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D2.1: User co-creation phase report

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2.0	MAT	27/1/2021	Final Deliverable

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List of abbreviations (alphabetically)

Abbreviation	Full name
AAL	Ambient Assisted Living
CUs	Commercial Users
D	Deliverable
PUs	Primary Users
SUs	Secondary Users
TUs	Tertiary Users
WP	Work Package

Executive Summary

The user co-creation phase report describes the approach towards creating a system that meets users' needs and requirements. This report consists of the co-creation phase procedures followed, from the definition of the target groups to the co-creation phase results.

In the first section, each target group is defined and then the user needs are described based on desktop research.

As COVID-19 is still a global phenomenon that affects everyone, this document addresses the challenges and how the consortium adapts to the new norms.

The fifth section is dedicated to the description of the end-user involvement. This section includes the inclusion and exclusion criteria of the users participating in this phase of the project. Then the recruitment and informed consent processes are described, including the alternatives options considering the Covid-19 situation.

Section six includes the methodology used for the co-creation phase. In this section, it is explained the reasons behind the decision to include both focus groups and interviews, the use of personas and storyboards, the use of clickable dummies instead of paper prototype and the type of the questionnaires used.

The seventh section is divided in five sub-sections including the standard procedure followed for each user group and then describing in detail all the tools used in each user group (personas and storyboards, tasks list for each group and the questionnaires).

The results of the co-creation phase are demonstrated in section eight divided in 4 subsections: sociodemographic data, technology usage, dissemination implications and questionnaire answers. Each subsection is divided according to the different user groups.

Finally, the last two sections describe the outcomes from the co-creation phase and the limitations during this phase. The information found in this deliverable will feed back to WP1, WP2 and WP4. These results will help the technical partners understand what improvements are needed in order to finalize the first prototype of the ReMember-Me system D1.3 and demonstrate these iterations in the D2.2 User experience design document. These results will also assist the fine-tuning of the exploitation models and dissemination plan, as well as the business strategy which are part of the WP4.

1 Introduction

Co-creation phase is one of the fundamental phases of the ReMember-Me system. Participants and researchers have the opportunity to collaborate together in order to cross-confirm the information about end-user requirements collected through desktop research and to evaluate the design of the ReMember-Me system. It is also important to highlight that creative methods were used during this phase in order to ensure that comprehensive information was obtained, and that the process was insightful but, also, fun for the users as well.

During the co-creation phase, participants with diverse backgrounds were recruited based on the inclusion and exclusion criteria established by the consortium in order to define the optimal system characteristics according to their needs, but also for identifying the ideal methods, channels and tools for dissemination and exploitation to reach the future customers of the ReMember-Me system.

2 Target Groups

In order to develop a unique system that meets the users' needs, it is crucial to identify our users and essentially our target groups. The latter were identified according to their level of interaction with the ReMember-Me system. The target groups are divided into primary, secondary, tertiary and quaternary users (see **Table 1**). In this document, the target groups will be described briefly as **Deliverable 1.1 User requirements and system specifications** presents them in an extensive analysis.

Table 1 - End-user groups

Series	Level of interaction	Specific types
Primary users	1-Everyday usage of full system	Older adults
Secondary users	2-Frequent usage of a part of the system	Family members and informal caregivers
Tertiary users	3-Occasional usage of a (small) part of the system	Healthcare professionals, University students
Quaternary users	4-Indirect benefit through the usage of the system by all aforementioned user categories	Care units, researchers, universities, cognitive centers

Primary users

This group is the core end-user group of the ReMember-Me system and includes older adults aged at least 65 years old with or without mild cognitive difficulties who could benefit from the use of the ReMember-Me system. Specifically, the ReMember-Me system was conceptualized and will be designed to address their needs and requirements. The ReMember-Me system opts to offer the means for subtle detection of cognitive decline early on, meaningful brain training in everyday life, as well as, general and tailor-fitted advice for health promotion and opportunities for brain stimulation through socialization.

Secondary users

Secondary users are people who are directly involved with a part of the ReMember-Me system and are surrounding primary users in a dependency scheme (**Figure 1**). These users include the families of older people, as well as, informal caregivers, "individuals who provide some type of unpaid, ongoing assistance with activities of daily living

(ADL)"[1]. The families and informal caregivers of the older people are usually the ones who have frequent direct contact with the older people. Those end-users need ways to monitor older adults' cognitive, and emotional health, and levels of physical activity and well-being in order to be able to intervene as early as possible. Also, those people need to offer high-quality opportunities for brain stimulation to their relatives and receive suggestions on how to actively engage with them in constructive activities in order to improve their quality of life. The ReMember-Me project aims to provide for those needs by offering monitoring of older adults' cognitive functioning regarding multiple cognitive domains, such as attention, memory, executive skills, etc., alerts when alarming signs of declining function/reduced activities are detected, giving meaningful opportunities for recreation, socialization and constructive brain training and finally, supplying individualized suggestions for engagement of family members and older adults and communication with healthcare professionals.

Tertiary users

This group of end-users is responsible for the professional monitoring and treatment of older adults and includes medical personnel and healthcare professionals, such as neurologists, cognitive psychologists, neuropsychologists, etc. Similarly, to family members and informal caregivers, healthcare professionals have direct contact with the ReMember-Me system by its functionalities to monitor older adults and offer their input/interventions. Healthcare professionals are surrounding both older adults and their families in a dependency scheme (**Fig.1**) since their diagnosis and treatment are based on the evaluation of older adults and the input provided by their families. Healthcare professionals need better and more efficient ways to monitor their patients' cognitive status. They need to offer meaningful exercises for brain stimulation and training, even to remote patients. The ReMember-Me system addresses these needs by offering a dashboard with charts and graphs regarding older adults' cognitive functioning per brain domain (i.e., memory, executive function, processing speed, etc.) and their training scheme and performance on cognitive tasks overtime. Also, the ReMember-Me system offers the tools for healthcare professionals to provide tailored exercises to older adults depending on their strengths and difficulties and also, to upload their own downloadable exercises. Moreover, the final ReMember-Me product opts to offer alerts in case a high risk for cognitive decline is recognized, in order to enhance the care process.

The group of tertiary users includes also people who will use directly only a few functionalities of the system for other reasons than monitoring. This includes students and other community members who can use a part of the ReMember-Me system to share experiences and knowledge with older adults as a source of first-hand information that can be utilized for their studies, essays, hobbies, etc.

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[1] Plöthner, M., Schmidt, K., De Jong, L., Zeidler, J., & Damm, K. (2019). Needs and preferences of informal caregivers regarding outpatient care for the elderly: a systematic literature review. BMC geriatrics, 19(1), 82.

Quaternary users

This group of people is not directly involved in the ReMember-Me system but indirectly benefits from the use of the system by other actors (primary, secondary and tertiary users). This group of people includes commercial stakeholders, academic institutions and researchers. Commercial stakeholders need to benefit from innovative systems, which could assist them to enhance their reputation, number of existing customers and revenues, range of products, as well as, make their services more cost-effective and time-efficient. Those stakeholders could include care units, healthcare product vendors, telecare companies and insurance brokers. The ReMember-Me system could offer these companies different benefits according to their field of practice including remote monitoring of patients, broadening their range of products and through optimization of service offering. Another group of quaternary users are academic institutions such as universities and research centers or independent researchers. Those stakeholders need a source of information to enrich the offered range of resources. Through ReMember-Me these stakeholders could benefit from multiple sources of information depending on their field, such as first-hand experiences and knowledge offered directly by older adults or data collected within the project regarding cognitive decline and functioning, as well as, the effects of cognitive exercises, social stimulation and healthy habits on cognition in the elderlies.

Figure 1 - User categories' dependency scheme

3 User Needs

All target groups defined in the previous section have similar and different user requirements. The user requirements and expectations can be found in the D1.1 User requirements and system specifications. Based on the D1.1, the **Table 2** comprise a compilation of end-user needs per user category. The AAL deliverable portal was used as a main source for the identification of user requirements, along with recent literature.[2,3,4,5,6]

Table 2 - User needs

User need	Older adults	Family members	Healthcare professionals	Students	Commercial stakeholders	Academic institutions/ researchers	Care institutions
Need for early detection of cognitive decline	✓	✓	✓				
Need for reminders and alerts for specific events	✓	✓	✓				
Need for user-friendly and user-appropriate UI	✓	✓	✓				
Need for predictable systems	✓	✓	✓	✓	✓	✓	✓
Need for systems recovering from errors and notifying users	✓	✓	✓	✓	✓	✓	✓
Need for customizable options	✓	✓	✓				
Need for simple and understandable systems	✓	✓	✓	✓			
Need for interesting and meaningful brain stimulation	✓	✓	✓				

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[2] Norwegian Computing Center. (2012). MobileSage Deliverable 2.2: User Requirements Specification

[3] T&Tnet. (2013). User requirements and specification of user groups, MobileSage project

[4] SIVECO Romania SA. (2017). D2.1 System architecture, technical requirements and specifications, STAGE project, Streaming of theatre and arts for old age entertainment

[5] HU-UAS. (2017). D1.1 End-user requirements and specification, MedGUIDE project, ICT Integrated System for Coordinated Polypharmacy Management in Elders with Dementia

[6] Bowen, C. E., Kessler, E. M., & Segler, J. (2019). Dementia worry in middle-aged and older adults in Germany: sociodemographic, health-related and psychological correlates. *European journal of ageing*, *16*(1), 39-52.

Need for better and more holistic care	✓	✓	✓		✓		
Need for innovative products and services				✓	✓	✓	✓
Need for products tackling cognitive decline which are implementable in everyday life	✓	✓	✓				
Need for technological products enhancing socialization	✓	✓	✓	✓			
Need for products enhancing older adults' IT literacy	✓	✓	✓				
Need for technology connecting people	✓	✓	✓		✓	✓	
Need for products which are useful for many population groups and especially for isolated people	✓	✓	✓		✓	✓	
Data sources for information on cognitive functioning and decline					✓	✓	
Need for reliable software-hardware systems	✓	✓	✓	✓	✓	✓	
Need for systems respecting privacy and security of data	✓	✓	✓	✓	✓	✓	

4 COVID-19 Situation

Due to the current situation with COVID-19, the consortium and more specifically the end-user partners, prioritized the safety of both employees and participants. Each country's situation has been evolving at different rates; therefore, a general protocol has been created for all end-user partners in order to provide basic guidelines so results could be comparable between countries. At the same time end-user sites could differentiate their COVID-related protection plans according to the national regulations and legislations in place. Accordingly, some back-up plans were created to adapt to the needs of each country's situation.

5 End-user involvement

As it was described previously, the co-creation phase or "conceptualization phase" is an equally important phase for the development of the system. This phase involves end-users (participants) from all target groups in order to provide their valuable feedback before the development of the first prototype. The participants are engaged in various activities; emphasis is given on visualization methods, in order to grasp the purpose of the ReMember-Me system and be able to inform the researchers what changes are essential for a safe and user-friendly system that meets their needs. 78 users in total participated in the co-creation phase. **Table 3** below presents the numbers of users per category and per country.

Table 3 - User Involvement

	Primary users	**Secondary users**	**Tertiary users**	**Commercial Stakeholders**
Cyprus	6	6	6	4
Italy	7	7	7	5
Romania	5	5	5	3
Belgium	3	3	3	2
Total	21	21	22	14

5.1 Inclusion and Exclusion criteria

Given the expected characteristics of the potential end-users of the ReMember-Me system and their level of interaction with the system, the consortium decided the inclusion and exclusion criteria of each category of users for this phase.

One of the main purposes during enrolment was to recruit a broad representation of gender, age, profession, education, IT literacy and socioeconomic level of the general population. In order to ensure the inclusion criteria of mental and health status of the participants, the researcher performed MMSE screening unless there was prior knowledge of the participant's medical record. Most researchers participating in this

project have healthcare/medical background and have the experience to assess the participants during recruitment.

For the primary users the inclusion criteria are:

Table 4 - Inclusion and Exclusion Criteria for primary users

Criteria	Inclusion	Exclusion
Age	At least 65 years old and over	64 years old and younger
Gender	Balanced representation of all genders	
Education	Broad representation of different education backgrounds	
Living status	Living at home	Living to a home care
Mental Health Status	No mental disorder diagnosed	Presence of active psychiatric disorder
Cognitive status	Cognitive fit or with MCI based on existing database (see section 5.2 Recruitment process)	Major Neurocognitive Disorder diagnosis, Medication for cognitive disorders
IT literacy	With or without a little familiarity with technology	
Visual acuity	Mild to no visual difficulties	Presence of severe visual impairment
Motor Disability	With or without motor disability	
Hearing acuity	Mild to no hearing difficulties	Presence of severe auditory impairment
Language	Fluent in one of the following languages: English, Greek, Romanian, Italian or Dutch.	Does not speak partners' language.
Willingness to participate in the project	Only volunteers	

Ability to provide informed consent	Autonomous and capable of providing consent	Inability to provide informed consent
Terminal illness		Presence of terminal illness

The inclusion criteria for secondary, tertiary and commercial users are:

Table 5 - Inclusion Criteria for secondary, tertiary and commercial users

Criteria	Inclusion
Age	Between 20 and 64 years old
Gender	Balanced representation of all genders
Profession	Broad representation of characteristics and disciplines
Mental Health Status	No mental disorder diagnosed
Cognitive status	Cognitive fit (adjusted MMSE score above cut-off according to national norms)[7]
IT literacy	Minimum little familiarity with technology
Visual acuity	Mild to no visual difficulties
Motor Disability	With or without motor disability
Hearing acuity	Mild to no hearing difficulties
Language	Fluent in one of the following languages: English, Greek, Romanian, Italian or Dutch.
Willingness to participate in the project	Only volunteers
Ability to provide informed consent	Autonomous and capable of providing consent

5.2 Recruitment process

Due to COVID-19, the consortium agreed that each end-user center will follow their own recruitment process depending on each country's current legislation regarding COVID-19 situation. Each organization started recruitment from their networks, followed by their email/phone databases and then, in case there were not enough participants, partners announced the opening for voluntary participation in the co-creation phase of the ReMember-Me project via their social media accounts.

