

AAL Project

IONIS

Indoor and outdoor NITICSplus solution for dementia challenges

WP5: Project Management

D5.5. Final project report

Contractual Date of Delivery to the AAL CMU: M33

Actual Date of Delivery to the AAL CMU: M33

Participant(s): ¹EXYS, ²CITST, ³UPB, ⁴IZRIIS, ⁵ASLO, ⁶WUT, ⁷DGW, ⁸BZN, ⁹ASH, ¹⁰SOFTIC

Author(s): Angelo Consoli, Luca Gilardi, Jaouhar Ayadi

Nature: R (P-prototype, R-report, O-other)

Dissemination: PU (Pubic)

Version: 1v0

Total number of pages: 8

Abstract:

This document presents the final publishable summary of the overall project, a plan for the use and dissemination of foreground and the societal implications of the project.

Executive Summary

Deliverable D5.5 “Final project report” presents the final publishable summary of the overall project, a plan for the use and dissemination of foreground and the societal implications of the project. Its content is mainly extracted from the Project Final Report that was communicated to the AAL Central Management Unit (CMU).

Table of contents

1	PROJECT FINAL PUBLISHABLE SUMMARY	5
1.1	PRODUCT/SERVICE	5
1.2	NEEDS/PROBLEMS THAT THE IONIS PRODUCT/SERVICE RESPOND TO.....	5
1.3	TARGET GROUPS OF USERS AND PAYERS	5
1.4	TECHNOLOGICAL INNOVATION OF THE IONIS PRODUCT/SERVICE	5
1.5	SOCIAL INNOVATION OF THE IONIS PRODUCT/SERVICE	6
1.6	TYPE OF END-USERS THAT HAVE BEEN INVOLVED IN THE PROJECT	6
1.7	EXPECTED TIME TO MARKET AND MAIN POSSIBLE BARRIERS.....	6
2	PLAN FOR THE USE AND DISSEMINATION OF FOREGROUND	7
3	SOCIETAL IMPLICATIONS OF THE PROJECT	7
3.1	CARE TAKERS: PERSONS WITH DEMENTIA (PWD)	7
3.2	CAREGIVERS: MAINLY THE INFORMAL ONES:	7

Abbreviations

AAL	Ambient Assisted Living
CMU	Central Management Unit
DoW	Description of Work
EC	European Commission
EU	European Union
GA	General Assembly
JP	Joint Programme
IONIS	Indoor and outdoor NITICSplus solution for dementia challenges
PC	Project Coordinator
PDF	Portable Document Format
WP	Work Package

1 Project final publishable summary

1.1 Product/service

IONIS is a product & service package for informal caregivers of people with Mild Cognitive Impairment and in early stages of dementia. It provides assistance for safe and independent living with support of assistive and smart technologies. It aims at supporting older people with cognitive decline and their caregivers with solutions which can augment their safety and lower the risks of harmful events, as well as facilitate their active participation in life.

IONIS S, our product to be first put on market, is built up by a smartwatch and a gateway with smooth integration of listed physical status and home devices that can be purchased according to customer needs. Also, IONIS portal is an integral part of the solution. Here you can set reminders and personalized alerts, follow physical condition data, and track the location of the Person with Dementia (PwD). The IONIS S functionalities are:

- Basic indoor localization: Is PwD at home? Is (s)he moving? Since when not moving?
- Outdoor localization with geofencing.
- Calendar with reminders and personalized alerts.
- Information access through IONIS portal for informal caregivers.
- Physical condition data integration (through seamlessly connectable physical status devices).

1.2 Needs/problems that the IONIS product/service respond to

Informal caregivers (InfCGs) have to constantly follow the physical condition of people with dementia (PwD). Because of forgetfulness, they have to remind PwD to take medication and go to appointments. When PwD loses orientation, InfCG has to track and find him. InfCGs sacrifices their social life and free time as a result of frequent personal visits. Constant alertness, communication problems with PwD, and other factors lead to feeling of anxiety and helplessness.

