



FINAL PROJECT REPORT

– Template –

Please send this report ELECTRONICALLY to the Central Management Unit (CMU) as well as a copy to the National Contact Persons (NCPs) of the coordinator and project partners

The coordinator of the project must submit this report within 60 calendar days after the final date of the project, on behalf of the consortium.

***If you have any additional question,
please contact the AAL CMU at CMU@aal-europe.eu,
or your NCP (see details on www.aal-europe.eu/aal-ncp)***

Report date	01/06/2016
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PUBLISHABLE PROJECT INFORMATION (TO BE USED BY AALJP)

1A. PROJECT	
Project full title	Social Networks for Older adults to Promote and Active life
Project acronym	SONOPA
Project No.	AAL-20125-187
Project Website	www.sonopa.eu
Project duration	• Starting date: 01/05/2013 • Termination date: 30/04/2016
Coordinator's name and details	Full name: Richard Plumbridge E-mail address: Richard.plumbridge@docobo.co.uk Telephone number: +44 (0)1372 459866 <i>* Both e-mail address and tel. number must be provided.</i>

1B. PROJECT PARTNERS					
No.	PARTNER ORGANISATION NAME	PARTNER ORG. ACRONYM	TYPE*	PROJECT COSTS: PUBLIC GRANT IN EURO	PROJECT COSTS: PARTNER OWN CONTRIBUTION IN EURO
1 (coord.)	Docobo Limited	DO	SME	185228	224597
2	Saxion University of Applied Sciences	SUAS	RTD	173850	57951
3	Smart Signs	SmS	SME	199189	132792
4	Universidad de Deusto	UD	RTD	103909	155864
5	Spring Techno	ST	SME	277123	92374
6	Blue Danube Robotics	BDR	SME	22200	14800
7	E-Seniors	ESE	END USER	144816	144816
8	Camera-Contact	CCC	END USER	172000	210223
9	iMinds/Ghent University	IM	RTD	198788	249842
10	Christelijke Mutualiteit	CM	END USER	83670	155387
*Please select one of these options: SMEs, Large, END USER, RTD, other					

1C. PUBLISHABLE PROJECT RESULTS SUMMARY (1 PAGE)

In this section, please present the results of your project, including the following information:

- *what is your product/service (result of the AAL JP project work)*

A service that provides activity monitoring and feedback, a social network to promote communication and social interaction and recommendations to increase activity or social interaction based on feedback. Sonopa is an open system to facilitate integration with other services.

- *what needs/problems does your product/service respond to*

Sonopa responds to the problem of social isolation and promotes a social and active lifestyle. It can detect and notify changes in behavior that may be an indication of underlying issues.

- *what are the target groups of users and payers*

The target group for Sonopa are those who are single and elderly and are in the process of moving from an active and/or social lifestyle to one where the onset of physical or mental difficulties is making them less active and social with a shrinking social community. A secondary group is those providing informal care to the first group as the spouse or child of the primary user. The last group are those who provide formal care, normally through a government or commercial organization. The target payers are government or commercial organisations providing social or health care services.

- *what is the technological innovation of your product/service (in terms of novelty of concept, approach to the development etc.)*

The combination of Social Networking technology to promote improved social and physical activity in conjunction with Activity Recognition in a Smart Home environment. Analysis of user socialization levels to recommend shared activities with other users with similar interests.

- *what is the social innovation of your product/service (benefits to society and economic impact)*

SONOPA can address several of the societal challenges of our aging society and have an overall positive social impact:

Healthy and Active Aging: The SONOPA sensors network unobtrusively monitors the user activity level on a long-term basis and provides regular feedback via the Activity Dashboard Safe Independent Living & Peace of Mind. Our small wireless sensors provide an unobtrusive watching eye that will act when needed and give an early warning on atypical patterns of behaviour.

Support Cooperation of the Care Network: The calendar and the messaging system can be used by all members of the care network and facilitate effortless communication and coordination of care-related tasks.