Primary users were recruited from an existing database of subjects seeking consultation for cognitive decline and already categorized based on cognitive performance within (cognitive fit) or slightly below normal limits (MCI). Cognitively fit individuals were identified as those with an adjusted MMSE score above cut-off according to national norms. After recruitment, the participants provided their informed consent. In case the researchers had no knowledge of the participants' cognitive status, they proceeded with MMSE screening.

5.3 Informed consent and exit strategy

The informed consent was prepared by the consortium in order to ensure that all participants were fully informed about the purpose of the project, the procedure that will take place, if there are any disadvantages, risks or advantages for the participants, the type of data that will be collected but also the exit strategy if any of the participants wanted to withdraw from the project. It was highlighted that their participation was voluntary without any consequences and if they decided at any point that they would like to withdraw from the project, there was not going to be any consequence. Furthermore, the informed consent document explained that their anonymity and data were protected and if at any point they had any questions they could contact the researchers responsible for the research project. This document can be found attached in the **Annex 12.1** in English language. Each end-user organization translated this document in their native language and also proceeded with the preparation of documents to get ethical approvals from each site's appropriate body before the participants' involvement, if they needed to do so.

6 Methodology

Given the challenges that each end-user organization was facing with COVID-19, the consortium agreed to prepare the same procedure for both digital and face-to-face sessions with the participants. In this section and in section 8, it is described in more detail how these challenges were encountered.

6.1 Focus groups and Interviews

Focus groups are preferred during the co-creation phase because participants express their opinion together with other people compared to the one-to-one interaction which is used during interviews. This constitutes a more pleasant and stress-free process for the participants.

However, due to COVID-19 focus groups were avoided unless the participants were relatives or co-workers and there were up to 2 participants in the same room with the researcher and all safety measures were followed. In case it was scheduled as a digital session with the participants, there was the option for up to 2 participants to join the video call either sharing the same screen or from different locations.

6.2 Personas and Storyboards

A persona is a fictional character who represents the average end-user who will use a system. Personas contain user characteristics such as demographics, motivations, inspirations, behaviors, fears and discomforts as well as their goals. The aim of the personas is to assist anybody who is not familiar with the ReMember-me system to understand how it meets the needs of each category user. Initially the personas were used to help the consortium partners in user segmentation and the development of technology with a User Centered Design (UCD) methodology, the decision on business models and dissemination plans according to specific user characteristics in order to be as effective as possible.

A user story describes the specific characteristics of the user, their struggles, the means of introduction with our system, their interaction with it on an everyday basis and the benefits they can have through its use. Finally, the storyboards assist the reader to visualize the user story using an animation sequence. [7, 8,9]

Throughout the co-creation phase, personas and story boards were used during the presentation of the ReMember-Me system in order to assist participants to identify with

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[7] Blomkvist, S. (2002). Persona–an overview. Retrieved November, 22, 2004.

[8] Lucassen, G., Dalpiaz, F., van der Werf, J. M. E., & Brinkkemper, S. (2016). Improving agile requirements: the quality user story framework and tool. Requirements Engineering, 21(3), 383-403.

[9] Andriole, S. J. (1989). Storyboard prototyping: a new approach to user requirements analysis. Inc., Wellesley: QED Information Sciences.

the personas and gather unbiased information from each participant without creating unpleasant/negative feelings such as anxiety and stress, and reducing the possibility to provide answers which comply to other people's expectations.

Again, the presentation was prepared in a PowerPoint format (see **Annex 12.2**). This method allowed the researchers to show the presentation to participants in either a face-to-face session or during a digital session. The researcher could share his/her screen during the video call or could print the presentation providing it in paper format in advance to the participants.

The user personas, stories and storyboards of primary, secondary, tertiary and quaternary users used are demonstrated in section 7. These figures were created based on previous experiences, literature review and desktop research of previous analyses on user requirements.

6.3 Paper prototype and Clickable dummies

Paper prototype provides the layout and the functionality of the prototype before it is even developed. This is an important method as it provides a visual to the participants on how the consortium has imagined the system's layout and functions, and gives developers the opportunity to make changes before it is developed.

The paper prototype is more specifically used to test graphical interfaces to ensure system's usability and to understand if the navigation around the system is logical to the potential users by observing their behavior. [10]

The researcher usually asks the participant(s) to perform a series of Tasks while the participant "talks aloud" and explains why has followed that pathway to perform that specific task. The researcher records comments from the participants in order to analyse them and come to any conclusions regarding the functionality of the paper prototype (See Tasks List per Target Group in section 7).

The technical team of the ReMember-Me project prepared both paper prototype and digital mock-ups (click dummies) made in Balsamiq software for each target group in order to have the opportunity to use them on the digital sessions.

6.4 Questionnaires

During the co-creation phase, the consortium decided that the collection of data from the participants would be better if it combined both qualitative and quantitative data. For each target group it was created a different questionnaire with both open and close-ended questions in order to receive as much useful feedback as possible, and co-create

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[10] Nedopil C., Schauber C. and Glende I.S. (2013). THE ART AND JOY OF USER INTEGRATION IN AAL PROJECTS, AAL platform.

with the participants the first prototype of the ReMember-Me system (See Questionnaires used in English language in section 7).

The questionnaires were both available in paper format but also in Google forms in Greek, Italian, Romanian and Dutch.

The questionnaires included questions regarding the different features of the system, areas of improvement, but also a great percentage of questions were focused on understanding the factors that could possibly affect the potential customers' willingness to buy the ReMember-me system. These questions were intended to help create a business plan, but also to assist in identifying the best dissemination tools for the development of the ReMember-Me system.

7 Protocol

7.1 Procedure

The following instructions were given to all researchers before the initiation of the co-creation phase.

*After recruitment of participants, each end-user organization will proceed with the Informed consent from each participant. The **informed consent** can be found in **Annex 12.1** in English language; thus, each partner should translate it into participants' language (Greek, Italian, Romanian, Dutch). Each partner is responsible to follow their country's legislation and EU laws to ensure privacy safety of the participants. Given the difficult circumstances with COVID-19, end-user partners allowed (according to national legislation) to use Google forms to collect digitally informed consents from the participants, will proceed with this method and the rest will use a paper form sent via regular mail or with other secure methods.*

*After the retrieval of the informed consent, the researcher will organize a digital session with the participant in order to proceed with the co-creation. If it is feasible and approved from the participant, a video/social tool is advised to be used such as Zoom, Skype, Viber or Google Meet in order to make this process as smooth as possible. The chosen tool should include the "**recording**" feature and also the "**sharing the screen**" feature. In this way the researcher will be able to present a short project presentation (**Annex 12.2**) with the persona and storyboard of each target group, record the participant's navigation on the mock-up and record all the answers and feedback regarding the open questions and finally send the voluntary socio-demographic and technological questionnaire.*

***Note**: It is the researcher's responsibility to perform the co-creation session with the most comfortable and safe method for the participant. For example, If the participant does not wish to use the video/social tools for the co-creation method then the*

researcher should explore the options of providing in advance with all the questionnaires and tools in a paper form and proceed with the co-creation session either via phone or face to face from distance.

To sum up the steps that we are going to follow:

1. *Informed Consent form - each end-user organization can use either Google forms or paper format to present the above documents to the participants depending on each country's law and legislation*

2. *Short presentation in a PowerPoint format, of the ReMember-Me system (project description, objectives, images of all devices and description of usefulness)*

3. *Each target group will be presented with the associated persona and storyboard*

4. *Provide link to participants with the web-based viewer of the click dummy (mock-up) or in a paper format*

5. *Request from each user to use the "talk aloud" technique as to explain what buttons are pressing and why, while the researcher ask participants to perform a series of Tasks (Researcher to record this if possible, and in case approved by the participant)*

6. *Proceed to provide the questionnaire for each target group*

7. *Participants to answer voluntary Socio-demographic and Technology usage questionnaires (see **Annex 12.3**).*

7.2 Primary Users

7.2.1 Persona and story board

|	Mr Pavlos, Retired teacher	Personality ∇ Anxious ∇ Emotional

Demographics

∇ 76 years old

∇ University graduate

∇ some familiarity with technology

∇ Medium socioeconomic level

∇ Living in a rural area

Goal

∇ Stay healthy and active for as long as possible

∇ Keep in touch with loved ones

Skills

∇ Great knowledge on historical topics

Quote

"The most valuable things in a life are a man' s memories. And they are priceless."

Channels of communication

∇ Word of mouth

∇ TV

∇ Newspaper

∇ Flyers

Motivations

∇ Keeping healthy and cognitively active

∇ His love for his grandkids

∇ Sharing and learning historical facts

Frustrations/pains

∇ Sometimes forgets things and memories

∇ Small social network due to living in a remote area

∇ His daughter lives far from him


User story

Mr Pavlos is 75 years old and lives in a small village in Nicosia, Cyprus with his wife. He is a retired teacher and enjoys reading history books, news and politics. He is particularly fascinated with history and politics and likes to share his experiences from Cyprus Invasion by the Turks in 1974. Mr Pavlos is not very keen with technology but has a smartphone and can use his laptop to communicate with his son who lives in Boston through virtual calls. He knows only a couple of things regarding their function which were taught to him by Maro, his daughter. Maro, lives far from Mr Pavlos in the city center but visits her parents every Sunday to have lunch and spend time with their grandchildren. Mr Pavlos and Mrs Nikoleta, his wife, love playing card games with their grandchildren. One day, Maro purchased the ReMember-Me system as a gift for Mr Pavlos to help him keep his brain sharp and spend his free time constructively. Mr Pavlos loved that he would have an increase in his social interactions through technology. In fact, he bragged about his new gift to his friend at the cafeteria. Now, during some afternoons Mr Pavlos shares his knowledge with students from the University of Cyprus who are writing an article on Cyprus Invasion. Sometimes they talk online and sometimes they visit him in the village to have some tea and cookies together while talking about those history topics Mr Pavlos likes. Except for that, Mr Pavlos exercises everyday with the reminders from the app and the robot. He actually feels that now he can do something to improve his memory despite living remotely from the Clinic and Mrs Green, his neuropsychologist.

Storyboard
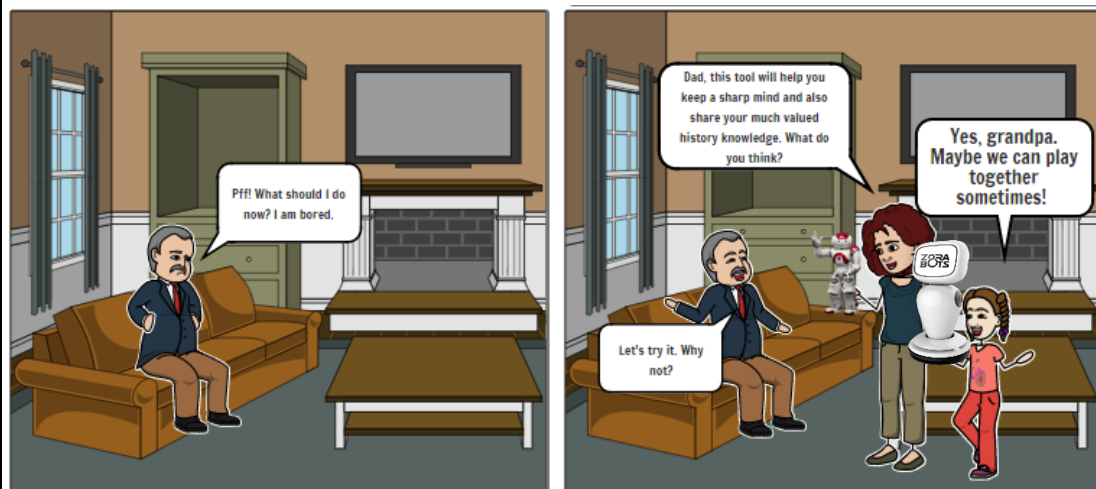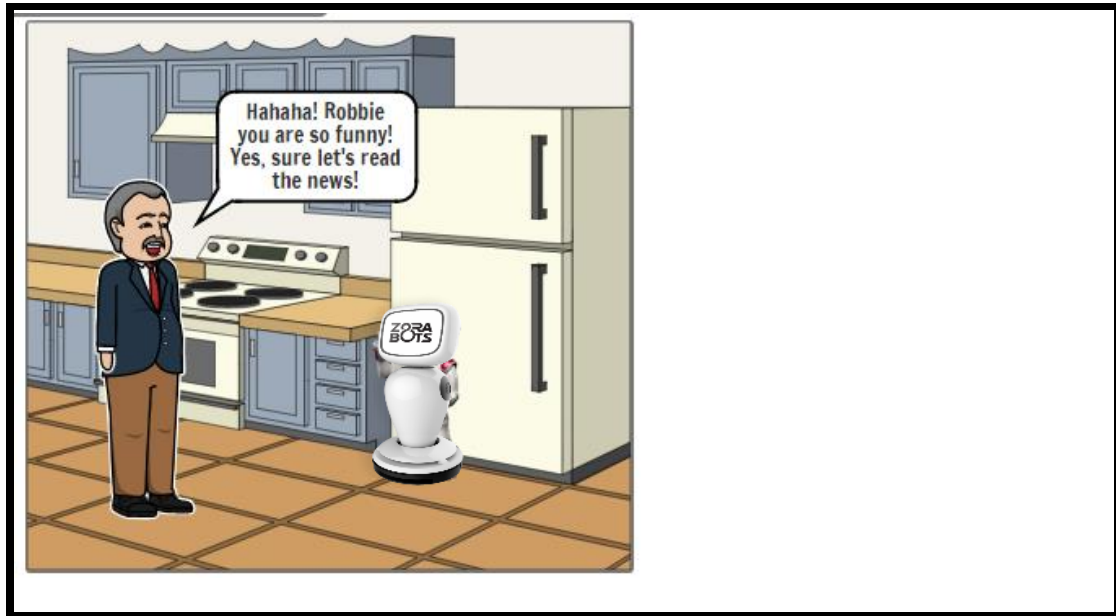
7.2.2 Tasks List for primary users

The researcher should request from the participant to perform the following tasks:

Task 1: Register with the system

Task 2: Fill-in all Personal info

Task 3: Perform baseline assessment screen

Task 4: You would like to modify some personal information

Task 5: Go to home screen and press on the settings

Task 6: Now find your daily plan and choose one exercise to perform

Task 7: Play a game

Task 8: Check your performance and progress

Task 9: Request to video call with one of your children

Task 10: Check information about the student who would like to video call you and accept him as your contact.