The needs/problems that IONIS S respond to are:

1. The possibility to monitor localization of an older family member, which may increase safety, augment self-confidence of the older individual, specifically when he is a PwD,
2. Outdoor localization monitoring and geofencing that may be extremely helpful when a PwD becomes disoriented in place, especially in new environments.
3. The possibility to access physical condition parameters by a caregiver creates opportunity for early diagnosis of health problems and promptly seeking medical care. InfCG can take advantage of physical condition data in conversations with doctors.
4. Having health measurements at hand in a mobile device may make the process of exchanging information more efficient and may prevent errors due to miscommunication.

1.3 Target groups of users and payers

- Target groups of users:
 1. Our primary target group of users: people with MCI or mild dementia
 2. Our secondary target group of users: informal caregivers of people with MCI or mild dementia.
- Our target group of payers: informal caregivers (family members) of people with MCI or mild dementia.

1.4 Technological innovation of the IONIS product/service

IONIS helps informal caregivers of people with mild cognitive impairment and in early stages of dementia. It provides assistance for safe and independent living with support of assistive and smart technologies. It has new components capable of detecting changes in user behaviour: wandering detection, creating mobility patterns and sleep monitoring integrated with a rule engine together that has the required interfaces for rule insertion and modification that works based on a set of dynamically adaptable rules and also a calendar with reminders and personalized alerts.

Dementia-related complete technological solutions are not present currently in the market. There are some IoT solutions for non-intrusive assisted living, however they are not providing the full range of

services that PwDs are needing. The main technological innovation of IONIS is that it provides a global ICT based solution that fully addresses their needs.

1.5 Social innovation of the IONIS product/service

Worldwide, around 50 million people have dementia, every year, there are nearly 10 million new cases. Dementia has significant social and economic implications in terms of direct medical and social care costs, and the costs of informal care. In 2015, the total global societal cost of dementia was estimated to be US\$ 818 billion. Providing information and long-term support to informal carers of people with dementia, can improve the lives of people with dementia and their families and reduce the costs of informal care.

The main social innovations of the IONIS product & service package are:

1. Support people with dementia to be more confident and feel more positive both indoor and outdoor.
2. Avoid isolation and help people with dementia to sustain their optimal level of activity and mobility for as long as possible, as well as enhance their individual sense of confidence, autonomy, competence, security and safety.
3. Reduce stress and burden for informal caregivers through timely alerts issued by the platform or triggered by users.
4. IONIS will significantly reduce the onset of inequalities in health and quality of life for the group of PwDs, at a wider region level, such as the European Community.

The main IONIS economic impact is: to reduce the financial pressure and the time that InfCGs dedicate to take care of the PwDs and also to decrease the burden in cost and time for the formal caregivers who can exploit it such gain to allocate care for other persons.

1.6 Type of end-users that have been involved in the project

In IONIS, different types of end users have been involved:

- **Within WP1** we have involved primary users in surveys and shadowing, caregivers in surveys, tertiary users took part in stakeholder meetings. Detailed information on involved end users and their numbers is included in Section 3C.
- **Within WP3** we have involved primary and secondary users through pilots organized in four end-user countries (Poland, Slovenia, Hungary and Romania).

Individual platform elements were tested with a total of 86 primary and secondary users. Out of the 86 users, 67 were primary users which generally obeyed the inclusion criterion of having a MMSE score of 19-27. There was one respondent with MMSE = 8 in Poland to check how the Mi Band measures activity in a person walking with a walker. Out of these, a number of 13 elderly users were living in rural or suburban areas and a number of 23 elderly were living in an elderly care facility in Hungary. In addition, also one Polish user was living temporarily in an elderly home. Out of the independent users, most had a family member offering constant support.

The pilots with the integrated IONIS platform have involved 65 primary users, 30 secondary users (26 informal and 4 formal) from Poland, Slovenia, Hungary and Romania. Out of these, 18 users were from the rural area. A large variety of setups was used in the pilots based on the identified users' needs and requirements. Several functionalities of the platform were identified as being relevant to the dementia patients and their caregivers, as summarized below.

