Contract number AAL-2012-5-064
AAL Joint Programme Project

HEREiAM

An interoperable platform for self care, social networking and managing of daily activities at home

D5.2: 1ˢᵗ Report on Dissemination, Exploitation and Standardization

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Dissemination Level		
PU	Public	
PP	Restricted to other program participants (including Commission Services)	x
RE	Restricted to a group specified by the consortium (including Commission Services)	
CO	Confidential, only for members of the consortium (including Commission Services)	

Contents

1   Introduction

The ageing of population is a new issue all over the world and it has considerable consequences for public services. The shift in the generation gap has changed policies and well-established social models: much of today's public spending is focused on elderly people and in particular on social assistance and health care. As the contrast between supply and demand is more and more evident, it is of the utmost importance to help people maintain their independence in their own familiar surroundings at home rather than carry them to hospital or to care centers. Self-care at home is on one hand an ambitious aim able to combine the reduction of social costs and the improvement of the quality of life but, on the other hand, it is a complex issue that requires different professional skills and involves in a new way, aspects of social and economic policy as well as new technologies. Innovation – in all its forms – should play a key role in rethinking and changing the way we design and organize our society and environment and organise, finance, and deliver health and social care services, as well as the whole environment older people are living in. The key lies in promoting people-oriented investments, which bring tangible and proven benefits to end-users, help health and care systems to contain costs and unlock business opportunities. The aim of the HEREiAM project is to help older adults to stay longer and independent at home by providing an innovative user-friendly technology able to support them during daily life activities. The project is structured for developing an integrated, smart platform which will allow elders to have access to a set of services directly from their TV set at home. HEREiAM end-users will be able to use easily a set of common services and utilities such as shopping for groceries, social networking, citizen services, fitness, wellness tutorial and training videos, self and health care, as simply as if they are watching their TV. Since TV is the main pervasive mean of communication, HEREiAM exploits it to overcome the refuse of technology for digital divide affecting most of the aged people in some areas of Europe.

This deliverable reports on the progress achieved for what concerns the activities and the key outcomes of the HEREiAM Consortium related to the workpackage WP5 – Dissemination, Exploitation, Standardization. The objectives of the work package WP5, can be summarized as follows:

- increase the project visibility and broaden its audience and impact
- inform all potential stakeholders about the activities and results of the project
- identify a plan for the industrial exploitation of the project outcomes
- carry out market analysis and contribute to the development of new business opportunities
- promote the project results for standardization

The deliverable is organized as follows. After an overview of the purposes motivating the HEREiAM project (Chapter 2), the foreseen HEREiAM exploitation models and the exploitation strategies that will be adopted by the individual partners are presented (Chapter 3). Chapter 4 reports the dissemination plan and the first year dissemination activities. Finally, Chapter 5 describes the standardization plan.

2   HEREiAM Purposes

2.1   Project goals

The HEREiAM Consortium addresses as a main project goal the development of a TV-based platform for offering a wide variety of services in the homes of older adults. Such assistive system can assure basic support for daily activities, detect health critical situations, and stimulate social and psychological engagement. Services will meet needs expressed by older people, giving them a sense of security, a sense of belonging and a feeling of health and well-being at home. As a result, elderly can live longer independently and comfortably in their own domestic environment. The choice of a TV-based system ensures full participation and high user acceptance, overcoming the refuse of technology for digital divide affecting most of the aged people.

HEREiAM takes advantage of the open-source accessibility of Android technology to provide its end-users with innovative care applications on a platform they are familiar with. Each Android App will run directly on a digital TV set-top-box (STB) installed at home and will be optimized for the service it supports by making the HEREiAM system easy, familiar and enjoyable. On their TVs, end-users will enjoy the possibility to contact friends/relatives, participate more in the activities or social events, receive alerts and reminders (e.g. appointment at the doctor, take your medication), buy grocery goods or measure some physiological parameters, and send them to their general practitioners. The interoperability of the system allows carers and service providers to access the platform through all the available technologies (broadband internet, new generation mobile), enabling the collaboration among different applications and institutions. Being able to connect a large part of the population with different service providers, the platform developed by HEREiAM offers the opportunity to start a virtuous circle in which the portfolio of services becomes larger and larger and the interest of people increases as a consequence. The system will be tested on the field in three different EU countries (Belgium, The Netherlands and Italy) to confirm that it meets the final users needs in terms of usability, acceptance, functionality and accessibility.

2.2   Strategic impact

The goals of the project are totally aligned with the impact expected by the work programme. HEREiAM will contribute to the development of an innovative platform capable to help people with age to live independently for longer. If successful, the project will have a significant impact in improving the quality of life of older people. HEREiAM tries to meet the following list of expected impacts:

- Reduction of health care expenses and avoidance of unnecessary hospitalization that will come from a careful monitoring of the elderly's health status at home.
- Better elderly lifestyle management that will come from the possibility to access fitness and wellness tutorial, training videos
- Stronger and active participation of elderly persons in the community, by providing the access to entertainment contents, social networks and customized information.
- Greater personal security and comfort at home that will come from the generation of alarms and warnings when needed.
- Reduction of the digital divide among the elderly by implementing the HEREiAM system on a platform they are familiar with.
- Sufficient user participation and involvement of care authorities to support the validation of the developed solution, by carring out three pilot tests.
- Reinforced European academic and industrial knowledge base and excellence in multi-disciplinary

research on ambient assisted living.

3 Exploitation plan

An effective exploitation plan of project results is mandatory to guarantee the effective use of funds provided to the project and a significant impact on the ambient assisted living community. The different actors in the Consortium will contribute to this phase depending on their role (industrial or academic) with the aim of obtaining the widest utilization and diffusion of the HEREiAM project results. In this section, we identify the main areas/markets where we intend to exploit the HEREiAM results. We also detail how, both the HEREiAM consortium as a whole and each partner individually will exploit the HEREiAM outcomes.

