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D2.5 – Pilots validation report (M12)

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1.2	15/02/2019	**Inmaculada Luengo, Paloma Jimeno**	HIB	Update based on initial KPIs for trials validation
1.3	07/03/2019	**Inmaculada Luengo, Paloma Jimeno**	HIB	Improvement of KPIs for trials validation based on partners' feedback
1.4	07/05/2019	**Carmen Vázquez, Juan Miguel Calvo, Margarita González**	GSS, FASTCyL	Final Version

1.5	09/05/2019	**Inmaculada Luengo, Paloma Jimeno**	HIB	Final Review

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Glossary

Acronym	Definition
CR	Co-Design reports; these reports are a summary of all the user research performed within this project
QU	The Questionnaire that has been taken with end users after the Co-design reports
PC	Discussions with the project coordinator
PT	Discussions with the project team
PR	Requirements coming from the analysis of the proposal; in brackets the precise paragraph has been indicated.
WE	Requirements derived from the Wireframes Evaluation
MoSCoW	The method used for prioritizing: Must Have, Should Have, Could Have, won't have. The method is described in more detail in D2.3.
M	Must have: Requirements labelled as must have are critical to the application for it to be a success. "Must have" requirements are crucial for the development of the WellCo prototype.
S	Should have: Requirements labelled as should have are important but not necessary for delivery of the current scope of the application. While "should have" requirements can be as important as must have, they are often not as time-critical or there may be another way to satisfy the requirement, so that it can be held back until the future
C	Could have: Requirements labelled as "Could have" are desirable but not necessary and could improve user experience or customer satisfaction for little development cost. These will typically be included if time and resources permit.
W	Won't have: Requirements labelled as "Won't haves" are considered not of direct relevance for the end-users.
User	End-user, the senior interacting with the seniors' interface in WellCo
Informal caregiver	The caregivers are the people involved in the day to day care of the seniors. These can be family members such as the spouse, children or grandchildren but they can also be friends and neighbours. These caregivers support the senior with practical aid as well as emotional support.
Expert	Professionals like a GP or a medical specialist and other formal caregivers who care for the user/senior as part of their profession, such as social workers (acting as the user's case manager), home nurses, personnel of an elderly centre, health coaches, etc. In this project, experts are a synonym of formal caregivers.
KPI	Key Performance Indicators
WE	Wireframes Evaluation

Executive Summary

This document is the deliverable "**D2.5 – Pilots validation report**" of the European project "WellCo - Wellbeing and Health Virtual Coach" (hereinafter also referred to as "WellCo", project reference: 769765).

The goal of this first iteration of the document is to provide the initial results after evaluating the initial mock-up of the WellCo end-user' app, named as "wireframes", being the initial user interfaces of the WellCo platform, which are introduced in the correspondent deliverable: D2.4 WellCo Design and Mock-up.

This document gathers the **main impressions of participants about the proposed functionalities and concepts**, key to allow them to co-create the future iterations of WellCo.

This document has not been delivered in M12 as committed in the Grant Agreement. The consortium, after the interim review, saw the need to initiate a debate regarding the type of research to be developed in the project and its link with the type of trials to be developed accordingly. The debate was followed by a consultation with the PO to clarify some aspects. Once the aspects related to how to carry out the WellCo evaluation through the trials have been clarified and finally agreed, it has been considered appropriate to delay the delivery of this fist interaction of D2.5 until an evaluation methodology has been agreed.

The document is structured in several sections:

- Section 1 includes an introduction to the document;
- Section 2 is referred to the calendar of iterations of this deliverable;
- Section 3 explains the evaluation methodology;
- Section 4 shows the findings from the user´s evaluation of the wireframes;
- Section 5 shows the last update of the wireframes requirement list, after the results gathered by participants in this phase. Also, a new category of requirements, Wireframes Evaluation -WE, has been added;
- Section 6 wraps up the recommendations and conclusions.

This deliverable ends with several conclusions regarding the current state within the design process and some recommendations for the next phases, the evaluation with end-users and the preparation for development.

Next iterations of the deliverable will provide the results from the validation of the different incremental prototypes envisaged in WellCo in each trial site (Spain, Denmark and Italy).

As the design process is an ongoing effort, the overall design is subject to change in the upcoming phases of the project. Nevertheless, this document will give an initial outline of the wireframes and will act as the major input for the prototype 1 of the WellCo app.

1 Introduction

The **co-design** phase of WellCo was started with the creation of personas, the writing of scenarios based on them and the setting up of additional requirements derived from the insights and inputs arising after the writing of D2.3. Based on these components, a first mock-up[1] of the various interfaces of the user-application were designed. User journeys have been created to allow evaluation of the mock-up with the primary end-users.

The validation process of the WellCo started after the delivery of the first mock-up (M10) and will continue with the assessment of the 3 iterative prototypes envisaged in WellCo.

This report **provides a summary of the findings from the interviews and/or focus-group session with end-users about the clickable wireframes for the WellCo end-user app**. The wireframes show in an abstract manner how the user interfaces and the interactions with the applications should be implemented.

The results of the evaluation of the first mock-up are described in this Deliverable D2.5. Based on this evaluation, the existing wireframes are currently being modified to be able to develop the prototype 1 following the information provided by the users in the evaluation process. Next interaction of this D2.5 document will show the conclusions from the analysis after user´s testing of prototype 1.

2 Calendar of iterations of this deliverable

This is an iterative deliverable.

- In this first delivery of the document refers to the evaluation of the mock-up.
- In the second (m18) it refers to the evaluation of the first prototype.
- In the third (m25) it refers to the evaluation of the second prototype.
- The evaluation of the final prototype will, however, be the subject of another deliverable: D2.6 Validation and Success Final Report.

The delivery of this fist iteration of D2.5 has been delayed until an evaluation methodology has been agreed.

[1] Wireframes and mock-up are terms used in the context of this document with the same meaning.

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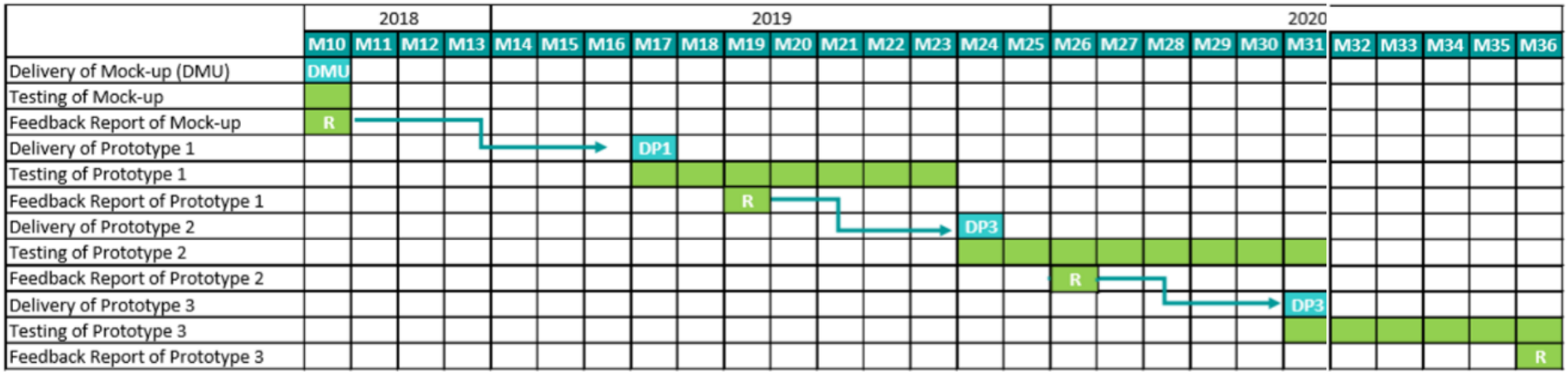

Legend of the chart.

