



Deliverable 4.5

Report on trials roll-out & technical operation

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Abstract

The field trials are conducted in different countries (the Netherlands, Poland, Romania, and Switzerland). For all countries, informed consent was given by the subjects/participants and when required the technological setup and configuration of the devices of the participants was done by a researcher. In the Netherlands, two trials were performed. During the first trial, the end user had access to all the functions of Anne and Emma. After this usage, the users filled in a questionnaire (n36). Due to the pandemic context and the local restrictions about meeting vulnerable people, the second trial was done digitally. A movie was made showing the latest version of the combined products of Anne and Emma. At the end of the video, end users were kindly asked to fill in a questionnaire (n126). In Poland due to the pandemic the Mouflon Rehabilitation and Recreation Center in Ustron was closed. Therefore, the participants had to be recruited differently. Fifty participants were included and Emma, Anna, the Bath mat were tested. In Romania during the first trial the participants tested the Anna with Emma and the blood pressure monitor. For the second trial, the user was testing Anne regarding various tasks suggested by ANA team according to our previous theoretical research. For this second trial, the aim was to check the acceptability and the intention to adopt 'Anne. The virtual assistant', by older adults, (their) informal carers and some formal carers that had also been involved through in-depth interviews. A total of 101 participants were included in the tests. In Switzerland, one trial was performed. This trial was similar to the first trial in Romania.

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1 Introduction

During the field trials, the end user organizations and the end users were constantly supported regarding the usage, the configuration and for technical questions. Depending on the size of the executed field trials this led to more or to less effort.

2 Trial roll out per country

2.1 The Netherlands

Field tests carried out in Romania required the participants to sign an informed consent expressing their will to voluntarily take part in the test, as well as their acknowledgement and agreement of personal data recording, storing and processing. They were also informed about the data minimization principle, their right to withdrawal at any moment and data deletion rights at any moment and without any condition.

Project members of Livelife made the initial device setup of the Windows surface tablets, installed Anne's software, created the user accounts, and did a final check-up. Both the tablets and the blood pressure measurement devices were then delivered to the end user's home by a project member. At the home location the tablet was placed on a table and was connected to a wall outlet and the WiFi connection on location. On the end user's smartphone the Emma app was installed and configured before a final check of the total system was made. Manuals written in Dutch were given to the end user and together with a Livelife's project member a first test round was done together with the end user. After turning on the tablet the end user did not have to do any kind of action because Anne would start up automatically.

During the first trial the end user had access to all the functions of Anne and Emma (Blood pressure measurement, News, Calender, Medication, Radio, Photo album and Games). At the end of the trial, end users were kindly asked to fill in a questionnaire. A total of 36 participants were included in the tests.

Due to the pandemic context and the local restrictions about meeting vulnerable people, the second trial was done digitally. Together with MedicineMen and Virtask, a movie was made showing the latest version of the combined products of Anne and Emma. In the video visually, verbally and by written text an explanation and presentation was given of the concept. At the end of the video end users were kindly asked to fill in a questionnaire. A total of 126 participants were included in the tests.

2.2 Poland

2.2.1 Field Test in Poland

MUFLON sp.z o.o., carries out care activities (rehabilitation and sanatorium house) and care for the elderly in their homes in the Śląskie Voivodeship.

2.2.1.1 Test implementation strategy.

The Polish part of the research of the Ella4Life project was to be carried out at the Mouflon Rehabilitation and Recreation Center in Ustroń. Until March 2020, the Center accepted seniors in an open mode as part of rehabilitation camps, conducting various therapies improving the physical and emotional fitness of seniors. Mouflon welcomed about 1,500 seniors annually. As a result of the lockdown introduced due to the SarsCov2 pandemic in March 2020, patients stopped coming to Ustroń and the Center had to be closed. Therefore, the team managing the Polish part of the Ella4Life project changed the testing strategy, adapting it to the possibility of contact with seniors in Poland in pandemic time. He used the contacts among patients of the project manager on behalf of Muflon Sp. z o.o. Ewa Polańska and their family members and decided to base the direct test process on them.

• **3.2.4.2. 2020-2021 test phase**

Recruiting

MUFLON sp. z o.o. used two channels (E-mail, telephone to our clients/customers) to recruit 100 end-users:

1. Online testing - long movie was made in order to test the Ella4Life concept and an online questionnaire was conducted - 30 users
2. Home testing - 50 users

It was not possible to direct recruitment among sanatorium residents according to lockdown with COVID-19 pandemic situation.

Both channels were given a description of Ella4Life and explanation about the testing phase.

The selection of the end-user group which included those who meet the recruiting condition (age, health status, with at least a minimum level of using ICT's). Health checks should not be used to discriminate against people who are frail due to age or dealing with cognitive or mental health problems.

Selected End-user participants - men and women, fully professionally active, partially professionally active and after the end of their professional life. In terms of health, able-bodied people with a small number of illnesses, people with several chronic diseases and dependent people under the care of a family or a care institution.

Legal aspects of the conducted research - research carried out as part of the Ella4Life project is not of a clinical nature, only anonymous development studies, research participants provide only pseudonyms, all data is anonymity.