3.1 Exploitation models

The Exploitation Plan will define the HEREiAM market position and identify the potential market segments as well as the specific academic and commercial strategies to be implemented. Exploitation activities comprise:

- Preliminary market study and exploitation plan
- Detailed market study and plan
- Partner-specific detailed exploitation plan

A preliminary market study has identified the potential users of the HEREiAM platform as the first targets for the exploitation. The involved users are:

- **Service providers**: companies and associations who provide social and healthcare services should be addressed as the favourites targets of the project exploitation. The involvement of REMEDUS in the Consortium will help in the definition of the business model for this category of potential customers.
- **Final users**: citizens and their associations can be seen as potential customers. However, preliminary studies conducted by the Consortium show that the best way to contact these users could be to involve associations of General Practitioners, in order to receive an important endorsement to characterize the affidability and the efficacy of the services provided by the HEREiAM platform.
- **Public administration**: the public administration, like local Municipalities or Local Healthcare Units, can also be viewed as potential customers, since HEREiAM platform can support public services, especially social ones. The involvement of the Cagliari Municipality will help the Consortium in targeting these potential customers.

3.2 Partners' Exploitation

Each one of the consortium partners has its own, distinct exploitation opportunities perspective.

3.2.1 UNICA

Profile - The Department of Electrical and Electronic Engineering (DIEE) collects all the research and teaching activities of University of Cagliari in the field of Information and Communication Technologies. At present the DIEE includes over 120 people, including Professors, Post-Doc researchers and PhD students. Over its 20-year history, the DIEE has consolidated its expertise and knowledge in the fields of Electronic Engineering, Telecommunication, Bioengineering and Computer Science. The group involved in the this AAL project is engaged in fundamental and applied research on embedded systems design, with applications ranging from biomedical application (telemedicine systems, digital bio-ispire architectures, DNA chips, neural interfaces) to consumer electronics. Its expertise matches perfectly with the main tasks that will be performed by UNICA in

the HEREiAM project. The group has strong co-operations and relationships with several companies (Intel, STmicro, HPlab, TexasInstruments, ARM among the others), research institutions (both industrial and public) and Universities.

UNICA is the coordinator of the HEREiAM project and the WP leader of WP1 (specification of the platform) and WP6 (management of the project). UNICA's main contributions concern home based system (HW and SW) design, prototyping and pilot tests.

Exploitation strategy - Being an academic partner, UNICA will exploit the technology, applications, and scientific results of the project, including methodologies in their research and education services. Results obtained in the development activities will be disseminated, typically, through presentations at specialized workshops and conferences and publications in scientific journals, taking care to reach as wide a community as compatible with the required scientific level.

3.2.2   DEDALUS

Profile – Dedalus is the compan at the head of a leading international healthcare software industrial Group, with many important roles in all public and private health market segments, a sector that is of strategic importance for the national economy.

With over 200 products installed both in Italy and abroad, Dedalus develops solutions for each application domain, constantly enhancing its position by applying an innovative approach, based on the development of advanced software that facilitates interoperability and cooperation between territorial structures and hospitals.

Dedalus constantly works on improving quality and innovation, supporting the optimization of economic management and the use of best practices in the diagnosis and care process, at both Italian and International level. The Italian Healthcare System represents a best practice in terms of both efficiency and equity. In fact, healthcare spending in Italy is 7,5% of GDP, for the assistance of 100% of the population. The comparison with the United States, with an 18% healthcare cost on GDP and only 75% of the population assisted, strongly underlines the Italian System efficiency. Furthermore, Italian Healthcare System is based on the principle of ensuring an equal access to high quality healthcare services to all the citizens, including the most underprivileged social groups. European Countries have the oldest Universal Healthcare Systems in the World (Germany boasts the oldest one). Basing on these considerations, Dedalus Group began in 2009 an internazionalizational process, based on the following steps. The first phase is focused on understanding the goals of the single Country, then developing one or more system or sub system projects, in the spirit of the best practices in line with the set goals. With the support of local authorities, Dedalus identifies then one or more local partners that are trained and accompanied in the technology transfer project, so that the reform or improvement projects of Local or National Healthcare Systems can lead to a better healthcare quality for the citizens as well as to the costs optimization.

Exploitation strategy –Dedalus SpA intends to exploit the HEREiAM results within its reference market, targeted to the decision makers in the social and healthcare domain. The HEREiAM platform, compliant to International standards which are more and more considered as mandatory in the healthcare domain, can be exploited as an extension of the actual infrastructure of the Electronic Healthcare Record. Considering the National market, the HEREiAM platform can be positioned at both the EHR level, which is the Regional level, since it is managed by the Regional Healthcare System, and also at the level of the Local Healthcare Units,

which corresponds to the Electronic Patient Record. A preliminary study is being conducted in order to better understand the different Regional situations concerning the management of the social policies, which are mainly handled by the authorities of a single Municipality. The trial that will be conducted in Sardinia with the Cagliari Municipality will help in better understanding the opportunities at this level.

3.2.3   REMEDUS

Profile – Remedus is the Belgian specialist in hospitalization at home. Since the foundation in 2002, Remedus delivers home care services for patients with chronic and rare diseases based on an approach that combines logistics, education and communication. This successful approach and the team of highly qualified and experienced educational nurses makes Remedus a reliable coordinator of home care pathways and an effective link between primary and secondary health care professionals. Besides accompanying the start of the therapy at home, Remedus continuously guides patients and their carers during their therapy at home in different ways. For this purpose, an e-learning platform, a communication- and monitoring platform and a tablet/smartphone application are developed. As an independent company, Remedus cooperates with all Belgian hospitals and has his action radius in nutrition therapy, infusion therapy, wound therapy, oxygen therapy, coaching patients for adherence and educating patients in the use of auto-injectors. Since 2012, Remedus is involved in a several studies on the follow up of patients with chronic diseases, often elderly patients, at home.

Exploitation strategy – Remedus aims to broaden its current home care service with other home services from potential partners to their clients. The goal to not only support our clients by offering quality health care but also other means to keep clients at home as long as possible. Remedus' current target population of chronic (elderly) patients will be able to benefit from this project. For Remedus the HEREiAM project results aim to be an addition to its current offered health services. This market will be reached in the same way the current Remedus service model is disseminated. Typically by reaching care providers and explaining the additional services and also by creating buy in of key opinion leaders (care providers, hospitals,...). Positive results from a trial run with a selected target group will lead to validation and integration of the new services.