The periods in ___ are the scheduled delivery of the incremental prototypes, being
DMU: DELIVERY OF MOCK-UP (M10)
DP1: DELIVERY OF PROTOTYPE 1 (M17)
DP2: DELIVERY OF PROTOTYPE 2 (M22)
DP3: DELIVERY OF PROTOTYPE 3 (M30)

The periods in ___ are the testing periods for end-users to interact with every incremental prototype, just ending when the following prototype is delivered.
TESTING PERIOD OF PROTOTYPE 1: 15 days during M17
TESTING PERIOD OF PROTOTYPE 2: from M22 or M23 (if delivery was the last day of the month) until M30, being the report (D2.5) in M25.
TESTING PERIOD OF PROTOTYPE 3: from M30 or M31 (if delivery was the last day of the month) until M36, being the report (D2.5) in M36.

Pilots Validation Report, named as "**R**", includes user´s feedback after testing mock-up and prototypes containing key information to guide WP3, WP4 and WP5 development.
Report on user´s feedback on mock-up: Delivery on M10 *(In the project was scheduled in M12, but due to the shorter period of testing needed, it will be M10)*
Report on user´s feedback on Prototype 1: Delivery on M18
Report on user´s feedback on Prototype 2: Delivery on M25
Report on user´s feedback on Prototype 3 (Validation and Success Final Report): Delivery on M36

3 Evaluation approach

3.1 Evaluation methodology: wireframes vs. incremental prototypes

Within the WellCo project it can be considered that there are **two clearly differentiated moments** in relation to the involvement of the users: the **co-design phase** carried out to date, in which this document includes the feedback related to the design of the mock-up, and the **trials phase** in which users will offer the results derived from the evaluation of the different incremental prototypes of WellCo.

This section tries to introduce the different evaluation methodologies followed during this first co-design phase (in order to evaluate the wireframes) and the one to be followed in the later test trials (in order to evaluate the 3 incremental prototypes of WellCo).

3.1.1 Evaluation of the wireframes

The goal of this evaluation was to **assess how users reacted to the first rough concept of WellCo** end-user app. It aimed at allowing us to know their impression about the proposed functionalities and the concept in order to enable them to adequately co-create the future iterations of this app. In this evaluation, there was a focus on functionalities, flow and navigation, not on details, specific UI issues or detailed interface interactions. Thus, the evaluation was not focused on usability and design of the clickable wireframes, but about the idea and the concept behind it.

Section 4 of this document contains the information regarding the evaluation of the mock–up.

3.1.2 Evaluation of the incremental prototypes

The kind of evaluation that will be done in the so called "test trials" is, as stated in the project proposal, focused on **effectiveness** of WellCo. This effectiveness will be measured by assessing the level of achievement of a set of KPIs defined for the project and that control important aspects such as: engagement of users in trials, user acceptance, quality of life improvement, cost-savings, etc.

It is important to remark that, although the level of compliance of these KPIs will be considered since the initial evaluation of prototypes in WellCo, it is not till the validation of the final prototype, during the six-month long trials, when these KPIs become really relevant. This feature is derived from the fact that it is not till the final prototype of WellCo when all the functionalities of the platform will be available, so it is not till this moment when "real" feedback about the effectiveness of WellCo can be extracted from users.

Thus, the assessment methodology that will be implemented in WellCo trials is intended to evaluate WellCo potential for success. This assessment is based on an outline design of system requirements, to determine how well the proposed system **solves** the problems, and how it satisfies the requirements identified in the requirements analysis phase of the system development.

3.1.2.1 Users´ profile

The consortium has always envisaged the future commercialization of WellCo for different target users (not only those who are isolated, not using i-services and out of welfare services). By contrast, to widen the scope so as to evaluate WellCo in a wide range of users (rural vs. urban,

ages, gender, wellbeing status, IT skills…). The consortium has always considered a strength to be able to count with different users from different countries (which implies cultural and socioeconomic differences). Comparison of results among Danish, Italian and Spanish users will show key findings for the future commercialization of WellCo.

3.1.2.2 Measure of effects

In terms of effects, WellCo will measure if **changes in behavioral patterns do have any effect on their level of risk of developing a chronic disease** (such as cardiovascular disease, COPD, and type-2 diabetes), being the recommendations oriented to mitigate this risk, measured at the beginning and at the end of the trials. To measure other clinical effects excluding counterfactuals is out of the scope of the trials, which were not envisaged as clinical trials.

WellCo will be developed based on three incremental prototypes. Only the final version will have all the committed functionalities. The **effectiveness, usefulness and changes in behavioral patterns** will be measured for this final trial from M30 to M36.

Taking into account the final trial **length constriction**, a baseline will be defined for the users involved in the final trial, where their current status will be parametrized for the different aspects monitored in WellCo. Based on validated scales, the consortium will be able to measure the ex-ante and ex-post variables related to the user's **wellbeing status (physical, cognitive, mental and social).**

The **effectiveness and usefulness of WellCo for the adoption of healthier behavior change actions** will be considered by determining **the trend of users to change behavioral habits** that could impact their wellbeing and quality of life in the long term.

As indicated above, to be able to measure this trend, a baseline will be defined when users start in the trials in Prototype 3, where their current status will be parametrized for the different aspects monitored in WellCo. This baseline will be compared with the final situations (**ex-ante and ex-post evaluation**), both for the intervention group and the control group. Positive trend regarding changing a bad habit will be considered a successful behaviour change in progress.

3.1.2.3 Control group

A control group will be designed in the final trial and their features will be detailed in future iterations of this deliverable.

3.1.2.4 KPIs for trials validation

A Key Performance Indicator (KPI) is a performance measurement that defines a set of values against which to measure.

There are two main categories of measurements for KPIs:

- Quantitative
- Qualitative

In WellCo we are going to consider KPIs for 3 different phases of the project:

- Trials validation
- Dissemination
- Exploitation and Innovation

For this document the KPIs for trials validation are the main ones. These **KPIs** aim to draw the **frame** over which start the **definition of the questionnaires for trials** with end-users – **ex-ante/ex-post evaluation. The r**esults from these KPIs and questionnaires will be gathered in **D2.6 Validation and Success Final Report.**

The other KPIs will be included in different deliverables of WP6: KPIs for dissemination will be included in next release of D6.2; KPIs for Exploitation will be included in D6.4 and KPIs for innovation will be reflected in D6.3. All these deliverables including KPIs will have a final release version by M36 where final Key Performance Indicators will be reported.

The main objective of the KPIs for trials validation is to identify how to measure the success of the behaviour change that is the aim of WellCo project. But before this we need to establish some basic statements that settle the ground for these measurements:

- WellCo is not health focused, WellCo is wellbeing focused.
- No randomised clinical trials (RCT) will be performed; however, WellCo will initially perform quasi-experimental trials with ex-ante and ex-post evaluation questionnaires. Due to the fact that WellCo is not a clinical trial, we decided that the best way of evaluating the effectiveness of WellCo is by assessing the evolution of the own user, before and after his exposure to the platform, anyway different evaluation methodologies could be considered for the different trials. Further details could be check in the validation protocols document. WellCo KPIs identification will start from the Expected Impacts identified in the project. Based on this we could start with the KPI identification.
- WellCo KPIs identification will start from the Expected Impacts identified in the project.

The consortium is working on the definition of the KPIs for each trial their features will be detailed in future iterations of this deliverable.

4 Summary of the evaluation of wireframes by users

This chapter details the findings from the interviews and/or focus-group session with end-users about the clickable wireframes for the WellCo end-user app.

4.1 Participants of the wireframe's evaluation

The evaluation was performed in the three pilot sites in Denmark, Italy and Spain. The evaluation was addressed at the end-users as, at this stage, the wireframes / mock-ups for the formal and/or informal caregivers are not developed.

