Stakeholders

- Partnership with **Telecom Network Operator/ISPs** for the provision of fixed and mobile Internet connectivity services

- Partnership with **Terminal Equipment Manufacturers/Vendors** for the procurement of COTS available HW equipment to be integrated within AMCOSOP system.
  On top, this includes particularly providers of Telecom Equipment, such as Access Points, Network Routers, Switches, Modems, etc. Such equipment can easily be procured by 3rd party Retail Shops or even provided as in-kind contribution by the Telecom Network Operator/ISPs when subscribing for a new Internet connection.

- Partnership with **SW Vendors** for integration of their relevant SW products (e.g., Skype, VoIP) into the AMCOSOP Home Terminal.

See also Section 9 below.

8.3 Marketing Strategy

Same as in Section 4.2.3 above.

On top, the partnership with Telecom Network Operator/ISPs will be deemed necessary and will constitute an additional powerful indirect channel to market. Such companies have already an enriched customer base, which can be contacted through direct e-mails, SMS and calls through a call center to further promote the AMCOSOP solution to all potential customers and boost their awareness of its services and benefits.

8.4 Revenue Model

8.4.1 Pricing Strategy

As in case of AMCOSOP Baseline Services, charging is assumed per "service" provided/offered to the Customer and not per system/SW sold to/procured by the Customer. The Customer (Telecom Network Operator/ISP) will have a flat rate monthly/yearly billing agreement with the Service Provider which covers: Service Provision, System Installation and Maintenance, and User Training. In any case, the product will have a nominal market value in order to charge extra services.

Therefore, the pricing strategy for the identified AMCOSOP future services is as follows:

- The Customer (Telecom Network Operator/ISP) is charged by the Service Provider for the provision of the AMCOSOP services which covers:
    - Provision of AMCOSOP Services on a continuous 24/7 basis in line with a commonly agreed SLA.
    - Procurement of the COTS HW system components by 3rd parties (incl. Telecom Equipment) and integration into overall AMCOSOP system. These components can be subjected to a sale mark-up value, e.g., 10-20% of their cost.
    - Development of the related SW applications and integration into overall AMCOSOP system.
    - Installation of the AMCOSOP system (incl. Telecom Equipment) amounting to 10% of its nominal price.
    - Maintenance support of the AMCOSOP system (incl. Telecom Equipment) amounting to 8% of its nominal price. It is used to meet the user needs over time and ensure that the developed product and services offered are "future proofed" and user-oriented to the extent possible. It includes features such as:
        - Repair and fixing of any kind of system damage;
        - Repair and fixing of any kind of system operation problem;
        - Upgrade of system SW;
        - Device replacements after failures or destructions;
        - Replacement of existing components with new releases.
    - Training of end user's personnel.
- All costs related to necessary actions to be taken by the Service Provider prior to the system installation, such as site surveys and infrastructure preparation, are at no charge of the Customer (Telecom Network Operator/ISP).
- The fee of the Service Provider towards the Telecom Network Operator/ISP to cover for the total amount of Internet connections needed by the (mainly Primary) Users is offset within the monthly billing agreement. This corresponds to a centralized approach making Users' life easier.

8.4.2 EU-wide Exploitation

See Section 4.4.2 above.

9 Intellectual Property Rights, Use and Dissemination

~~9.1 Interaction between AMCOSOP Partners~~

9.1 Intellectual Property Rights

AMCOSOP Partners have developed the AMCOSOP system together, in close cooperation with each other, having a common goal: to commercially exploit the AMCOSOP system for the advancement of elderly care in Europe.

However, each AMCOSOP Partner is responsible for specific parts of the AMCOSOP system. Particularly, with respect to the SW development technical work, the following responsibilities are noted:

- SW Development of Home Terminal Application for Primary Users: TUT
- SW Development of Client Application for Secondary Users (Mobile App): TUT
- SW Development of Client Application for Secondary Users (Web App): SPH
- SW Development of Web Application for Tertiary Users: SPH
- SW Development of Service Platform: SPH

Each AMCOSOP Partner therefore exclusively owns the SW results they have generated and is the exclusive holder of the relevant Intellectual Property Rights created upon each one of the above-mentioned software components.

