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Abstract

This deliverable presents the results of the first round of co-design activities implemented in ValueCare pilot sites and new guidance to develop the second round of co-design activities according to the project needs. The first round of co-design activities provided relevant inputs for the development of the ValueCare concept and digital solution. The new round of co-design activities proposed, the second round, is addressed to jointly confirm that the proposed solution responds to the requirements expressed in the first round of co-design activities, to share with participants the prototype of the ValueCare solution before the implementation, and to gather relevant information to improve the prototype and to avoid further errors in the implementation phase. The guidance included in this report describe: the target groups to be involved in the second round (those already engaged in the first round and some new profiles relevant for the ValueCare approach), the timeline, new tools and tips, and the questions to be addressed. Therefore, this report is addressed to pilot sites who should implement the second round of co-design activities, and to EMC and the technological partners as responsible to develop the ValueCare concept and digital solution (respectively) based on the inputs gathered in the first round on co-design activities and reported in this deliverable, that constitute the main findings of this deliverable. The deliverable also includes some lessons learnt from pilot sites on the implementation of the first round of co-design activities and recommendations to implement the second round.

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LIST OF ACRONYMS

CDC: Caritas Coimbra
DoA: Description of Action
ECHA: European Connected Health Alliance (ECHAlliance)

EXECUTIVE SUMMARY

This deliverable **2.7 Report on co-design activities for the ValueCare concept** comprises the inputs gathered during the first round of co-design activities implemented at ValueCare pilot sites, in relation to the ValueCare concept (section 2.2.1) and the ValueCare digital solution (section 2.2.2), together with an overview of the activities and participants involved in each pilot site (sections 2.1 and 2.2). Moreover, some lessons learnt reported by pilot sites had been summarised in the report (section 4).

The deliverable also entails the guidance to perform the second round of co-design activities (section 5), that complement the report D.2.6 (first version of this deliverable) with the framework to implement the new round: target groups to be involved (section 5.1.), timeline (section 5.2), activities to be implemented (section 5.3), new resources available (section 5.4) and questions to be addressed to each target group (section 5.5). The new pilot site reporting template is included as an annex to this report, and it will be provided separately and by electronic means to pilot sites to facilitate their reporting exercise.

Relation to other WPs and deliverables:

This deliverable is strongly linked with the following WPs and deliverables (Table 1):

WP	Deliverable	Link
WP2	D.2.1. ValueCare concept	The co-design activities reported in this deliverable and in the next version (D2.8) feed the ValueCare concept.
WP2	D.2.3, D.2.4 and D.2.5 Engagement strategy for the ValueCare concept co-design start-term/mid-term/end-term	The D.2.6 is strongly linked with these three deliverables, as they describe how to engage participants in the co-design activities according to their profile.
WP3	All WP3 deliverables	The co-design activities reported in this deliverable and in the next version (D2.8) feed the ValueCare digital solution.
WP4	D.4.2. ValueCare implementation plan for each pilot site D.4.3. report regarding the implementation of ValueCare in 7 European pilot sites	The ValueCare co-design activities should be implemented at least twice during the project execution. This deliverable reports the inputs gathered in the first round of the co-design activities and the guidance and questions to be addressed in the second round of the co-design activities during the preparatory phases of the implementation, as agreed with technical partners and pilot sites.
WP6	D.6.2. Dissemination and communication plan	The ValueCare Dissemination Plan can be used to recruit participants for the second round of co-design activities presented in this report.
WP8	D.8.1, D.8.2, and D.8.3 ValueCare ethical management plan	All the activities involving participants should check the ethical guidelines and templates provided in the WP8.

Table 1. Link with other WPs and deliverables

1. Introduction to the deliverable

This deliverable "D.2.7 Report on the co-design activities for the ValueCare concept mid-term" is part of the task 2.4 "Co-design with older citizens and professionals". Within this deliverable, the results obtained during the first round of co-design activities at pilot sites are reported and analysed to guide the work of the partners responsible for developing the ValueCare concept (EMC) and digital solution (FBK, VIDAVO, and Vodafone Innovus).

The report also highlights some lessons learnt, requirements and guidance to undertake the second round of co-design activities, building on the guidance provided in the first version of this deliverable (D.2.6) as well as responding to feedback from the pilot sites. Within the guidance, the new questions to be addressed in the second round of co-design activities are also listed according to the needs of partners in charge of developing the ValueCare concept (EMC), digital solution (FBK, VIDAVO, and Vodafone Innovus), and exploitation plan (ECHA).

1.1 Deliverable objectives and scope

The **main objective** of this deliverable is to report the first round of co-design activities implemented in the 7 pilot sites of the ValueCare project and to provide them with guidance to implement the second round of co-design activities for each of the ValueCare target groups and stakeholders identified in this report. On this basis, the following **specific objectives** are addressed:

- To report the co-design activities in each pilot site, analysing lessons learnt and gaps in the guidelines provided in the previous deliverable (D2.6).
- To provide information to the IT partners about the inputs gathered in each pilot site relating to the requirements for the ValueCare digital solution.
- To report to scientific partners involved in the development of the ValueCare concept the inputs gathered at pilot sites about the value-base care requirements of end-users.
- To involve the end-user and other relevant stakeholders in the ValueCare project.
- To update the guidance provided previously to organise different co-design activities according to pilot site needs.
- To provide pilot sites with the updated questions to be discussed in the second round of co-design activities with each ValueCare target group according to the ValueCare project needs.
- To update the supporting documents (checklists and reporting sheets) to implement and report the co-design activities.
- To link the co-design sessions with the engagement strategy developed in the deliverable 2.4.
- To foster the dialogue between the different ValueCare target groups.

1.2 Deliverable methodology

Pilot sites were asked to complete a questionnaire with the information gathered during the co-design activities implemented. The questionnaire was shared using a Google questionnaire to facilitate partners' reporting (template used is included as **Annex 1**). Due to the current infection control situation, the co-design activities were delayed; therefore, the deadline was extended to the 15th of February 2021. Then, partners involved in the elaboration of this deliverable structured and analysed the information according to the needs of partners developing the ValueCare concept (EMC) and the technical solution (FBK, Vidavo, Vodafone Innovus). Pilots were requested to check the information compiled in this report and complete some missing information or clarify some aspects.

Once the information from pilot sites was analysed, partners involved in this deliverable collaborated on taking the task in line with their background and expertise to provide the

necessary guidance to pilot sites for them to perform the second round of co-design activities. In this sense, the requirements also reported by pilot sites were included, as well as new profiles to be involved in the co-design activities according to the project lifecycle.

The result of this collaborative work among technical, scientific, and pilot partners is presented in this report with the main aim to report the co-design activities implemented to date and provide new guidance to pilot sites.

2. Reporting of the first round of co-design activities implemented at pilot sites

This section details the co-design activities implemented at ValueCare pilot sites, the participants involved in each pilot site per target group, and the main inputs gathered from them in relation to the ValueCare concept and digital solution to be considered in the project development and life cycle.

2.1 Target groups involved

For the first round of co-design activities, the 7 pilot sites involved the ValueCare end-users identified in the first version of this deliverable (**D.2.6**) and described in the **D.2.3 on Engagement strategy for the ValueCare concept co-design**:

1. Older people and their families (informal caregivers) considering the different profiles agreed in the Description of Action for each pilot site. Caregivers were involved as separate group of stakeholders.
2. Health and social practitioners.
3. Health and social care managers responsible for decision-making in health and social systems (integrated care): health and social care managers also considering ICT managers (Chief of the ICT departments of local stakeholders such as Health or Social services, Municipalities).

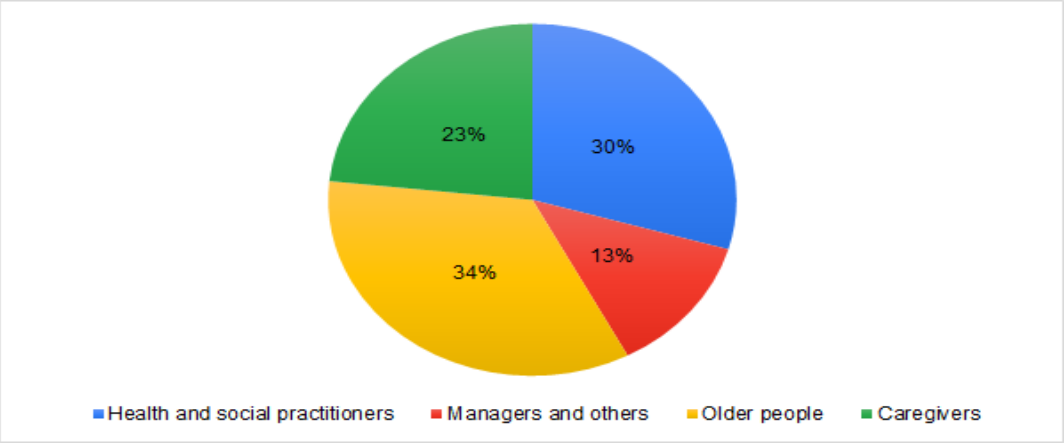
The participants involved in each pilot site are detailed in the table below (Table 2):

	Cork/ Kerry (Ireland)	Rijeka (Croatia)	Rotterdam (Netherlands)	Treviso (Italy)	València (Spain)	Athens (Greece)	Coimbra (Portugal)	TARGET per pilot site
Older people	11	18	42	20	17	0	19	20
Caregivers	6	9	19	22	10	0	20	20
Health and social practitioners	15	32	15	10	15	0	22	10-15
Managers	8	4	4	8	7 (2 of them ICT experts)	0	5	5
Others		2 (IT experts)	3 (policymakers) 3 (IT experts)		3 (municipal providers)	0		
TOTAL	**40**	**65**	**86**	**60**	**52**	**0**	**66**	**≈ 55**

Table 2. Participants involved in pilot sites per target group

Pilot sites had involved a total of 369 participants in the activities performed in the first round of co-design activities, with a well-balanced representation of the target groups (as represented in the Figure 1):

Figure 1: participants in the co-design activities per target group



It is important to note that the **Athens pilot** has not implemented the planned co-design activities as the pilot site is pending to receive the confirmation of the proposed change in the target group by the project officer. They proposed a new target group of Diabetes Mellitus type 2 (T2DM) patients over the age of 65, that will also have Hypertension (according to ESC criteria). In addition, 50 of the patients (equally split between the intervention and the control group) will also have been diagnosed with Mild Cognitive Impairment (based on clinical examination and results of appropriate tests such as the Minimental test). The reason for this change is related to the Covid-19 pandemic and the difficulties of the pilot site to recruit participants responding to the original target group. The new approach is a public health priority in Greece especially during and after the Covid-19 situation and will respond to a complex situation related to Integrated Care provision for T2DM with the above-mentioned comorbidities.