Features	Denmark	Italy	Spain	Totals
Number of participants	5	8	6	19
Women/total	3/5	7/8	5/6	15
Average age	61	67	74	65

Table 1 End-users evaluated per pilot

4.2 Draft of clickable wireframes

The partner CON elaborated a "Draft of Clickable Wireframes", available for the trial sites on Figma app, which also allowed the partners to use the Figma commenting feature.

Based on the feedback of the trial sites and HIB, CON updated the clickable wireframes and after that, the clickable wireframes were shared with the rest of the consortium to get the final validation of this draft.

The design was based largely on the requirements and on what was discussed taking into account the feedback from the trial sites. However, it omitted the interaction between the user and the virtual coach, as the interactive communication with the virtual coach was hard to put into wireframes.

It was not considered necessary by the pilot sites to translate the wireframes into Danish, Spanish and Italian. The interviewers in every site allowed explaining the scope, ambition and content of the different wireframes without negatively affecting its understanding by users.

4.3 Jointly protocol to perform the wireframes evaluation

On August 30, 2018, CON shared with the partners the final validated document named "WellCo Clickable Wireframes Evaluation Protocol" containing the guidelines on how to perform the evaluation with the users.

It included the following steps:

- Planning the appointment of approximately 1.5 hours with the participants and informing in advance to the users about the length of the session and render thanks for their participation.
- Introducing the project again to the participants with further details: the goal of WellCo and the final app that will be developed in WellCo.
- Explaining the current development phase and the fact that they will be presented a wireframe, not a functional app. Explain that the interview is not focused on usability (not about "how do you like the colour or button") but about the idea and the concept behind it.
- Explaining to the end-user what they can expect from the wireframes (what they represent, what is the purpose of the session, etc).

4.4 Evaluation performance

The performance of the evaluation was made in the 3 pilot sites, using individual interviews in Denmark and Italy. In Spain was used a jointly session with small groups (1 interviews + 2 users).

Despite this difference, the protocol of the evaluation was commonly followed up in the 3 sites.

Figure 1 Example of an end-users' evaluation. Session performed in Spain

The participants were introduced the project and also to the purpose of the ~~current~~ evaluation interview. Once the participant had a proper understanding of the goal of the evaluation and the stage of the project, the interviewer followed up the user journeys to go through different parts of this first version of WellCo app (Wireframes).

Due to the fact that the wireframes' interactivity was quite weak at this stage of development of the WellCo app, the interviewer read the correspondent "user journey" to the participant and explained the various screens ensuring the understanding by users of what can be seen and read on the screen and/or as the user demands it. Then, the interviewer asked the questions of each user journey step during or after the entire user journey has been gone through, in order to evaluate both the user journey itself and concept that is being evaluated.

The meaning of every wireframes was translated to the native language by the interviewer. Furthermore, the user testing was guided as possible by the interviewer to remove any factors that we do not want to evaluate (i.e.: frustration due to lack of choices in the wireframes).

4.5 Report on the wireframe's evaluation

A survey administration app was created in order to facilitate the gathering of all responses from users participating in the wireframe's evaluation. The analysis of the answers provided by interviewers (detailed below) was properly conducted and the main findings derived from them are included in the present deliverable.

After this phase, the consortium decided that further iterations of testing and evaluation of the updated wireframes will not be necessary, since it would be better to translate the findings from this phase to the initial interface of WellCo and, subsequently, to evaluate them during the validation of this first prototype of WellCo.

4.6 Answer analysis

This section contains the responses collected from the end-users at each pilot site. The data are referred to the averages of user responses among the 3 pilot sites, following the steps provided in the protocol for guiding the sessions.

4.6.1 Step 1: Pre-test questionnaire

Question	**Answer**
Gender	15/19 are woman
Age	Around 65 in average
Do you feel comfortable with a smartphone?	Not at all: none A little: 6 Moderately: 5 Comfortable: 5 Very comfortable: 3
Did the user take part in the previous evaluation phase and if yes, what was the unique ID	Yes Note: 2 of the 5 participants from Denmark were new recruits

4.6.2 Step 2: Introduce the personas corresponding to your country to the end-users.

When introducing the "personas" to the users, women mostly considered that they fit them quite well, however, in the case of males, they demanded a male version. Thus, the gender perspective is key.

4.6.3 Step 3: Guide the users through the designs using the user journeys and questions

Important note: The following sections reproduce the script of the protocol to be followed to evaluate the wireframes and the user journeys by end-users in the 3 pilot sites of the wireframes and the user journeys to the end users. The response of the users is collected in tables that show the following information:

1.-SCREEN/ACTION: The screen that the user can see or the action that is presented to the user.

2.-QUESTIONS: The correspondent question to be asked to the user
3.-COMMENTS: The findings coming from the user´s response analysis, in summary.

4.6.3.1 User journey 1: Opening the app and goals

In the goals section, users can view the goals proposed by the coach and selected by themselves. Users can follow specific goals which will then show up in the "following" tab or they can view all the goals in the "all" tab. Selecting a goal, it shows the progress on that goal and posts it in the social network. The last tab within this section shows the achievements of the user, which can be commented by the caregiver.

Scope
Opening the app in the "combined speech-type mode" and navigate the users to the goals section.

Screen / Action	**Questions**	**Comments**
Open the app in speech-type mode		Some users want to type, while others prefer the speech mode. In the speech mode, users often wonder when they should start talking
Dashboard	Does the user understand how to navigate to a section?	All users recognize the start menu icon and the one identified as "WellCo" to activate the application. But once they are in the main menu, most of them are not sure what they should do, thus do not understand the interface so easily. Almost all users know how to go to the dashboard, how to exit the application, navigate with the arrows forward and backward, etc.
	Does the user want to speak/type?	Mostly feel more comfortable with typewrite
	Does the user navigate with the hamburger menu of the dashboard buttons?	The majority of the users navigates easily with the hamburger menu they explain that this is similar in all websites.
Goals	Does the user know how to navigate to a single goal? Does the user understand the graph or prefer the list?	Denmark: consensus on an easy navigation from the dashboard to goals and single goals; b) they like the visual graph and symbols. Spain: In many cases the navigation is not immediate, but finally they all get the goals site by intuition. All users are easily handled in some aspects of the objective's itinerary: a) They know how to navigate with the arrows forward and backward. Italy: Some sets the goal but does not realize they have.
Running 1 km goal		They like the overview and to see how far they are from the established goal.

		Most users recognize some icons, basic navigation commands between screens (arrows), where you must click to activate a step, etc. Many difficulties have been observed when interpreting the graphs of evolution in the achievement of the objectives (some users recognize the icons but do not know how to interpret their position in the graph as a temporary development); the majority does not understand the information that it contributes (it is interpreted as a representation of times but not of achievement, of challenges, etc.); They also do not understand well the difference between current objectives and objectives already achieved (nor do they know how to locate them well in the graph).
Achievements	Does the user understand how to navigate here?	Spain: They clearly identify where they have to click to go towards an objective. They recognize the "success" or "medal" icon in the achievement of an objective. Difficulties are observed in other aspects: a) They do not understand the objective progress bar and its meaning well. b) Does not distinguish well between messages of support from the social network and messages from the coach. c) They doubt, sometimes, if they must touch the icon or the arrow to access each objective.
Back to dashboard		Denmark: User prefers to type than to speak and uses the hamburger menu to get back Spain: users understand how to go to the dashboard, how to exit the application, navigate with the arrows forward and backward, etc. Italy: No remarkable comment was made by the Italian participants regarding this action.

General comments about this user journey
Almost half of the users feel comfortable and considers that is easy to open, because they are accustomed to use other apps to search for information. It was easy to open the app in the "combined speech-type mode" and navigate the users to the goals section. The rest looks confused in some aspects. There are no further records regarding confusing aspects.