3.2.4   TNI

Profile – Teamnet (TNI) is among the few private Romanian companies which were involved in the complex research within the FP6 & FP7 of the European Commission. Teamnet provides complex integrated solutions which are fully customizable depending on the customer requirements. The range of solutions provided covers a large number of activities which allow our customers and partners to meet their business objectives. The experience gained in complex integration projects helped us diversify our range of services and know-how in the following verticals: Environment, Administration, Transport, e-Government & e-Health, Agriculture, Cadastre, Utilities, Oil & Gas and Banking. Our development team has implemented projects using Agile methodologies and has a focus on enterprise-grade custom applications developed using the latest technologies. TNI is currently involved in several FP7 and CIP projects (i.e AMITRAN, SmartCEM, COOPERS, MEGAROB, E+, AbleToInclude). TNI is also involved in several AAL funded projects MobileSage, StayActive, Fit4Work.

In HEREiAM project, TNI will the WP leader of WP3 - System integration and verification and it will also be contributing to tasks involving specification of the systems, definition of utilities for stakeholders, interoperable system development, benchmarking analysis and evaluation with a special responsibility and competence in system integration, testing and management of technical development in the project.

Exploitation strategy - The competitive landscape today is as fierce as ever. Companies find it increasingly difficult to meet their growth targets and must look for new solutions that can bring them additional revenue streams. For our company R&D is a source of competitive advantage. It helps our company to develop innovative products and new technologies that sustain innovative business models. It also leads to operational improvements and increases in productivity. Participating in HEREiAM project we integrate R&D area with the functional areas managers' agenda assuring a direct link to the business and corporate strategy. As a part of the company strategy the R&D has an important role in the company expansion plan. In the last three year we succeed to apply to more than 15 R&D projects using different funds. Until now we have signed more than 7 contracts for R&D projects with partners all over the Europe.

The project will be used as a reference in our company presentation during meetings with other companies, government institutions, medical institutions, media and other R&D projects e.g. Participation on workshops and conferences. Furthermore, our company is very active in organising and sponsoring ITC workshops and conferences in Romania and in the SEE countries. Using our local offices from Belgium, Turkey, Republic of Moldova and Republic of Serbia our company will disseminate information about the project. Last but not least, the project will be published in the companies' website, putting all the relevant content generated throughout the project in order to engage partners and other companies both at national and international levels. http://www.teamnet.ro/en/teamnet-group/research-development/

3.2.5 KRIT

Profile - Kritayuga is a Belgian Expert Centre for building and creating sustainable growth platforms for service oriented initiatives within existing major companies as well as within SME's and other social or governmental organizations. It has experience from 2002 onwards to present time in this field. Besides these activities Kritayuga participated as an external dissemination and exploitation expert within the "ambient assisted living" Companionable project, as well within the Flemisch AAL knowledge center (INHAM).

Kritayuga works in very close collaboration with Snauwaert-Maes & co leading a co-creative cooperation with several stakeholders (social housing, local government, local merchants, elderly care houses, …) active in the sector of elderly care and well being.

Exploitation strategy – Generally, Kritayuga and Snauwaert-Maes & co are interested in gaining in-depth expertise about business modeling and venture creation in social economy. The outcomes of the HEREiAM project will be exploited through effective social venture creation within the time2care and KEA partner communities. www.time2care.be   www.keaproject.be

3.2.6 SKYLOGIC

Profile – Skylogic S.p.A (Eutelsat Group) is the leading European provider of broadband satellite communication services for businesses, public administrations and end users. Skylogic's headquarters are located in Turin with commercial subsidiaries in various European countries, including Germany, the UK, France, Spain, Greece and Poland, as well as in Turkey. Skylogic is part of the Eutelsat Group, Europe's leading satellite operator with capacity on 37 satellites covering over 150 countries. Skylogic's satellite networks are peered to multiple Tier 1 service providers via fibre optic links to deliver connectivity throughout Europe, the Mediterranean basin, the Middle East, North Africa and the Americas. Skylogic's two teleports (SkyPark in Turin and Skylogic Mediterraneo near Cagliari in Sardinia) are among the largest satellite service platforms in the world. Both are supported by specialist teams who guarantee efficient bandwidth assignment, total network control, and excellent service quality around the clock.

In HEREiAM SKYLOGIC is responsible for the activity on the connectivity backbone and has a central role in the pilots.

Exploitation strategy - The target market of the Eutelsat Group, including that of Skylogic SpA which is wholly-owned by Eutelsat S.A., consists primarily of:

- editors of multimedia content with regard to audiovisual broadcasting DTH (Direct to Home);

- telecom operators that complement the geographical coverage provided through their own terrestrial networks by satellite means, enabling ubiquitous provisioning of broadband services ranging from Internet Access to Virtual Private Networks, trunking, backhauling and others;

 - and to a lesser extent system integrators, public administrations and corporate customers with regard to the two-way satellite transmission, both analogue and digital.

The commercial model toward the retail market is therefore mainly indirect, meaning Eutelsat's direct Customers integrate the services operated by the Group by their own Added Value Contents, Services and/or Equipment to build the commercial packages offered and provided to end users/subscribers; in particular this model always applies in the case of consumer market, consisting of more than 200 million homes in 150 countries in Europe, Asia, Africa and the Americas which enjoy services fully or partly operated by Eutelsat.

The technology developed through the present project covers a double interest: it represents a further enabler of value-added services to be channeled to market through the indirect sales network mentioned above, and at the same time it is perfectly consistent with the process of convergence of video services (SmartTV and similar) that currently mainstreams the technological evolution of the industry.

3.2.7   SMART HOMES

Profile – Smart Homes is the Dutch expert centre on home automation, smart living and e-health. It was founded in 1998 and acts as an independent and intermediary organisation in the complex market of technology & ageing, bridging the worlds of technology development and those of end-users and service/care providers. Smart Homes participates and participated in many projects on ambient assisted living, like, Mobiserv, CompanionAble, CommonWell, Independent, and Caalyx-MV, Cardiac, Leage, Netcarity, and Soprano. Most of these projects deal with context aware software based services, built around many different sensors, actuators including robots, and smart technology. Smart Homes has strong dissemination activities through its own national conferences, its annual trade fair on smart living, its Smart Homes Magazine, newsletter and website.