7.2.3 Questionnaire

1. What do you like the most about the ReMember-Me system? Please select the answers that apply to you.

- Devices (robot, smartwatch, tablet)

- Cognitive exercises and games

- Daily plan of exercises

- Family members can monitor my health status

- Healthcare professionals can monitor my health status

- Receive recommendations from my healthcare professionals

- Play games with my family members

- Social platform

- Other. Please specify: _____

1. What do you like the least about the ReMember-Me system? Please select the answers that apply to you.

- Devices (robot, smartwatch, tablet)

- Cognitive exercises and games

- Family members can monitor my health status

- Healthcare professionals can monitor my health status

- Receive recommendations from my healthcare professionals

- Play games with my family members

- Social platform

- Other. Please specify: _____

1. Which changes would you suggest to improve the ReMember-Me system?

1. Do you know any similar systems that are already available on the market?

2. What do you like the most about similar systems already available on the market?

1. What do you like the least about similar systems already available on the market?

1. Which additional feature/characteristic would convince you to use the ReMember-Me system?

1. Please rate how comfortable would you feel with the following devices (1 - very uncomfortable, 5 - very comfortable)?

- wearing a smartwatch,

- interacting with a robot,

- using a tablet

- bed sensors

1. How often will you use the ReMember-Me system if it was recommended by a family member?

- Everyday

- 5-6 times per week

- 3-4 times per week

- 1-2 times per week

- Rarely

1. How often will you use the ReMember-Me system if it was recommended by your healthcare professional?

- Everyday

- 5-6 times per week

- 3-4 times per week

- 1-2 times per week

- Rarely

1. If the ReMember-Me system were already on the market, would you suggest it to your friends?

- o highly likely

- o very likely

- o quite likely

- o unlikely

o　extremely unlikely

1.　　　How much is affordability important for you when you search the market for similar products?

　　　　　　　　o　extremely important

　　　　　　　　o　very important

　　　　　　　　o　of some importance

　　　　　　　　o　not very important

　　　　　　　　o　unimportant

1.　　　If the ReMember-Me system were already on the market, would you be willing to buy it?

- Yes

- No

- Maybe

1.　　　Why would you not buy it? (If replied No)

　　　　　　　　o　I don't need such a system

　　　　　　　　o　I don't want a system with similar characteristics

　　　　　　　　o　I'm happy with similar products already on the market

　　　　　　　　o　I'm not willing to spend money for such a product

　　　　　　　　o　(other, please, specify)

1.　　　How much would you be willing to pay the ReMember-Me system?

1.　　　What method of payment would you be interested in buying the ReMember-Me system?

- One off payment

- Monthly fee for support

- Renting from care homes

7.3 Secondary Users

7.3.1 Persona and Storyboard

Maro,

Mr Pavlos' s daughter

Personality

∇   Relaxed

∇   Caring

Demographics

∇   41 years old

∇   Master's degree

∇   Moderate technology user

∇   Medium socioeconomic level

∇   Living in an urban area

Goal

∇   Take best care of her parents (spend quality time with them, assist in daily tasks)

∇   Having some stress-free time to see her friends

Skills

∇   Imagination

∇   Energy

Quote

"Always care for the ones you love"

Channels of communication

∇   Social media

∇   Online newspapers

∇   Radio

∇   Live events

∇   Street ads

Motivations

∇   Trying new things

Frustrations/pains

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12 Source: https://thispersondoesnotexist.com/
   <D2.1>/<User Co-creation phase Report>

∇ Her family ∇ Learning about science ∇ Cooking and nutrition	∇ Leads a busy lifestyle with two kids and a full-time job ∇ Has little free time ∇ Sacrifices personal time to take care of her parents

User story

Maro is 41 years old and she is the youngest daughter of Mr Pavlos. Her life is very busy since she is working full time at a local mall and has two children aged 6 and 10. Maro is a very social person and enthusiastic to learn and try new things. However, she has little free time to spend with her friends since she prefers to spend this time caring for her parents who live in the village. Sometimes she feels guilty that she can see them only once per week on Sundays because they seem so vulnerable and isolated. Her father loves reminiscing whenever she visits and loves to play cards and tell stories to her children. However, during the last days he seems to confuse some details and loses his stuff. Maro is very worried that this could be an early sign of dementia. One day, she finds about the ReMember-Me system. "This tool could be very helpful!" she thinks. Her father will have more constructive activities to do, he may be more in touch with us and his neuropsychologist, Mrs Green, who will also be able to spot slight changes in his functioning early on. Maro feels that this tool takes some weight of her shoulders and feels safer to spend some of her free time with her friends since she can see her father's progress and be notified about warning signs. She can also see the Neuropsychologist's assessments and feels calmer that her father is monitored by her even remotely. She feels safe that Mrs Green will not have to wait until the next biannual evaluation appointment with Mr Pavlos to find something alarming. Maro starts feeling freer and happier and starts enjoying life more. Finally, she found a way to spend more quality time with her father.

Storyboard

7.3.2 Tasks List for secondary users

The researcher should request from the participant to perform the following tasks:

Task 1: Register with the system as a family member and link your profile with your father/mother

Task 2: Check your relative profile and make any necessary amendments.

Task 3: Check your relative progresses

Task 4: Provide information on the system regarding your relative's health status and send it to the healthcare professionals to be instantly informed.

7.3.3 Questionnaire for secondary users

1. What is your biggest burden/problem/ worry as a caregiver to your parent/ relative? Please, describe it.

2. What do you like the most about the ReMember-Me system? Please, select the answers that apply to you.

- Devices (robot, smartwatch, tablet)

- Cognitive exercises and games

- Daily plan of exercises

- Family members can monitor their relative's health status

- Healthcare professionals can monitor my health status

- Receive recommendations from my healthcare professionals

- Play games with my family members

- Social platform

- Other. Please specify: _____

1. What do you like the least about the ReMember-Me system? Please, select the answers that apply to you.

- Devices (robot, smartwatch, tablet)

- Cognitive exercises and games

- Family members can monitor my health status

- Healthcare professionals can monitor my health status

- Receive recommendations from my healthcare professionals

- Play games with my family members

- Social platform

- Other. Please specify: _____

1. Which changes would you suggest to improve the ReMember-Me system?

1. Would you trust the information about the health status of your parent/ close relative provided by the ReMember-Me system?

- Yes

- No

- Maybe

1. Would your parent/close relative feel comfortable if they need to interact with a robot, wear a smart band and have a bed sensor for monitoring health indicators?

- Yes

- No

- Maybe

1. Why not? (if you have answered No in the previous question)

1. Do you know any similar systems already available on the market? Which ones?

2. What do you like the most about similar systems already available on the market?

1. What do you like the least about similar systems already available on the market?

1. If the ReMember-Me system were already on the market, would you be willing to buy it?

- Yes

- No

- Maybe

1. Why would you not buy it? (If replied No)

   o I don't need such a system for my relative

   o I don't want a system with similar characteristics

   o I'm happy with similar products already on the market

   o I'm not willing to spend money for such a product

   o (other, please, specify)

1.   Which additional feature/characteristic would convince you to buy the ReMember-Me system for your family member?

1.   If the ReMember-Me system were already on the market, would you suggest it to your friends/family members?

- o   highly likely

- o   very likely

- o   quite likely

- o   unlikely

- o   extremely unlikely

1.   How much is affordability important for you when you search the market for similar products?

- o   extremely important

- o   very important

- o   of some importance

- o   not very important

- o   not all important

1.   How much would you be willing to pay the ReMember-Me system?

1.   What method of payment would you be interested in buying the ReMember-Me system?

- One off payment

- Monthly fee for support

- Renting from care homes

7.4 Tertiary Users

7.4.1 Persona and storyboard

Mrs Green,

Clinical Neuropsychologist, PhD

Personality

▽ Explorer

▽ Conscientious

▽ Caring

Demographics

▽ 49 years old

▽ Post-doctorate studies

▽ Good technology user

▽ High socioeconomic level

▽ Living in an urban area

Goal

▽ Better map etiology and therapeutic interventions in cognitive decline

▽ Provide best quality of care for her patients

Skills

▽ Organizing

▽ Observant

▽ Dementia and old age expert

Quote

"Elder care is the number one issue in modern societies. We should invest on new approaches and products to enhance care provision for this population group"

Channels of communication

▽ Online newspapers

▽ Email

▽ Scientific journals

▽ Conferences

▽ Word of mouth

▽ Live demonstrations

Motivations

▽ Optimizing care process

▽ Innovative techniques in dementia treatment

Frustrations/pains

▽ Cost of new technologies

▽ Rigidity of policies in healthcare

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[13] Source: https://thispersondoesnotexist.com/
<D2.1>/<User Co-creation phase Report>

User story

Mrs. Green is a Clinical Neuropsychologist who has been practicing her profession for the last 21 years. Her research interests and expertise include the etiology and pathology of cognitive decline and dementia, as well as, and prevention and treatment measures. Mrs. Green works in a private clinic and uses conventional paper and pencil tests, as well as, some digital tools for her patients' diagnosis and treatment. Mrs. Green has an inquiring mind and is closely monitoring the latest trends and innovations in the field of Neuroscience and Neuropsychology. Her passion is the re-innovation of service provision for older adults and would be very happy to see new tools incorporated in conventional services. However, the rigidity of policies, the high cost of tools as well as the unavailability of culturally- and linguistically-appropriate tools constitute this difficult. One day, at a local live demonstration, Mrs Green saw the ReMember-Me system. "This tool ticks a lot of boxes!" she thought. It is adaptable to individual preferences, user-friendly, multilingual and a value for money for our clinic. The CEO of her clinic approved the purchase of five ReMember-Me systems which are rented to patients. This assists Mrs Green to monitor those patients' health and progress, design an optimal exercise plan for them, engage their family members in the process and in general, detect and prevent cognitive decline at an earlier stage and provide better quality of care. The system also allows her to study the etiology and progress of cognitive decline. Finally, the ReMember-Me system had benefits also for the clinic as it increased the clinic's recognition as an innovative social corporation, the number of interested customers and the revenues.

