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

D5.4: 2nd Report on Dissemination, Exploitation and Standardization

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Project co-funded by the AAL Joint Programme Call AAL-2012-5		
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

This deliverable reports on the progress achieved and the key outcomes of the HEREiAM Consortium related to the workpackage WP5 – Dissemination, Exploitation, Standardization, during the second year of the project. 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 document is organized as follows. Chapter 2 presents the strategic approach HEREiAM will take towards exploitation. Chapter 3 reports the dissemination activities which were performed during the second year of the project. Finally, Chapter 4 describes the standardization activities related to technical development.

2 Exploitation activities

During the second year of the project, the HEREiAM Consortium was focused on the definition of a preliminary business plan, fully described in deliverable D5.3a, which will be verified and improved during the trial phase in Belgium, Italy and The Netherland, together with potential customers that are being involved in the three countries.

The following section reports a brief overview of the main concept at the basis of the HEREiAM business model.

2.1 HEREiAM Business Model

The purpose of the HEREiAM project is to foster elderly people's independence and active participation, thereby making everyday tasks easier to execute. The solution developed within the project consists of an open and integrated platform enabling older adults to have access to a number of external services and information directly from their TV set at home.

The HEREiAM solution will be delivered through a business model which aims to be sufficiently appealing to potential regional organizations interested in providing a set of integrated services to individuals that need assistance with daily living tasks. To commercialize the outcomes of the HEREiAM project, the Consortium is taking into consideration the possibility to create a company, the HiACo, funded and shared by the consortium partners interested in business development.

The initial target end-user for the HEREiAM technology and services is the elderly citizen who is not capable to stay independent at home without good coordinated services and for whom family or residential care is not immediately available or is not the preferred choice, because the older person doesn't want to let go his/her trusted environment. There may be other target end-users who are still able to stay independent at home without extra services and which may (under the influence of the family) proactively signs up on the platform to get to know its benefits, but, at least for the first marketing phase, the HEREiAM business plan is not focused on them.

The real customers of the HEREiAM company (HiACo) is not the elderly end-user but a set of HEREiAM Total Solution Providers (TSP) that use the HEREiAM technology to organize an ecosystem of flexible service providers and service buyers (elderly and their families). TSPs are local government entities (municipality, region…) or private organizations that work in collaboration with local authorities. The HiACo provides the technology to the TSP customer and facilitates the establishment and development of the ecosystem by offering the necessary knowledge and experience how to attract service providers as well as how to access service buyers.

Prospects for the HiACo are all organizations that in a given region will provide a total solution as an alternative to an elderly home or that will offer a service to allow a quick discharge from a hospital or rehabilitation center. The attractiveness of the Total Service using the HEREiAM technology (HiA Total Service) will increase when the organization of the different types of services is well integrated and is of a similar easiness as in residential care or in an elderly home.

These regionally organised TSP's will sell their HiA Total Service to the elderly citizen and his/her family. They will develop partnerships with both health care and non-health care service providers to create an integrated offer of services on the HEREiAM platform.

Since the older adult's acceptance of technology is not just about technology itself, the TSP has to take into account a number of psychological and contextual (personal, social and physical) factors when introducing or implementing technology. The role of the social and care network of the older end-user is very important in the acceptance, the use and the added value of the HEREiAM solution and technology.

The expected HEREiAM business model has a B2B2C approach as a condition to reach enough scale and to organize an ecosystem that meets the various and often complex needs of the older person who is dependent on care (see Figure 1).