3. Characteristics of research groups.

- Due to Covid-19, Partners were forced to develop a new research group recruitment strategy. The basic assumption that was made is the division into 2 research groups.

The first group is individualized, direct research - 50 people.

Group 2 is remote research, via the Internet - 30 people.

- Who took and participates in the study of group 1 - people who previously were clients, collaborators of the Muflon Center in Ustroń, and so far have been cooperating with the project manager, Ewa Polańska and their families. In order to have contact with seniors, it

was necessary to ask the caregivers and families of such people to support the research process, without their constant help, these activities would be impossible, the main obstacle would be the resistance of the elderly to contact people from outside during a pandemic and risk developing Covid-19.

Necessary actions taken during the testing phase:

- Handover of devices, forwarding logins and passwords, delivering surveys and survey links,
- Solving problems that arise during the conduct of research:
- The Emma application works in Poland with the blood pressure monitor only on Android - this is a serious limitation that prevents people with an iPhone from using the application.
- Many seniors in Poland do not use a smartphone, only simple keypad phones, if they participated in the project, they used smartphones of the project manager or their family.
- Some elderly people did not want to share their smartphone and wi-fi because they were afraid that they would lose their anonymity on the web and could be identified and tracked.
- Most people taking part in the research and using a smartphone are not able to install the application themselves, enable an external device, a blood pressure monitor, to operate via Bluetooth.
- Unstable Polish language in the Emma application, after each phone reset, the language changes to English, which is a barrier for a person who does not speak English.

3.2.4.3. Summary of the research.

Research in Poland is still ongoing. In Poland, the project will last until the end of July 2021. On-line tests on end users are planned until June 10, 2021, with a summary meeting at the laboratories of the Gdańsk University of Technology with students of the University of the Third Age, most of whom have been recruited to testers. For on-line tests, a website was created in Polish with a presentation (movies, manuals) of the Ella4Life project and access to surveys (ella4life.pl).

The survey questions concerning general information about the senior citizen (his personal, material, technological advancement) and the Anna and Emma applications were prepared in accordance with the consortium template. While the questions about the eWann and eKrzyszto systems were developed especially for the Polish part of the second iteration tests (the content of the questionnaires is attached).

At the moment, summarizing the surveys of 50 test participants in the contact mode, it can be stated that:

- The Emma app - was rated most positively as an almost finished product. Audible messages remind you of the need to conduct a test
- Assistant Anna - at this stage of her advancement it seems of little use to a senior. The audio messages (if transmitted) appear only once, only in the audio form, if the senior is not nearby, he will not know that he has received the message, because after it has sounded, there is no trace of it. Pressure measurements are not saved in Anna. If a family member wants to save tasks to the parent, complete the

calendar, and do not know English, he cannot become the administrator because the Polish version is missing.

- Bath mat - has serious limitations, the first test showed that the mat does not stick sufficiently to the bottom of the bathtub, which strongly affects the safety of the person using the mat. At the moment, it should not be used by seniors alone, as it may cause them to slip in the bathtub.
- Preliminary conclusions for the future regarding the use of Ella4Life products and achievements.
- Emma application - if Medicine Men is interested in distributing the application on the Polish market, it should refine the application components in Polish.
- Personal Assistant Anna - at the beginning of the research, the participants seemed intriguing, attractive, and because of the few opportunities, they quickly lost interest in her.
- Bath mat - the shape of the mat, its size and the way it is attached to the bottom of the bathtub should be refined to make it safer for the senior and allow the senior to use it independently.

2.3 Romania

Field tests carried out in Romania required the participants to sign an informed consent expressing their will to voluntarily take part in the test and their acknowledgement and agreement of personal data recording, storing and processing. They were also informed with respect to data minimisation principle, their right to withdrawal at any moment and data deletion rights at any moment, and without any condition.

ANA Team made the initial device setup of Windows Surface Tablet consisting of 4G connection on Digi Mobil network, Anne Software installation, accounts for the users and final check-up. Devices were afterwards mailed to the user's home address.

After the end user received the package, unwrapped it and plugged the table to the power outlet, all he/she had to do was to turn on the tablet. The Anne app had been set up to start automatically at Windows start-up. Afterwards, the user was led through the basic functions by the virtual assistant Anne. All this was done by the user himself and with the assistance of an ANA Team member or with the help of a relative or with phone guidance from the contact person of ANA.

The user could not interact verbally with Anne, for instance asking about the calendar entries of the day, but it was made possible to listen to the voice of Anne and give commands by tapping.

For the first trial, the last thing to do for the user to have access to all of Anne's functions was to install a blood pressure monitor. The Anne app was already integrated in the Emma platform, so the user had only to download the Emma app from Google Play or Apple appstore onto a smartphone. Emma will then take the readings from the Bluetooth-enabled blood pressure monitor and show them in Anne app.

For the second trial, the user was testing Anne with respect to various tasks suggested by ANA team according to our previous theoretical research. For this second trial, the aim was to check the acceptability and the intention to adopt 'Anne. The virtual assistant', by older adults, (their) informal carers and some formal carers that had also been involved through

in-depth interviews. We stressed the relevance of Anne for those at an advanced age or with a subjective cognitive impairment (SCI).