In HEREiAM, Smart Homes is involved in user-centred design, concept development, system integration, prototype testing, pilot testing, evaluation, exploitation and dissemination activities. The test and demonstration building of Smart Homes – the so-called Smartest Homes of the Netherlands – will be used in the HEREiAM project for integration, testing and validation purposes.

Exploitation strategy – Generally, Smart Homes is interesting in gaining lots of broad and in-depth expertise about smart technologies. The outcomes of these projects are exploited through its partner community (150 Dutch organisations), conferences and publications, educational courses, and consultancy work.

4   Dissemination plan

The dissemination plan aims at ensuring the visibility and awareness of the results outside the consortium border, i.e. in the targeted stakeholders and user communities, in the scientific community, in academic institutions, in organizations or in companies. The main goal is to establish a solid dissemination of the HEREiAM results, in order to guarantee long-term sustainability beyond the end of the project funding.

4.1   Target Audience

Major target audiences for dissemination:

- Individual senior end-users and targeted user communities (caregivers, families, elderly associations, senior centres)
- Public administrations and municipal authorities
- Local healthcare Units involved not only in health processes but also in care and social ones;
- Healthcare industrial stakeholders and care organizations
- Local stores
- Information technology providers
- Stakeholders active in the ambient assisted living sector (home security systems companies, housing cooperatives, insurance companies)
- Industry and SMEs, including early adopters, vendors and decision makers
- Research and scientific communities

4.2   Sectors

Potential sectors that could benefit from HEREiAM initiatives are listed in Table 1:

Table 1: Major sectors for dissemination

Sector	Description
Healthcare provisioning industry	Companies and entities that provide medical supplies and health care services (such as hospitals, rehabilitation centers, home healthcare providers, nursing homes) could benefit from in-home telemonitoring of patients with chronic, long-term or short-term conditions.
Health Care Solutions industry	Companies and entities that provide care and comfort services (such as drug home delivery, personalized health recording, social volunteer match making, preventive care coaching, …).
Public administration	Municipalities and local authorities responsible for providing social care services in their community, could prevent social isolation and loneliness among older people by applying for the HEREiAM social networking and agenda services.
Home security industry	Companies that manufacture and sell security products (alarm systems, smoke/heat/gas detectors, fall detectors) could be interested in integrating their systems with the HEREiAM platform.
Building industry	Companies that focus on age-proof housing.
Housing associations	Associations that provide a combination of accommodation and associated service options for frail older people and people with dementia.
Elderly associations	Associations that organize social activities for older people and promote their interests, helping them continue living in their communities.
Shopping industry	Local stores interested in selling their products online could benefit from

	HEREiAM platform to access a market segment of elderly people that traditionally tends to suffer from digital divide and is inclined to avoid e-commerce activities, due to a lack of confidence in using new technologies.

4.3 Dissemination means and channels

The following dissemination means and channels will be used for spreading the project results:

- Design of a distinctive logo for the project
- Creation of a dedicated project's website
- Preparation and distribution of dissemination material, leaflets and flyers, containing a clear and simple description of project aims and results achieved
- Publications in international journals
- Publications in international conferences
- Organization of Workshops focusing on the main research topics of HEREiAM project
- Contact with TV, end-users, companies potentially interested to the technologies developed during the project
- Contacts with consortia acting along similar or complementary directions, to share coordinated dissemination initiatives

4.3.1 The HEREiAM logo

The building of the project's image started with the design of a distinctive logo, see Figure 1. This logo will be in-cluded in the design and production of the HEREiAM website, .ppt presentations, leaflets and posters, as well as in all the public and private communication material produced by the Consortium.

Figure 1: HEREiAM logo

4.3.2 Public website

The public website is intended to provide an overview of the HEREiAM project to the general public. It is a part of the WP5 work-package on project dissemination and is the main media for the dissemination of HEREiAM public results. The Consortium aims at becoming a reference point for the AAL community. Towards this goal, the public website will become a reference point for discussions and the possibility for interested users to receive updated information about project results, events related to the projects and new versions of software tools and services that will be implemented. This form of distribution will increase the visibility of the project results and will allow creating links among the project partners and the ambient assisted living community working in the areas of interest of the project.

Public documents, made available through the project public website, can be utilized by third parties to

enhance their knowledge but also to give these third parties the possibility to provide feedback and thus to further improve the results of the project. More specifically, information regarding the project's objectives and the public deliverables as well as the papers from conference proceedings, presented by project's partners will be included. All participants agreed on setting up a web hosting solution both for dissemination and for internal communication to the consortium. The URL of the public website is http://www.hereiamproject.org. It has been on-line since November 6th 2013 with preliminary contents of the project prepared by UNICA. A screenshot of the home page of the public website is shown in Figure 2.

The website has the following main sections:

- *Home:* the home page of the website shortly introduces the HEREiAM project.
- *About:* This page briefly describes the main goals and foreseen activities of the HEREiAM project.
- *Partners:* This webpage section presents a brief description of the project partners, their logos and the links to the respective websites.
- *Public Documents:* Public deliverables released during the project will be listed in this page along with press releases and links to HEREiAM-related articles appearing in third party publications.
- *Files:* This website page represents a private section that contains internal documentation, reports, calendars, etc. only accessible to members of the HEREiAM project consortium.
- *Publications:* This section lists research papers, related to the project, published by partners, with direct links to the documents or to where it is possible to download them.
- *Links:* Some relevant links about the scientific domains covered in the project are listed in this page. A list of conferences on topics related to the project and other projects whose goals or activities are linked to HEREiAM are also shown in this section.
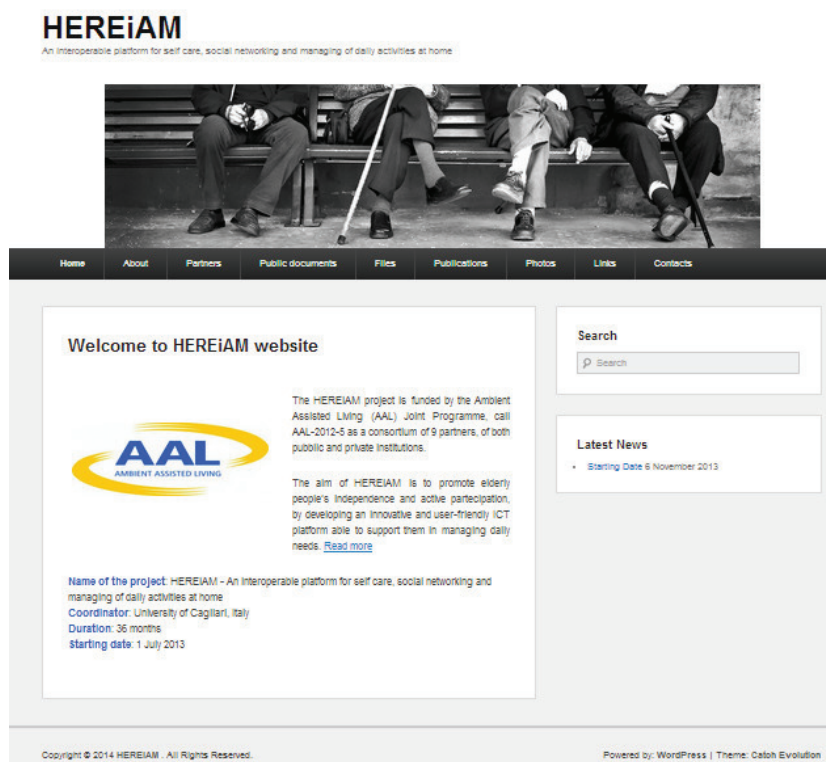

Figure 2: A screenshot of the home page of the public website

4.3.3 International publications

Publications are important tools for disseminating the research outcomes of the project in particular among the scientific community. Project results and innovations will be submitted for publication in scientific journals, conferences, and workshops relevant to the topic of the research activity carried out during the project. The Table 2 below includes a first identification of potential journals and conferences as relevant targets for HEREiAM results.

Table 2: Potential journals and conference

Peer-reviewed journals	Audience
Journal of Telemedicine and Telecare	Academic/Scientific
Computer Standards & Interfaces	Academic/Scientific
Journal of Computer Assisted Learning	Academic/Scientific
Telemed and e-Health	Academic/Scientific
International Journal of Computers and Technology	Academic/Scientific
International Journal of Medical Informatics	Academic/Scientific
IEEE Transactions on Human-Machine Systems	Academic/Scientific

Suggested events & conferences for outreach	Audience
Technologies for E-Learning and Digital Entertainment	Academic/Scientific
Annual Conference of the Ambient Assisted Living Joint Programme (AAL Forum)	Academic/Scientific
IEEE International Conference on Information Technology and Applications in Biomedicine	Academic/Scientific
IEEE International Conference on Consumer Electronics	Academic/Scientific
IEEE International Symposium on Medical Information and Communication Technology	Academic/Scientific
IEEE International Conference on Healthcare	Academic/Scientific
International Conference on Ambient Computing, Applications, Services and Technologies	Academic/Scientific
International Conference on e-Health and TeleMedicine (ICEHTM)	Academic/Scientific
International Conference on Computers Helping People with Special Needs	Academic/Scientific
Informatics International Work-conference on Ambient Assisted Living (IWAAL)	Academic/Scientific
eHealth Week	Academic/Scientific
Med-e-Tel International eHealth, Telemedicine and Health ICT Forum	Academic/Scientific

In Table 3 below publications related to the first year of activities are listed:

Table 3: Dissemination acitivities related to the first year

Dissemination activities		
Project participant responsible	**Date**	**Activity, medium and reference** *(press, event, newsletter, webpage, etc.)*
SMART HOMES (NL)	01/12/2013	Information about the HEREiAM project on the Smart Homes website. www.smart-homes.nl (Dutch – English)
SMART HOMES (NL)	15/03/2014	Article in Smart Homes Magazine about Quality of Life and Internet Access in rural areas (see ATTACHMENT 2).
KempenLIFE (NL)	01/04/2014	Information about the HEREiAM project on the KempenLIFE website. www.kempenlife.nl
DEDALUS (IT)	2-4/04/2014	Poster Presentation at ISMICT 2014 (see ATTACHMENT 1) http://www.poloprato.unifi.it/it/ricerca/ismict2014/home.html
TeamNet (TNI)	08/04/2014	Internal organization conference in which we presented the current R&D projects that Teamnet is involved in, including the HEREiAm project.

REMEDUS (BE)	01/06/2014	Information about the HEREiAM project on the Remedus website. www.remedus.be
UNICA (IT)	25/06/2014	Poster Presentation at the 4th National Congress of Italian Group of Bioengineering - GNB 2014 (see ATTACHMENT 3).
SMART HOMES (NL)	10/09/2014	Abstract accepted for a presentation at the AAL Forum in Bucharest (Track C2 - Evaluation of AAL markets).

4.3.4 Seminar/Talks in external organizations

Seminars/talks in external organizations		
Project participant responsible	**Date**	**Seminar/Talk**
REMEDUS (BE)	23/9/2013	Meeting with partners of the IWT project 'Omkaderd wonen' about the concept of the project HEREiAM and the needs to realize a successful solution.
SMART HOMES (NL)	01/12/2013	Meeting with partners of the Digitale Z@ligheden project in the Netherlands about Quality of Life and Internet Access in rural areas.
SMART HOMES (NL)	15/03/2014	Presentation at the Digitale Z@ligheden Kickoff Meeting about the HEREiAM study on service platforms.
SMART HOMES (NL)	01/04/2014	Presentation for a group of 40 representatives from Buurtzorg Nederland about the HEREiAM study on service platforms and possibilities of smart technology.

5 Standardization plan

Standardization is an important means for achieving openness of the project results, enabling wide adaption of the results in industry, ensuring a long-term impact, and justifying the public funding of the project. As reported in D1.1, standardization has been addressed at different levels.