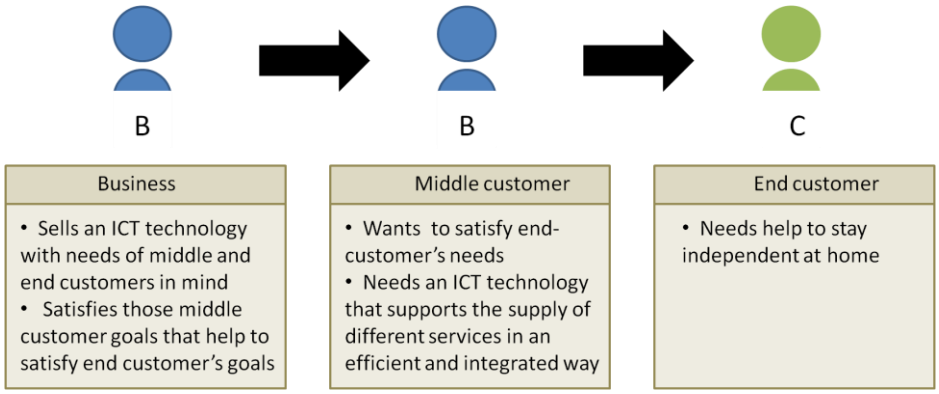

Figure 1: B2B2C approach

The HEREiAM ecosystem consists of the HiACo that develops and markets the HEREiAM technology platform to a set of HEREiAM Total Solution Providers (TSP). These TSPs will work with local authorities and will contract local service providers to deliver their HEREiAM solution in the region to their end-customers. It is envisaged that some services will be offered free of charge, whereas other services will be paid for.

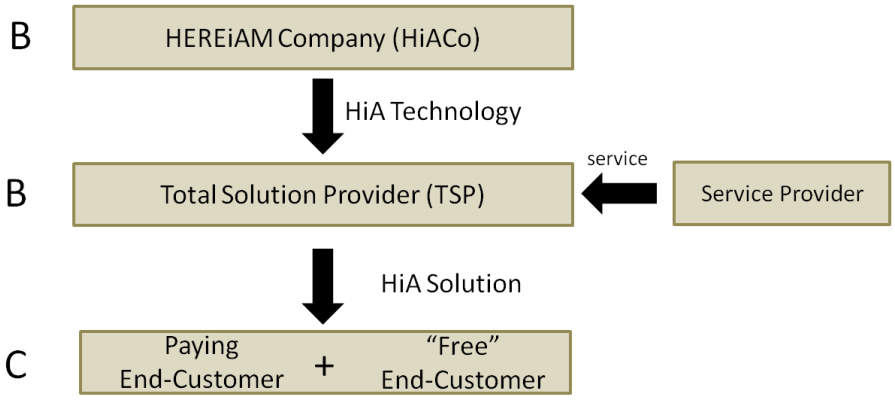

Figure 2: HEREiAM Ecosystem

The intrinsic value of the HEREiAM technology is only manifested to the final end-users by the services, which are offered using the HEREiAM technology, and especially by the high degree of integration in which the services are provided. These services should fully meet the individual needs of the user and are by definition locally or regionally organized. Both the quality of the services offered by these local stakeholders, together with the quality of the HEREiAM technology create the real added value and the success of the HEREiAM Solution. The success of HEREiAM total solution depends also on the extent to which the elderly can count on

assistance from his care network, since care can not only be solved in a virtual way and deploying only care professionals the costs for HEREiAM solution would take priceless proportions.

Determinant to the success and also to the willingness to pay for this HiA Total Service, is the extent to which the older citizen and his/her family appreciate the HiA Total Service as a full, safe and quickly available solution to continue to live independently at home, which today is often difficult to achieve through the regular channels of service providers or through the classic internet solutions.

3 Dissemination activities

Dissemination activities carried out during the second year of the project include some improvements of the project website, to increase visibility of the project objectives and advancements, publications in scientific conferences and workshops relevant to the topic of the research activity carried out during the project, and other actions more related to exploitation activities, such as meetings with potential customers and stakeholders.

3.1 Project website updates

Some updates have been made to the project website (www.hereiamproject.org), including the integration of the HEREiAM project Twitter feed into the sidebar to bring more dynamic content into the site, promote our Twitter feed and get new followers. News and events related to the project are posted there. Some new sections have been added to the website, such as Funding, Gallery and Get involved areas. These features and sections allow new potential and current customers to get detailed information about HEREiAM and its services and to apply to participate in the forthcoming project's activities.

A screenshot of the home page of the updated public website is shown in the following:

Figure 3: Updated project website

The website has now the following sections:

- ***Home:*** the home page of the website shortly introduces the HEREiAM project.
- ***The project:*** This page briefly describes the main goals and foreseen activities of the HEREiAM project.