Because of the Covid-19 pandemic, we also employed online tests in addition to the face-to-face testing, to have a more representative number of participants in the study.

- Face-to-face testing: Interviews were conducted with older adults between 62 and 74 years old. Some of them also completed the online questionnaire.
- Telephone and Online Testing: A video of 4 minutes was made in order to test the Anne concept and after showing it, an online questionnaire was completed.

Short movie presentation: The first part of the movie tells the story of a 70 year old woman, called Cosmina, who lives alone in a big city in Romania, Timisoara. Cosmina used to be a doctor, and when she has started to forget easy things, like the steps of a recipe, she realized that her brain had started the degeneration process, and that the broken synapses would lead to forgetfulness. She knew she would need to build up new synapses, to challenge her brain by learning new things, engaging in new activities, and exposing herself to new memories and surprises in front of the world. The second part of the movie is about how Cosmina uses Anne, and how Anne suggests new activities, how the medication reminder, the radio and news functions work, the photo album and games. It aims to give an overview on how the app can be used.

A total of 101 participants were included in the tests.

For an optimal test, we have used Anne's features for the following goals:

Album. The Album is linked to Agenda and the Task List

The album is not just a family album but one of inspiring and creative pictures aiming to:

- engage emotional memory
- spark creativity

Agenda and the Task List

- Should serve not just writing down daily tasks but new, creative ones, which keep them socially active and engage their creativity and cognitive functions, breaking routine and supporting them in building a resilient brain.
- These tasks should be highly individualized. For example, at an advanced age, the tasks should be divided into smaller tasks and challenged with non-routine.
- Though, Anne is also an assistive technology, and therefore, reminders should be used as well.
- Higher repetition of those tasks which were completed and gave high satisfaction, and the introduction of similar tasks should be considered.

For people with advanced age or with SCI, activities should not focus on cognitive function. The suggested new activities are meant:

- to break the routine of the days
- to enrich daily activities and enhance emotional memory

- to create new activity patterns starting with intentionally easy exercises in order to reach more cognitive and physical robustness and create sustainable healthy habits.

The News and Radio to increase the feeling of being socially integrated.

- The calling: enhancing relationships and connecting socially with meaning, purpose and relevance.
- Do not call other care-receivers but other vulnerable people to whom they can relate, for example, a refugee wants to learn about traditional cuisine of their new home country and the host's country language.

Medicine: to avoid under-medication and over-medication.

- Increasing the feeling of safety

Physical training: increasing physical and psychological well-being.

- Yoga or meditation, dancing and medical rehabilitation online courses can all be included as being of relevance to the general well-being of an active ageing.

2.4 Switzerland

To take part in the field trials in Switzerland, the end users had to sign an informed consent.

With this informed consent, the user signed that they take part voluntarily in this trial and can quit every time without a reason. They sign that they understood that their configuration data like medication and calendar entries are stored on the secured servers from VirTask and they can demand a deletion of these data at every time.

Additional to this informed consent they filled out a form with initial configuration for calendar entries and medication, and what contact person they wish to have in their phone book. This information was necessary for the personalized configuration of the devices.

The setup and configuration of the devices was done by members of the iHomeLab team. They performed the following steps:

- Initial setup of the Windows OS.
- Installing of the Software of Anne.
- Some additional OS configuration to improve the behaviour of energy saving options, etc.
- The accounts for the users were configured and logged in to the devices.
- The SIM lock card of the mobile provider (Sunrise) was installed and unlocked, so the devices were ready to work on the end users' side without further setup steps (i.e. no additional WLAN setup needed).
- Final testing according to a test protocol.
- Final cleaning of the devices and packaging together with the necessary documents.

The devices were then sent by mail or delivered by the end user organisations to the users.

By default, the phone contact of the involved end user organization was added, so the end user could always contact a well-known person in case of questions or a malfunction. For

almost all users, all the other users of the same end user organisation (or locations in case of Vicino) were added as well into the list of contacts. Because they knew each other well.

After the end user received the package, he/she only had to unwrap it and plug it in. After this, the device could be turned on, and the user was greeted by Anne. Then Anne guided the user through the basic functionalities already. Most of the time, this part was done directly with the contact person of the end user or with a relative. So, the end users could ask some first question already. After this initial unboxing, the user could use Anne right away and start to phone with their relatives or ask Anne what calendar entries they are for the current day.

In the first iteration before the MTR, in addition to the above, the blood pressure monitors had to be installed. The technical interface of the device was already integrated in the Emma platform. The end user only had to download the Emma app from the Google Play or Apple app-store onto a smartphone. Everything else ran automatically. This made it very easy to put the device into operation. In Switzerland, it was therefore possible to switch between "measuring blood pressure" or "avoiding loneliness" in the corresponding phases of the trials without much effort.

3 Conclusions

In the different countries, multiple trails are conducted. For all counties, informed consent was given by the subjects/participants and when required, the technological setup and configuration of the devices of the participants was done by a researcher. Due to the COVID-19 pandemic, most of the second trails were preformed digitally. The results of these trails are described in the deliverable 4.6.