Social Involvement: Sonopa can lead to an improved lifestyle by promoting a more active and social involvement in the local community, enabling users to stay in their own homes for longer

which type of end-users have been involved in the project (how many and in which way)

Primary end users were involved in the User Requirement Study (28), Data Collection (2), Use Case Validation (37) and Field Trials (8 in home and 14 at a demonstration workshop.) Informal care givers were involved in Use Case Validation (4) and Field Trials (5 at a demonstration workshop.) Formal caregivers were involved in the User Requirement Study (9), Use Case

Validation (10) and Field Trials (6 at a demonstration workshop.) A focus group was also run for 5 medical professionals

- what is the expected time to market and what are the main possible barriers

Estimated at 1-2 years and dependent on acceptance by care organisations and users. Further development and the introduction of better sensors and reduced costs will be necessary. Other factors may be the escalating refugee status in Europe.

CONFIDENTIAL PART OF THE REPORT

2. DELIVERABLES SUBMITTED AND MILESTONES ACHIEVED DURING THE PROJECT

In this section, please provide details in case your project deviated from the Description of Work (work plan) with respect to delivery dates, achievement of milestones or changes in planned outputs; please indicate whether and to whom (AAL NFA/NCP) the changes have been communicated.

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Has the project been finalised in line with the Description of Work?

YES ☒

NO ☐

PARTLY ☐

IN CASE OF DEVIATION, PLEASE EXPLAIN:

Has the project achieved its expected results as described in the Description of Work?

YES ☒

NO ☐

PARTLY ☐

IN CASE OF DEVIATION, PLEASE EXPLAIN:

3 A. PROJECT RESULTS - SCIENTIFIC/TECHNICAL PROJECT RESULTS

Provide a summary of the confidential results, including:

- The progress per work-package
- The performance of the project consortium (added value of cooperation, added value and performance of each partner etc.)
- Scientific/technical achievements during the course of the project
- End-user services developed during the course of the project
- Other confidential information

WP1 Co-ordination and Management: Has gone well with the only issue being one partner going into bankruptcy and a replacement being found.

WP2 User Requirements, Analysis and Ethical Issues: Some very good work and cooperation between end user organisations and universities setting up several end-user studies with primary and secondary user groups and analyzing the ethical issues involved. All milestones were reached and three conference papers and one journal article were disseminated in the scientific community. Also the results were disseminated to the general public, the AAL community and elderly care and technology industries.

WP3 Development of Sonopa Modules: A good deal of work done in developing the Sonopa controller and associated algorithms and interfaces. Similarly for the sensor data analysis & presentation and the social network application. Resulting in more than 20 published technical articles during the project.

WP4 Planning, Deployment and Evaluation of Trials: A successful trial with a relatively small number of in home testers, but additional workshops and seminars to the elderly, their carers and professional medical practitioners. In total, 38 primary and secondary users were involved in the field trial and insights were used to further improve SONOPA according to the users' wishes and needs. The technical achievements and qualitative findings will be presented during ISG2016.

WP5 Dissemination, Business and Market Plan: Has developed and focused well during the latter stages of the project and following consultation with AAL to Business. Some genuinely exciting prospects for commercial gains from the project.

Project news and achievements were regularly disseminated in the scientific community, to the general public, in the AAL community and to the elderly care and technology industries.

The consortium has worked well together and especially during the uncertainty of a change of partner and following a less than favourable mid-term review.

Technical: The development of activity analysis algorithms interpreting both PIR sensor data and visual sensor data. The development of socialization and matchmaking algorithms that combine in-home physical activity and social network activity. The development of a people counter module to detect people entering and leaving the home in low resolution visual sensor data. The development of a recommendation engine that determines what, when and who to recommend based on in-home physical activity and social network activity. The development and coupling of SONOPA CommuniCasting, including a personal live newsfeed and personal activity dashboard, and the SONOPA Community UI, the social network application. The development of modular middleware (the SONOPA controller) that integrates all SONOPA components.

End User: Activity monitoring and feedback to promote a healthy life style. Social feedback and suggestions for social engagement with neighbours with similar interests. Peace of mind for carers and family members.