4.6.3.2 User journey 2: Opening the app and tips/events

The tips-and-events-section is aimed at giving the user useful information about several topics and next to that, to give the user an overview of upcoming relevant events in the neighbourhood. The user can choose a category and either read relevant articles or watch relevant videos. The content of this section will be provided by experts. The events calendar shows events on a weekly basis. The user can select one of the events to read more details about it and to enrol themselves

when needed. The coach will also give recommendations for events that fit the user and might redirect the user to one of the event pages.

Scope
Opening the app in the "combined speech-type mode" and navigate the users to the tips and events section.

Screen / Action	Questions	Comments
Open the app in speech-type mode		
Dashboard		Easy navigation to here
Tips and events	What other categories would the user like to have?	Denmark: Work related topics. Events about crocheting. Training videos for help with back pain. To foster users to record videos and share. Others do not demand any further categories. Spain: Information about leisure groups, cultural, entertainment, accompaniment ... Italy: A category for taking notes about her own affections (e.g. family life, activities with her friends). Something about do-it-yourself. Information about policies and promotions dedicated to over 65. Humour, stories, anecdotes, information about volunteering. A daily planner.
Physical activities	What type of physical activity videos would the user like to see? Does the user want to get recommended videos or search for videos	Italy: Videos about low-impact exercises to do at home. Videos about walking paths, divided for level of difficulty. Stretching exercises. How to Run, running at different ages. Some prefer to search freely the videos, but the interaction has to be simple and easy. Some prefer to be recommended.
Articles	Does the user want to search for articles or get articles recommended?	Denmark: recommended articles with short text to be readied easily on the phone

Events	What type of events does the user want to see?	Denmark: Football, Cooking, Movies, Theatre, Walking, cinema. Spain: cultural activities, leisure, entertainment, health talks, meetings, excursions and all kind of social activities. Italy: Clinical conferences about the clinical treatment of common healthcare issues, folk festival and cultural events (for example theatre). Non-competitive footrace. Food markets. Festivals, local markets and other free events.
	Does the user want to search for events?	Denmark: yes Spain: They would like to be able to search for events, but they really prefer to receive recommendations. Italy: different opinions, but mainly yes
	Does the user understand how to navigate through time?	Denmark: some did not understand the navigation in time and prefer to have a common appearance of a monthly calendar, instead of needing to move among weeks. Some recommend making available to add it to the regular calendar (outlook). Spain: Some users recognize how to navigate in time (go to past or future weeks), although some do not recognize where and how they should click. In fact, one of the users does not show interest in this section and understands that it is something that would not be useful. Italy: mainly yes

	What details does the user want to see about an event?	Denmark: how to get there, link to the official website or ticket sales. Spain: Details about the events that are of interest: i. The price of the entrance (and if the event is free entry or not). ii. The means of transport available to get there (and whether or not it is included in the entrance). iii. The target audience for that event. Italy: For each event it could be useful to receive reference contacts (e.g. mail and/or phone number of organizers) Price of the events. Information about informal groups that share hobbies. Possibility to define a geographical area of interest
Back to dashboard		Without problems

General comments about this user journey
Spain: In general, navigation through the itinerary is not complicated, although some details are not easily recognizable (location, video playback, etc.). Many of the users are a little bewildered but interested; They show curiosity to understand the different aspects and utilities of this user journey/section "Tips and events". We understand that in the interaction with the application they can achieve a greater assimilation of the usefulness of the section "Tips and events". The majority shows difficulties to identify the meaning of the icon representing location/venue/map. Information and recommendations are useful only if they are focused on local events.

4.6.3.3 User journey 3: Getting a recommendation to set a goal

Note: WellCo app is the virtual coach who provides to the user with recommendations (that can be set as goals) in order to let him to adopt healthier choices, guiding and supporting the user in this process of change. This means that the user is not able to set any goal by itself (it is the recommender who provides recommendations that could be translated into goals and that the user can accept or dismiss it).

The goals section in the app handles the visualization of the goals provided by the coach which are converted into goals. The user is asked to navigate to the goals section within the app either using the hamburger menu or using the button on the dashboard, speaking directly with the avatar or typing.

The goals section consists of an overview of all the current goals of a user, depicted either in a graphical way or as a list. Selecting one of the goals shows the details of the goal, the progress on the goal and optionally some of the posts from the social network functionality related to the goal.

In this User Journey 3, the user is asked to "Trigger recommendations about cycling". From this page, the user can share the goal (e.g. through social media), or he can comment on or like the posts from the social network functionality.

Goals are set based on recommendations given by the coach. These recommendations will be initiated by the coach, from the dashboard. The user can choose to convert a recommendation into a goal which will then appear in the list of goals and the timeline in the goals section of the app.

Scope

Opening the app in the "combined speech-type mode" and trigger the coach tip "Trigger recommendation about cycling"

Screen / Action	**Questions**	**Comments**
Dashboard with avatar	Does the user talk back to the avatar directly? Does the user want to use the type/speak area in the bottom?	Denmark: not familiar with the symbol for speaking and all prefer to type Spain: Mainly without problems, but all prefer to write; It is not always easy to identify the icon to activate the interaction via voice. Italy: most of them does not talk back to the avatar directly
Set goal cycling		Denmark: mainly easy navigate. Spain: Users, in general, encounter difficulties in the process of establishing objectives/goals; Italy: mainly easy to set
Set goal	Doe the user accepts such recommendations?	Mainly yes in the three countries. Answers depends a lot if the user do like the recommendation: the example shows cycling and if users are not interested in, then the answer is not as positive as expected.
View goal	Does the user want to view its goals after accepting or not? Understand he is in the goals section now?	Some users visit the goals again but not sure it affected his understanding of the goal section.

		Users mainly want to view its goals and also understand where they are.
Back to goals		Easy back navigation in the three countries
Back to dashboard		Without problems

General comments about this user journey
Spain: They do not understand that in WellCo users are in fact able to establish their own goals, and later the dynamics of interaction between the coach and the user will be generated.

4.6.3.4 User journey 4: Getting a recommendation to join a group

In the social network section of the app, the user has a social timeline which shows posts written by informal caregivers and other users of WellCo in his social network. In the groups-subsection, the user is shown the groups he is part of and he is given recommendations about other groups that might be interesting for him. The goal of the groups is to allow various users to chat together, preferably by video-chat.

In this User journey 4, the user is asked to navigate to the goals section within the app either using the hamburger menu or using the button on the dashboard, speaking directly with the avatar or typing. Then, he/she is asked to set a goal cycling group and interact with other users.

Scope
Opening the app in the "combined speech-type mode" and trigger the coach tip "Trigger recommendation about a social group"

Screen / Action	**Questions**	**Comments**
Dashboard with avatar	Does the user talk back to the avatar directly? Does the user want to use the type/speak area in the bottom?	No, they mainly prefer to type
Set goal cycling group	Can the user easily join the group?	Yes, mainly can do it easily. Most users understand well how they should proceed to join the group.
Supporting group for cycling		Users mainly find interesting this feature. They understand the functionality of getting a supporting group for a specific goal.
Back to my network	Does the user understand he is now in the social network section and he has joined the group?	Usually understand well that they have joined the group
My Network	Does the user understand this interface e.g. from experience with Facebook?	The majority of the users do understand this interface

Groups	Does the user want to search for supporting groups? Does the user want to receive recommendations for supporting groups?	The majority of the users does understand this interface and want to receive recommendations
Back to dashboard		Easy navigation

General comments about this user journey
Despite the answers were underlining easy navigation in this user journey, some general comments show that some users (mainly from Italy) were a bit confused. One of the users, male, finds it interesting to connect with new groups (his personal circumstances encourage him to look for spaces for meeting and relationships with other people).