Story board
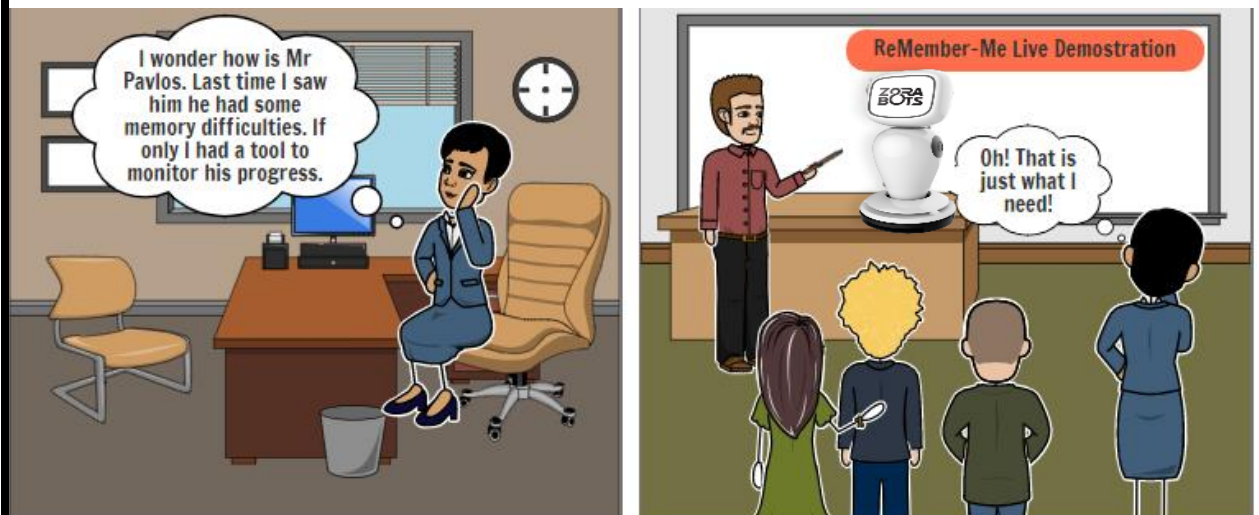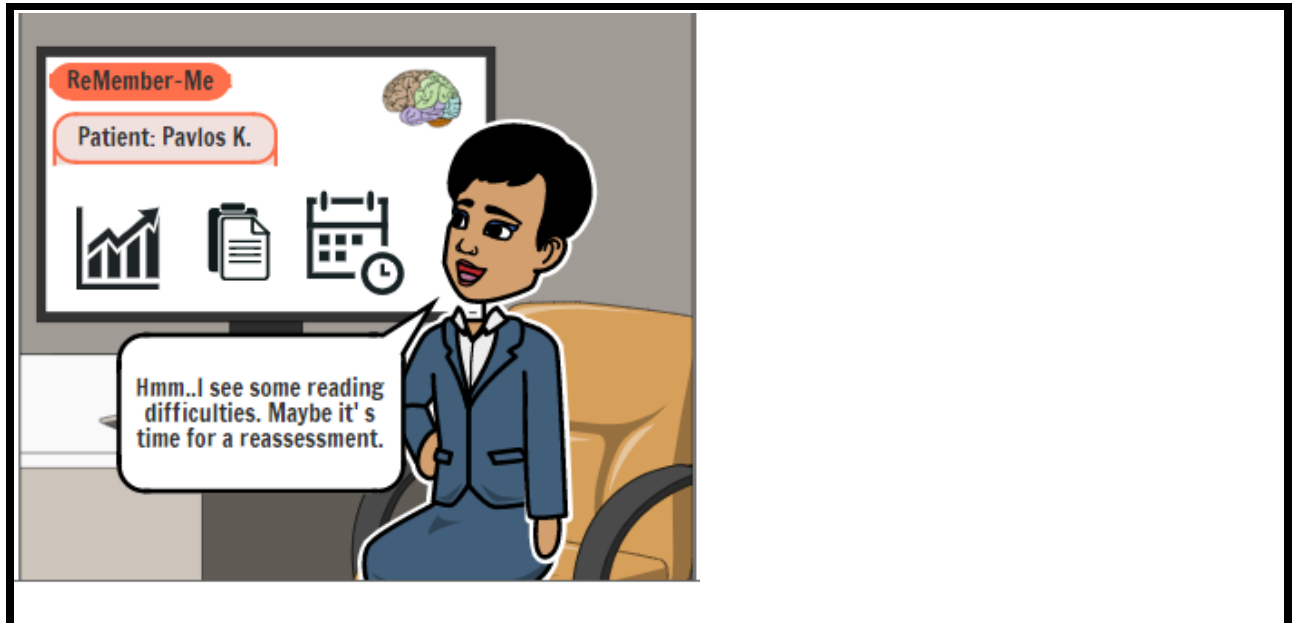
7.4.2 Tasks List for tertiary users

The researcher should request from the participant to perform the following tasks:

Task 1: View patient's progress

Task 2: Add medical observations on a specific patient

Task 3: Send suggestion to change the duration of a specific exercise

7.4.3 Questionnaire for tertiary users

1. What is your biggest burden/ problem as a healthcare professional working with senior patients? Please, describe it.

2. Are you well informed about the current health status of your patients?

● Yes

● No

● Maybe

1. Would you trust the information about the health status of your patients provided by the ReMember-Me system (app, smartwatch, bed sensor)?

● Yes

● No

● Maybe

1. Why not? Please explain. (if you have answered No on the previous question)

1. What do you like the most about the ReMember-Me system?

- Devices (robot, smartwatch, tablet)
- Cognitive exercises and games
- Daily plan of exercises
- Family members can monitor their parents' health status
- Healthcare professionals can monitor their patients' health status
- Receive recommendations to patients
- Family members can play games between them
- Social platform
- Other. Please specify: _____

1. What do you like the least about the ReMember-Me system?

- Devices (robot, smartwatch, tablet)
- Cognitive exercises and games
- Daily plan of exercises
- Family members can monitor their parents' health status
- Healthcare professionals can monitor their patients' health status
- Receive recommendations to patients
- Family members can play games between them
- Social platform
- Other. Please specify: _____

1. Which changes would you suggest to improve the ReMember-Me system?

1. Are you aware of similar systems existing on the market?

1. What do you like the most about similar systems already available on the market?

1. What do you like the least about similar systems already available on the market?

1. If the ReMember-Me platform were already on the market, would you be willing to buy it?

- Yes

- No

- Maybe

1. Why would you not buy it? (If replied No)

    o I don't need such a system

    o I don't want a system with similar characteristics

    o I'm happy with similar products already on the market

    o I'm not willing to spend money for such a product

    o (other, please, specify)

1. Which additional features/characteristics would convince you to use and recommend the ReMember-Me system?

1. If the ReMember-Me system were already on the market, would you recommend it to your patients and colleagues?

    o highly likely

    o very likely

    o quite likely

    o unlikely

    o extremely unlikely

1. How much is affordability important for you when you search the market for similar products?

    o extremely important

    o very important

  o of some importance

  o not very important

  o not all important

1. How much would you be willing to pay the ReMember-Me system?

1. What method of payment would you be interested in buying the ReMember-Me system?

- One off payment

- Monthly fee for support

- Renting from care homes

7.5 Commercial users

7.5.1 Personas and Storyboards

	Peter T., Senior Care Unit CEO
 14	
Business characteristics ∇ 40-bed unit ∇ Residential care, homecare and daycare services	**Goal** ∇ Stay competitive ∇ Provide best quality services in the area ∇ Attract new clients ∇ Monitor patients remotely

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14 Source: https://thispersondoesnotexist.com/
  <D2.1>/<User Co-creation phase Report>   Page 41 | 84

Expertise	Quote	Channels of communication
∇ Ageing ∇ Healthcare ∇ Cognition ∇ Ethics	"Courteous treatment will make a customer a walking advertisement"	∇ Word of mouth ∇ Live demonstrations ∇ Email ∇ Business journals ∇ Web posts

Motivations	Frustrations/pains
∇ Recognition of his company ∇ Increase of revenues	∇ High costs of new technologies and products ∇ Healthcare technology is not easy to be used by older adults ∇ Healthcare technology is not addressing the needs of care units as a primary customer

User story

Peter is a financial analyst and runs the Senior Rise Clinic for the last 7 years. He is an active and practical person who reads business and financial journals every day to be updated on news, trends and risks regarding his business sector. He sees that current trends in healthcare are revolving around ICT and IoT but still has reservations about their incorporation in the company's services due to doubts on their costs, reliability and value. Peter is a realist persuaded by facts and numbers. One day, Mrs Green his employee informs him about the ReMember-Me product. Peter followed up this product and saw that its development was based on a longitudinal study with older adults with tangible benefits and projected benefits for his business. He decided to approve the purchase of five units for his business and incorporate them for a trial period in their Cognitive Department. Indeed, it seemed to be a good investment since only six months after the purchase of the ReMember-Me system the clinic reached a wider target group which subsequently, led to higher revenues. Also, relatives and older adults were happier and more satisfied which led to more clients due to word of mouth.

Story board

	Anna O.,
	Head of the School of History of the Komodo College

15

Business characteristics

∇ 18 programmes in History, Arts, Health and Life sciences

∇ 3,500 students

∇ 600 employees

∇ Students from 45+ nationalities

Goal

∇ Stay competitive and active

∇ Gain recognition in society

∇ Provide high quality studies

∇ Invest in Corporate Social Responsibility

Expertise

∇ Multidisciplinary research in History, Arts, Health and Life sciences

∇ Multicultural environment

∇ Intergenerational activities

Quote

"Education is the premise of progress in every society."

Channels of communication

∇ Word of mouth

∇ Live demonstrations

∇ Phone

∇ Email

∇ Web posts

Motivations

∇ Recognition in society

∇ Increased enrollment of students

∇ Innovation

∇ New partnerships

∇ Higher revenues

Frustrations/pains

∇ High costs of new technologies

∇ High competition

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15 Source: https://thispersondoesnotexist.com/
<D2.1>/<User Co-creation phase Report>

User story

Anna is the Head of the School of History of the Komodo College. She is a diligent individual who wishes to enhance the recognition of the College among other institutions. She envisions a College closely linked to the society with established collaborations with a wide and diverse range of surrounding communities. Anna also envisions a college providing fair and equal opportunities for its students and actively involving them in fresh experiences and opportunities in order to broaden their knowledge and experiences. One day, Maria, head of a local day-care center for older adults who is collaborating with the college as an internship site called Anna and informed her about the ReMember-Me system. Anna researched the tool and thought that it would be a valuable attribute for her college since it would enrich her students' information resources and also help them connect and contribute to the community. Anna used an advertisement and saw that several students expressed interest in the programme and thus, it was incorporated as a tool in their services. She noticed that after six months her students rated the college as more innovative and socially oriented while the college's initiative was mentioned in local newspapers thus, increasing its recognition in the society.

Storyboard
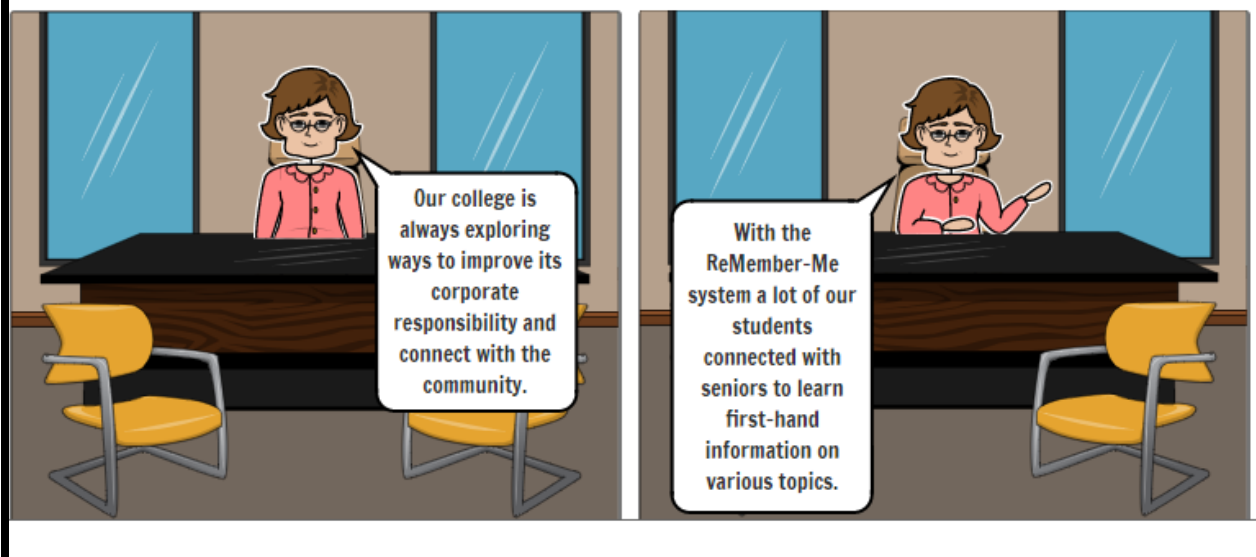
Commercial users are not directly involved with the ReMember-Me system; thus, they did not navigate on the mock-ups for feedback. The researchers showed the participants from the commercial users group some screenshots of the mock-ups to get an understanding during the presentation of the system. Nevertheless, if any of the participants requested to navigate around the mock-ups, the access was granted.

7.5.2 Questionnaire for commercial users

1. What information (facts, features) would you need to persuade you to buy the ReMember-Me system?

2. What channels do you trust to learn about new products and services for your company (e.g. social media, mouth to mouth, newspapers etc.)?

3. Would you trust any social network or media to learn about our product and follow its news and updates? if yes, which ones?

4. Are you or your business active in any social media? Could you please specify which social media you are active on?

5. Which changes would you suggest to improve the ReMember-Me system?

6. What do you like the most about similar systems already available on the market?

7. What do you like the least about similar systems already available on the market?

8. If the ReMember-Me system were already on the market, would you be willing to buy it?

- Yes
- No
- Maybe

9. Why would you not buy it? (If replied No)

- I don't need such a system
- I don't want a system with similar characteristics
- I'm happy with similar products already on the market
- I'm not willing to spend money for such a product
- (other, please, specify)

10. Which additional features/characteristics would convince you to promote the ReMember-Me system?

11. If the ReMember-Me system were already on the market, would you suggest it to your customers?
- highly likely
- very likely
- quite likely
- unlikely
- extremely unlikely

12. How much is affordability important for you when you search the market for similar products?
- extremely important
- very important
- of some importance
- not very important
- not all important

13. How much would you be willing to pay for the ReMember-Me system?

8 Results

8.1 General

During the co-creation phase, 78 participants were recruited. The **Table 6** below represents gender distribution per country and per target group.