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(1 page maximum)

3 B. PROJECT RESULTS – BUSINESS MODELS & INDICATORS

Please insert here a short summary of the **business model** selected for your product/service (max. ½ page). If not explained in the publishable summary section, please describe:

- What **product/service** will you offer?
- What main problem(s) does it solve or what **benefits** does it provide to the customer?
- What is the **added value** of your product/service versus that of competitors and/or compared to existing solutions on the market? What is your **unique selling proposition**?
- How will the product be sold? Who will **provide** products/services?

.....
DO in collaboration with SmS will integrate the sensor data capture and analysis developed in Sonopa with their Doc@Home Telehealth Service.

Telehealth is a personalised form of remote health monitoring that captures both physiological and symptomatic data from the patient and whilst alerts can be generated from specific conditions the key value of Telehealth to the patient is being able to determine trends in a patient's Health and wellbeing and provides a more holistic long term view to enable preventative or delaying measures to be introduced. This is particularly useful when the patient suffers from a number of co-morbid conditions where a particular symptoms is not always attributable to a specific condition. However the experience of DO has shown that the changes in a patient's condition are often detected within the visualisation of the symptomatic data first of all before any recorded change in the physiological data.

The Sonopa sensor data provides another rich form of symptomatic data input and addresses such features as mobility, activity and general responsiveness and it is our premise that the analysis and display dashboard when incorporated with the symptomatic and physiological data captured and visualised from the Telehealth elements of Doc@HOME will greatly enhance the ability to detect and manage the onset of various conditions that Older People may suffer. This benefits the Clinician and for the Patient it provides them an enhanced feeling of wellbeing and security through knowing that they are being cared for. The Informal Carer also benefits through having peace of mind in that the combination of the Sonopa System and the Doc@HOME Telehealth System provides a mechanism for them to also view the status of the patient in some way, for example if an alert is generated. Assuming the patient has given their permission.

The value of this integrated system is not just restricted to Older People and anybody of any age who may be temporarily or permanently affected by a condition relating to mobility which often have with it other health related conditions could also be addressed.

The USP for the system is that whilst the system is fully integrated it can still be delivered in a modular manner allowing for example the sensor system to be purchased by the Informal Caregivers to give them peace of mind but if a clinical Telehealth system is prescribed at a later date both parties know that it can be integrated giving benefits to all parties. Similarly if the Telehealth System is installed first through the auspices of the health authority then the Informal Caregiver or Local Authority can enhance this with the additional sensors which makes it a more attractive proposition at the outset. We would anticipate that the modular approach is how the system would be sold which also enhances the “stickiness” of the product

We believe that this approach will give us an advantage over our competitors who tend to operate in separate Telehealth and Telecare domains. However DO already collaborate with a well-known Telecare Partner in the UK to provide some integration with the Regulated Telecare elements so this potentially provides yet another route to market for the enhanced Sonopa Telehealth service. The forthcoming distribution agreement between DO and SmS will enable both partners to “front end” the complete offering so maximising any opportunities where either partner already has a projected brand.

Please answer the questions below, if possible:

What is the **targeted range of manufacturing/service costs** per product/service unit (€, € per month etc.)?

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What is the **estimated size of the targeted market** in Europe for your product/service (in €)?

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In your business model, **who will pay** for the product/service (you can tick more than one box):

☐ End user (older person) ☐ Informal carers ☒ Formal care providers ☐ Public subsidies

☐ Insurance ☐ Other (add if necessary) ☐ not yet decided

In your business model, **who will take the decision about purchase** of the product/service (you can tick more than one box):

☐ End user (older person) ☐ Informal carers/family ☒ Formal care providers ☐ Public subsidies

☐ Insurance ☐ Other (add if necessary) ☐ not yet decided

At what **stage of development** are you with your product/service (e.g. research, pilot, real life trial etc.)?

Further development following pilot

When will your product/service be **ready for market**?

1-2 years

What type of **further research/development** is necessary to finalize the product (technical, adoption, market research etc.)?