4.6.3.5 User journey 5: Interacting with the coach Speech only

Here the user is asked to navigate to the goal section and trigger recommendations about a social group by interacting with the avatar only in the speech mode.

Scope
Opening the app in the "speech only mode" and trigger the coach tip "Trigger recommendation about a social group"

Screen / Action	**Questions**	**Comments**
Follow interaction flow	How does the user react to a coach that communicates only by speech?	No, users mainly prefer to type, because speech does not feel natural
Activity monitor	Does the user understand what he sees here?	In Denmark and Italy: Mainly yes. Some refers to its similarity with their health apps. In Spain only partially. They are wondering how the app can monitor some specific issues.
Steps activity	Does the user understand the graph? And does he want more/other recommendations about activities?	Yes, they mainly understand the graph and consider it useful. By contrast, the activity graph, the historical one, was not clear for the majority of the Spanish users. Users do not show a great interest on more/other recommendations.
Back to activities		Easy navigation
Back to dashboard		No problems to get back to the dashboard

General comments about this user journey
In Spain some users show not understanding the usefulness of the monitoring.

4.6.4 Step 4: Discuss the other aspects of the app and the wireframes

Depending on the discussion that took place during the user journeys, decide if this last step is necessary to execute.

Let the user navigate through the wireframes freely. Discuss the remaining functionalities and any parts of the app that the user is interested in or has questions about. Note down any comments the user has below.

General comments about the wireframes
Some comments from users: It was my impression that several people do understand the basic of mobile navigation; It was a bit hard to look at wireframes; It seems to be difficult to look at the horizontal menu for navigation - however, when pointed out they can navigate. Someone thinks that it is necessary to have the possibility to negotiate the goals with the avatar.

4.6.5 Wrap-up

To wrap-up the interview, gratitude was expressed for the dedication of the participants, and they were told that the wireframes were a very initial stage of the app and that their input will be used to improve it.

It was explained to the users that they might be contacted again to test a future version of the app and ask them if they are interested in it.

5 Updated requirement list

This chapter updates the list of requirements initially defined and presented in the Deliverable D2.4 with the feedback collected in the focus groups from the end-users.

With the personas and scenarios as a basis, initial wireframes were drafted to convert the abstract requirements into a more concrete user interface. The wireframes were aimed at both the functional sections of the user-app and the informal-caregiver app, as well as on specific coach-based user journeys throughout the app. After the initial set of wireframes was created, they were shared within the consortium to gather further input from experts in the various functional areas. This led to modifications and improvements. Finally, these wireframes were validated on each pilot.

The following sub-sections present the initial list of requirements and how they should be updated considering the end-users feedback presented in section 4.

The new requirements incorporated to this list have been shaded in blue colour.

5.1 Requirements source abbreviations

CR: Co-Design reports; these reports are a summary of all the user research performed within this project

QU: The Questionnaire that has been taken with end users after the Co-design reports

PC: Discussions with the project coordinator

PT: Discussions with the project team

PR: Requirements coming from the analysis of the proposal; in brackets the precise paragraph has been indicated.

WE: Wireframes Evaluation

MoSCoW: The method used for prioritizing: Must Have, Should Have, Could Have, won't have. The method is described in more detail in D2.3.

5.2 General requirements

5.2.1 Overall System Structure (O)

ID	Requirement	Source	MoSCoW	Comments
O1	The platform should consist of 3 interfaces: - An interface for the users - An interface for the informal caregivers - An interface for the experts	PC	M	
O2	The platform should be functional anytime and anywhere, and should provide information at request of the user at any moment	QU	S	If hardware/internet is functional. The users should be able to trust the platform to have no downtime and be always available for them

5.2.2 Privacy (PR)

ID	Requirement	Source	MoSCoW	Comments

PR1.	The platform should only store data necessary for the functional purpose of the platform	CR	M	
PR2.	The platform should allow each user to see an overview of which data is gathered and processed by the platform	CR	C	
PR3.	The user should be able to change its privacy preferences at all times, including data portability, archiving and processing for scientific research.	QU	C	
PR4.	The user must have the right to rectification, erasure of personal data, restriction of processing, data portability and to object when processing personal data for archiving purposes in the public interest, scientific and historical research purposes or statistical purposes.	PR	M	

5.3 End-user application requirements

5.3.1 Technical outlines (T)

ID	Description	Source	MoSCoW	Comments
T1.	The application should be a responsive application that can be used on smartphones	PR, 1; 1.3	M	
T2.	The application should be able to run on the Android OS	PC	M	
T3.	The application should be able to have access to the device's hardware as provided by Android	PT	M	Location, Storage, Notifications, Camera, Microphone, Compass, Accelerometer, Visible Wi-Fi access points, number of SMS and phone calls sent/ received/missed (no actual content of SMS or phone calls), screen on/off events
T4.	The application should be always active in the background by default and thus be supported with continuous data internet	PR, 1.1	M	

	connection in order to provide real-time interaction with the user			
T5.	The application should be able to provide push notifications, both when it is running in the foreground and in the background	PC	M	
T6.	The user should be able to use the application regardless of physical/geographical location	PT, WP3	M	If there is internet connection
T7	The application should be able to assess the user's mood and emotion through emotion analysis via a combination speech analysis, facial expression analysis and body gesture analysis	PR, 1	S	Related to IN7

5.3.2 Technical input and output (IN)

ID	Description	Source	MoSCoW	Comments
IN1.	The application should support both touch input and speech input as main means of controlling and navigating the application	PR, p9, QU, CR	M	The user should be able to set in the application's settings if and when he wants to use either touch or speech as primary input method
IN2.	The application should support natural language interaction (NLi) as a data input and output method	PR, 1	M	At minimal supporting English, Danish, Spanish and Italian
IN3.	The user must have the possibility to set the desired input method without the need of interacting with the virtual coach	QU	S	The user should be able to switch between interfaces without asking the coach to switch
IN4.	The user should be able to set in the application's settings if and when he wants to use textual output or voice output or both as primary output	CR	M	
IN5.	The application should be able to interpret speech volume, pitch, pace and fluency in order to support emotion recognition in the speech of the user	PR, 1.3	S	
IN6.	The application should be able to gather audio input	QU	W	Most elderlies do not want the devices to gather audio information. This

				requirement directly contradicts with the requirements above
IN7.	The application should support facial and gesture recognition based on video/camera input	PR, 1.3	S	The recognition should be done in real-time, without storing the data afterwards

5.3.3 Intuitive Interface (I)

ID	Description	Source	MoSCoW	Comments
I1.	The application should have an interactive, intuitive interface	PR, 1.3	S	
I2.	The application should be centered around an affective aware virtual coach	PR, 1.3	S	
I3.	The user interface should consist of both the virtual coach-based interface and additional traditional user interfaces to support the exchange of other data	CR	M	
I4.	The application's interface and UX should be adaptable to the user's needs, taking into account: - Emotional state - Hesitation - Engagement - Context of use - Physical and cognitive limitations	PR, 1.1	S	
I5.	The adaptability of the interface and the functionalities present in the interface should be steered by decision trees or rules based on context-of-use user profiles, context models and heuristic context aware models.	PR, 1.1	M	
I6.	The user should be able to adapt the user interface of the application to its own needs	PR, 1	S	
I7.	The application should invite the user to start the application	WE	S	During the wireframes evaluation people often were disoriented when they start the app. The menu with the various user journeys should suggest

				choosing the way of interaction more used by the user (e.g. if the elderly generally uses the combined speech-type mode, when the user starts the app, it should suggest using this mode).
I8.	The application should provide feedback to users both during the time towards reaching the goal and when the set goal has been achieved	WE	S	During the wireframe's evaluation, people were often confused about goals. Feedback (e.g. pop-ups or feedback given by the coach in speech) should support the user in goal setting and achievement.
I9.	The graphical elements of the UI (e.g. graphs, progress bars) should be explained providing users with information about what they depict (e.g. touching the bars activates a pop up)	WE	S	During the wireframes people were often confused in interpreting graphs. This could be solved by letting the coach explain certain graphs when the user accesses that page for the first time
I10.	The application should provide automatic suggestions about articles and videos on relevant topics	WE	S	Will be done by the coach during normal usage.
I11.	These must be allowed to switch off automatic recommendations on articles and videos	WE	M	
I12.	The application should provide suggestions about events based on the users' profile	WE	S	(see P. 7)
I13.	The application should allow users to search for articles and videos.	WE	M	
I14.	The application should allow users to search for local events.	WE	M	
I15.	The application should show basic information on events	WE	S	

	(time, location). Additional information should be made available contextually			
I16.	The application should clearly represent when messages are sent by the coach and when they are sent by other actors (e.g. social network).	WE	S	During the wireframes people sometimes did not understand who sent a message.