2.2 Co-design activities implemented

As mentioned before, the total number of participants involved in the first round of co-design activities was 369. They had been involved through different in person and online activities, trying to adapt the project requirements to the pandemic situation. The online sessions gave the opportunity to gather a lot of feedback in a very efficient way and allowed a large participation during the second Covid-19 wave.

The main activities undertaken in the pilot sites were **focus groups and interviews** for all the target groups, using telephone and online tools when possible. The Treviso pilot site also used other tools: **one-to-one written questionnaires** for health/social care practitioners and managers, and the **SoCaTel platform**. SoCaTel has been used by ISRAA team with the managers, belonging to the social and health domains, organising two online sessions, coordinated by a facilitator, that supported the answers that each participant had given along with 5 co-creation steps related to the main ValueCare questions to be discussed in the perimeter of the co-design process with them. The following table (Table 3) summarises the type of activities undertaken for each target group:

Older people	Caregivers	Health and social practitioners	Managers	Others
Focus groups (face-to-face)	Focus groups (face-to-face and online)	Focus groups (in person and online)	Focus groups	Focus groups (online)
Interviews (face-to-face and online)	Interviews (face-to-face, online or via telephone)	Interviews (face-to-face and online)	Interviews	Interviews (telephone and online)
	Written questionnaire	One-to-one questionnaire	One-to-one questionnaire	
			SoCaTel platform	

Table 3. Type of codesign activities implemented per target group

During these activities, pilot sites used the guidance and questions provided in the **D.2.6 Report on the co-design activities for the ValueCare concept - Protocol to develop the co-design activities at pilot sites**. The set of questions proposed by the consortium for each target group were included in the section 4 of the D.2.6, and each pilot adapted them to their local context.

2.2.1 Activities implemented per pilot site

This section provides a detailed description of the activities implemented and target groups involved per pilot site.

Cork/Kerry (Ireland)

Cork/Kerry involved in the first round of co-design activities a total of 40 participants with the following profile and procedures:

- **11 older people** were interviewed in-depth via Zoom and telephone on an average of 41 minutes to explore their needs, the potential use of technology, and the ValueCare concept. While some interviews were conducted using Zoom's videocall function, other participants did not have access to Zoom. In this instance, the interviewer phoned them on their standard telephone and audio-recorded the session via Zoom while the interview was conducted using loudspeaker. Older people were recruited through gatekeepers at local initiatives in Cork and Kerry such as Older Person Council Network, Community Workers' network, Friendly Call Cork and Men's Sheds.

  Achieved goals: the interviews provided partners with a clear overview of older people's needs, what they would like to use in the ValueCare intervention especially considering the technology, technology barriers, and Covid-19 impact.

- **6 caregivers,** identified through the Community Workers Network in Kerry and Older Persons' Council in Cork, participated in one online focus group (via Zoom) and three in-depth interviews by phone. The in-depth interviews had an average duration of 42 minutes and the focus group had a duration of 85 minutes. The aim of both activities was to explore informal caregivers' views on value-based care and the potential for eHealth technology to support people living with frailty.

  Achieved goals: the interviews provided a deep understanding of the key issues regarding the needs of older people in Cork and Kerry. In addition, the focus groups explored the experience of being a family caregiver in Kerry, participants' experience of services in their areas and how they can be improved, and the potential of using technology in their relatives' care.

- **15 health and social practitioners** from partners' contacts and the ICPOP Network (The Integrated Care for Older Persons) participated in 3 online focus groups by Zoom (one with 5 participants, other with 6 participants and the final with 2 participants)

and 3 telephone in-depth interviews. Focus groups had an approximate duration of 80 minutes and interviews an average of 41 minutes. The aim of the focus groups was to identify needs and the potential use of technology and to explore the ValueCare concept and specific needs regarding the technology design. The 3 interviews implemented were aimed to discuss the concept of Value-based healthcare to support people with frailty and discuss the potential of using technology as part of their care and support in Cork and Kerry.

Achieved goals: the first focus group provided an overview on what would work in the ValueCare intervention in Kerry and how current services could be improved. The second focus group gave practical advice on how they would like to see services improved in Cork. In the interviews, participants provided relevant input about the potential of using technology amongst older people in rural Cork, key considerations of older people with frailty in Kerry (also considering social perspectives), potential functions of the technology, where the ValueCare intervention should be situated and its governance, and specific needs of social workers in Kerry.

- **8 managers** participated in 2 online focus groups via Zoom (one with 4 participants and the other with 2 participants) and 2 in-depth interviews by telephone of 50 minutes approximately each with the main aim to discuss ValueCare concept and the potential use of technology.

  Achieved goals: during the first focus group participants provided an overview of the specific needs and available services in Kerry, in the interviews participants gave some insights about the importance of value-based care and how the technology could support older people, as well as the practical IT considerations for implementing the technology. Finally, the second focus group provided relevant inputs on what is valuable to older people with frailty and healthcare teams, where to situate the ValueCare technology in healthcare within Cork and how to train healthcare teams and older people to use technology.

Rijeka (Croatia)

As mentioned in the table 2, Rijeka involved 65 participants in the co-design activities:

- **18 older people**, 17 of them in face-to-face focus groups and one in a telephone interview. The Rijeka pilot site organised two rounds of focus groups; within each round, two focus groups were simultaneously conducted within the Faculty of Medicine. The participants were recruited via telephone from the participant database provided by patronage nurses. The older adult interviewed was included from the research team contacts.

  Achieved goals: Insight into the experiences of the existing treatments, values and ideas for the improvement relevant for the project as well as to elaborate on "touchpoints" for improvement and perspectives on desired solutions to improve services, including IT solutions.

- **9 informal caregivers** participated in co-design activities: one informal caregiver participated in a face-to-face interview, five in telephone interviews and three in a face-to-face focus group. The main objectives of organising co-design activities with informal caregivers were to evaluate the functioning of all health and social care services provided to patients, that is, what is "value-based health and social care" for patients who have had a myocardial infarction and what is needed to create 'value' in providing care to informal caregivers.

  Achieved goal: Insight into good and bad experiences within the health and social care system from the perspective of informal caregivers, what is important while defining 'value' in providing care to informal caregiver's spouse/family member, what are the tasks and challenges while providing informal care and the features of an ICT solution in giving support to patients that had suffered a myocardial infarction.

- **32 health and social practitioners** participated in 4 different online meetings (focus groups) via GoToMeeting organised as part of the course *Public Health* led by professor Vanja Vasiljev (WP4 leader).

  Achieved goal: Health and social care practitioners helped in defining the concept of 'value' in value-based healthcare. The participants also gave insights into the importance of a personalised approach to each patient and challenges of gaining access to the patient's health record to provide better healthcare. They also mentioned the issue of modern technologies and its usability in health and social care.

- **4 managers,** 1 of them was interviewed via MS Team and the other 3 participated in an online focus group.

  Achieved goal: Health and social care managers discussed their experiences in providing health and social care services to patients which had myocardial infarction and successfully went through rehabilitation. Moreover, they provided insights into the concept of 'value' in value-based health and social care and made suggestions for improvement in providing health and social care to patients. Additionally, their perspectives were gathered on desired IT solutions to improve services, and to explore barriers within the improvement of health and social care services.

- Furthermore, **2 IT experts** participated in an online focus group organized via the GoToMeeting platform.

  Achieved goal: The goal of the focus group was to discuss good and bad experiences in providing health and social care services to patients who had suffered a myocardial infarction and successfully went through rehabilitation, to get insight into the concept of 'value' in value-based health and social care, to explore suggestions for improvement in providing health and social care to patients who had suffered a myocardial infarction, to gather perspectives on desired solutions to improve services, including IT solutions and to explore barriers within the improvement of health and social care services.

Rotterdam (The Netherlands)

As mentioned in table 2 Rotterdam involved 86 participants in the first round of co-design. Participant characteristics and procedures followed are listed below.

- **42 older people** were interviewed via telephone. They received a letter from their neurologist with an invitation to participate and to provide their telephone number if they were interested. The interviewer phoned interested older people to plan and conduct the in-depth interview. The interviews were audio recorded. The interview had a duration between 20 to 40 minutes.

  Achieved goals: the interviews provided valuable insights into patients' attitudes towards received care and their care experiences. Based on their experiences, we asked about their needs and preferences for improving care. Patients also reflected on how ICT-solutions can (or cannot) contribute to these improvements.

- **19 caregivers** participated in in-depth interviews by phone. They were invited via the patient invitation letter. The in-depth interview had a duration of 20-40 minutes. The aim was to explore informal caregivers' views on value-based care and the potential for ICT-solutions to support people who have had an ischemic stroke.

  Achieved goals: the interviews provided more insights on the key issues around the needs of people who have had ischemic stroke and their caregivers. Informal caregivers elaborated on their experiences and provided suggestions for improvements in the care their family member received. They also reflected on the potential of using technology in their relative's care.

- **15 Health and social practitioners** participated in 5 focus groups and 1 in-depth telephone interview. Their profiles represent the whole continuum of stroke care, including neurologists, geriatricians, rehabilitation care professionals, general practitioners (GPs), nursing home professionals, physiotherapists, nurse practitioners and social care professionals. The average duration of the focus groups was 75 minutes and focus groups were held face-to-face or online via MS Teams. The telephone interview lasted for approximately 30 minutes. The aim of the focus groups and the interview was to discuss the concept of value-based health care in the context of stroke care and to identify the needs and preferences with regard to technology to support value-based healthcare.

  Achieved goal: health and social care practitioners identified what is going well and what could be improved in the care delivery to stroke patients. Moreover, health and social care practitioners reflected on how ICT-solutions can support value-based and integrated stroke care.

- **4 healthcare managers/care coordinators:** 2 patient transfer/ care coordinators and 2 healthcare managers working in the hospital or rehabilitation centre. These stakeholders participated in 3 focus groups in which the ValueCare concept was discussed and the potential to support value-based integrated stroke care with technology.

- **6 other stakeholders with the following profiles**: 3 data/ IT experts, 3 policymakers (at the municipality, rehabilitation centre and in a nursing home).

  Achieved goal: participants provided an overview of what they thought was going well, and what were specific areas for improvement. Particularly the data / IT expert could provide more detailed knowledge on how using data and technology could support integrated stroke care and where to situate the ValueCare technology in healthcare.