Integration of Sonopa technology with existing service

What **further investments** are necessary to launch product on the market?

Development, proof of concept and marketing costs.

Please insert here any other information related to the business model, such as:

- what is the targeted market niche?
- do you need certification for your product/service before gaining access to the market?
- what type of certification and from who?
- do you need to perform reliability testing?
- Any other information

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Sonopa technology will be integrated with an existing medical device and will have to meet medical device standards but additional certification will not be required.

Comprehensive testing will be required

3 C. PROJECT RESULTS – END USER INDICATORS

In the section below, please provide the information you have gathered during your project on primary, secondary and tertiary end-users¹ of your product/service. Note that secondary end-users can be formal and informal carers (see footnote). For the indicators cited below, please provide information if available; any other qualitative or quantitative information on beneficiaries can be provided instead.

Type of end-user (primary, formal and informal secondary, tertiary end-users)	The primary target group of SONOPA are elders who are over 60 years old and may have some health issues. They live alone in their own homes with or without informal and/or formal caregivers. Secondary stakeholders are relatives and family members, formal and informal caregivers. Tertiary stakeholders are health and social care services providers and insurance organizations.
Total number of end-users involved (by type of end-user, gender, etc.)	Primary end users were involved in the User Requirement Study (28), Data Collection (2), Use Case Validation (37) and Field Trials (8 in home and 14 at a

1 Definition of end-users in AAL Joint Programme:

- Primary end-user is the person who is actually using an AAL product or service, a single individual, “the well-being person”. This group directly benefits from AAL by increased quality of life.
- Secondary end-users are persons or organisations directly being in contact with a primary end-user, such as formal and informal care persons, family members, friends, neighbours, care organisations and their representatives. This group benefits from AAL directly when using AAL products and services (at a primary end-user’s home or remote) and indirectly when the care needs of primary end-users are reduced.
- Tertiary end-users are such institutions and private or public organisations that are not directly in contact with AAL products and services, but who somehow contribute in organizing, paying or enabling them. This group includes the public sector service organizers, social security systems, insurance companies. Common to these is that their benefit from AAL comes from increased efficiency and effectiveness which result in saving expenses or by not having to increase expenses in the mid and long term.

	demonstration workshop.) Informal care givers were involved in Use Case Validation (4) and Field Trials (5 at a demonstration workshop.) Formal caregivers were involved in the User Requirement Study (9), Use Case Validation (10) and Field Trials (6 at a demonstration workshop.) A focus group was also run for 5 medical professionals
Average age and age distribution of involved end-users	See Information Below
Location of end-user (rural, town, large city, etc.)	See Information Below
Situation of end-users (single household, family setting, independence, etc.)	See Information Below.
Health status (disabilities, mobility, cognitive function, etc.)	See Information Below .
Socio-economic background (education, income class, etc.)	See Information Below
Total number of end-users effectively using the AAL solution beyond the project implementation period	0
Any other information	

User Requirement Study

Primary End User 28

UK - between 69 and 86 years (M= 78.36, SD = 4.97)

8 female, 3 males

Five single people living alone and three couples, all were retired

FR - between 60 and 81 years (M = 69.13, SD = 6.96)

6 females, 2 males

Half of them lived alone, most were retired

BE –between 55 and 80 years

(M = 64.78, SD = 10.35)

2 females, 7 males

Most participants lived together with their partner or family, most were retired.

Formal Care Givers 9

BE–between 36 and 61 years (M = 46.50, SD = 9.89).

Average work experience: 14.44, SD = 6.32.