Table 6 - Gender representation during co-creation

	Primary users		Secondary users		Tertiary users		Commercial Stakeholders		Total
	F	M	F	M	F	M	F	M	
Cyprus	3	3	4	2	4	2	2	2	22
Italy	3	4	6	1	6	1	1	4	26
Romania	3	2	4	1	3	2	3	0	18
Belgium	2	1	1	2	4	0	2	0	12
	11	10	15	6	17	5	8	6	
Total	21		21		22		14		78

Even though it was aimed to achieve equal representation of male and females of the general population, partners struggled to reach more male participants due to COVID-19 situation. The female participants were 65.4% and the male participants were the 34.6% of the total 78 users participating in the co-creation phase. Even though COVID-19 is considered to be one of the reasons for such unequal representation of gender in this phase in general, women are more actively involved than men in this kind of funded projects. As it is easily identifiable, the greater disequilibrium in genders was between secondary users and tertiary users. Regarding secondary users, usually daughters tend to become the caregivers of their parents[16,17]. Regarding tertiary users, were recruited subjects represented a broad spectrum of healthcare professionals in the geriatric

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[16] Jeffrey W. Dwyer, Raymond T. Coward, A Multivariate Comparison of the Involvement of Adult Sons Versus Daughters in the Care of Impaired Parents, *Journal of Gerontology*, Volume 46, Issue 5, September 1991, Pages S259–S269, https://doi.org/10.1093/geronj/46.5.S259

[17] Amy Horowitz, DSW, Sons and Daughters as Caregivers to Older Parents: Differences in Role Performance and Consequences, *The Gerontologist*, Volume 25, Issue 6, December 1985, Pages 612–617, https://doi.org/10.1093/geront/25.6.612

environment which included nurses, geriatric doctors, psychiatric doctors, psychologists, neurologists, neuropsychologists, cognitive psychologists and speech pathologists.

This is a small sample, while the numerous intervening factors may prevent any firm conclusion, but it could provide some useful indications regarding the characteristics of our target groups and help the consortium to identify, and adapt accordingly, some dissemination and business strategies.

The bar chart below demonstrates our sample age range. It is clear that the co-creation sample has a broad representation of different age groups. Due to their vulnerability to COVID-19, only a few old-old subjects (75 years and above) were included as it was harder to approach them given the present suggested restrictions to their mobility. Nevertheless, if circumstances will allow it, the plan is to have an equal representation of age groups (within individuals above 65 years) in the rest of the testing phases of the ReMember-Me system.

The 76.9% of all of our participants had achieved higher education studies, the 20.5% had finished high school where only 2 participants had education from nursery to 8th grade. None of the participants had not been to school.

The socioeconomic data of the participants showed that about half of the participants (56%) have an income of 2000 euros or more per month. One third of the participants have an income between 1000 and 2000 euros and the rest of the participants receive a monthly income below 1000 euros.

Age

Number of total participants
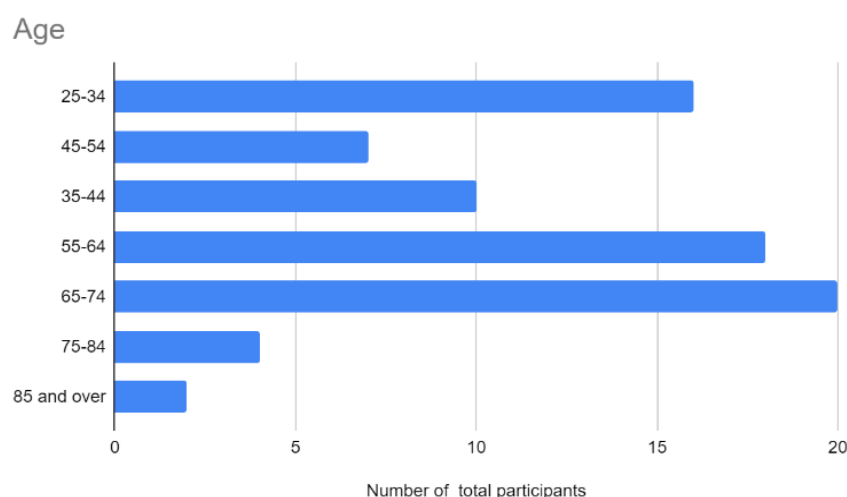
8.1.2 Technology Usage

The data collected showed that most of the recruited participants have some familiarity with technology. From the 78 participants, only 3 do not have internet at home. All of the participants own a smartphone and most of them use it several times a day. However, there is a variation in the extent of smartphone usage. Further analysis on the differences between target groups will be described in each target group section.

8.1.3 Dissemination

From the 62 participants that have answered questions about the most used social media Facebook was the most popular (80.6%) followed by Instagram (40.3%) and LinkedIn (33.9%). Twitter is not very popular (4.8%) between participants in all participating countries (Cyprus, Italy, Romania and Belgium). Participants valued the opinion of their friends (76.9%), relatives (79.5%) and their GP (75.6%) as important (or extremely important) in order to determine whether they will use a platform or an app. Most of those answers were confirmed when they were asked how they found out about the platforms and apps they are currently using. The results showed that the most common sources of persuasion were the recommendations from their friends (46.8%), relatives (40.3%) and research on their own (31.2%). The majority of participants explained that their doctors did not recommend them any applications or platforms to start using. Furthermore, the results showed that most participants do not trust the recommendations or advertisements found on social media regarding other products. However, 13% of the total participants found out about some of the platforms and apps they are using from recommendations/advertisements on social media.

The results concerning the dissemination plans of the project will also be analyzed further per target group in order to achieve maximum benefit/impact with minimum costs when planning the dissemination strategy of the ReMember-Me system.

In case you use social media, could you select which ones you are active?
62 responses
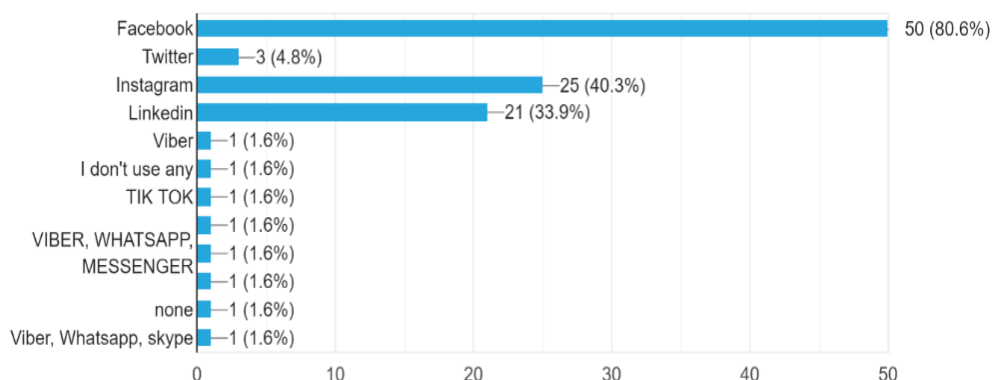
Whose opinion would determine you most to use a platform/app? (on a scale of 1-5; where 1 is not at all, 5 is extremely important – Please circle your answer).
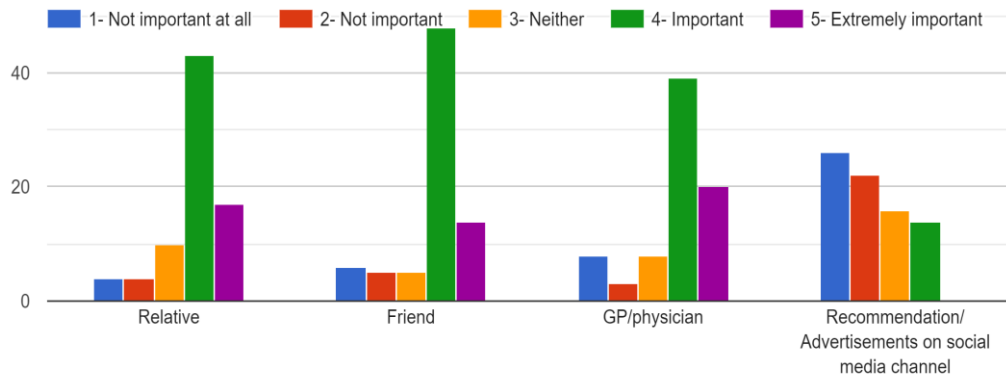
Among the platforms/apps you are currently using how did you find out about them:

77 responses
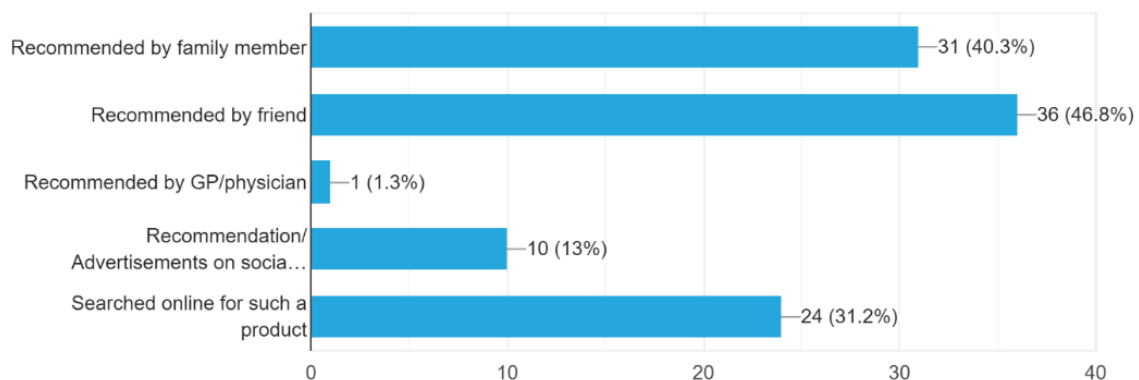
8.2 Primary users

8.2.1 Demographics

Demographic data of primary users (PUs) enrolled during co-creation are presented in the graphics below. The total number of participants recruited between Cyprus, Italy, Romania and Belgium is 21. The percentage between women and men is almost equal (52.4% and 47.6% respectively).

The total number of PUs with MCI was 3 out of the 21 participants. The table below reports the number of participants with MCI recruited in each country.

Countries	Primary Users		Total
	MCI	non - MCI	
Cyprus	1	5	6
Italy	2	5	7
Romania	0	5	5
Belgium	0	3	3
			21

Most participants' highest achieved education level was higher education studies. Nevertheless, a high percentage of primary users did not manage to go to university. The highest percentage of recruited primary users' participants belonged to the 65-74 years age group. This age group was preferred during co-creation as they usually have more experience with technological advancements such as applications and smartphones.

Most of the primary participants are living with their spouse/partner only (47.6%), while 28.6% live alone (the second more frequent living status in our primary users' group).

The socioeconomic level was unexpectedly high for the primary users; 45% of participants had a monthly income over 2000 euros, whereas 40% received between 1200-2000 euro as a monthly income.

Participants' Age
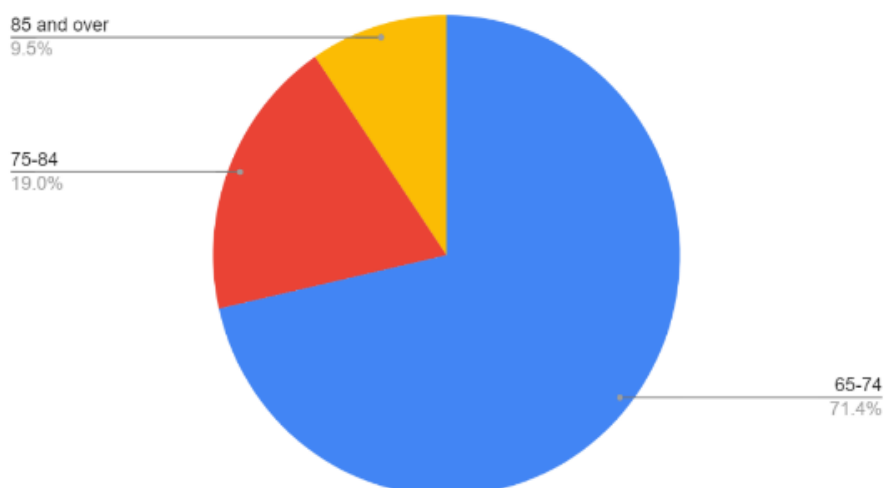
8.2.2 Technological Usage

All of the participants had a smartphone and most of them were using it several times a day. Nevertheless, 33.3% of the participants did not own a tablet. Only 23.8% of the participants are using the tablet almost every day or several times a day. Since the ReMember-Me system will probably include a tablet for delivering cognitive exercises, this is something that the consortium will need to consider for their business plan as to prepare strategies for enabling more users to use the tablet more often. On the other hand, over half of the participants (=57.2%) feel comfortable to use online platforms, while the 23.8% do not use platforms but are keen to learn how to use them.

How comfortable are you with using online platforms?