Treviso (Italy)

As mentioned in table 2, Treviso pilot site involved 60 participants in the first round of the co-design activities in the following way:

- **20 older people** were interviewed in person. They were recruited by ULSS who contacted patients that received their services through phone calls and proposed a single interview with a psychologist. The interview had a duration of 60 minutes.

  Achieved goals: Thanks to the interview the Treviso research team were able to get information on the meaning of value in health and social care from a patients' perspective. The interview also aimed to better understand their knowledge on ICT and how they think it could be useful for them.

- **22 caregivers** participated in 5 focus groups, all achieved in two separate sessions, one face-to-face meeting and one online session with GoToMeeting or WhatsApp video (with 21 participants) and 1 written questionnaire.

  The firsts face-to-face focus groups were feasible notwithstanding the pandemic context, respecting all the preventive measures (distance, masks etc). These preventive aspects were easy to overcome and did not have an impact on the organisation of the focus group.

  The second session of the focus groups had to be done online due to the strengthening of the measures linked to the pandemic. 3 focus groups could be organised on GoToMeeting with no particular issues, since the group was able to use laptop and online platform (14 participants). For the 2 remaining focus groups, as some participants had problems using GoToMeeting and online platforms, ISRAA used WhatsApp videos (7 participants). For connection and time difference reasons, 2 participants could not join the call, one of whom completed a written questionnaire.

All the participants were recruited by phone calls and invited to participate in a focus group with the aims to: (i) Understand and collect caregivers' feedback on what brings value to health and social services, (ii) Understand how the technology could support them in their role as caregivers and give feedback on the demo of ValueCare app, and (iii) Collecting information from caregivers about the value of social and health services on MCI and how the use of ICT could help in the process of care.

Achieved goals: the interviews provide an overview on how to improve the health and social care in Treviso and identify the needs for an integrated social and health system. The focus groups also gave clear ideas, suggestions, and improvements on the application demo.

- **10 health and social practitioners** were interviewed and recruited in collaboration with the ULSS2 by email or informal phone call. 5 of them participated in a focus group and the rest filled out a questionnaire sent by email. The objective of the focus group was to explore participants' values, needs and preferences towards improving care for patients. During the focus group participants discussed value-based health care and the pilot research team gathered their perspectives on desired solutions to improve services, including IT solutions. The questionnaire was sent with the objective to obtain some information about the integration of services, the value of care and the use of technology within care services.

  Achieved goals: the activities allowed the research team to find a common point on how to improve care and social services, how to integrate them and what is the value of this integration for social professionals. Participants have also raised the obstacles that need to be overcome and the possible solutions addressed. These interviews have engaged the professionals in the project offering new points to discuss, including a reflection on preventative actions and the sensible use of ICT (from a good perspective and thinking and not being suspicious about it).

- **8 managers and experts** were interviewed and 7 of them participated in a focus group through SoCaTel Platform. This platform was chosen because it gives the opportunity to express ideas in an offline and independent way as well as using it for the online session for co-design activities. This new platform was used to avoid a risk of non-participation of this targeted group, as they were difficult to reach during the Covid-19 pandemic period. They were contacted by phone calls and emails explaining the objectives of the identification of potential areas of improvement of services and what contributes to the creation of value for the user.

  Because of the pandemic situation, it was not possible to organise a discussion around ICT solutions, challenges and benefits. A second meeting is planned around the ICT part, in the second round of co-design before the pilot activities starts.

  The one-to-one questionnaire participant was recruited in collaboration with ULSS2 of Treviso and was contacted by email with the objective to obtain some information about the integration of services, the value of care and the use of technology within care services.

  Achieved goals: A lot of information was gained about the integration of services, but also on the obstacles that must be overcome. In addition, the manager involved clearly explained all problems, but also possible solutions. The focus group achieved to know what is the value of a social and health care integration and the aspects that could be modified.

València (Spain)

València pilot site involved a total of 52 participants in the first round of co-design activities as detailed below:

- **17 older people** participated in 1 focus group with 3 participants and 11 older people were interviewed in-person and online. This approach was taken because of the Covid-19 restrictions. They were recruited by the doctors from the medical centers involved in the project. Concretely, the doctors explained to them the project and gave them a leaflet and a contact phone number to call in case they were interested to participate. Interested participants called directly to the research team avoiding any conflict with data protection issues. Then, the research team agreed with them a date and place for the interview in open spaces and reduced the number of participants per session (from 1 to 3). Also, older people from the pilot network were invited to participate.

  The focus group had a duration of 40 minutes and the interviews an average of 70 minutes. Participants were asked about their impressions related to the ValueCare concept and digital solution.

  Achieved goals: thanks to the interviews and the focus group, the València research team was able to understand the unmet and met needs of older people in the municipality in relation to staying healthy and active and how the technology can support them on this. Participants were also able to express their concerns regarding their medical and social care and the use of technology. The Covid-19 influence was often present in the conversations.

- **10 caregivers** combining online, telephone and face-to-face interviews. The interviews had an average duration of 50 minutes. The informal caregivers were recruited because of their relationship with the older person who also participated in the co-design activities and from the València team network. The aim of the co-design activities was to gain feedback on the ValueCare concept and digital solution.

  Achieved goals: gained understanding of the medical and social care the older person was receiving and how the caregiver values this care (health and social). Also, the activities elicited information on what the caregivers believed would help their relative/the person they cared for as regards the digital solution of ValueCare (requirements) and their unmet needs (for older people and caregivers).

- **15 health and social practitioners**, 4 of them with in-depth interviews (online and face-to-face with a duration of 60 minutes) and 10 practitioners in different online focus groups (average 75 minutes). Health practitioners were recruited from the primary care centres that are involved in the project; and the formal caregivers were recruited from the local service providing telecare and home care. The activities were addressed to co-design the ValueCare concept and app but also to know more about frailty patients and how the health and social systems respond to their needs, in order to detect gaps to be solved by the ValueCare integrated intervention programme.

  Achieved goals: gained knowledge of the process of diagnosis and intervention of the frail patients. The interviewed doctor explained how they assess the patient and develop the personal intervention plan based on the patient's condition. Researchers at the local level were also able to learn about the limitations and challenges when dealing with these patients due to lack of knowledge by GPs and time constraints, etc. The doctor also explained how the process has changed due to Covid-19 restrictions and the effects on the patients and the doctors. The other interviews and the focus group provided researchers with insights about the concept of value for this profile, how the dashboard should be, what kind of information, areas to improve,

- **7 managers** (2 of them ICT experts) were involved with online interviews to capture information on their previous experience in using ICT tools for providing person-centred care, understand their concept of ValueCare and the needs that could potentially be alleviated with a digital tool. The interviews also identified the needs of frail older people and the professionals working with them and the barriers for integrated care implementation. The participants were recruited from the existing network of contacts of the pilot sites and most of them were involved in the project.
- **3 stakeholders (Municipal Social Care Providers)** with an online focus group of 90 minutes in order to collect their insights about the needs of the frail older people as they have many years of experience working with them and coordinating with public social services. They were recruited from the network of contacts of the partners involved in the pilot.

  Achieved goals: participants provided the València pilot team another point of view on the areas that are lacking with regard to the frail older people.

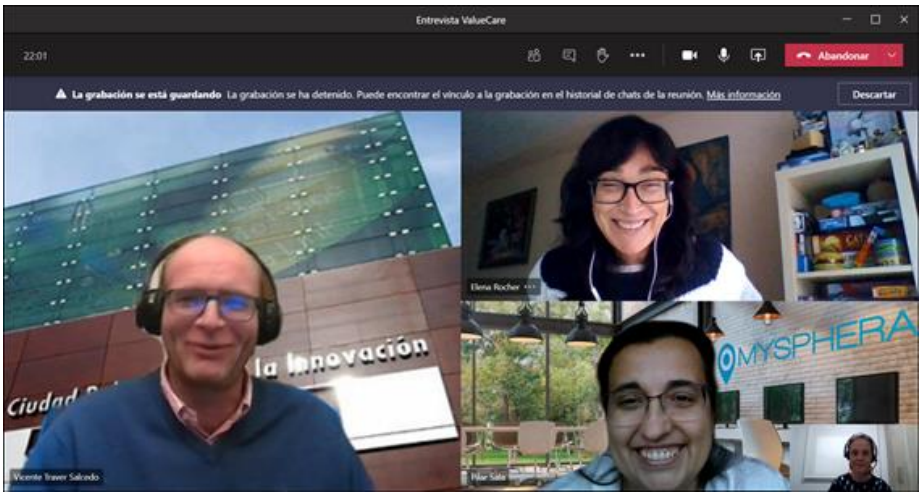


Image 1: Co-creation session implemented by Las Naves with IT experts.

Coimbra (Portugal)

As detailed in table 2, Coimbra pilot site involved a total of 66 participants in the first round of the co-design activities in the following way:

- **19 older people** were involved in 3 focus groups sessions, 5 telephonic interviews and 5 video calls. In addition to the closing of CDC's day care services (due to pandemic context), residential units and homecare services for older people were also overwhelmed with the implementation of contingency measures and protocols in order to keep their users safe, healthy and well cared for. Therefore, involving CDC's older users without stressing them or putting them at a greater risk of infection has been a real struggle. To that purpose, their usual formal caregivers were asked to act as facilitators. They were asked to identify possible participants, according to the inclusion criteria (65+ and able to sign informed consent), and invite them to participate in a focus group session or in an individual remote interview, depending on the case. Email exchange and telephonic contact allowed the research team to organise the sessions, with previous knowledge of their team managers. Through the direct contributions of these usual CDC caregivers and with remote support from the Innovation Department team, the older participants were given information about the ValueCare project and the purpose of the co-creation phase, having all signed and informed consent. The co-design activities were aimed to: (i) Explore users' attitudes towards health care and social support, (ii) Collect needs and preferences to improve the care provided to older people in (risk of) social isolation (aggravated by the Covid-19 pandemic), and (iii) Understand the main values regarding possible

technological solutions for the improvement of social and health support provided to older people.

Achieved goals: The performed sessions were able to gather the opinions, preferences and suggestions of the older users regarding their experience with provided care. Ultimately, the goal was to understand their concept of value-based care, as their daily hurdles and struggles regarding the received care, in order to ensure that the technological results of the project bring added value to their wellbeing, quality of life and satisfaction with provided care, by responding to their real needs and wishes.

- **20 informal caregivers** participated in 2 focus online group sessions (via Zoom - each one attended by the same 10 participants) and 10 structured individual interviews performed both remotely and face to face by the Innovation Department team members to several older persons' informal carers.