Reminder: The new requirements incorporated to this list have been shaded in blue colour.

5.3.4 Notifications and engagement (N)

ID	Description	Source	MoSCoW	Comments
N1.	The application should engage the user by giving (push) notifications/reminders about interacting with the platform regularly	PC, QU	S	
N2.	The user should be able to snooze or dismiss notifications of the application	PC	S	E.g. by postponing it to later
N3.	The user should be able to set "off-time" in the application as a period in which he doesn't want to be disturbed by the (notifications) of the app	PC	C	E.g. by setting a schedule or taking into account location data or data from other apps
N4.	The application should remind the user of goals he has set every week	CR	S	
N5.	The user must always have the possibility to switch off each monitoring activity in order to be in control of the application	QU	M	E.g. for reducing the output provided by the system
N6.	The application should remind the user about physical activity goals every week after the setup phase and readjust them every two months after the periodical monitoring (see M)	CR	S	
N7.	The application should allow user to set font/views size that allows him/her to read easily in case of mild common vision difficulties due to their age	PT	S	

5.3.5 Virtual coach (V)

ID	Description	Source	MoSCoW	Comments

V1.	The virtual coach should be represented by only the face of a person	QU	S	
V2.	The user should be able to choose among different appearances of the virtual coach	QU	C	
V3.	The virtual coach's gender should be female	QU	S	
V4.	The communication style of the virtual coach should be customizable according to users' preferences	QU	S	e.g. empathic, prescriptive, wordy; succinct
V5.	The virtual coach should support dialogues with the user through speech, using human affects such as empathy	PR, 1.2	S	
V6.	The virtual coach should be able to imitate the way people incrementally get to know and trust each other through conversations	PR 1.4	S	

5.3.6 Coaching and behaviour change (C)

ID	Description	Source	MoSCoW	Comments
C1.	The application should provide the user with personalized advice and coaching (interventions) about health and wellbeing based upon the 7 areas of the BCW in order to maintain or improve health and wellbeing	PR, 1	M	
C2.	The application should give the user recommendations in the areas of: - Cognitive stimulation - Nutrition - Leisure and entertainment - Supporting groups - Physical activity - Health and mental status	PR, 1	M	The idea is that the recommendations try to cover the 7 areas of the BCW followed in WellCo.
C3.	The application's recommendations should be based upon the user's physical activities, vital signs, stress, sleep patterns, anxiety,	PR, 1.3	S	

	depression, mental status and context. [2]			
C4.	The application's recommendations should be based on the user's individual Life Plan	PR, 1.1		which will be gathered by the application by two means: a) user´s interaction with the application through machine learning techniques b) questions to be formulated by the avatar during a period based on the Life Plan Protocol
C5.	The recommendations should reflect the current condition and constraints of the user as gathered by the monitoring activities and present in the Life Plan in order to be realistic, desired and feasible for the user.	CR	S	G1
C6.	The user should be able to accept or decline recommendations given by the application	PC	M	
C7.	The application should allow the user to convert recommendations given by the system into personalized goals and pathways[3]	PR, 1	M	The senior decides which of the recommendations are established as Goals. E.g. the virtual coach asks the senior "Do you want to convert this recommendation to a goal"?
C8.	The recommendations which are converted into goals should be represented as milestones in a game and within the social network of the user	PR, 1	S	
C9.	The achieved goals should be represented as a game-like	PC	C	

[2] Clarification: WellCo app is not envisioned to provide feedback to the user about how he/she feels (for example, the platform does not provide the user the emotional state: angry, stressed.). Only take his mood into consideration to adapt the VC and provide recommendations in the most proper way.

[3] Clarification: WellCo will take into account the user´s preferences, i.e. how the goal is followed-up could depend on the personality of the user as some users may need short term goals with small changes between each goal. Others can do with longer term goals and larger changes.

	scoring system, for example badges, points, or labels			
C10.	Achieved goals should amend scores obtained through the monitoring in order to provide combined feedback to the user.	CR	C	
C11.	Recommendations should immediately be given after the completion of the set-up phase of the application		C	
C12.	The application should contain video tutorials about nutrition in order to give tips and suggestion to the user	QU	S	e.g. meal recipes
C13.	The application should contain video tutorials about physical activities (e.g. exercises for people with back pain, stretching exercises, running at different ages) in order to give tips and suggestion to the user	QU	S	e.g. gym exercise tutorials
C14.	The application should provide cooking recipes for users with diabetes, hypertension, allergies	CR	S	

5.3.7 Goals (G)

All the requirements below are about goals that should be provided based on the reasoning of the recommender. Users who do not need a certain goal, will not see related recommendations. The below requirements should thus be assessed based on the fact that they are actually useful for a specific user.

ID	Description	Source	MoSCoW	Comments
G1.	The application should provide recommendations for goals for maintaining or increasing social contacts with friends	CR	S	
G2.	The application should provide recommendations for goals for maintaining or increasing social contacts with relatives	CR	S	
G3.	The application should provide recommendations for goals for maintaining or increasing volunteering activities	CR	C	Only in case of interest in volunteering of the person.
G4.	The application should provide recommendations for goals for maintaining or increasing reading activities	CR	C	Only in case of interest in reading of the person.

G5.	The application should challenge the user to learn a foreign language day after day	CR	C	Only in case of interest in learning of the person.
G6.	The application should provide recommendations for goals for maintaining/increasing the following physical activities: walking, gymnastic, swimming, cycling, low impact workouts and in case of interest for the person, how to relieve his/her pain linked to physical activity	CR	S	(steps or km per day; hours per week)
G7.	The application should be able to connect to external services providing cultural activities and suggest the user to participate to a cultural event at least once a week	CR	S	Once a week only when appropriate activities are available at least once a week
G8.	The application should provide goals for weight loss every week after the setup phase and readjust them every six months after the periodical monitoring (see C6)	CR	S	
G9.	The application should provide goals for weight maintenance every 2 months (see C6).	CR	S	
G10.	The application should give recommendations for goals in order to maintain or increase vegetable consumption every two months	CR	S	
G11.	The application should set goals in order to maintain or increase fruit consumption every two months	CR	S	
G12.	The application should suggest the user to introduce new ingredients in the diet every two months	CR	C	Only if the level of consumption of a certain type of nutrition is not sufficient and should be increased
G13.	The application should propose an alternative goal when the user refuses the first proposal.		S	The new goal should be downwardly (e.g. if the user refuses the goal of 10.000 steps, the system will provide a new goal of 8.000 steps) or horizontally adjusted (e.g. if the user refuses the goal of

				going to the cinema once per week, the system will replace cinema with another cultural activity).
G14.	The application should set physical activity goals on the basis of clinical guidelines in the field of physical activity (e.g. WHO) and on the basis of the score provided by the monitoring section	CR	S	
G15.	The application should set sleep pattern goals on the basis of WHO guidelines for appropriate amount of sleep per day	PR, 1		
G16.	The application should set nutritional goals on the basis of clinical guidelines (e.g. Mediterranean pyramid)	CR	S	
G17.	The application should set cognitive, social, and cultural goals at increasing levels of difficulty starting from the preferences provided by the monitoring section	CR	S	
G18.	The application should readjust set goals every two months after the periodical monitoring (see M3)	CR	S	