5.1 Standardization at HEREiAM Home Based Hardware level

At the level of Home Based Hardware, great attention has been paid to guarantee that third parties will be able to easily develop new services for elderlies. This means that the services will be provided to the final users as Android apps, since this approach has been already investigated by all the companies that are interested in providing their applications also on mobile devices.

5.2 Standardization at HEREiAM Home Based Software level

At the level of Home Based Software, as assessed in the users' requirement specifications, standardization of the users' interface (the GUI) is desirable to perceive the HiA system as a unique system and not a collection of different application, which is a weakness of similar commercial systems. The elements characterizing the GUI are now under refinement, since the design of the user interface has been conducted as an iterative process, involving also experts and final users in the evaluation of the artefact produced.

5.3 Standardization at HEREiAM Service Level Platform

Concerning the Service Level Platform (SLP), great attention to standards has been paid in the definizion of

specifications, as reported in D1.1.

The approach adopted has been a totally SOA based one, with a clear definition of the services necessary to manage the integration among different stakeholders, able to guarantee a truly lightweight integration among the different systems involved. The interoperability model adopted is based on a documental approach: data stored are organised in documents, with a structure based, whenever possible, on standards, de iure or de facto, in the considered domain.

To design and develop the services exposed by the SLP, and to define the role played by the different actors in the interoperability scenario, the following standards have been taken into account:

1) HL7 Clinical Document Architecture R2 (CDA2): it is a XML-based markup standard intended to specify the encoding, structure and semantics of clinical documents for exchange. CDA is an ANSI-certified standard from Health Level Seven (HL7.org). In particular, in the context of HiA, documents related to the health app, i.e. documents containing measurements of physiological parameters, will be structured according with Personal Healthcare Monitoring Report (PHMR) CDA2 definition.
2) IHE: Integrating the Healthcare Enterprises is an initiative which aims at fostering interoperability among health care IT systems. IHE integration profiles describe a clinical information workflow scenario and document how to use established standards, such as HL7 or DICOM, to accomplish it. In particular, the profile adopted in the HiA scenario to support the documental approach is XDS-b.
3) Healthcare Services Specification Project (HSSP): it is a standards development effort to create health industry service oriented architecture (SOA) standards supportive of the health care market sector. HSSP is a jointly sponsored activity operating within the Health Level Seven (HL7) and the Object Management Group (OMG) standards group. In the context of HiA, standards that are typical of the healthcare domain will be generalised to support also the social and care services exposed by the platform. In particular the RLUS and ServD specification will be adopted to support SLP services.
4) OAuth 2.0: The HEREiAM platform will comply with the OAuth 2.0 specification (RFC6749 and RFC6750) and with OpenID Connect Basic Client Profile 1.0, to support authentication, authorization and single sign on of users and applications.

Technical details of the services and their compliance with the standards have been provided in deliverable D1.1., and will be extended in deliverable D2.3.

ATTACHMENT 1

An interoperable platform for self care, social networking and managing of daily activities

The aim of HEREiAM is to help older adults to stay longer and independent at home by providing an innovative user-friendly technology, accessible by means of TV set, able to support them during daily life activities.

HEREiAM will design, develop and evaluate an integrated, smart platform which will allow **elders to have access to a set of services directly from their TV set** at home. HEREiAM system is targeted to self-sufficient elderly people who want to be independent as long as possible in the management of personal and social tasks.

The system will provide them different kind of services, covering different aspects of their lives: **healthcare services** (e.g. Remote monitoring,...), **security services** (e.g. personal alarm system,...), **welfare services** (e.g. Communication services,...) and **comfort services** (e.g. Shopping, games,...).

HEREiAM platform has been designed as a **flexible system**, defining an easy interface for external service providers who want to expose their services through the HEREiAM platform.
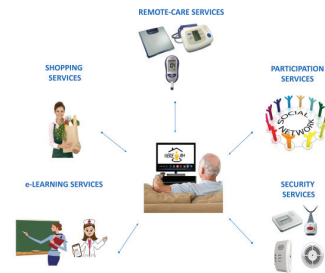
The Consortium includes partners from Italy, Belgium and The Netherlands, and the user requirements collection phase has been carried out in all the involved countries, using interviews and questionnaires. Existing platforms and design alternatives have been compared to achieve the optimal solution for implementation, in order to meet the requirements.
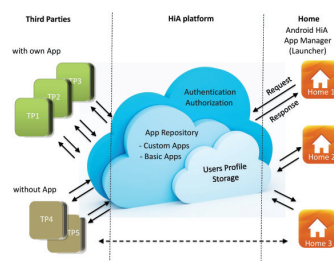

The HEREiAM platform, based on a Service Oriented Architecture, is composed by three main components: **Home based Hardware** (HBH), **Home based Software** (HBS) and **Service Level Platform** (SLP).

› **HBH** will be a **digital TV set-top-box** (STB) based on **Android platform**, able to interact with medical device (such as a personal body scale, sphygmomanometer, blood glucometer), sensors (barcode reader, fall detectors, alarms), input devices (wireless keyboard, remote controller).

› **HBS** will provide to users **easy access to remote services** using charming interfaces realised as Android apps, maintaining the same look & feel to avoid troublesome passages among apps.

› **SLP** will provide to third parties a **set of services** to let them expose their Apps on the users' TV, and will provide also its own custom apps. Basic services are going to be developed according to HSSP (Healthcare Service Specification Program) standard, extended to a non-clinical domain.

The box on the left represents the **SLP platform**, where services are published in a mediated manner by an enterprise service bus (ESB). Other services published in the "cloud" (e.g. Agenda, Shopping, ...) will have a very lightweight mediation by the ESB that could be a sort of pass through configuration.