- **Within WP4**, we carried out two online surveys, one for potential informal caregivers, and a simplified version of it with primary users in order to extend our knowledge about their spending habits. We collected anonymous information about health and technology related spending habits of 40-60 years old people with at least one parent living, with or without dementia or memory problems. Date of survey: 28 May 2020 - 19 June 2020 Number of participants: 358, from all consortium countries

From 20 June 2020 to 9 July 2020, we completed a simplified online questionnaire with 209 primary users (60+) from Poland, Slovenia, Hungary, and Romania.

1.7 Expected time to market and main possible barriers

IONIS-S is going to be launched in 2022 in Switzerland and Slovenia. In the first year, processes will be built up and there will be intense marketing activities coordinated by EXYS in Switzerland and by IZRIIS in Slovenia. We launch the product in 2023 in the other partner countries: Poland, Romania and Hungary. We plan to step on the market in other EU countries at the end of 2024.

For extensive sales volume we have to set up strategic partnership with global telecommunication operators. The solution integration work is done; however, COVID-19 pandemic prevented personal meetings. We expect that in the post-pandemic period with integrated IONIS-S we can attract their attention.

We consider also replacing the smart watch model we used for piloting (Kingwear 88) to a more capable one that has better battery life, currently not on the market. But current trends of novel smart watch technologies and design are very promising.

2 Plan for the use and dissemination of foreground

The exploitation of the project foreground will be done through the “**IONIS Partnership (IONIS-P)**” which was decided as the commercialisation entity formed by the IONIS consortium partners in order to exploit the business potential that is presented by the IONIS solution. IONIS-S is going to be launched in 2022 in Switzerland and Slovenia as an initial commercialisation step.

At the start, solution can be purchased in the demo centres. IZRIIS is already operating its demo centre. Their standards will be implemented in Switzerland as well. EXYS will also operate a web-shop where devices can be purchased and subscription can be made online. In this period, SIM card and mobile subscription have to be purchased separately at telecommunication service providers.

Our strategic objective is to form partnership with telecommunication operators. Their existing distribution channel would allow us to reach high volume of sales. Subscriptions (mobile and IONIS) and devices could be purchased in their shops.

A Memorandum of Understanding (MoU) was signed between the **IONIS-P partners** and presents a common understanding of the IONIS partners of the post-project relations and describes their role and responsibilities in the exploitation of the IONIS solution in its commercialization phase.

The IONIS partners agree that the commercialization of the IONIS product will be performed through a joint partnership effort where all the interested partners will be involved in the selling investment (infrastructure, human resources, operational aspects) to commercialize the IONIS product in their mapped area.

The signers of MoU document expressed their commitment to continuously cooperate towards the implementation of the agreements.

The dissemination of the project foreground will be done by the IONIS-P board through their stakeholders network and the marketing channels that were agreed between them to ensure visibility and awareness about the IONIS solution at different levels: European, national, and regional one. More details about the IONIS-P business and dissemination strategy are given in Deliverable D4.3. “Final Business model”.

3 Societal implications of the project

3.1 Care takers: Persons with Dementia (PwD)

- **Living an active and meaningful life:** IONIS allows to PwD increased independence, safety, activity level, quality of life, developing and maintaining social relationships (Indoor & outdoor localization, mobility patterns).
- **Living independently and safely for longer at home (decision and control of daily activities) with support from the caregivers and community:** IONIS allows to PwD to develop and maintain care relationship with family, friends, society (Personalized calendar, indoor localization, smart home environment, localization of important items).
- **Living in dignity and satisfaction during all stages of dementia:** IONIS allows to PwD to have impact on life; support feelings of independence; not feel as a person with disabilities; promote comfortable atmosphere conducive to reducing anxiety, agitation.

3.2 Caregivers: mainly the informal ones:

- **Reduce stress and care burden:** IONIS supports the user in making choices (indoor & outdoor localization, personal calendar, localization of important items).
- **Build resilience:** IONIS allows a personal control for informal caregivers who will feel empowered and confident (personalized calendar, indoor & outdoor localization, physical conditions monitoring of their PwD).
- **Improve quality, efficiency and effectiveness of care:** IONIS allows satisfaction with care services and promotes self-care abilities (physical conditions monitoring, smart home

environment, localization of important items, sleep quality, medication reminders, personal calendar).

- End of document -