  Within the pandemic context, CDC's day-care services were closed, and the home care services severely restricted. In consequence, and due to the hurdles in reaching out to CDC's older users' family carers, CDC approached a National Association of Informal Caregivers by email and invited them to participate in a focus group session. The aims of the focus groups were: (i) Understand caregivers' concept of value-based care; (ii) Explore family members' attitudes towards health care and social support; (iii) Collect needs and preferences to improve the care provided to older people in (risk of) social isolation (aggravated by the Covid-19 pandemic); and (iv) Understand the main values regarding possible technological solutions to be considered for the improvement of social and health support provided by family caregivers to older people. All the protocol to collect informed consent by distance was followed. All participants were aware of these requirements purposes and agreed to contribute to the project.

  Achieved goals: Informal carers' experience of care for older people with different levels of autonomy, as their attitudes and preferences, opinions and suggestions regarding care were collected to better understand caregivers' concept of value-based care and the potential support of ICT solutions.

  After analysing the outcomes of the co-design sessions performed with informal caregivers and considering their contributions for an eventual integrated ValueCare solution (under development by the technical partners), it was found that maybe the foreseen solution is not able to fulfil all their real needs and preferences.

- **22 health and social practitioners** participated in 2 online focus groups, some formal carers were addressed and invited to participate, through an email exchange with their team managers. They were given information about the ValueCare project and the purpose of the co-design phase; concretely, the focus groups were addressed to the same objectives detailed for the managers and experts: (i) Explore values, needs and preferences regarding the improvement of the care provided to older users; (ii) Discuss the importance of providing care based on the generated value of generated results; and (iii) Collect perspectives on possible solutions to improve services, including ICT. All the protocol to collect informed consent by distance was followed. All participants were aware of the collection requirements purposes and agreed to contribute to the project. All the protocol to collect informed consent by distance was followed. All participants were aware of the collection requirements purposes and agreed to contribute to the project.

  Achieved goals: The performed sessions were able to gather the attitudes and preferences, opinions and suggestions of some health and social care professionals regarding their experience in the provision of care for older people. The sessions also allowed the research team to comprehend their understanding of the concept of value-based care in order to ensure that technological results of the project bring

added value to their performance, satisfaction, and work burden, by responding to their real needs in the field.

- **5 managers and experts** were interviewed individually with structured interviews. Participants in these telephonic sessions were individually invited to participate. They were given information about the ValueCare project and the purpose of the co-design phase and the interviews were addressed to: (i) Explore values, needs and preferences regarding the improvement of the care provided to older users; (ii) Discuss the importance of providing care based on the generated value of generated results; and (iii) Collect perspectives on possible solutions to improve services, including ICT.

  Achieved goals: Comprehensive information on the experience, opinions and suggestions from managers and experts in care performance for older people was collected, as also their values and preferences, regarding care and the role of ICT in the whole process. The outcomes of the co-design sessions performed with managers and experts were analysed in order for their contributions to be further integrated within the ValueCare solution (under development by the technical partners), in a way that suits their opinions and suggestions, as much as possible.

All the implemented activities in the Coimbra pilot site had a duration of 60 minutes approximately. A qualitative analysis was performed in order to gather and systematise the interviews and focus group sessions' outcomes.

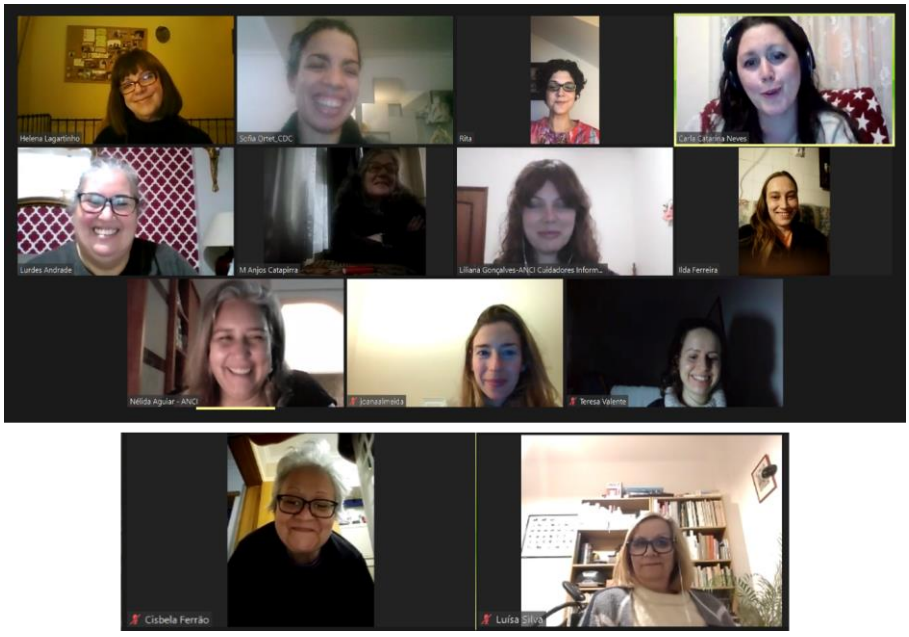


Image 2: Co-creation session implemented by Caritas Coimbra with some members the National Association of Informal Caregivers

2.2.2. Barriers in relation to the co-design activities

The **Covid-19** has greatly impacted the organisation and implementation of the co-design activities, explaining sometimes a lower number of participants at face-to-face meetings for fear of Covid-19 contaminations (Rijeka). In fact, in the previous version of this deliverable, some activities were adapted to the pandemic situation and new tools were suggested to perform the co-design activities online. The pandemic also caused a delay in the initial timeline of the co-design activities and more time was required to achieve the proposed

numbers per target group. Some of the barriers reported by pilot sites and how they had overcome these obstacles are summarised below (table 4):

Obstacle	Measure implemented in ValueCare
Difficulties in formally obtaining the informed consent signed in paper by the participants	Coimbra: Due to some constraints in printing out the Informed Consent package to sign it in paper and send it back by email to the research team, CDC proposed to send them the paper documents by mail, with returning fee paid.
Lack of availability of professionals (oversaturated by Covid-19)	Coimbra: In case of the National Association of Informal Carers, due to their lack of availability during daytime, the sessions had to be performed at night. Rotterdam: Organised extra online sessions and sometimes had meetings with experts from different fields. Treviso: Due to lack of time, a secondary meeting is planned around ICT aspects during the second phase of co-design activities. All pilots: Organisation of remote co-design activities adapting the activities to the schedule of professionals.
Difficult to manage online focus groups with 8-10 people	València: Focus groups with health and social practitioners were organised with small groups, so more focus groups were organised to achieve the required target numbers. Cork and Kerry used AHASlides with health and social practitioners and managers to facilitate group discussion between participants and anonymously share their thoughts with the group regarding how services could be improved. It enabled the facilitators to comprehensively explore the participants' answers and ask other members to share their views. Treviso: Focus group with caregivers were organised on WhatsApp as some participants were unable to access GoToMeeting.
Digital literacy of older people to engage them in online co-design activities	Coimbra: The participation of the formal caregivers in the online sessions was of utmost importance to this task. Cork /Kerry: Technological Literacy and Demographics Survey was designed and implemented in Cork and Kerry. While some interviews were conducted using Zoom, other participants did not have access to Zoom. In this case, the interviewer phoned them on their standard telephone and audio-recorded the session via Zoom while the interview was conducted using loudspeaker. València: The group activities planned with older people were replaced by small group interviews or one-to-one interview in person.
Common reluctance to use digital tools (also for the co-design activities)	Pilot sites had used the pandemic situation as an opportunity to promote the use of digital solutions for health among older people and their caregivers.

Table 4. Barriers and overcoming actions implemented by ValueCare pilot sites

2.3. Inputs gathered

This section summarises the inputs gathered from ValueCare pilot sites in the first round of co-design activities in relation to the ValueCare concept (section 2.2.1) and digital solution (section 2.2.2).

2.3.1 About the ValueCare concept: What is Value-based care for them?

In this section the information gathered in the co-design activities implemented in the ValueCare pilot sites is summarised per target group, the whole data can be consulted in the **Annex II**. The common questions proposed to co-design the ValueCare concept were shared with pilots in the D.2.6 and then adapted by each pilot sites to their context. Those common questions are detailed in each target group.

Older people

The addressed questions in the co-design activities were:

1. What are your health and social care priorities? Could you rank them or give a score from 1 to 5 to them? (1 less value and 5 more value)
2. To what extent do you experience difficulties managing your health? If so, how could you be supported to better manage your health
3. What kind of information about your health would you find useful to access and in what format? What has worked/not worked for you in the past?
4. Would you like to influence your actual and future care by personalising the service/treatment you are receiving or will receive?
5. Are you willing to change your lifestyles/behaviour/routines to positive influence in your health?

After adapting these questions for each pilot site, the compiled feedbacks from older people are detailed below:

Health and social care priorities:

- **Health' monitoring:**
  - by a multidisciplinary care team (Cork/Kerry) covering all the care pathway and needs of the older people (València), also considering psychologists and the importance of social care (València)
  - by having the same professional of reference (València)
  - thanks to a proximity of health care facilities (Treviso)
- **Close and quality contact** with the health/social professionals:
  - more in-person visits (Coimbra; València; Rotterdam) and follow up (València, Treviso)
  - active and empathic listening during consultations with their patients (Rotterdam, Rijeka, València)
  - easier / quicker contact (Coimbra)
  - clear answers from healthcare professionals (Treviso)
  - video calls between patients-health/social professionals (Coimbra; València, Cork/Kerry, Rijeka)
  - with the needed time with the doctor (València, Rotterdam)
  - understanding the value of the patience of caregivers around the patient (Treviso)
  - possibility of sending photos when face-to-face appointments are not possible (València, Rijeka)
  - reducing the waiting time for appointments (València, Rijeka)

Improving health management:

- Recognition of the family members and friends **support** (Cork/Kerry, Rijeka, Treviso) but also a system that supports older people with no family support (Cork/Kerry)
- **Needs:**
  - **to facilitate the bureaucratic** processes (Coimbra; València, Treviso)

- **to reduce digital literacy** (Coimbra; València; Cork/Kerry)
- **pharmaceutical benefits** (Rijeka)
- **appointments reminders** (València, Cork/Kerry, Treviso)

Access to detailed information/knowledge:

- about the own disease, treatment, and what to expect throughout the disease trajectory (Rijeka; València, Treviso, Rotterdam, Cork/Kerry)
- guidelines regarding physical activity (Rijeka, Valéncia and Cork/Kerry) and nutrition or healthy diet (Cork/Kerry, València)
- where to find support (Rijeka, Treviso, Rotterdam, Cork/Kerry)
- medication to be taken (València, Treviso;Cork/Kerry)
- social activities in the neighbourhood (Rijeka, València; Cork/Kerry)
- access to data: analytical results (València)

Participation in health decisions: Ability to decide on personal goals with the guidance of a health and social care professional (València, Rotterdam, Cork/Kerry, Rijeka)

Willingness to have healthy habits for ageing well:

- Supports positive long-term behavioural changes to live well and independently as they grow older (Cork/Kerry)
- Considers social dimension (e.g., community engagement, video calls between other older people (Coimbra; València, Cork/Kerry, Rijeka).
- Focusing more on their wellbeing than on drugs (València)
- Information needed (see previous list of identified information needed)

Caregivers

The deliverable D.2.6 did not include specific questions for informal caregivers, as they were supposed to answer the questions addressed to older people from their point of view of taking care them. The feedback gathered from this target group is summarised below:

In relation to their own wellbeing:

Training: Need of specific training to improve knowledge and experience on how to provide better care to the older person (Coimbra, Rijeka). In particular:

- **Time management skills** (València, Cork/Kerry, Treviso)
- **Self-care** to prevent burn-out (Rotterdam, Cork/Kerry)

Support:

- **Psychological** (Coimbra; València, Rijeka, Cork/Kerry, Treviso)
- In the **bureaucratic** tasks (València, Treviso, Rijeka)
- **Physical help** (Coimbra) and **time to rest** for older caregiver (Treviso)

Recognition of their valuable work (Coimbra, València, Treviso) and their role **being the bridge** between public and private services and the older person (Coimbra)

- **Monetary compensation or financial aid** for the care provided (Coimbra)
- **Lighten the caregiver burden** regarding the pressure and tasks of caregiving (Treviso, Cork/Kerry)

Communication and access to information:

- **Improve communication** and **decision-making** between the family caregiver and older relative (Cork/Kerry, Treviso)
- Access to **updated information** on health data from the people they care for (Coimbra; València, Rotterdam, Cork/Kerry) and monitoring (València)

In relation to the older people care:

Health and social care priorities:

- Receive **social care / medical appointments at home** (or near home), **or through technologies** (including free blood tests at home), with the presence of the family carer to:
    - reduce the user anxiety of being in an unknown environment, his/her exposure to virus or illnesses (Coimbra, Rijeka)
    - reduce the caregivers' constraints regarding time, travelling, missing work, etc (Coimbra)
- **Contact with health and social professions:**
    - **Face-to-face meetings** with health and social practitioners to understand the real needs of older people (València), availability and flexibility from doctors (Treviso)
    - **Close contact/communication** (València, Treviso, Rijeka Cork/Kerry)**: Empathy** by health and social professionals (València, Treviso, Rijeka, Cork/Kerry), **kind and listening from professionals,** more time and available timeline during the week (València, Rijeka, Treviso)
    - **Be involved in the choices of patients care and assistance** (Treviso)
    - **Continuity of the professionals** (València)
    - **Need of geriatricians** in primary care (València)
- Preventive approach (medical and psychological aspects) (València, Cork/Kerry), focusing on remaining abilities of patients and activities she or he can manage (Treviso, Cork/Kerry)
- **Reduced waiting lists** (València, Rijeka)

Improving health management:

- **Medication control** (Coimbra, Cork/Kerry, Rijeka) and reminders (València, Rijeka, Cork/Kerry)
- **Facilitating and reduce bureaucratic work** (València)
- **Monitoring**: with periodic phone calls from the Primary Care Units (Coimbra; València, Cork/Kerry)
- **Support**:
    - Hired support in daily tasks (hygiene, meals) (Coimbra; València)
    - Social support to combat loneliness (València, Cork/Kerry)
    - Physical exercise execution (València, Cork/Kerry)
    - Digital skills (València)
    - Emotional support in the first stage of the disease (Treviso)
    - Positive approach and motivation should be considered for rehabilitation (Treviso)

Access to detailed information/knowledge:

- **Information on health and disease (not only medical) with no technicalities** (València, Rotterdam, Rijeka, Cork/Kerry)
- Information about the rights within the social care system (Rijeka, Cork/Kerry)
- Understand medical instructions (València, Rijeka)

Participation in health decisions: Personalised care (València), making intervention in relation to "real needs" (Treviso, Rotterdam, Rijeka, Cork/Kerry).

Willingness to have healthy habits for ageing well:

- Connection with the **proximity services** (Coimbra) **and available resources (**València, Cork/Kerry)
- **Transparent understanding** between the family caregiver and older relative about the activities that will keep them well and enables the caregiver to encourage the caregiver to engage in them (Cork/Kerry)

Health and social practitioners:

The questions proposed in the D.2.6 for health and social practitioners were the following:

1. When it comes to creating 'value' in the work that you do (health and care), describe the three most important attributes.
2. Assuming these three attributes are in place, what kind of impact do you expect on your daily work? (e.g., less burden, quality of work and own quality of life...)
3. Would you like to personalise the care you provide to your older patients? If so, how?
4. How would you like to monitor the older people you work with?
5. Would the ability to communicate more closely with your older patients benefit you? How? Would it benefit them?

After adapting these questions for each pilot site, the compiled feedbacks from health and social practitioners are detailed below:

Most important attributes that create "value" in their work:

- To alleviate the **time constraints with technological solutions when possible** (video calls contacts with caregivers, family, friends and neighbours) (Coimbra; València, Cork/Kerry, Rijeka)
- **To integrate the information** (responding to the corresponding ethical issues) to be shared by the entire care team of each patient - social and health (Coimbra; València, Cork/Kerry). It is related with:
    - The provision of common understanding of **joint protocols** for primary and secondary prevention for stroke prevention patients (Rotterdam).
    - **Joint visits** by all health and social professionals, if necessary, and the patient (València)
    - **To promote the coordination between health and social sectors** to personalise the patient care plan - multidisciplinary team (València, Cork/Kerry, Rijeka, Treviso)
- **To provide the required information** when a new user arrives (Coimbra; València, Cork/Kerry, Treviso)
- To offer **fair wages** (Rijeka)
- To provide sufficient **equipment and staff resources** within the institution, that is, **good working conditions** with a **balanced practitioner-patient ratio** allowing quality time with each patient (Rijeka) and an **efficient use of existing resources** (València)
- To provide accompaniment interventions along the pathway by an "expert guide" (Treviso)
- To encourage good interpersonal **relationships**, mutual **respect** (Rijeka, treviso)
- To contribute to an **equal and affordable access** to quality care (Rijeka)
- **To provide continuous training** of professionals and develop the capacity to combine theory with reality (Treviso, València)
- **To contributes to an increased awareness** of the problem to reach an **early diagnosis** and thus increase therapeutic programs of cognitive and physical stimulation (Treviso); early detection (València)
- To allow **multidimensional evaluation** (València) and social and health assessment to contribute to the continuity of care (Treviso)
- To contributes to the reduction of **waiting times** for patients (València, Rijeka)

Care personalisation: possibility to provide a system that:

- put the **patient at the centre** and give a more **active role** to the patient to determine his/her needs and preferences (Rotterdam, Cork/Kerry, Treviso; València, Rijeka), that is, considers the **opinion of the patient, explaining them**

the options and involved them in the decision-making (València, Cork/Kerry, Treviso)
- **stimulates the cognitive** abilities of older adults (e.g., including specific activities and games) (Coimbra)
- provides older people with a **daily orientation** i.e., date/time/weather (Cork/Kerry)
- **promotes older person empowerment** (Treviso, Rijeka)
- involves **community** (Treviso, València, Rijeka) and promotes **leisure activities/resources** in the neighbourhood (València, Cork/Kerry, Rijeka)
- **supports the physical assistance** (to support the provider in helping the user's mobility) (Coimbra; València)
- promotes **healthy diet** habits / nutrition (València, Cork/Kerry, Rijeka)
- provides the patient and his / her caregiver a **reference contact** in case of difficulty within the multidisciplinary team around the patient (Treviso)
- providing **autonomy** means that patients with MCI should strive to maintain functional autonomy, maximising the satisfaction of the person and their family members (Treviso)
- accompanies the patients in accepting and processing the consequences of having a stroke and **manage expectations** of patients about rehabilitation and recovery better (Rotterdam).
- contributes to the patients' **quality of life** (València)

Older people monitoring:
- **reminders**:
  - about **medication** for users and caregivers and also informs professionals about their **adherence** (Coimbra, Cork/Kerry, Rijeka)
  - for appointments / meals / etc. (for people with cognitive decline) (Coimbra)
- **fall alerts, emergency calls** function at older people homes (Coimbra, Rijeka), fall prevention programme (València, Cork/Kerry)
- **reduction of visits** per patient (as if they are monitored doctors do not need to see them so frequently) (València)
- **access health care records** of each patient for comprehensive **personalised care** (Rijeka; València, Cork/Kerry, Rotterdam, Treviso), measure **health outcomes** that are relevant to the patient (Rotterdam) and facilitate **patient transfers** to other healthcare providers (Rotterdam)
- involved **informal carers** better in the care pathway (Rotterdam, Treviso, València)
- allows **follow-up** (València, Rijeka)

Communication with older patients:
- to facilitate **communication** between care professionals and patients (Rijeka, València), using video calls or WhatsApp although face-to-face is the most effective (València) which allows to have a clear overview of all care professionals involved/responsible in the care pathway (Rotterdam)
- to communicate with the values of **empathy, knowledge, humanitarianism, morality** (Rijeka, València) and attentive listening to needs and flexibility in the range of responses (Treviso)
- to facilitate **continued care** (same professionals of reference) and 24 hours 7 days (here the technology is needed) (València, Rijeka, Treviso)

Experts and managers:

The questions proposed in D.2.6 for experts and managers were:

1. What does 'value' mean to you when it comes to health and care? What do you understand by "value-based healthcare"?
2. What kind of impact do you expect value-based health care delivery will have on your work/organisation? (e.g. less burden, quality of work and own quality of life...)
3. And in the care (health and social) system)?
4. What would be the main gain that value-based interventions could provide to your organisation?

After adapting these questions for each pilot site, the compiled feedbacks from experts and managers are detailed below:

In general terms:

- **Quality in health** needs to be assessed through subjective and objective evaluations; that requires the implementation of monitoring and evaluation strategies to guarantee the quality in health (Coimbra).
- Value-based care is a strategy based on maximizing the value for the patient through the achievement of the best possible connection between the treatment optimal outcome and the expense sustain to achieve that result (Treviso).