The box on the right represents the **HBS platform**. The invocation of services published by the HEREiAM service level platform, will be wrapped by an Android Service Proxy application. It will expose a set of APIs for accessing to functionality implemented by a set of services published by the server side.
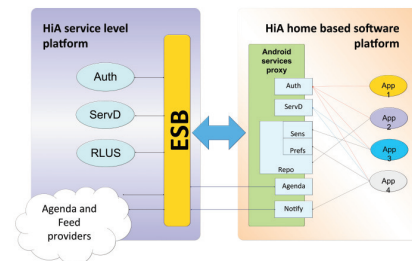
The Consortium will cover project activities as follows:

› Technical partners: Department of Electrical and Electronic Engineering of University of Cagliari (Italy), the coordinator, with the help of the subcontractor TechOnYou (Italy), Dedalus (Italy) and Teamnet (Romania) develop the three components of the platform, while SKYLOGIC (Italy) gives the technical resources for reaching all the European population and paves the way for an extension of the results to other technologies

› Remedus (Belgium), Stichting Smart Homes (The Netherlands) and Kritayuga (Belgium) bridge technology and marketing part of the project with user-needs

› Municipality of Cagliari (Italy), Remedus and KempenLIFE (The Netherlands) will test the solution in three different countries.

And with the endorsement of

Comune di Cagliari

ATTACHMENT 2

'T KEMPEN LEVEN IS EEN FANTASTISCHE ERVARING

DE DORPEN IN DE BRABANTSE KEMPEN ADEMEN EEN SFEER UIT VAN GEMOEDELIJKHEID. RUIMTE, RUST EN GROEN MAKEN HET AANTREKKELIJK LEVEN, WONEN EN WERKEN. TOCH TREKKEN VEEL JONGE GEZINNEN, EN BEDRIJVEN WEG OMDAT DE KEMPEN – EN IN HET BIJZONDER DE BUITENGEBIEDEN – TEKORTSCHIET OP HET VLAK VAN INFRASTRUCTUUR EN VOORZIENINGEN DIE ONMISBAAR ZIJN VOOR EEN MODERNE EN FLEXIBELE LEVENSSTIJL.

Ook minder mobiele ouderen zijn genoodzaakt te verhuizen wanneer ze geen toegang hebben tot zorg en welzijn, of wanneer ze voor dagelijkse activiteiten steeds het dorp uit moeten. Als kenniscentrum op het gebied van domotica en slim wonen speelt Smart Homes in op deze behoefte zodat iedereen op een slimme en aantrekkelijke manier gebruik kan maken van hedendaagse technologie en diensten.

BREEDBAND-INFRASTRUCTUUR
Het platteland wordt gekenmerkt door vergrijzing en ontgroening. Er wordt weinig geïnvesteerd in voorzieningen als winkels, scholen en openbaar vervoer. Ook mobiele netwerken en internet-infrastructuur zijn vaak ondermaats. Hierdoor is het weinig interessant voor mensen en bedrijven om zich op het platteland te vestigen. Binnen de projecten Digitale Z@ligheden (nationaal) en HEREiAM (Europees) wordt onderzocht wat de behoeften van de buitengebieden zijn, en hoe de leefbaarheid verhoogd kan worden. Dankzij een goede breedband-infrastructuur zou iedereen gebruik kunnen maken van een veelheid aan ICT-diensten. Het is immers niet de beschikbaarheid van voorzieningen die de kwaliteit van leven bepaalt, wel de toegankelijkheid. Smart Homes werkt samen met de nieuwe coöperatie KempenLIFE om nieuwe diensten te ontwikkelen, uit te testen en te onderhouden waardoor de Kempen een trekpleister wordt voor jong en oud, maar ook voor innovatieve bedrijven en kleinschalige recreatie. Denk bijvoorbeeld aan het nieuwe werken in het groen, interactieve natuureducatie, monitoren van gewassen, beveiliging van mens en dier, zorg-op-afstand en innovatie op het vlak van groene energie. Nieuwe kansen voor welzijn, werkgelegenheid en cohesie zorgen voor een gemengde bevolking; noodzakelijk voor een leefbaar buitengebied!

DIGITALE Z@LIGHEDEN
In het project 'Digitale Zaligheden' wordt gestreefd naar breedband-internet-voorziening op het platteland. Via inzet van vrijwilligers en bijeenkomsten in de verschillende Kempen-gemeenten worden de inwoners geïnformeerd over de mogelijkheden van glasvezel en van het ICT community platform MiBida dat uitgerold zal worden. MiBida is een touchscreen dat internetdiensten

zoals beeldbellen en informatie opzoeken over lokale activiteiten mogelijk maakt, zonder dat u moet weten hoe een computer werkt. Via het scherm blijft u op de hoogte van wat er in het dorp en de wereld rondom u gebeurt, en staat u in contact met buren, familie en vrienden. Samen met de burgers zal de projectgroep nieuwe diensten bedenken, ontwikkelen en implementeren, zodat in de afzonderlijke kernen, maar ook bovenlokaal, nieuwe initiatieven ontstaan voor welzijn, werkgelegenheid en cohesie.

HEREIAM

Binnen het Europese onderzoeksproject 'HEREiAM' werken partijen uit Nederland, België, Italië en Roemenië samen aan een dienstenplatform voor ouderen. Via de TV – een vertrouwd medium – zullen diensten aangeboden worden om de zelfredzaamheid van ouderen te verbeteren. Om ook ouderen in afgelegen gebieden te bereiken, wordt gekozen voor internet via satelliet. Samen met verschillende ouderen uit het Kempens buitengebied werden onlangs een aantal dienstenplatformen voor zorg en welzijn geëvalueerd. Mannen en vrouwen tussen 60 en 85 jaar werden uitgenodigd in de Slimste Woning in Eindhoven om aan de slag te gaan met digitale diensten en om te brainstormen over de mogelijkheden en toegevoegde waarde.

"Naarmate je een aantal platformen hebt geprobeerd, gaat het steeds beter en wordt het ook interessanter."

Uit de observaties en de gesprekken achteraf kunnen we concluderen dat de meerderheid van de ouderen enthousiast was over de mogelijkheden van een dergelijk computersysteem. Een enkeling gaf aan dat de technologie te moeilijk was voor ouderen met de minste computer-ervaring, maar de meesten waren verbaasd over hoe snel ze de platformen onder de knie hadden. Wel werden grote usability-verschillen gerapporteerd tussen de verschillende systemen.