~~9.1.1~~9.2 Access Rights for Use

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~~After the project has finished, upon request, for further~~The access rights of the SW results of the AMCOSOP project vary depending on their type of usage:

- *Non commercial usage*
  For non commercial purposes each Partner may freely use the SW results, which the project has generated. The SW results can be used as-is, without any support or guarantees about availability or reliability. The partner that has generated the SW result being used may, but is not obliged to, provide limited support or usage availability (in the case of services).
  If a specific service-level agreement (SLA) is required, a relevant license agreement must be signed with the owner and holder of the respective intellectual property rights of the relevant software.

- *Commercial usage*
  For commercial purposes each Partner may be granted a non-exclusive, non-transferable, non-sublicensable license on fair market conditions which shall be mutually agreed upon prior to the intended use.
  When assessing the fair market conditions, the necessary contribution of such a Partner to the invention made in the framework of the cooperation shall be taken into consideration; compared to conditions for third parties the respective Partner shall be granted a significant allowance. ~~However, no~~ The contribution of such a Partner includes all of the outputs of the AMCOSOP projects, such as SW results, project deliverables, field trials, etc.
  No use of the software created under the circumstances described above will be made without a prior license agreement, signed with the owner of the relevant software and holder of the respective intellectual property rights.

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~~Such approach will allow an EU-wide commercial exploitation without any IPR being violated.~~

~~9.2~~9.3 Partnerships with External Stakeholders

The same ~~principle applies~~principles apply, when one of the partners licenses the project outcomes to third parties. In that case, prior to establishing such a license agreement, the contribution of each partner will be quantified as mentioned above and a share of the license fees will be transferred to the respective partner. In the case of copyright protected works and know-how created during the performance of the Agreement the above rules shall apply correspondingly.

10 AMCOSOP Building the Evidence for a Business Case

AMCOSOP has identified the need for more robust evidence to support the development of business cases. It is this evidence that will increase interest and receptiveness by stakeholders.

The AMCOSOP project has built its evidence partly through a rigorous program of user-centered involvement in the development of technologies, services and systems (see next Section on User-Centered Design).

Knowledge based on experience and experimentation is a key asset held by the AMCOSOP consortium. This arises from the experience of melding technologies into systems, and applying them in the AMCOSOP field trials. This knowledge, alongside the AMCOSOP evidence base, can be applied to prove the effectiveness of AAL technology in allowing older people to advance their social inclusion. This is vital in making a convincing case for investment in the technology.

10.1 User-Centered Design

A User Centered approach has been applied in the design and development of the AMCOSOP system as shown in Figure 11. User Centered Design (UCD) methodology, which places people at the heart of the system design process; together with ethnographic methods to uncover aspects of human interaction, such as values, connections, and trust were mainly applied.

A User-Centered Design approach has been duly followed in several stages of the AMCOSOP project:

- Active user involvement in WP2, for capturing the User Requirements (Customer Demands) and defining the System Specifications.
- Active user involvement in WP3 and WP4, for evaluating the intermediate SW developments in lab environment.
- Active user involvement in WP5, for evaluating the envisaged AMCOSOP Services in lab environment, prior to their full development and field validation.
- Active user involvement in WP7, for conducting the Field Trials, operating the AMCOSOP system, evaluating the validation results and providing feedback for future system releases.

As an illustration, in the beginning of the AMCOSOP project, as part of WP2, an iterative requirements analysis was conducted with participation of the two main user groups: targeted elderly user group and their safety network in three countries: Finland, Austria and Greece.

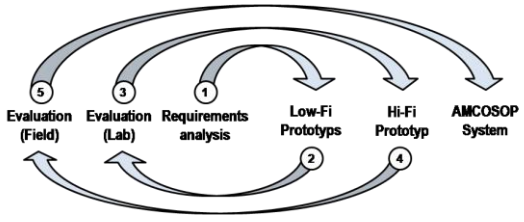

Figure 11. System Development Phases

In the iterative requirement analysis process, the results of the different user groups were confronted with each other to query the needs and requirements as shown in Figure 12. Interviews, focus groups were applied during this phase and as a result an in-depth view was collected on how the different user groups understand the system and the other group’s needs and views. Using cultural probes the needs and preferences of the primary user group were further investigated. The results have been used in designing user experience for both of the target user groups and system functionality.