5.3.8 Profiling and setup (P)

ID	Description	Source	MoSCoW	Comments
P1.	During setup, the application should gather the gender, first name, prefix and last name of the user in order to allow personalization of the interface	CR	M	This allows the coach for example to call users by their name and gender declension
P2.	During setup, the application should gather the date of birth of the user in order to allow personalization of the interface	CR	M	This allows the coach for example to give birthday wishes
P3.	During setup, the application should gather a simple estimation of the economic situation of the user by asking a number of questions in an assessment, in order to adjust the setting of cultural goals	CR	S	This should result in a basic economic status value that defines whether the user is facing economic constraints or not

P4.	The application should gather information on the height and weight of the user during the setup phase of the application, in order to calculate the BMI.	CR	M	
P5.	The virtual coach should ask during the setup phase what physical activities the user does in order to support goal setting (providing a physical activity score) and monitor their achievement (comparing goals with actual activities).	CR	S	
P6.	The application should ask what cognitive activities the user does (e.g. crosswords, brain teasers, reading books, crocheting, reading newspapers, videogames, playing cards, painting, playing music) in order to support goal setting (e.g. matching between user preferences and cognitive goals).	CR	S	These data will be gathered first during the setup phase, then through periodical questions (e.g. questions about number of book read) but also monitoring the results of the cognitive activities (e.g. providing scores/evaluations based on the achieved results in inbuilt crosswords)- This information should be gathered in the setup phase.
P7.	The application should gather preferences regarding social events the users want to receive information abut	WE	S	Should be part of the life plan probably.

5.3.9 Life plan (L)

ID	Description	Source	MoSCoW	Comments
L1.	The Life Plan should be the main backbone of the application	PR	M	
L2.	The application should contain a model of the user that includes data about: - Health goals - Health outcomes - Physical activity - Vital signs - Stress - Sleeping patterns - Anxiety - Depression	PR, 1, PR 1.4	S	

	- Mental status and context - Gender - Age - Preconditions - Family history			
L3.	The application should contain a Life plan of the user that includes data about: - All areas of a user's life - Health - Work - Community involvement Relationships with friends and family - What kind of care the person want to receive	PR, 1	S	
L4.	The application should ask the user questions throughout the usage in a randomized way in order to determine a proposal for the person´s Life Plan and evaluate if the contents set up in the Life Plan are achieved	PC	S	
L5.	The application should support data input by the patient framed as "Patient-reported outcomes" such as: - Health goals - Pain reports - Quality of life reports - Life plan information	PR, 1	S	
L6.	The application should gather information about conditions that could affect the normal functioning of WellCo (e.g. food intolerances, diabetes, wheel chair, etc.) in order to support goal setting (e.g. giving information useful for adjusting the physical activity	QU	S	This data will be gathered both in the setup phase and periodically (e.g. every 6 months).
L7.	The application should ask the user what physical activities he does in order to suggest recommendations and monitor their achievement	CR	S	e.g. Gym, Fitness, Swimming, Cycling, Martial arts, Trekking, Dancing in order to compare goals with actual activities). Related to P5

L8.	The application should ask periodically whether the user walks daily and for how long in order to support goal setting (e.g. providing a score based on the number of steps) and monitor their achievement (comparing goals with steps counted through the wristband).	CR	S	These data should be gathered both in the setup phase and monitored constantly through the wristband.
L9.	The application should ask what social activities the user does (e.g. attending religious service, caregiving, cultivate family relationships, parish activities, elderly social centre, trips, voluntary service, eating out) in order to support goal setting (e.g. providing a score based on the user's social life, for example SASOWS or SAI-E scale) and monitor their achievement (comparing goals with actual social activities).	CR	S	These data will be gathered both in the setup phase and periodically (e.g. every 2 months).
L10.	The application should ask what cultural activities the user does (e.g. theatre, cinema, concerts, museums, course and workshops) in order to support goal setting (e.g. providing evaluations based on the number of attended events) and monitor their achievement (comparing goals with actual cultural activities). These data will be gathered both in the setup phase and periodically (e.g. every 2 months).	CR	S	
L11.	The application should ask information about the user's nutrition on a weekly basis in order to support goal setting (e.g. gathering a dietary compliance score based on a standardized questionnaire) and monitor their achievement (e.g. proposing periodically the questionnaire such as the HEI or DHD indices and monitoring the score evolution). These data will be gathered both in the setup phase and periodically (e.g. every 2 months).	QU	S	

5.3.10 Education (E)

ID	Description	Source	MoSCoW	Comments
E1.	The application should contain a tips-functionality that educates the user about healthy behavior	PR, 1	M	
E2.	The application could contain quizzes and surveys to test the knowledge of users about health behavior	PR, 1	S	

5.3.11 Interaction with other users (U)

ID	Description	Source	MoSCoW	Comments
U1.	The application should contain electronic patients supporting groups based on shared properties of users	PR, 1	S	These groups will be automatically suggested to the user based on his/her static and dynamic profile.
U2.	The application should allow users to meet in virtual rooms and share experiences through video-conference	PR, 1	S	
U3.	The application should contain a social network functionality that allows the user to socialize with his/her close circle and other users of the platform	PR, 1	M	
U4.	The application should allow the user to invite other people into his social network		S	In case these people are not registered in WellCo, an invitation to join is sent to them
U5.	The application should support sharing of photos and videos by the user with the close circle		S	
U6.	The application should allow sharing of achievements (of goals) by the user with the close circle and other users of the platform	PR, 1.3	M	
U7.	The platform should support additional leisure and entertainment functionalities (e.g. humor, stories, anecdotes) a next to sharing content with the social network such as video-call communication	PR, 1.3	S	
U8.	The leisure and entertainment functionalities should only be shared with the close circle		S	

U9.	The application should engage users in competitive games	QU	W	
U10.	The application should allow users the possibility to share goal achievements with other users in order to improve the social wellbeing	QU	S	
U11.	The application must allow users to share video and pictures only with selected users in order to be in control of their privacy	QU	M	
U12.	The application should allow users to choose the people they want to share their pictures with, in order to be in control of their privacy	QU	S	
U13.	The application could allow users to organize activities together in order to improve social wellbeing	QU	C	

5.3.12 Monitoring, sensors and hardware (M)

ID	Requirement	Source	MoSCoW	Comments
M1.	The application should support data input by the system framed as "Performance-based outcomes" and inputs from sensors	PR, 1	S	
M2.	The application should be able to process data from fitness trackers, smartphones and sensors, providing monitoring data of: - Physical activity - Diet - Vital signs - Sleep patterns - Stress - Anxiety - Depression	PR	S	
M3.	The application should gather information on the mobility impediments of the user in order to support goal setting	QU	S	(e.g. user in wheelchair will not be given physical activity goals). These data will be gathered both in the setup phase and periodically (e.g. every 6 months).
M4.	The application should gather information on the eating	QU	S	(e.g. diabetes, glycaemia, intolerances, allergies,

	constraints of the user in order to support goal setting			hypertension, overweight/obesity). These data will be gathered both in the setup phase and periodically (e.g. every 6 months) (e.g. user with diabetes will be invited to avoid sweets).
M5.	The application should gather information on the weight of the user every 6 months.	CR	M	
M6.	The application should calculate autonomously the BMI of the user during the setup phase of the application, in order to support goal setting The BMI will be calculated every 6 months.	CR	S	(e.g. if the user's BMI is over 25, the application will set physical and nutritional goals aimed at losing weight).
M7.	The application should be connected to a wristband in order to measure heartrate and movement	QU	S	
M8.	The wristband should monitor heartbeat automatically and continuously	QU	S	
M9.	The wristband should monitor sleeping patterns (hours and depth of sleeping) automatically	QU	S	
M10.	The wristband should monitor walking activity automatically and continuously in order to support goal setting (e.g. suggesting doing more steps per day)	QU	S	
M11.	The application should produce evaluation reports containing all information gathered through the wristband	CR	S	(e.g. the report will provide an evaluation on the sleeping quality).
M12.	The application should not be connected to a headset or to a neck-worn sensor	QU	S	
M13.	The application should adjust physical activity recommendations for goals on the basis of the data gathered through the wristband	CR	S	