De ouderen waren overtuigd dat het belangrijk is om leuke diensten aan te bieden zodat mensen al spelenderwijs het platform leren kennen. Wanneer ze vervolgens – in een later stadium – zorg nodig hebben, dan zijn ze al gewend aan de technologie. ◆

De coöperatie KempenLIFE streeft naar een buitengebied met een prettig en gezond woon-, werk- en leefklimaat. De Kempen is altijd aantrekkelijk geweest met voldoende groen, cultuur en sportvoorzieningen, maar door demografische ontwikkelingen zoals vergrijzing, ontgroening en arbeidsmigratie verandert de leefbaarheid in dorpen en wijken.

KempenLIFE staat voor: 't Kempen Leven Is een Fantastische Ervaring. In tegenstelling tot het drukke leven in de stad, biedt het buitengebied een rustige, gemoedelijke sfeer, veel groen, rust en ruimte. Het leven is goed in het Brabantse land, en dat willen we ook graag zo houden! Daarom zal de coöperatie samen met leefbaarheidgroepen en dorpsraden uit de verschillende Kempen-gemeenten nieuwe diensten aanbieden die de kwaliteit van leven in het buitengebied versterken.

ATTACHMENT 3

Towards an integrated TV-based system for active ageing and tele-care

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Abstract

Active ageing and independent living are primary goals of modern society, experiencing a progressive increase of the elderly population. The societal challenges of promoting inclusion strategies along with home-care services supporting independence and de-hospitalization strike against the sustainability of policies tackling these aspects in traditional ways. This work presents the first steps of an AAL Joint Programme project, HEREiAM, aimed at developing an interactive TV-based technological platform, designed around the expected users and delivering both healthcare and AAL services directly in the user's home. Mainly thought to break down the digital divide for the elderly, it will take advantage of this preliminary profiling and usability study to define the specifications able to create a really usable system embodying the required functionalities.

Materials and methods

Since many elderly suffer from digital divide, it is of utmost importance to profile the expected users based on their ICT experience, evaluating their reactions to a variety of possible services to be implemented in the HEREiAM platform and to the different ICT platforms providing them. To this aim, two different existing platforms have been used: a TV-based system (KeepInTouch) and a Tablet-based one (Eldy).

In total, 29 expected users were recruited by convenience sampling from two local elderly associations in Cagliari, Italy. The group is composed of 14 males and 15 females, with average age of 70.1 ± 5.8. The inclusion criteria were: self-sufficiency, aged 60 – 90 years, autonomous living, low computer literacy.

KeepInTouch (KIT)

KIT is a tele-home-care platform based on the DVB-T technology, developed by University of Cagliari. Through KIT, patients with diabetes and cardiovascular diseases can monitor their blood pressure, cardiac frequency, weight and glycaemia from the comfort of their own home, sending such data to the specialist daily.
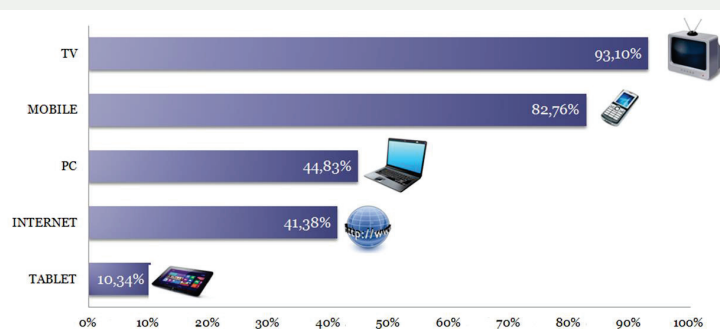
GET ON THE BODY SCALE or...

TechOnYou
personalized electronics

GIANMARCO ANGIUS
WEIGHT: 90.1 kg
PRESSURE: 131/72 (62 bpm)
LAST GLYCEMIA: 72 mg/dL
Send Data
Exit

Expected users profile

Analyzing the answers given in the user profile questionnaire, it is possible to characterize the target users.

TV 93,10%
MOBILE 82,76%
PC 44,83%
INTERNET 41,38%
TABLET 10,34%

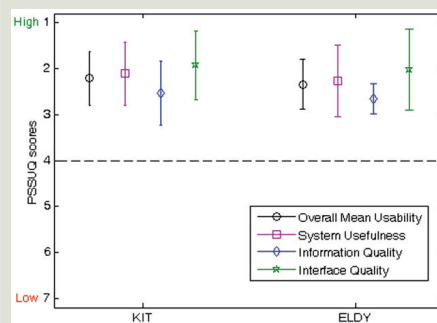| Question: How often do you perform the following activities?	Never	Every year	Monthly	Every week	Daily
- Gone out (e.g., shopping, bus trip, restaurant) with relative(s)/friend(s)	6,90%	10,34%	20,69%	17,24%	44,83%
- Organizing social gathering/meals	10,34%	37,93%	24,14%	20,69%	6,9%
- Physical activity (e.g., walking, sports, gym)	17,24%	3,45%	6,90%	27,59%	44,83%
- Play card games	67,86%	14,29%	7,14%	3,57%	7,14%
- Go to cultural events (e.g., museums, concerts…)	14,81%	33,33%	11,11%	22,22%	0%
- Travel	13,79%	65,52%	17,24%	0%	3,45%
- Play board games	86,21%	10,34%	0%	3,45%	0%
- Craftwork	17,24%	17,24%	13,79%	13,79%	37,93%
- Play brain-teasers/puzzles	68,97%	6,9%	0%	13,79%	10,34%
- Play computer games	72,41%	0%	3,45%	6,9%	17,24%

Eldy

ELDY   The Square
Mail   Chat   Skype
Poems   eldy.eu   Blog
News   Useful pages   Weather

Eldy is a free software designed by an Italian nonprofit organization to help the elderly using computers and Internet. It can be installed on tablets and presents a simplified GUI with nine large buttons, making it easy to understand and operate.

Usability test results

The majority of the users completed the assigned tasks in a fairly quick and effective way. The users were positive about the user-friendliness of the systems and the services offered by them. The interface of Eldy was perceived as really intuitive and clear, whereas the interface of KIT less.

PSSUQ scores

- Overall Mean Usability
- System Usefulness
- Information Quality
- Interface Quality

KIT   ELDY

Acknowledgements