How comfortable are you with using online platforms?
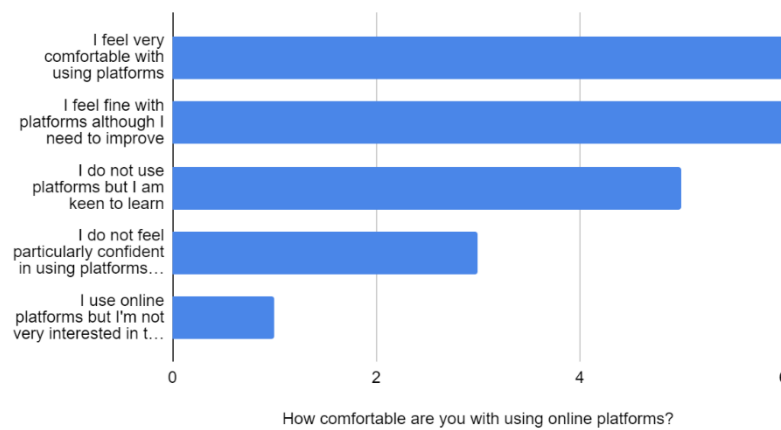
How often do you use the tablet?
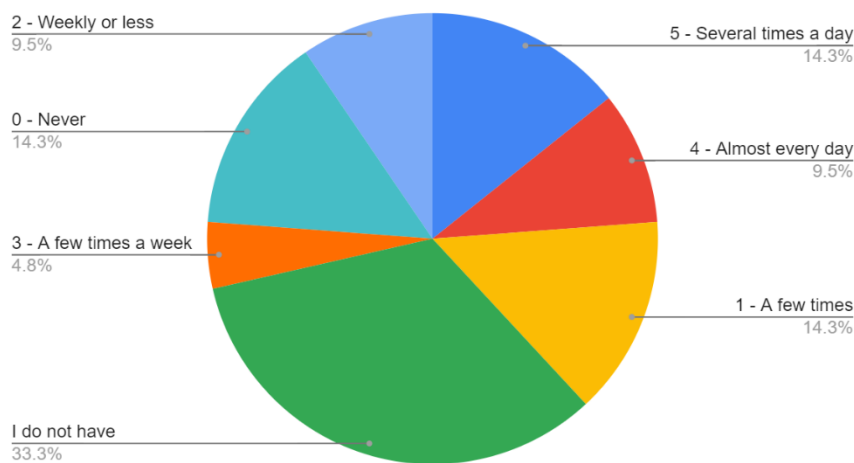
8.2.3 Dissemination

The participants were asked how they found about the platforms they are already using. Most of the participants (56%) are affected by their family members, whereas only 20% will use a platform recommended by a friend and only 24% of the participants will search online to find online platforms to meet their needs. The importance of the close family members is also confirmed by the fact that 90.5% of participants indicate as important or extremely important their relatives' opinion regarding a platform/application usage. When they were asked about the importance of their friends' opinion on the same matter the percentage of participants indicating it as important and extremely important dropped, although most of the participants valued their friends' opinion. When the participants were asked about their social media activity, the 57.2% was active on Facebook where the 38.1% did not have any social media accounts and the rest considered as social media applications such as Viber, Skype and WhatsApp. A very valuable piece of information for the consortium was that all participants do not trust recommendations and advertisements found on social media. They have mentioned that the advertisements on social media will not affect whether they will use a new application or not.

8.2.4 Questionnaire Answers

During the testing of the mock-ups, most of the participants (15 out of 21) completed the tasks without any problems and even mentioned that it was an easy process for them. Nonetheless, even the participants that completed the tasks without problems, still struggle with the font size of the text. The participants who struggled to complete the tasks provided us with feedback on how we could improve this process for them. The table below demonstrates the improvements suggested by the participants for each task:

Table 7 - Primary Users Feedback

Process/functions	Comments
Registration	- Need bigger font size, bigger boxes to fill in information - What happens if you fill-in both email and phone number regarding confirmation code? - Symbol "*" needs explanation what does it mean
Fill-in personal info	- "What makes you happy?" the question needs explanation. It is very broad.

	- Clarifications are needed if we are going to ask: "how much assistance do you receive? (what kind of assistance? Shopping? Personal hygiene etc.) - Add "back" buttons to all screens
Perform Baseline **assessments**	- On the "thank you for your time screen" the instruction about the settings is not correct. Please review the content.
Modify personal information	-Some of the participants pressed the settings button instead of going to the profile button due to previous instructions error. Small boxes and writing
Change settings	-Most of the participants requested labelling all the icons such as 'Settings", "Profile" and "Home". Some participants requested training videos to understand how the system works.
Perform an exercise	-Request for a training video. - Small boxes and writing
Play a game	-Request for a training video. -Further explanation on how the game is played -Small boxes and writing
Check performance	- some participants would prefer to have the possibility to see results in different ways (e.g graphs) and with filtering periods -keep records from the day you register
Video call	- The difference between the "contacts" button and the "daily interactions" one is not clear
Approve student	-Bigger font size and brighter colors
Additional features	-Smartwatch that accurately records heart rates, sugar levels and blood pressure -Panic/alarm button

| | -Fall detection |
| | -New updates |

The most likable features of the ReMember-Me system for the primary users (PUs) were firstly the Cognitive exercises and games (14/21), but they also liked the opportunity for family members and healthcare professionals to monitor their health by using the system (13/21). Surprisingly, the least likable feature of the ReMember-Me system for a small percentage (5/21) of primary users was also that family members can monitor their health. An even smaller percentage of PUs expressed their fear of robots (4/21) and how uncomfortable the idea of having a robot in their home was.

None of the PUs knew any other similar systems to provide any advantages or disadvantages compared to the ReMember-Me system. The improvements recommended by the PUs are reported according to tasks in the table above. These improvements included:

❖ Training Support video

❖ Labelling all icons

❖ Bright colours

❖ Bigger font size, buttons and boxes

❖ Simple, plug and play system

❖ Clarified some questions/instructions

The ReMember-Me system consists of 4 different devices. PUs rated how comfortable they would feel using these devices individually. The results showed that 17 out of the 21 PUs are comfortable wearing a smartwatch. Similar reaction was for using the tablet (16/21). Nevertheless, PUs' opinion was divided when they were asked how comfortable they would feel interacting with robots and using bed sensors. 6 out of 21 felt uncomfortable, 5 neutral and 10 comfortable interacting with a robot. Regarding using bed sensors, 8 PUs felt very uncomfortable and 9 comfortable using them.

This can also be explained because smartwatches and tablets are more popular among the general population, whereas interacting with a robot and using bed sensors are not as well-known to the public.

In order to understand the influence of the family members and the healthcare professionals over the PUs when recommending a product to them, we asked them

how often they will use the ReMember-Me system if it was recommended a) by a family member b) their healthcare professional.

Results showed that both family members and healthcare professionals could motivate PUs to use the ReMember-Me system, but in order to use it everyday or about 5-6 times per week, the recommendation coming from the healthcare professional would be more successful.

Even though 7 PUs will not buy it if it was already available on the market, almost all PUs would most likely suggest the ReMember-Me to their friends (19/21). The main reason for their decision not to buy the system is because they believe that they do not need it. Other reasons were the unwillingness to spend money on such products, the fear of robots and the need to test the system first.

Regarding methods of payment, most PUs preferred one-off payment (9/21) but it was almost equally desired to buy either paying a monthly fee (6/21) or renting from care homes (6/21).

8.3   Secondary Users

8.3.1 Demographics

The total number of secondary users (SUs) recruited for this phase is 21. This target group is unevenly represented with 71.4% female participants and 28.6% male participants. There is a broad range of ages recruited for the SUs as demonstrated in the bar chart below:
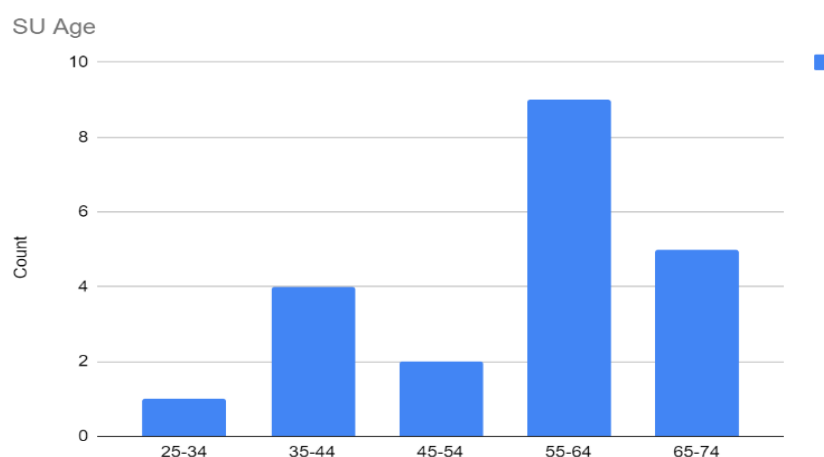
Just over half of the SUs achieved Higher education studies (57.1%), 38.1% high school and 4.8% nursery school to the 8th grade. The socioeconomic status of the SUs

participating was almost evenly represented as the 47.4% was earning over 2000 euros monthly (47.4%), the 42.1% between 1000 and 2000 euros monthly and the 10.5% between 500-1000 euros monthly.

8.3.2 Technology usage

Almost all SUs have internet at home and use it every day apart from one participant. All SUs have a smartphone. Apart from that one participant, the rest of the SUs use online platforms every day. All SUs feel comfortable using platforms, even though some of them feel that they could improve. These results suggest that our SUs have good IT knowledge without relevance to their age.

8.3.3 Dissemination

The 65% of SUs use several social networks several times a day, but 25% do not have social media accounts. The most popular social platform between SUs is Facebook (82.3%), then Instagram (47.1%) and about 35.3% is active on LinkedIn for professional purposes.

SUs also highly valued their friends' and family members' opinion to determine whether to use a platform or an app and this is also confirmed by the fact that most of the platforms and apps they are currently using were recommended by them. In order to trust advertisements on social media, they also need to be recommended by a friend. Only 23.8% consider important the recommendations on social media. Some SUs do their research online before they proceed on using platforms/apps (19%).

The SUs consider also important their GP's opinion in order to determine if they will use a platform/app (71.4%).

8.3.4 Questionnaire Answers

Most of the SUs completed the tasks without problems, finding the process very intuitive. However, the table below reports their comments (based on the different tasks) for suggested improvements as to further easer the process:

Table 8 - Secondary Users Feedback

Process/functions	Comments
Task 1: Register with the system as a family member and link your profile with your father/mother	-All icons to be labelled e.g "+" labeled with add new profile -Bigger screen and fonts

	- Clarification needed to whom ""connection nickname" refers to, (secondary or primary user?)
Task 2: Check your relative profile and make any necessary amendments.	- Need to add labels under save/cancel/back icons
Task 3: Check your relative progress	- would like to see simple charts, - would like to have options to choose the format of results, - would like to select the period for the user's results/performance.
Task 4: Provide information on the system regarding your relative's health status and send it to the healthcare professionals to be instantly informed.	- button is small. Difficult to read. - The name interactions is not very inviting and intuitive. - found it a bit boring, no flashy layout or pop-ups. - is it going to be a list with healthcare professionals to choose from?
Additional features	-The button "interactions" is not very inviting and intuitive - Exercises and games associated with music and creativity - Discussion groups to share experiences with users having similar (health) issues

The SUs liked all the features included in the ReMember-Me system. However, the most likeable feature of the ReMember-Me system for the SUs were both that healthcare professionals (18/21) and family members can monitor their relatives' health (17/21). The ReMember-Me system seems to meet a fundamental need of the SUs. When they were asked "what is your biggest burden/ problem/ worry as a caregiver to your parent/ relative?", the most common answer was that they all worry about their parent/relative health and their inability to be close to them all the time.

The only feature that some of the SUs felt a bit uncomfortable and hesitant about was the social platform (4/21). They were under the impression that their parents could be in danger if they were socializing with strangers. They preferred if PUs could socialize

only with their family and their health professionals. Some other SUs were hesitant and questioned if the healthcare professionals will actually monitor their patients through the ReMember-Me system. Another SU wanted to have a flexible plan of exercises with their relatives. This feedback emphasizes the need to communicate better to the potential customers, especially regarding the safety of the users, the interaction with healthcare professionals and the flexibility of the system.

Suggestions were made to create a training support video for the PUs because they felt that the ReMember-Me system might be a bit complex for them if they are not familiar with technology. The less writing they (PUs) need to do, the better for them. Also, the importance of clear differentiation between different buttons such as labels informing on what they do (eg. 'next page' in bold and red) was mentioned.

All SUs answered positively when asked whether they would trust the information provided by the ReMember-Me system. 7 out of the 21 were hesitant, as they wanted to see the final product before asserting, they could trust the ReMember-Me system.

Nevertheless, about half the SUs believed that their parents will not feel comfortable in using and interacting with the devices included in the ReMember-Me system (10/21). Only 4 out of 21 were positive that their parents would feel comfortable and the rest of the SUs were unsure. Most of the SUs justified their opinion based on PUs' unfamiliarity with technology and especially with the non-human interaction with robots.

All the SUs from Cyprus, Romania and Italy were not aware of any similar systems available on the market apart from 2 Belgian SUs, but the systems they knew were only for fun, and not to monitor their relative's health. The indicated disadvantages of those available systems were the lack of support and maintenance by the company selling it.

Only 6 SUs would not buy the ReMember-me system if it was available on the market, 8 SUs would buy it, and the rest were hesitant, wanted to see the product first, and then decide. 2 SUs explained that their reasoning behind their negative answer was mainly due to their unwillingness to spend money on such a system, 2 because they believed that their relatives do not need such a system and 2 SUs explained that they would buy it only if they had their parents' agreement.

In an effort to understand what additional features would make more desirable the ReMember-Me system to potential customers, SUs answered that:

- ✔ They need to see proof of other case studies who were greatly benefited from this system

- ✔ A variety of healthcare professionals have to use the system actively.