Use Case Validation

Primary End User 37

Average Age:

Paris (FR) - 68 years

Creuse (FR) – 82,5 years

UK - 76 years

10 male, 27 females

located in both rural and urban environments

majority of the participants were retired

all of them were autonomous

Informal Care Givers 4

all female
above 70 years
urban environment
took care of their family members or a friend

Formal Care Givers 10

8 females 2 males
most were about 50 years
located in both rural and urban environments

Data Collection

Primary End User 2

BE – male, 83 years, health and mobility problems

UK –female, 81 years, lives autonomously

Field Trial

Primary End User 8

BE- Average age: 68 years

All living alone

Different levels of ICT skills

One tester is physically challenged

France –Average age: 75 years

UK - Average age: 70 years

living alone

Different levels of ICT skills

good physical and cognitive health

14 Primary End Users, 5 Informal Care Givers & 6 Formal Care Givers attended at demonstration workshop. 5 Medical Staff attended a Focus Group Workshop

3 D. PROJECT RESULTS – OTHER INDICATORS

Patents , which are the direct result of the project work	None
Collaboration to standards , which are the direct result from the project work	None
Publications (scientific or other) , which are the direct result from the project work (please provide details)	During the SONOPA project 32 publications were disseminated among the scientific community. Publications included conference presentations, demos, conference papers, journal articles and book chapters.
Other dissemination activities	Different media channels were used and various instruments were created to reach the general public and other interested parties including Twitter, SONOPA website, SONOPA demo and SONOPA flyers

	SONOPA was also presented at several events and conferences from the AAL community and the elderly care and technology industries, e.g. AAL forum, Health Valley, Medica, E-Health Forum and AAL Austria Summit.
Type and size of audience reached by dissemination activities	A few examples are: Electrical Engineering Publications – worldwide Ubicomp 2014 – 1000 Health Valley 2014 – 1000 Mobile Healthcare 2014 – 500 Age Village Newsletter 2015 – 1000 Ubicomp 2015 – 2000 Worldwide Health Valley 2015 – 1000 IS&T Electronic Imaging 2015 – Engineering Worldwide

4. FINANCIAL INFORMATION - OTHER COMMENTS

Please check appropriate box:

The financial part of the project ☒ is in line with (or) ☐ deviates from the partner's Grant Agreements & Work Packages plans (personal efforts, other costs, etc.)?

In case of deviation, please give a short explanation:

.....

Other comments related to financial part of the project:

.....

5. AAL JP PROGRAMME

Please comment, using your AAL project experience, on the main advantages and disadvantages of AALJP projects.

The main advantage of working in this AALJP project has been the close cooperation with users thanks to a user-centered approach.

It has been an excellent opportunity to network with and learn from the experiences of international actors in the field of AAL, learning about the experiences of long-term user trials from different partners and an opportunity to share our expertise in a consortium.

6. UPDATED PROJECT PARTNERS' CONTACT DETAILS ²					
No.	PARTNER ORGANISATION NAME	CONTACT PERSON		EMAIL ADDRESS	TELEPHONE NUMBER
		NAME	LAST NAME		
1 (coord.)	Docobo Limited	Richard	Plumbridge	Richard.plumbridge@docobo.co.uk	+44 1372 459866
2	Saxion University of Applied Sciences	Somaya	Ben Allouch	s.benallouch@saxion.nl	+31 6 122 929 01
3	Smart Signs	Maria	Lijding	lijding@smartsigns.nl	+31.53.489470 7
4	Universidad de Deusto	Aitor	Almeida	aitor.almeida@deusto.es	
5	Spring Techno	Holger	Arndt	h.arndt@springtechno.com	+49 (0)421 9601-440
6	Blue Danube Robotics	Walter	Wohlkinger	wohlkinger@bluedanuberobotics.com	+43 (0)1 890 86 97
7	E-Seniors	Monique	Epstein	epstein@free.fr	+33 6 24 39 64 34
8	Camera-Contact	Serge	Smidtas	serge.smidtas@camera-contact.com	05 55 61 18 17
9	iMinds/Ghent University	Francis	Deboeverie	francis.deboeverie@telin.ugent.be	
10	<i>Christelijke Mutualiteit</i>	Natascha	Forde	Natascha.Forde@cm.be	

² Please insert here, for every partner organization participating in your consortium, the updated email address and telephone number of the main contact person. These persons might be contacted after the closure of the project for statistical enquiries related to impact assessment.