<u>In relation to the care provided to older people:</u>
Impact of value-based health care delivery:

- **Managing better the time dedicated to home visits** (more human resources needed) (Coimbra)
- **Fostering preventive actions** (through monitoring) (Coimbra, Rotterdam, Rijeka, Treviso); proactive not reactive (València, Cork/Kerry) using predictive models (València)
- **Avoiding unnecessary travels** for the older people (València, Cork/Kerry)
- Focusing on the **values** of the older persons and how they would like to be supported (Cork/Kerry, Treviso, València):
    - **Respecting the user's identity and autonomy** with the promotion of health management activities (physical activities, proper nutrition and sociability) (Treviso, Cork/Kerry, València)
    - **Considering gender, physical and psychological conditions** in the care provided (València, Cork/Kerry)
    - **Meeting patient's expectations** (València, Cork/Kerry, Treviso)

Active and healthy ageing promotion:

- All the work that prevents older adults from being institutionalised too early (Coimbra, Rijeka, Cork/Kerry) and to being admitted to hospital with long stays (Cork/Kerry)
- Participation of caregivers/family members (València, Cork/Kerry)
- Provision of guidelines and feedback (València, Cork/Kerry)
- Reduction / Avoiding digital divide (València, Rijeka)

Detailed information/knowledge: Empowering older people with knowledge of their condition so they can stay well at the level they are currently at and prevents further decline (Cork/Kerry, Rijeka, Treviso).

<u>In relation to professionals:</u>
Impact of value-based health care delivery:

- stakeholders within the health and social care systems put the patient in the centre (Rijeka, Rotterdam, València, Treviso).
- patients' comprehensive monitoring and follow up (considering all aspects of health) (Rijeka):

- Follow-up of the rehabilitation together with the social and economic context (Rijeka)
- Manage expectation of patients and their family about rehabilitation and recovery (Rotterdam)
- Patient's feeling of safety that they can contact anyone anytime for help within the health and social care system (Rijeka)
- It improves safety (València)
- Prevention and autonomy with health management activities (physical activity, proper nutrition, sociability (Treviso)

Impact on the working environment:

- improvement of the quality of work and professional satisfaction through communication with the patient, between professionals, and other levels of care and social level (València, Rijeka, Cork/Kerry, Treviso)
- work simplification (València, Cork/Kerry)
- The work of the professionals and health and social operators understood as a union between competences to evaluate the profile of fragility and responding to the needs by listening with empathy, flexibility, and concreteness (Treviso)

Access to detailed information/knowledge:

- Shared electronic patient records by all health and social care professional in hospital and community settings (Cork/Kerry, Rijeka)
- Transparent documentation and follow-up with older people in their home setting (Cork/Kerry, Rijeka)
- Supporting the existing integrated care pathway for older people in the community (Cork/Kerry) and raising awareness about the benefits of integrated care (València, Cork/Kerry); giving the corresponding value to social workers (València, Rijeka)
- Improving health literacy to patients: i.e., how to recognise early signs of myocardial infarction (practitioners' perspective) and educate patients on how to live in a healthy way with their health condition (Rijeka, Rotterdam)

Communication:

- good communication between ((Rijeka, Rotterdam, València, Cork/Kerry, Treviso):
  - health care practitioners,
  - health and social care practitioners, and
  - health and social care practitioners with the patients
- one electronic health record system for all professionals in the care pathway (Rotterdam, Cork/Kerry)

Inclusion: everyone should access affordable modern technology. To bridge the digital gap, (continuous) training can be provided to explain the features of the technology. (Rijeka).

<u>In relation to the management</u>:

- accrediting quality services to also generate work satisfaction (València, Cork/Kerry)
- measuring the improvement of professionals (València)
- resource's **optimisation** and adaptation (València) and elimination of those services that do not provide an added value (València) -> **Sustainability** (València, Rijeka, Cork/Kerry)
  - sharing with professionals the indicators they generate (in terms of number of patients, minutes per patient…) (València)

- not entail work overload/bureaucracy for professionals - integration in the current process (València, Cork/Kerry)
- Addressed to the patients' needs and flexible to these needs (València, Treviso).
- Trying to standardise processes (València)
- Socio-sanitary coordination (València, Treviso) (considering data protection policies).

Main gains that value-based interventions could provide:

- Improving efficient care and assistance preferably as cheap as possible to society (Coimbra)
- **Generation of evidence** (València)
- **Patients monitoring and follow up** (València, Cork/Kerry): positive experiences from fast identification, fast arrival of the Emergency team, quick admission to the hospital system, personalised therapy (Rijeka).

2.3.2 About the ValueCare digital solution: What should be considered?

In this section the information gathered in the co-design activities implemented in the ValueCare pilot sites is presented per pilot site because of the differences in chronic conditions and needs of the target groups being focused on. It is important to note that this section reports all the wishes highlighted by participants at pilot sites in the form of a general "wish list" on assisted living and technology enabled care topics. However, it is not within the scope of the ValueCare project to include them all; rather only those aligned to the scope of the project. Deliverable 3.3 will provide further details of which "wish list" items will be included in the ValueCare digital solution.

The questions addressed to each target group to co-design the ValueCare digital solution were:

Older people:

About the smartphone:

1. Do you have a smartphone? How often do you use it? for what purpose do you use it? What do you find difficult to use: touchscreen, virtual keyboard, small screen, application, swipe..? Can you also elaborate on the elements you enjoy when using your smartphone?

About Apps:

2. What kind of apps do you have on your phone? How do you manage to install them? Which apps do you find particularly useful? Which app do you use every day? why these apps in particular? which one is your favourite app? why?
3. Did you change/ adjust your phone's "look" after it was bought so that it was more accessible/ easier to use? (for example, did you have to increase the font, the contrast...?)
4. If you had an app to help you manage your health
   ► what would it do to support you? (direct chat with your doctor, reminder to take your medication, advice on physical activity/exercise adapted to my physical conditions, nutrition tips, etc.)
   ► what kind of characteristics (content and layout) should it have? (provide useful contents, to help me in self-organisation, to be secure and safe, to be friendly…)
5. Do you have medical devices at home? (e.g., panic button) which one(s)? What information do you obtain from them (blood pressure, glucose levels, temperature…)? How often do you use them? (measure your temperature, blood pressure, etc.)

Health and social practitioners:

1. Have you used eHealth technology before within your work? What was your experience?
2. What health indicators would you like to see in the ValueCare dashboard collected from the ValueCare app? (related to the app functionalities: vitals, physical activity…)
3. Do you want to mix the data collected from the app with your existing medical data? How?
4. How would you prefer to access the dashboard?
5. How would you prefer to see the data presented?
6. Would you like to interact with the older person / patients (e.g. sending reminders to older person app)?
7. How could the dashboard improve the integration of the care (health and social) provided to older people / patient?
8. Thinking about what a user-friendly app should look like, which are the main features that it should provide?
9. In which ways do you prefer to interact with a supporting application? By texting? By speech, other ways?
10. Are the any aspects at your hospital that would be a facilitator or challenge to using eHealth technology?

Experts and managers

1. How would you prefer to access the dashboard?
2. How would you prefer to see the data presented?
3. Do you want to interact with the health professionals?
4. How could the dashboard improve the integration of the care (health and social) provided to older people?
5. How do you measure and consider the success of VBHC implementation within the existing health and social care services at local level?

In addition, at the beginning of the co-design activities, some pilot sites distributed among older participants a questionnaire to assess their digital literacy. This information is provided in this section and will be used to guide technical partners in their development of the ValueCare digital solution.

Cork/Kerry (Ireland)

For **Older people** in Cork/Kerry, the ValueCare solution should consider providing the following functionality:

Social aspect of the application:

- Independent living with or without family caregiver support minimising risk of social isolation
- Involvement in local community activities and hobbies
- Connection with friends, relatives and community

Compliance aspect:

- identifying what matters most to the older person and shared decision making
- addressing personal needs that impact their quality of life and not simply the medical issues they present with
- contributing to independent living

Content of the application should enable:

- education, guidance (health literacy) and motivation regarding physical activity and exercise (health coaching)
- nutritional education, recipes and advice specific to their age range and diseases
- communication with relevant multidisciplinary health and social care professionals regarding their condition and goals
- education and reminders for medication regime

- easy access to health and social care service information specific to their local area
- older people to maintain and/or improve sense of connection to their community and personal network
- a sense of routine to improve their quality of life
- minimising impact of Covid-19 on physical and mental health
- importance of keeping active and independent.
- daily orientation i.e. date, day, time, weather etc.
- adoption of an activity tracker to monitor exercise levels
- engagement with existing hobbies such as reading, games or music
- speech/voice activation

Training aspect should enable:

- improvement in health literacy amongst older people needs, either on a one-to-one basis or group sessions for older people to learn with their peers

For **Caregivers** in Cork/Kerry, the ValueCare solution should consider providing the following functionality:

Social aspect of the application:

- interaction with friends or care professional via video calls

Compliance aspects:

- guide, encourage and motivate older people

Design of the application:

- family caregiver able to view with older person's goals and progress with their consent
- consider physical impairments e.g. eyesight, hearing problems, memory, touch issues
- the modules on the ValueCare app should be colour-coded and coded by shapes
- simple design

Content of the application should enable:

- memory stimulation
- exercise goals
- incorporate existing booklets that community workers provide older people from Health Services and other memory stimulation activities such as crosswords, puzzles and games
- medication reminders
- information on all the local health and social care services in the area.