- ✔ The system should include reliable neuropsychological tests that detect cognitive decline

✔ The system should include a panic button and cardiac monitoring

✔ The system should have a good quality-price ratio

✔ It is important for the system to include stimulating/fun exercises and games

Even though SUs mentioned the above points for the ReMember-Me system to be more desirable, 15 out of 19 would likely recommend the system to their friends. 15 SUs felt that the affordability of the system is very (extremely) important, while 4 SUs felt that the affordability of the product was of a certain importance. Only 2 SUs considered the affordability of the system unimportant. This is also mirrored in their answers regarding the price range they were willing to pay for the ReMember-Me system. Most SUs would pay either under 100euros (5/21) and between 100-500 euros (6/21). Four of them were unable to answer this question, only one participant was willing to pay more than 5000 euros and the other five were willing to pay between 500-1000 and up to 2000 euros.

In the last question, about half of the SUs were extremely enthusiastic when they were presented with the payment option to rent the system from care homes. The rest were divided between the options of a one-off payment and the monthly fee. This could be something that the consortium should consider applying to their business plan. Also, SUs were asking if they could buy bundles depending on their needs. For example, some of them already had tablets and smartwatches or they were not keen on the idea to buy a robot and they were wondering if they could pay separately for the rest of the system.

8.4 Tertiary users

8.4.1 Demographics

For the co-creation phase, the consortium decided to recruit only healthcare professionals and at a later stage of the development of the system, they plan to include students also. This decision was based on the COVID-19 situation and as a result, the prototype for the students' usage will be developed later on. During the co-creation phase, 22 tertiary users (TUs) were recruited with a wide representation of healthcare professionals including: nurses, geriatric doctors, psychiatric doctors, psychologists, neurologists, neuropsychologists, cognitive psychologists and speech pathologists. The representation of both genders was not equal as 77.3% were women and the rest were men. Age ranged from 25 years old to 64 years old while the highest percentage of recruited subjects were between 25 and 34 years old. The socioeconomic status of the TUs is presented in the pie chart below: over half of the TUs have an income over 2000 euros, 36.4% between 1000 and 2000 euros and the rest below 1000 euros.

Age

What is your monthly income?
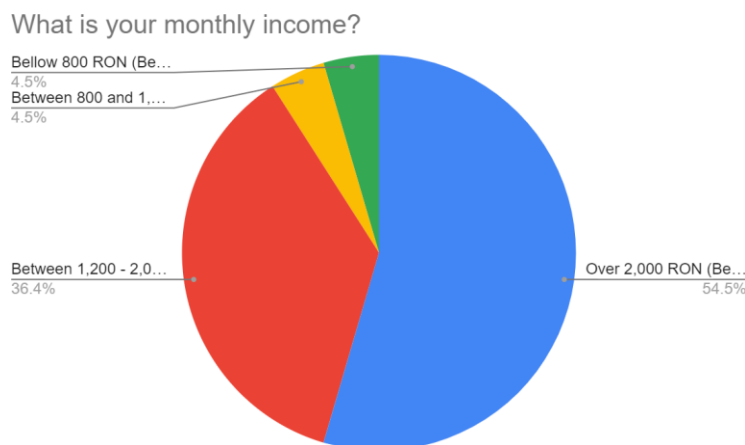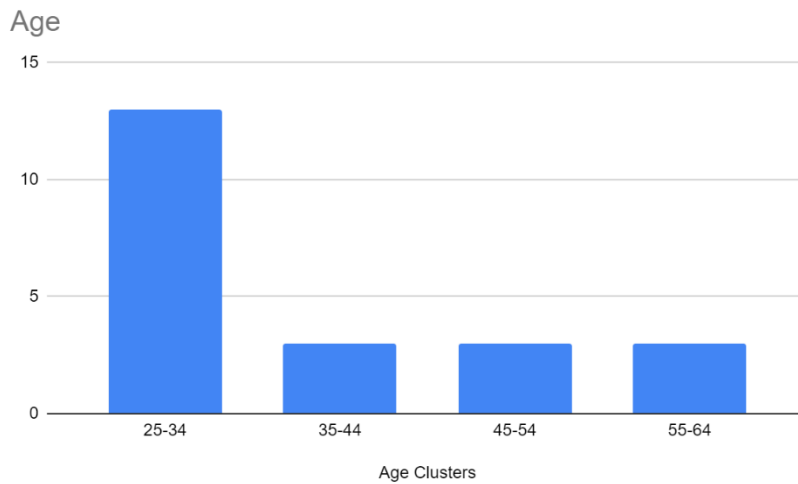
8.4.2 Technology usage

All TUs have access to the internet and they stated that they either feel very comfortable using online platforms (72.7%) or that they are comfortable using the platforms, but could improve. Only one participant did not feel confident using platforms and was within the 55 to 64 years old, justifying the lower IT literacy.

8.4.3 Dissemination

Again here, the most common social media network used by the TUs is Facebook (72.5%), then Instagram (54.4%) and surprisingly only 22.7% actively use LinkedIn, which is considered a professional network. Among the TUs, only 18.2% (4 TUs) does not have or does not actively use any social media at all. From those four TUs, three of them were between 55-64 years old and the other one between 45-54 years old. The

TUs were more affected by recommendations from their friends and colleagues compared to PUs and SUs (54.5%). About the same percentage of TUs was currently using platforms/apps recommended by relatives or searching on their own to find about the apps/platforms (31.8% and 27.3% respectively). Only 13.6% was using platforms and apps from Advertisements on social media.

These answers were also consistently confirmed by replies given regarding whose opinion and recommendation is important in order to start using an app/platform. About 90% of the TUs consider very important recommendations from their friends, about 77% consider important the recommendations from their relatives, about the same percentage considers important recommendations from their GP and only 18.2% considers important recommendations from Advertisements on social media. Though the 40.9% is neutral about recommendations from advertisements on social media. This could be interpreted as advertisements might potentially intrigue them and after research about the specific product, they might start using it.

8.4.4 Questionnaire Answers

Participants from the previous target groups showed similar reactions to the task list without major differences between the countries, only Italian TUs struggled more to complete the tasks compared to the other three countries' participants. Some participants needed a bit of guidance in order to complete the tasks. Therefore, it could be concluded that they TUs might also need a "help" button in the features even though no TU mentioned the need of it.

Table 9 - Tertiary Users Feedback

Process/functions	Comments
Task 1: View patient's progress	- Include "quick" link to the latest activity of each patient - Option to choose the format of user's performance (e.g pie charts, description, bar charts, etc.) - In the progress section, they'd prefer to have icons indicating different categories instead of charts (e.g. a brain icon under cognitive status etc.) - Also results and progress to be categorized/filtered for each exercise and game
Task 2: Add medical observations on a specific patient	- Need a separate button on dashboard/main menu called "reports"

	- Need a separate button to send reports to relatives and a different one to healthcare professionals to ensure data protection.
	- Option to send a report by email, but protecting the patient's info.
	- Need to be compatible with all devices (smartphones, laptop, tablets)
Task 3: Send suggestion to change the duration of a specific exercise	- On Daily recommendations, they'd need to have the option to add general instructions to the patients.
	- Concerns about difference between daily plan and daily recommendations
	- Very important to have filters to select either ALL/ACTIVE/INACTIVE suggestions.
Additional features	- Need to have photo of each patient to avoid misunderstandings (desirably to be required during patient's registration by the system)
	- Able to review history of alerts for each patient
	- Bigger font size
	- Enjoyable colours
	- Including medical information (past medical history and medication) is considered essential
	- Ability to see activity of the primary users
	- Monitoring correct intake of medications
	- option to personalized recommendations instead of just choosing them from a drop down list
Primary users' platform	- Create an "Events" section where older adults can volunteer
	- Option to communicate with other PUs with common interests (suggested by the system)

	- Add metacognitive activities as to increase the patients' insight and sense of self-efficacy,
	- Insert ecological activities
	- Self-report from PUs (possibility to insert general information about their wellbeing e.g hydration status, bowel movement, food consumption etc.
	- Give control to the patient to choose from recommendations and daily plans.
	- Fall detection and heart rate monitoring
	- Personalised Cognitive games

Most of the TUs (15/22) would trust the information provided by the ReMember-Me system. The rest would need proof that the information provided by the system is reliable. The most likable feature of the ReMember-Me system for TUs is that their patients can receive recommendations from them and other healthcare professionals (15/22). The other top four in their preference were the cognitive games and exercises, the fact that healthcare professionals can monitor a patient's health, the daily plan and the social platform. The least popular features were the devices included in the system. Some of the TUs were concerned regarding the devices a) due to the multiple devices, complexity of use increases especially for someone with MCI and b) they were concerned especially about the robot and its interaction with users c) they thought there might be some communication issues with the robot (dialect issues).

None of the TUs were aware of any other similar systems available on the market. A great finding is that 16 TUs would be willing to buy the ReMember-Me system if it was available on the market, 5 TUs were unsure and only 1 was negative about the system. These findings are very encouraging regarding the acceptance of the system between the healthcare professionals.

TUs mentioned that it would be more convincing to buy the ReMember-Me system, if a broad range of healthcare professionals were using it. Also, they would like to know if someone from their healthcare network stopped using it and having a scientific proof that this system is beneficial would boost their motivation to use the system.

Twenty-one out of the twenty-two TUs would likely recommend the ReMember-Me system to their patients and colleagues if it was already available on the market. Only one TU considers unlikely to recommend the ReMember-Me system.

TUs have similar opinions regarding the importance of affordability of the system compared to the SUs as 19 TUs consider the affordability of the system very important. Only 1 TU did not consider affordability that important and nobody thinks it is unimportant.

Only about half of the TUs who participated in the co-creation phase answered the question regarding an acceptable price for the system (12 TUs in total), the rest were struggling to consider a number. Also, there was confusion regarding what the ReMember-Me package will include for them and on the method of payment. Nevertheless, the most frequent answer was between 1001 and 2000 euros (6TUs) and the second between 100-500euros (3 TUs). The method of payment that TUs would prefer was almost equally divided between the three options: one off payment (7 TUs), monthly fee (8 TUs), renting from care homes (10 TUs).

8.5   Commercials

8.5.1 Demographics
During co-creation phase, fourteen Commercial users (CUs) were recruited with a broad spectrum of positions including: COO of a nursing home, manager of a cognitive center, manager of home nursing services, director of a rehabilitation facility, head of geriatric clinic, GP, director of a cognitive disorders and dementia center, director of speech language center, responsible for selecting Technical Aids/Assistive Technology devices in a Rehabilitation facility, CFO of a nursing home and a reference person for young dementia. All CUs have achieved higher education.

8.5.2 Technology usage
All CUs are over the average IT literacy. All of them have smartphones and laptops. About 64% feel very comfortable using online platforms and the rest feel confident enough using them, but believe that they still need to improve. 71% of the CUs use mobile phone applications every day and the rest a few times per week. However, the percentage of CU using social media drops to 64% and the 28.6% do not have social media accounts.

How often do you use Social networks, e.g. Facebook, Twitter?
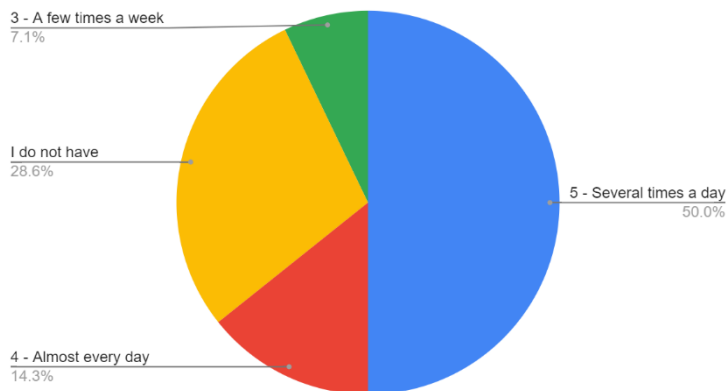
8.5.3 Dissemination

Once more, Facebook is the most popular among the CUs (75%). The next in popularity are LinkedIn (41.6%) and Instagram (41.6%). These results demonstrate that CUs are more actively engaged in LinkedIn compared to the TUs. Thus, it will be worthy during dissemination activities, to focus the material published on the LinkedIn account on CUs' needs and interests. Twitter network was again one of the least popular among the CUs with only 16.6% of participants actively using it.

Compared to the other target groups, most CUs did not discover platforms and apps from family members (only 14.3%). The most common source of recommendations was their friends (64.3%), the second most popular way for CUs to find out about platforms and apps is performing their own online search (57%) and 35.7% of the CUs are affected by advertisements on social media. Even though only 14.3% was using platforms and apps from recommendations from their relatives, 50% value their relatives' opinion as very important in order to start using a platform or application. This could mean that even though they value their opinion they might not require their opinion so far. As it was expected, 78.5% of the CUs considered their friends' opinion very important. The percentage of participants considering recommendations from social media as important was identical to the percentage asserting that they are using platforms and apps influenced from Advertisements on social media.

8.5.4 Questionnaire Answers

8.5.4.1 Business Strategy

The CUs are one of the core possible customers and potential channels for the marketing of the ReMember-Me system. Consequently, it was essential to find out the kind of information they needed to persuade them to buy the ReMember-Me system, which channels they trust the most to learn and try new products available in the market, and finally which social networks they trust to learn about new products.

CUs answers were insightful and will be taken into consideration when developing the ReMember-Me business plan, but also to establish whether further activities need to take place within the project in order to be considered serious competitors in the market.