5.3.13 Additional leisure (A)

ID	Description	Source	MoSCoW	Comments
A1.	The application should contain video tutorials about hobbies (e.g. gardening) in order to give tips and suggestion to the user	QU	S	
A2.	The application should contain videos about the events and activities of the living environment of the user	QU	S	
A3.	The application could contain information on the associations in search for volunteers in order to give tips and suggestion to the user	CR	C	
A4.	The application should provide the latest information on the cinema movies available in the surroundings in order to give tips and suggestion to the user	CR	S	
A5.	The application should provide the latest information on the art exhibitions available in the surroundings in order to give tips and suggestion to the user	CR	S	
A6.	The application should provide the latest information on the theatre performances available in the surroundings in order to give tips and suggestion to the user	CR	S	
A7.	The application should provide the latest information on the concert's performances available in the surroundings in order to give tips and suggestion to the user	CR	S	
A8.	The application should provide the latest information on courses/workshops available in the surroundings in order to give tips and suggestion to the user	CR	S	
A9.	The application should provide the latest information (e.g. price of the entrance, the target audience) on major local events (e.g. cultural events, festivals, local markets) available in the surroundings in order to give tips and suggestion to the user	CR	S	

A10.	The application should challenge the user to solve brain teasers (crosswords, sudoku) at increasing levels of difficulty	CR	C	
A11.	The application should be able to link with external sources of information regarding social activities within the region	PM	S	In order to fit social activities to the needs of the user
A12.	The user-app should contain a calendar of local events around the user		C	

5.4 Informal caregiver application requirements (IR)

ID	Description	Source	MoSCoW	Comments
IR1.	The informal caregiver-app should be a responsive application that can be used on both smartphones and tablets	PR, 1; 1.3	S	
IR2.	The informal caregiver-app should be able to run on the Android OS	PC	S	
IR3.	The informal caregiver-app should be able to use the device's hardware provided by Android	PC	S	Only aimed at the phone or tablet. The caregiver app doesn't connect to a wearable device.
IR4.	The informal caregiver-app should be able to run in the background and provide push notifications	PC	S	
IR5.	The informal caregiver-app should allow the user's close circle (family, friends) to become part of a social network functionality through invitation from the senior	PR, 1	S	
IR6.	Within the informal caregiver-app, the user's close circle should be able to observe the user's evolution in goals and should be able to give input / feedback based on this observation, framed as "Observer-reported outcomes", in order to encourage seniors to achieve their goals	PR, 1	S	
IR7.	The personalized goals of the user should be visible as milestones within the social network functionality of the	PR, 1	S	

	caregiver-app or within a game format			
IR8.	The informal caregiver-app should allow viewing of achievements of goals of the user within the social network	PR, 1.3	S	
IR9.	The informal caregiver should be able to like the goals of the user, encouraging the user on specific challenges	PR	S	
IR10.	The informal caregiver-app should support sharing of photos and videos with the close circle and the user	CR	S	
IR11.	The informal caregiver-app should support video-calls of the informal caregiver with the senior and with other people within the social network	PC	S	
IR12.	The informal caregiver-app should support the creation of groups within the social network	PC	S	
IR13.	The informal caregivers should be able have access to recommendations of the virtual coach to the user	PC	W	

5.5 Expert application requirements (ER)

ID	Description	Source	MoSCoW	Comments
ER1.	The experts should only be able to view the users related to their (trial) site area	PC	M	This comes from a previous document.
ER2.	The experts should be able to view the user-profile of each of the users they can access	PC	M	
ER3.	The expert-app should allow experts to validate recommendations provided by the virtual coach to a user in order to allow the system to learn from this and provide more accurate recommendations next time.	PR, 1	S	
ER4.	The expert should be able to view Pending Recommendations, recommendations that has been already generated by the system but that have not been shown yet	PC	S	

	by the virtual coach to the senior because they are pending of validation.			
ER5.	The expert should be able to view Recommendations already provided; recommendations that have been already proposed to the senior. In these ones the expert could like/dislike them, so the Coach informs the senior that his/her GP approves the recommendation (reinforcement).	PC	M	
ER6.	The expert-app should give the expert access to the goals of a specific user	PC	M	
ER7.	The expert app should allow the expert to upload/input tips for a healthy lifestyle to the system in the form of videos, documents, links and guidelines	PR, 1.2	S	
ER8.	The experts should be able to tag/categorize the tips they give, so it can be used for the correct end user by the platform	PC	S	
ER9.	The experts should be qualified health professionals that give scientific based information to the user	QU	S	
ER10	The experts should be trustful and have a public profile to be accountable and increase the user trust.	QU	S	
ER11	The user could have the possibility to pay for the supervision of a group of experts to have additional personalized suggestions	QU	C	

6 Recommendations and conclusions

The conclusions included here are derived from the analysis of the responses of the users and the contributions of the different partners of the consortium and are in line with the conclusions outlined in the in the deliverable D2.4 WellCo Design Document and Mock-up.

The main conclusions are:

- Users made a positive evaluation of the wireframes and they mainly could follow the wireframes navigation without big problems.
- From the design perspective, the app seems to be quite clear, but due to the low IT skills of some interested participants, a friendly guide that explained the users how to make the best of the WellCo app would be required.
- Some not so accustomed to IT apps were confused about the user's journey examples on how the app will get information from them and will use it to make recommendations. They were surprised and wondering how this feature was going to be possible. They were surprised in a positive way and did not express any negative opinion or privacy concern.
- As shown in this deliverable, the questionnaire/interview with the users to obtain their opinion on the developed personas, wireframes and user journeys reflects many disparities among users in Denmark, Spain and Italy. This fact underlines the cultural differences on their care habits, leisure, way of relating to others, IT skills and interests. One of the main differences that can be inferred is the different levels of IT literacy among the 3 countries. As an example, Danish users find easy to navigate to the different parts of the app, whereas Spanish and Italians not. Another evidence is the fact that none of the Spanish users they find themselves very comfortable with smartphones.
  In addition, it seems that Danish seniors are more active. They were the only ones that recommended adding work related topics to the solution, while other countries were more focused on leisure and healthcare related activities.

  However, it is worth to mention that the feedback provided so far is not sufficient to deduce country differences with total accuracy.
- Their bigger interest in relation to the setting of their goals and social networks shows big differences among gender, age, urban/rural environments and countries.
- It can be concluded that the results gathered from this evaluation of wireframes are key to refine the requirements that can be used by technical partners to build the user interfaces and frontends of the applications.
- Based on the information gathered from the users in this deliverable, the final list of requirements has been updated, including several key issues to be modified in the final version of the wireframes.
- In the rest of the requirements, the feedback from the users has served to confirm that the design of the wireframes was appropriate.
- Pilot sites have agreed that a new session to show users the improved wireframes is not necessary, being more efficient to directly involve them again in the validation of the first prototype.

The new set of requirements will be brought forward to update the frontend and UI structure for the app. The results will be incorporated to the Deliverable D3.2 WellCo interfaces and user manual.