Monitoring and Control aspect for caregivers:

- personal alarm would be helpful if they had a fall or felt suddenly unwell
- movement detector
- camera function to monitor relative

Training aspect should enable:

- medication education
- need to demonstrate to older people the value in what the ValueCare solution can do

For **Experts and Managers** in Cork/Kerry, the ValueCare solution should consider providing the following functionality:

Compliance aspects:

- enable involvement of others (e.g., grandchildren) to track progress and motivate users

Content of the application:

- mental stimulation
- mindfulness

- exercise information and guidelines
- food diary
- keep information general and stick to what is already available in Ireland
- information on local services
- formal guidance so older people feel they have someone guiding them through their care and will give them a sense of routine in their day

Design of the application:

- appropriate font size
- cost-effective from a user and a health service perspective
- simple and considerate of impairment (sight, hearing, vision, touch)
- utilise physical buttons rather than touch screen and voice activation if needed
- most appropriate care to be delivered in a community setting rather than a primary care setting following an acute event i.e., fall or injury

Training aspect should enable:

- educational resources around the ValueCare app. Avoid framing it as an intervention for people who are disabled to reduce stigma/avoidance regarding its use.
- clinicians are also not accustomed to technology and need to be shown the value and trained in its function and their role and responsibilities

For **Health and Social practitioners** in Cork/Kerry, the ValueCare solution should consider providing the following functionality:

Social aspect of the application:

- social groups available in the older person's area
- allow older adults to communicate easily with friends & family
- access social activities such as exercise classes, book clubs

Compliance aspect:

- crucial to have patient involvement to set achievable goals
- involve their family members

Design of the application:

- interactive
- accessible, particularly for the individual who does not have internet access or are unable to use the internet
- adaptable to patients' needs
- simple design (potentially plug into TV)

Content of the application should enable:

- general health advice
- reminders about healthy eating and daily physical activity
- suggestions of different classes/activities in that locality they could attend with easily accessible details of access to local services"
- who to contact if older people have certain issues
- prompt for taking medications
- allow easy access to community services such as GP or Public Health Nurse
- falls prevention information
- nutritional advice and guidelines
- cognitive stimulation
- daily orientation for older people i.e. date, time, day of the week, weather.

Monitoring and Control aspect for health/social practitioners:

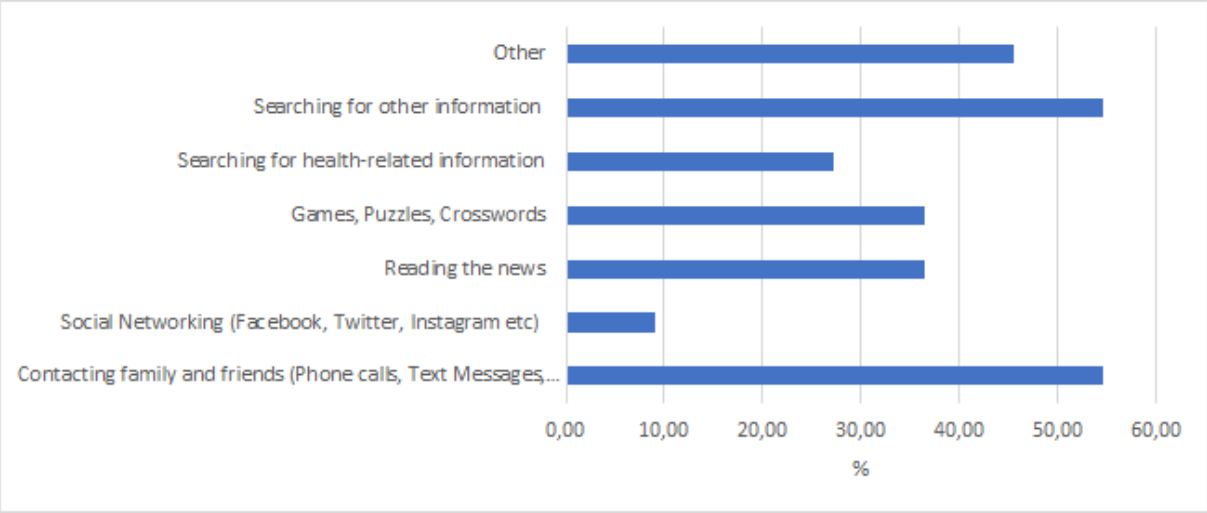
- reminders for out-patient appointments
- assistance to attend for those with no family
- weekly check-in with group or individual
- monitoring vital signs
- monitoring patients after they are discharged, particularly those with delirium
- remote monitoring

- remote consultations.

Digital literacy of older people in Cork/Kerry (sample: 11 participants):

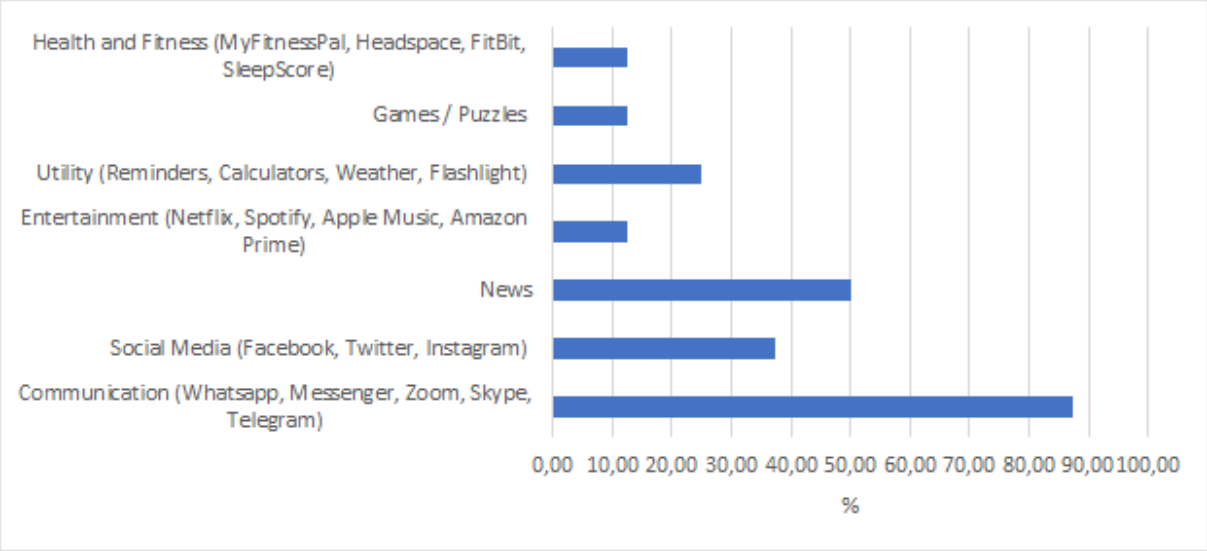
Half of the older people who completed the questionnaire in Cork/Kerry do have their own **computer or laptop** (54.55%) and most of them use the **Internet** every day (45.45%) or many times a week (36.36%). The main **reasons** for using the Internet are to contact family and friends 54.55%) and searching for other information (54.55%) followed by other issues not detailed (45.45%).

Figure 2: reasons to use the Internet by older people in Cork/Kerry



All the respondents have a mobile phone but most of them have a **smart mobile phone** (72,73%) that use every day (50.00%) or many times a week (50.00%). 72,72% also have a **tablet**. 36,36% respondents use apps many times a week, but the same proportion (36,36%) never use apps. Those who use apps, most of them use apps for communication (87,50%) and half of them for reading news (50.00%).

Figure 3: type of apps used by older people in Cork/Kerry



The 40% need help regularly for using the technology; the 30% rarely need this help. Nearly half of the respondents (45.45%) have used technology as part of their healthcare. The half of those who have not used the technology in this sense (54.54%) are neutral with the idea to use it for healthcare, the 33.33% are somewhat interested and the 16.67% very interested.

Among the features that had been suggested to be implemented in their healthcare using technology, participants pointed out only three:

- Blood pressure (16.67%)
- Blood sugar (33.33%)
- Home monitor (50.00%)

Rijeka (Croatia)

For **Older people** in Rijeka, the ValueCare solution should consider providing the following functionality:

Social aspect of the application:
- enable **independent living**
- facilitate **family support**
- encourage **social activities**

Help Desk:
- provide clear **information** on e.g. available support, available financial support, information about their disease, pharmaceutical benefits.

For **Caregivers** in Rijeka, the ValueCare solution should consider providing the following functionality:

Design of the application:
- **improve services** (the possibility to import data about blood pressure measurements before and after workout)
- **easy to use** by the older patients, informal caregivers and other relevant stakeholders
- **simplicity in accessing** all relevant patient data
- **facilitate communication** between older patients and informal caregivers in case of emergency

Content of the application:
- **provide information** about medication use and possible side effects
- **motivational messages** to motivate the users in adopting healthy lifestyle
- **provide information** regarding rights within the social care system

For **Experts and Managers** in Rijeka, the ValueCare solution should consider providing the following functionality:

Social aspect of the application:
- provide a **sense of security among patients**, allowing them to contact anyone at any time from the health and social care system (The work experience of one of the managers has shown that such a way of working is not abused by patients. That option will greatly reduce the feeling of fear among older adult patients in case if certain symptoms occur)
- paying special attention to **mental health** in any form of care and reassuring patients going to the psychiatrist or psychologist is the same as going to an ophthalmologist, cardiologist, and haematologist

Design of the application:
- facilitate the **coordination of work and communication** between every stakeholder within the health and social care system
- **facilitate communication** between health and care services
- **facilitate communication** between care professionals and patients
- **facilitate communication** between health and social care institutions

- **improve services** (e.g. communication with MD, specialist, or patronage nurse, monitoring of food and water intake, tracking vital parameters such as blood pressure, heart rate, number of steps, SpO2, ECG)
- **smooth the process**: help identify those patients, support the fast arrival of the Emergency team and quick admission to the hospital system itself
- be **easy to use** by the care professionals and the older patients (accessibility)
- **integrative** and **accepted** at all levels of health and care

Content of the application:

- **support the rehabilitation** of patient suffering from myocardial infarction (prescription of the right therapy)

Training aspect:

- **provide further education** to primary and secondary levels of care professionals about myocardial infarction
- **educate care professionals** in recognizing early signs of myocardial infarction
- **educate patients** on how to live in a healthy way due to their health condition

For **Health and Social practitioners** in Rijeka, the ValueCare solution should consider providing the following functionality:

Social aspect of the application:

- **not increase out-of-pocket expenses** related to personalized approach (personalized approach today is a part of out-of-pocket expenses within the health and social care system)
- **enable the care team to spend more time with patients** to provide quality care to each patient.

Design of the application:

- **facilitate access to a number of useful information sources** such as family contact, disease history and which therapy they are receiving
- enhance the care of older adult patients and **make every day work easier**.
- **Support interpersonal relationships** between health and social care practitioners.
- **be easy to use**, especially for communication, education, and monitoring of vital parameters of patients.
- be a **trusted communication channel** with colleagues/colleagues and patients/care practitioners.