- ***Get involved:*** This section describes how a person, organization or service provider could apply to participate in the project's activities.
- ***Partners:*** This webpage section presents a brief description of the project partners, their logos and the links to the respective websites. Please note that, due to changes in the Belgian and Italian partnership (Kritayuga and Skylogic took the decision to stop their activities in the HEREiAM consortium), the section Partners of the website has been updated.
- ***Funding:*** This section lists the entities that have cofounded the project, the AAL Joint Programme and the National Authorities and R&D programs.
- ***Articles and Posters:*** Public documents 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 and research papers published by partners.
- ***Gallery:*** The Gallery section contains images of different events that have been organized within the project, such as meetings, workshops, fairs.
- ***Intranet:*** This website page represents a private section that contains internal documentation, reports, calendars, etc. only accessible to members of the HEREiAM project consortium.
- ***Online resources:*** 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.
- ***Contacts:*** This section of the website is designed to provide the contact details to receive more information.

3.2 Other dissemination activities

The following Table 1 shows a list of the dissemination activities related to the second year:

Table 1: Dissemination activities related to the second year

Project participant responsible	**Date**	**Activity, medium and reference** *(Press, event, newsletter, webpage, etc.)*
TEAMNET	15/07/2014	Published information about HEREiAM project on company website http://www.teamnet.ro/en/teamnet-group/research-development/hereiam/
UNICA	25/07/2014	ICT & Tech for Biomed in Pula (Italy). Presentation of the HEREiAM project.
TEAMNET	05/08/2014	Presentation of the HEREiAM project on an internal company event.
TEAMNET	10/09/2014	AAL Forum 2014 in Bucharest (Romania). Poster presentation.
SMART HOMES	12/09/2014	AAL Forum 2014 in Bucharest (Romania). During the conference the approach and outcomes of the user-centered-design process within the HEREiAM project are presented.
SMART HOMES	12/09/2014	AAL Forum 2014 in Bucharest (Romania). Publication of the approach and outcomes of the user-centered-design process within the HEREiAM project.
UNICA	18/11/2014	Preliminary results discussed with the local council's Third Age committee and feedback regarding additional service gathered by means of a focus

		group organized with the support of the Municipality of Cagliari.
SMART HOMES	19-20/11/2014	House Automation and Smart Living Fair in Eindhoven (NL). In the Smart Homes boot the HEREiAM project philosophy and status is presented and demonstrated.
SMART HOMES	18-20/03/2015	Fair Zorg & ICT (Care and ICT) in Utrecht (NL). In the Smart Homes boot the HEREiAM project philosophy and status is presented and demonstrated.
REMEDUS	Dec- 2014	Presentation of the HEREiAM project to an independent home nursing company MEDERI
SMART HOMES	20/03/2015	Fair Zorg & ICT in Utrecht (NL). During a presentation about "Care technology accepted?!" the user-centered-design process within the HEREiAM project is presented.
REMEDUS	Feb -2015	Presentation of the HEREiAM project to Zorgbedrijf Antwerpen (care organisation from the City of Antwerp)
REMEDUS	Mar - 2015	Presentation of the HEREiAM project to the ARTEMIS/With-Me consortium
REMEDUS	Apr-2015	Presentation of the HEREiAM project to the Belgian consortium of the ILOZ project (funded by the Flemish government)
REMEDUS	May - 2015	Presentation of the HEREiAM project to the AAL/SmartBEAT consortium
UNICA DEDALUS	07/05/2015	IEEE International Symposium on Medical Measurements and Application - MeMeA2015 in Turin (Italy). During the symposium, the paper *"Home telemonitoring of vital signs through a TV-based application for elderly patients"* is presented.
UNICA	13/05/2015 14/05/2015	Four in-person meetings and 6 in-person interviews conducted to collect input from relevant local service providers and to investigate their interest in future exploitation.
UNICA	14/05/2015	XVII Convegno Nazionale AIIC (Associazione Italiana Ingegneri Clinici) in Cagliari (Italy). In the UNICA boot, the HEREiAM project philosophy and status is presented and demonstrated.
UNICA SMART HOMES	21/05/2015	International Conference on Information and Communication Technologies for Ageing Well and e-Health - ICT4AgeingWell 2014 in Lisbon (Portugal). During the conference, the paper "*A TV-based ICT Platform for Active Ageing, Tele-care and Social Networking"* is presented.
UNICA	04/06/2015	Preliminary user test organized to collect opinions, suggestions and feedback on the platform from 6 potential end-users.
SMART HOMES	22/06/2015	Workshop organized with possible user organizations to investigate their interest in future exploitation, and requirements from their perspective.