It is very important for the CUs that the Remember-Me system proves its reliability, has positive user ratings and high levels of satisfaction, is user friendly and easy to use, but also manages to establish good support/maintenance services. They pondered whether the system could be used by a group of people and if the system could potentially be integrable with other devices in the future to offer added value to their customers and themselves.

The CUs responded that the information they trust in order to consider buying new products depends on whether the recommendations comes from their suppliers (e.g assistive technology companies, IT companies), colleagues and customers who already tried products, being certified by approved research programs, medical/health organisations, researcher universities, and whether such products were presented in scientific conferences.

The social networks that are more trusted by the CUs are: LinkedIn, Official product's website, product's Facebook page and some of them also mentioned Twitter.

Table 10 - Commercial Users Feedback

Topics	CUs Feedback
Important information needed to consider buying ReMember-Me system	- proven reliability - user ratings/satisfaction - price - good system usability - proactivity of the system - gamification based on patients' attitudes - able to give quantifiable outcomes - possibility of integrating other devices in the future (e.g.: motor performance monitoring) - references and results

	- good support/maintenance services - added value if it could be used in groups
Trusted channels	- reliable supplier (e.g assistive technology companies, IT companies) - colleagues and customers who already tried it - approved research programs - researcher universities, - medical/health organisations recommending it - presentations in scientific conferences - word-of mouth - colleagues and experts' recommendations - studied on scientific papers
Trusted social networks	- LinkedIn, - Official website, - Facebook page - Twitter

8.5.4.2 ReMember-Me system suggestions

The changes recommended by the CUs to improve the ReMember-Me system are: the system to remind primary users when they haven't used the system for some time, also reminders for doctor's appointments, alerts for medication and a way to confirm that they took their medication. Furthermore, suggestions were made regarding the possibility for seniors to talk to other elderly people, to have available group games (3-4 people), and concerning easiness in charging devices and the possibility to integrate a GPS system. Some of the CUs emphasized the need to modulate activities based on patients' attitudes and interests and to improve the interface considering emotional design and thus introducing excitement features (those that the consumer did not expect to see in the product and are excited to learn are there).

Regarding the healthcare professionals' platform, they suggested including information regarding medical history and medication in order to make it more practical and desirable for them. Medical information should also include heart rate, blood pressure, respiratory rate, blood glucose etc. They have also highlighted the importance of the system to be GDPR data protected.

None of the CUs were negative regarding buying the ReMember-Me system and only 5 out of the 14 interviewed subjects were unsure. All of them also mentioned that they will likely recommend it to their customers with about 60% of the CUs who will highly likely recommend it to their customers. About the same percentage of CUs consider affordability of the system extremely important. This is expected as CUs are into the business sector and would like to strike the best business deals to keep their customers satisfied but also benefit themselves as well [study?]. Nonetheless, CUs were the only group of participants that evaluated realistically what this system offers and they provided ranges between 500 and 5000 euros, with the most common answers being between 2000 and 3000 (3/11) and between 4000 and 5000 euros (3/11).

9 Outcomes

9.1 General

Overall, there was a very positive reaction from all target groups regarding the ReMember-Me system. A lot of them are a bit hesitant on whether the system will actually meet its purposes and they are waiting to see the final product in order to be completely persuaded.

Most of the SUs were certain that PUs would be very uncomfortable around the robots, but surprisingly a high percentage of PUs were eager to see and test the robots.

The second most unpopular feature of the ReMember-Me system was the social platform. Nonetheless, there were a few recommendations from SUs, TUs and CUs to enable forums or group games or the possibility for PUs to talk and play between them based on common interests in order to prevent loneliness.

Even though most participants were above average IT literate and found the process quite easy, there was a high percentage of all target groups mentioning the importance of a training support video. Thus, the consortium should prioritize a training video for the system.

A very high percentage of all potential users consider affordability of the ReMember-Me system as extremely important.

9.2 Dissemination

The results showed that potential customers are influenced a lot by their family members and their friends in order to buy a product/service. PUs and SUs showed that they do not trust advertisements on social media alone to buy a system. However, most of the SUs and TUs really liked the idea of first testing the system by renting it from a care home. Henceforth, the consortium should seriously consider making deals with home cares in order to rent them to potential customers. Possible using commission schemes in the early steps of the product advertisement might be very beneficial.

When considering social media dissemination activities and advertisements, results showed that the highest amount spent on social media should go to Facebook as it is the most popular social media among all four end-user countries participating in the co-creation phase (Cyprus, Romania, Italy and Belgium).

10. Limitations

The co-creation phase had some limitations that could affect our results. The following limitations are described in this section.

A first limitation of our study is the uneven representation of gender between the different target groups. There was a very high percentage of women participating in this phase compared to men. The plan is to aim for even representation in the next testing phase of the ReMember-Me system. This is of high importance because if men are underrepresented, there is a danger to miss men's opinion and view of the system and this will impact our business strategy and commercialisation.

A second limitation of this phase is that older age groups of 75 years older and over were not equally represented. Even though they might not be able to provide constructive feedback at this stage, we should consider them during the next testing phases.

Last but not least, most of the participants were over the average IT literate as it was easier to perform the co-creation phase online to ensure safety of participants and researchers. Henceforth, lower IT literate people should test the system before it goes out in the market.

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12 Annexes

12.1 Informed Consent (English Version)

INFORMED CONSENT FORM

Research Project **ReMember-Me** The ReMember-Me project is funded by the European Union - Active Assisted Living Programme - Ageing Well in the Digital World.	
Persons responsible for the research project:	[experimenter name] [experimenter email]

Project Title: ReMember-Me

Dear Sir/Madam,

You are invited to take part in the development of the ReMember-Me system.

Before you make your agreement to participate, it is important that you read the following carefully.

If you have any questions or comments, please do not hesitate to let us know.

1. Purpose of the project

The ReMember-Me is a smart system which aims to address the prevention and detection of cognitive decline, promote cognitive function and social inclusion among older adults.

ReMember-Me aims to function in 3 main levels:

- Monitoring the health status of the user
- Detection and personalized training.
- Being integratable in older adults' everyday life patterns.

This system will include:

- Sleep, activity and mood assessment, orientation in time.
- Alternating-daily, short-assesment exercises.

- And socialization through knowledge sharing.

2. Procedure

You will first be asked to give your consent, by signing this consent form, to participate in the study. *What will you do?*

Participants will be able to test the ReMember-Me features on their existing tablet. If no device is available, one will be provided in the testing phase. For the first testing phase the system will be not functional but you will be able to navigate around the platform in order to provide your first impressions and feedback. If you have any questions or are unsure about something, you will receive immediate support by your local team of researchers.

Why do we need people to test our system?

Since the ReMember-Me team is still working on the implementation of the above solutions, we need people who agree to test our solutions and give us their valuable feedback. As this is still the initial phase of the ReMember-Me project, your participation regards your feedback on the potential services that will be incorporated in the ReMember-Me system. With your help, we can determine how well ReMember-Me can be used in everyday life and what could be improved. Therefore, we kindly ask you to test our product and to express your wishes and concerns as well as possible. Your feedback will be anonymous and will be utilised in our reports in order to enhance and improve the ReMember-Me system.

3. Voluntary participation

Your participation in the ReMember-Me project is voluntary and free of charge. You will not have any economic or material benefit by participating in the ReMember-Me project. You can cancel your participation at any time without giving a reason and without any consequences. If you would like to end your participation, please let us know by fax, email or telephone. For this, your name and your wish to end participation are sufficient. If you realize that you do not want your data to be used after all, you have to let us know by fax, email or telephone.

4. Disadvantages and possible risks for participants

You are free not to answer any questions that are inconvenient.

Participation in this project does not represent any risk. No direct or indirect danger or discomfort is expected during your participation in the ReMember-Me project. There will be no change on any medical prescriptions or medical instructions given by your doctor.

5. Benefits

There is no advantage to participating in this test except the precious help you will bring us by sharing your impressions.

6. Anonymity and data protection

Example: The data collected (audio and visual recordings and transcripts of the interviews) will be anonymized via a coding system. All personally identifiable data will be deleted from our

files and archived on one of the organisation's computers, access to which is protected by a password, not later than one week after the date of the interview.

These anonymized data may then be used directly for internal reports, dissemination of the project, publications in journals and conferences, and/or more indirectly by being reused for future research.

This consent form will be kept for 5 years in a locked drawer accessible only to the members of the project.

7. Access to research results for participants

If you are interested in the search results, you can contact [name of the experimenter] from [month]. Due to the anonymization of the data no individual results can be transmitted.

8. Contacts

For more information about your rights as a participant, in case you have any questions or if you are not satisfied with the way we have proceeded, you are free to contact the following people: [name and e-mail address of the experimenter]

9. Consent to participate in research

On the basis of the above information, I confirm my agreement to participate in the "ReMember-Me project" research, and I authorize:

● The use of the data for scientific purposes and the publication of the results of the research in scientific journals or books, on the understanding that the data will remain anonymous and that no information will be given on my identity.	☐
● The use of the data for educational purposes (training courses and seminars for students or professionals subject to professional secrecy).	☐
● Audio recording of the interview	☐
And confirm: ● Have read this document carefully and have had the opportunity to ask for clarifications. I therefore confirm that I have understood all the contents and agree to participate voluntarily in this test.	☐
● Have been informed of the possibility of withdrawing at any time without giving reasons, if necessary, to request the destruction of my data within one week after the interview.	☐

This consent does not relieve the research organizers of their responsibilities. I retain all my rights under the law.

First name Last name

_____

Signature

Date

_____

RESEARCHER'S COMMITMENT

The information on this consent form and the answers I gave to the participant accurately describe the project.

I agree to conduct this study in accordance with ethical standards for research projects involving human participants and in accordance with the Guidelines for Integrity in Scientific Research.

I undertake that the research participant will receive a copy of this consent form.

First Name Last Name

_____

Signature

Date

_____

12.2 PowerPoint Project Presentation

Short Project Presentation
Co-creation Phase
ReMember-Me Project

[Presenter(s) name(s) and their organisation]

[Organisation Logo]

12.3 Sociodemographic Questionnaire

Socio-demographic Questionnaire

Office use Only	ID no:

Age: _____

Gender:

☐ Male

☐ Female

What is the highest degree of education or level of school you have completed? – please select only the highest level achieved:

☐ No schooling completed

☐ Nursery school to 8th grade

☐ High school

☐ Higher education studies (university, post-university)

Profession:

Living status – choose only one answer (For primary users ONLY):

☐ Alone

☐ With spouse/ partner only

☐ With spouse/ partner and other family members

☐ With other members of my family

☐ In a retirement home

☐ Other – please specify: ………………………………………………………………

Do you have someone who takes care of you? (For primary users ONLY)

☐ Yes

☐ no

If yes who is it? nurse/children/wife? (For primary users ONLY)

_____

_____

8. What is your monthly income (e.g. pension, rent, other financial help)? (For primary and secondary users ONLY)

☐ Bellow 800 RON (Belgium, Italy, Cyprus: below 500€)

☐ Between 800 and 1,200 RON (Belgium, Italy, Cyprus: Between 500 and 1,000€)

☐ Between 1,200 - 2,000 RON (Belgium, Italy, Cyprus: Between 1,000 and 2,000€)

☐ Over 2,000 RON (Belgium, Italy, Cyprus: Over 2,000€)

Technology usage

1. **How often do you use the following services/ devices/ applications?**

	I do not have	0 Never	1 A few times a month	2 Weekly or less	3 A few times a week	4 Almost every day	5 Several times a day
Internet at home							

Desktop personal computer						
Laptop						
Conventional phone - no smartphone						
Smartphone						
Instant messaging (e.g. Whatsapp, Viber, Messenger)						
Online platforms (e.g. websites, Google, YouTube)						
Tablet						
Personal email						
Social networks, e.g. Facebook, Twitter, Instagram						
Mobile phone applications (e.g. Google Maps, Weather, Heart rate monitoring)						

2. **How comfortable are you with using online platforms? Please, check only one.**

☐ I feel very comfortable with using platforms

☐ I feel fine with platforms although I need to improve

☐ I do not feel particularly confident in using platforms although I have tried

☐ I do not use platforms but I am keen to learn

☐ I do not use platforms and I am *not* keen to learn

☐ Other (Please, give
details) ………………………………………………………………………………..

3. **In case you use social media, could you select which ones you are active?**

- Facebook
- Twitter
- Instagram
- LinkedIn
- Other. Please specify:_____

4. Among the platforms/apps you are currently using how did you find out about them:

☐ Recommended by family member

☐ Recommended by friend

☐ Recommended by GP/physician

☐ Recommendation/ Advertisements on social media channel (e.g. Facebook, Instagram, or other).

☐ Searched online for such a product

5. Whose opinion would determine you most to use a platform/app?

(on a scale of 1-5; where 1 is not at all, 5 is extremely important – Please circle your answer).

1. **Relative**
1-Not important at all; 2- Not important; 3- Neither; 4- Important; 5- Extremely important;

2. **Friend**
1-Not important at all; 2- Not important; 3- Neither; 4- Important; 5- Extremely important;

3. **GP/physician**
1-Not important at all; 2- Not important; 3- Neither; 4- Important; 5- Extremely important;

4**. Recommendation/Advertisements on social media channel**
1-Not important at all; 2- Not important; 3- Neither; 4- Important; 5- Extremely important;