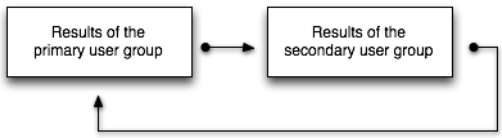

Figure 12. Iterative Requirements Analysis

Moreover, as part of WP3, in-lab usability evaluations of the AMCOSOP Home Terminal with primary users have been conducted, whose results were taken into in the respective design and development phase. Furthermore, as part of WP4, in-lab usability evaluations of the AMCOSOP Applications for Secondary Users (mobSOP and Web Client App) with secondary users have been conducted, whose results were taken into in the respective design and development phase. In addition, initial ideas for future service concepts have been evaluated during focus groups with primary users as part of WP5. Note that WP5 relevant in-lab usability evaluation work is currently ongoing which will be reported in future project deliverable.

Hence, thus far, AMCOSOP has followed a real UCD approach: user requirements (primary, secondary, tertiary); in-lab usability evaluations (terminal, mobSOP, Web App, service concepts); iterative implementation in line with user requirement; whereas, as reported in the next Section below, field trial evaluations will be conducted focusing on usability, social impact and service evaluation aspects.

10.2 User Involvement in Field Trials

AMCOSOP project has been validated and evaluated in real world conditions with participation of both main target user groups. There were two trial sites will in Austria and Finland. At each site at least ten primary (elderly) users were be involved in the field trials. Also actual secondary users (relatives and friends of primary users) were be involved.

Field trials concentrated on two points: system evaluation and impact evaluation. System evaluation, based on the defined scenarios and use cases, assessed aspects of usability, accessibility and user experience of the system. Impact evaluation focused on the impact of the system on social inclusion, communication and social presence at the beginning, during and at the end of the trials. The aim is to show how AMCOSOP impacts on the communication habits, on the perception of social presence and social inclusion for all involved users as well as to evaluate the service concepts and services offered through AMCOSOP.

10.3 Profile of Involved End-Users Matching Defined Business Models

The defined business models refer mainly to B2B business models where the main business partners are Tertiary Users willing to pay a fee in order to enrich their service portfolio (with respect to current state-of-the-art) and become more competitive towards their clients (with respect to their competitors).

To this end, it shall be noted that the AMCOSOP partner involved as End User in the project, i.e., PSP (Finland) has exactly this profile of Tertiary Users. Specifically, it is a private SME end-user organization, profit oriented and motivated to enrich its service portfolio and gain advantageous positions in the market against its competitors. This fact together with its innovation orientation (proven

due to its active involvement as partner in the AMCOSOP project) further demonstrates the evidence for a business case.

11 Conclusions

The present document has provided an introduction to the AAL market context in Europe and a comparative analysis of existing commercial products and relevant AAL R&D projects of similar context to that of AMCOSOP. This analysis has highlighted the main added-value of AMCOSOP.

Subsequently, indicative business models have been defined and analyzed for suitable AMCOSOP services, which refer both to baseline services but also to future services associated to a future system release. Furthermore, the Intellectual Property Rights, usage and dissemination issues have been addressed.

Finally the document has provided evidence to support the development of business cases. It is this evidence that will increase interest and receptiveness by stakeholders.

12 Appendix – Reference Documents

[1] AMCOSOP Consortium Agreement, 2010.

[2] AMCOSOP Deliverable D2.1 “Value Sensitive User Requirements”, v1.1, 2011.

[3] European Commissions e-inclusion policy unit (based on latest information available): http://ec.europa.eu/information_society/activities/einclusion/policy/ageing/index_en.htm

[4] Ambient Assisted Living Roadmap, AALIANCE FP7 ICT Report, 2010, http://ec.europa.eu/information_society/newsroom/cf/itemdetail.cfm?item_id=5763&utm_campaign=isp&utm_medium=rss&utm_source=newsroom&utm_content=tpa-21

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