4 Standardization activities

As reported in deliverables D1.1, D2.3 and D2.4, standardization has been addressed at different levels of the HEREiAM solution.

4.1 Standardization at Home level

All the detailed information regarding the description of the home kit of HEREiAM can be found in chapter 2.1 and 2.2 of deliverable D2.4. In this section we will briefly describe the standards and the communication protocols used by the devices included in the home kit of HEREiAM.

- Android TV-box: it includes different hardware modules like 802.11ac Dual Band Wi-Fi (2.4GHz/5.0GHz), Bluetooth 4.0, HDMI™ 1.4b (with HDMI-CEC support), Gigabit Ethernet (10/100/1000Mbps), SD/MMC card reader, USB, IR receiver.
- Flirc: it is a universal IR receiver. It includes an IR module and it exploits the USB standard for the connection with the Android TV-box.
- Standard remote control: uses an IR module to send commands to Flirc.
- Medical devices: all the telemonitoring devices included in the HEREiAM system have a Bluetooth module to send the data to the Android TV-box.
- PIR sensors: contain, aside from the PIR module, a ZigBee module, a buzzer, an audio module, a light sensor and a temperature and humidity sensor.

Standard protocol used:

- Bluetooth: it is used to exchange data with the telemonitoring devices.
- Zigbee: it is used to communicate with the PIR home sensors.
- Ethernet/Wi-Fi: according to each users' homes configuration, the Android TV-box will be connected to the internet using the Ethernet protocol or the Wi-Fi protocol.
- HTTP REST: to send the data generated by each HEREiAM application to the Service Level Platform, it will be used the HTTP REST protocol.
- XML: the data generated by each application will be saved in a structured .xml document format.

4.2 Standardization at Server level

Concerning the Service Level Platform (SLP), great attention to standards has been paid starting from the definition of specifications, as reported in D1.1 and in D5.2, and later in the development phase, as reported in D2.4.

As described in technical deliverables, 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 mark-up 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 IXS, 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.
5) VCard: it is a standard file format for electronic business cards. VCards are often attached to e-mail messages, but can be exchanged in other ways, such as on the World Wide Web or instant messaging. They can contain name and address information, phone numbers, e-mail addresses, URLs, logos, photographs, and audio clips. In particular, in the context of HEREiAM platform, vCard v4.0 format will be adopted to store users and relations among them (e.g. the list of contacts for a specific user).
6) CalDAV and iCalendar: Calendaring Extensions to WebDAV, or CalDAV, is an Internet standard allowing a client to access scheduling information on a remote server. It extends WebDAV (HTTP-based protocol for data manipulation) specification and uses iCalendar format for the data[1]. ICalendar is a computer file format which allows Internet users to send meeting requests and tasks to other Internet users, via email, or sharing files with an extension of .ics. Recipients of the iCalendar data file (with supporting software, such as an email client or calendar application) can respond to the sender easily or counter-propose another meeting date/time. ICalendar is designed to be independent of the transport protocol. For example, certain events can be sent by traditional email or whole calendar files can be shared and edited by using a WebDAV server. Simple web servers (using just the HTTP protocol) are often used to distribute iCalendar data about an event and to publish busy times of an individual[2]. In the context of HEREiAM platform CalDAV and iCalendar will be used to access and manage users' agendas.

Technical specification of the services and their compliance with the standards have been provided in deliverable D1.1, while details on the advancement in development of the services are reported in deliverables D2.3 and D2.4.

[1] https://en.wikipedia.org/wiki/CalDAV
[2] https://en.wikipedia.org/wiki/ICalendar