Content of the application:

- provide a **personalised approach** to provide quality health care

Monitoring and Control aspect for practitioners:

- help **monitor a** patient's vital parameters such as blood sugar, blood pressure, heart rate, number of steps, calories burnt, oxygen saturation, etc. This can make a major contribution to patient´s health empowerment and control. The best way to see those vital parameters would be a synchronized interface that can be accessed via a smartphone, tablet, or computer. Additional parameters that could be tracked are nutrition, family health history, body temperature and medication allergies → The interface should be implemented in the existing health care software.
- guarantee that the patient will stick to his/her therapy

Feedback aspects:

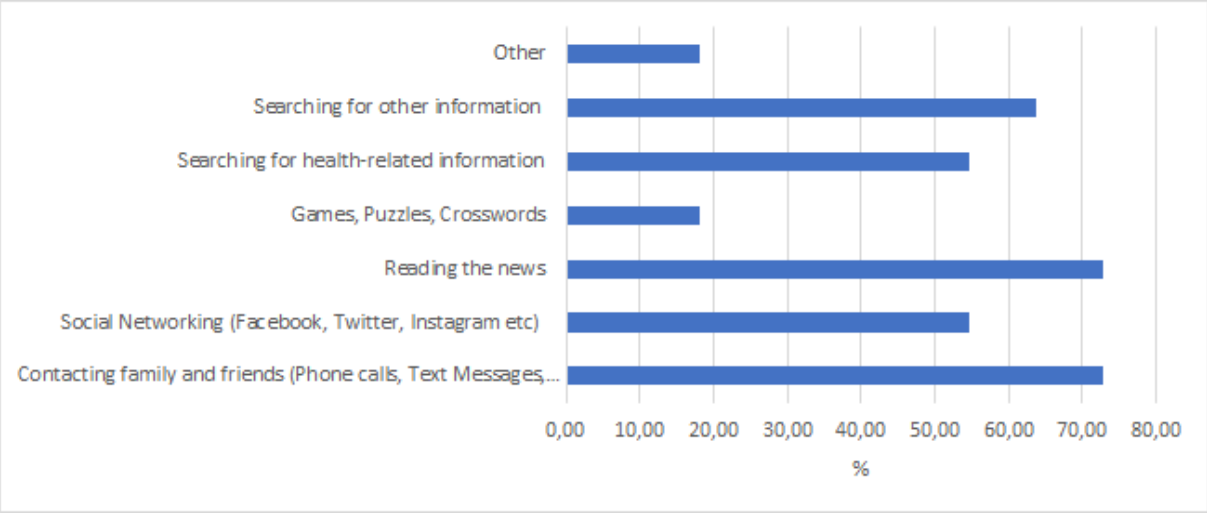
- **reassure** the care practitioners about their quality care provision (the feeling when a practitioner does something good for the patient, humanitarianism, and practitioner kindness)
- reflect the competencies, knowledge, empathy, working experience of the practitioner

Digital literacy of older people in Rijeka (sample: 11 participants):

Most of the older people who completed the questionnaire do have their own **computer or laptop** (90.90%) and most of them use the **Internet** every day (63.64%). The main **reasons**

for using the Internet are to contact family and friends (72.73%) and reading news (72.73%) followed by searching information (63.64%).

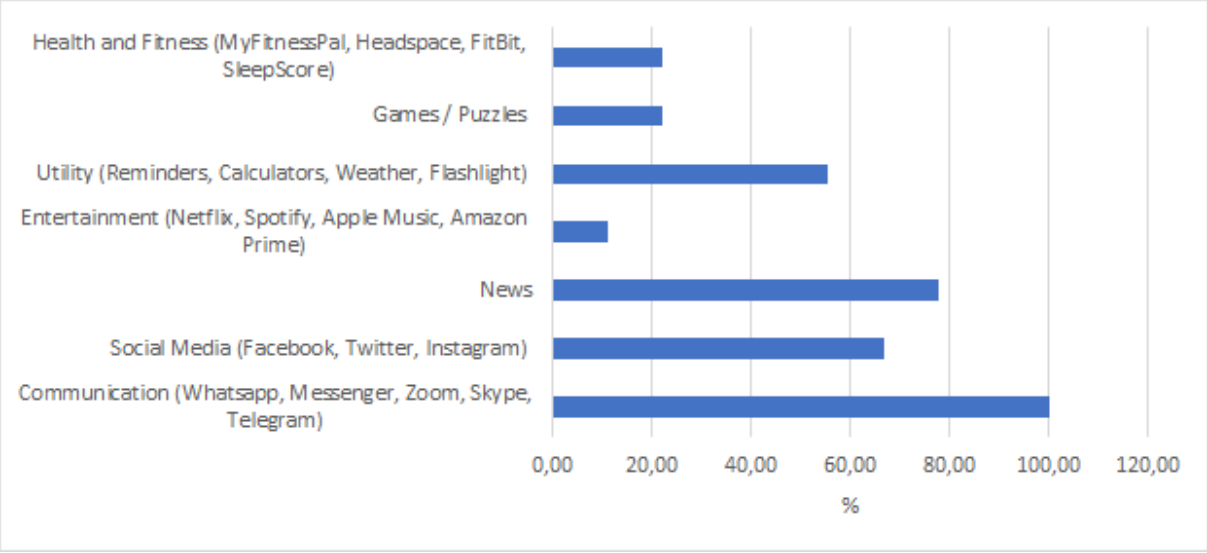
Figure 4: reasons to use the Internet by older people in Rijeka



All the respondents have a mobile phone, almost all have a **smart mobile phone** (90.91%), and most of them use it every day (80.00%) or many times a week (20.00%). 36.36% have a **tablet**.

45.45% respondents use apps every day for communication (100%), read news (77.78%), and for social networks (66.67%).

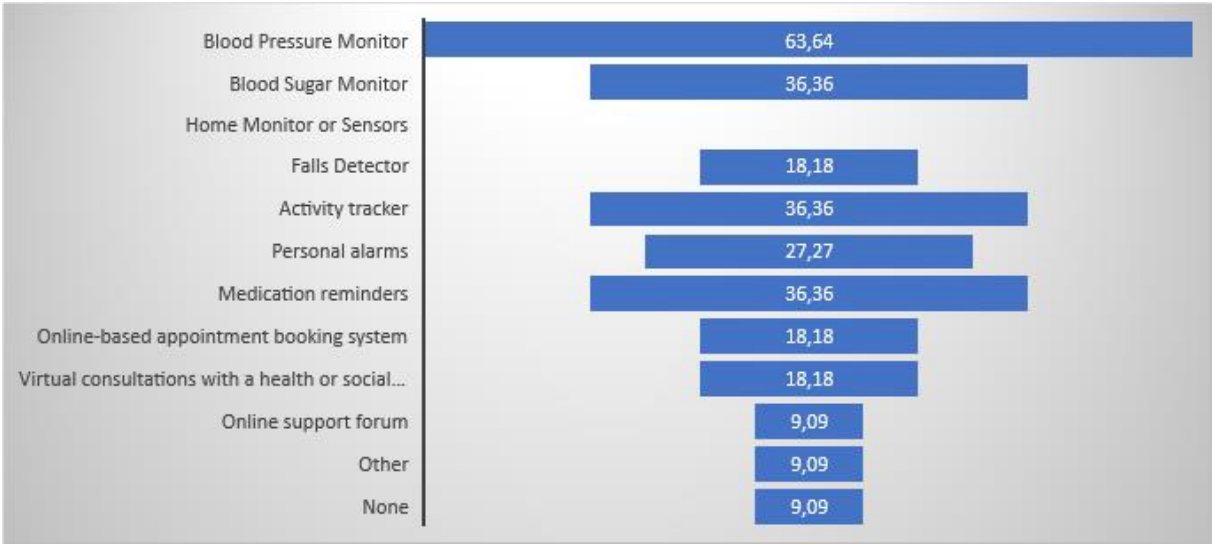
Figure 5: type of apps used by older people in Rijeka



The 54.44% need help sometimes for using the technology; the 27.27% rarely need this help.

Most of the respondents have never used technology as part of their healthcare (90.90%), although the 60,00% are somewhat interested in using it. About the features that had been suggested to be implemented in their healthcare using technology, participants pointed out:

Figure 6: features that older people would like to implement in their healthcare in Rijeka



Rotterdam (The Netherlands)

For **Older people** in Rotterdam, the ValueCare solution should consider providing the following functionality:

Social aspect of the application:

- enable contact with other people who have had an ischemic stroke to exchange experiences or to exercise together.

Design of the application:

- easy to navigate
- facilitate the use of the camera to enable video calls
- flexible, not being demanding/ many notifications
- communicate important messages not only via the app, but for example also via a letter on paper
- functionalities should be meaningful contributing to the care one receives
- the app should be aware of and tuned to the abilities of the user (e.g. ability to walk, ability to write)

Content of the application:

- targeted information about stroke and what to expect throughout the disease trajectory.
- all information in one place and references to more information when preferred.
- information about the medication and what each pill is for
- enable contact button (e.g., “call back appointment”, messaging) to ask questions to a healthcare professional
- exercises which are feasible/meaningful for stroke patients
- practicing with support of exercise videos, pictures, voice messages, etc.
- access to medical history, prescriptions, minutes of the consultation with physicians/ nurse practitioners

Feedback aspects:

- monitor whether a participant is interested in using the technology. Do not overwhelm them with information or notifications

Training aspect:

- when preferred, training to use the app, either on a one-to-one basis or group sessions to learn with peers

For **Caregivers** in Rotterdam, the ValueCare solution should consider providing the following functionality:

Social aspect of the application

- informal caregivers who use the ValueCare dashboard are able to find each other to plan a face-to-face meeting

Compliance aspect

- be aware not to ask too much from informal caregivers
- ask caregivers about their needs and preferences and adjust the dashboard accordingly

Design of the application

- application has to be simple, easy to navigate
- enable a "call back appointment" to ask questions to a (healthcare) professional
- positive tone / approach

Content of the application

- information with regard to topics that are important for informal caregivers:
  - Disease trajectory / what to expect?
  - Self-care
  - How to deal with changes in behaviour/ personality?
  - Sexuality/ intimacy
  - Who to call and in what situation should you call?
  - Prevention and lifestyle adjustments
  - Rights and procedures with regard to care leave or care support.
  - Where to find more information?
- overview of communication with (all) care providers
- health and care providers can communicate more efficiently through the system which prevents miscommunications, duplications and frustrations by care users
- received services by the patient are personalised and meaningful

Monitoring and Control aspect for caregivers

- monitoring blood pressure (when self-measured by the patient)
- all information in one place and available at any time

For **Experts and Managers** in Rotterdam, the ValueCare solution should consider providing the following functionality:

Design of the application:

- **interoperable** EHR systems so that all involved health and care professionals can access all patient data. It should also enable patients and their informal caregiver to access the Electronic Health and Care Records if permitted by the patient. Record file / A Personal Health and Care Record for patients

Content of the application:

- be a dashboard for patients to manage (care) expectations better.
- **collect the right data** at the right time and make sure involved providers can access it
- be a smart system' in which professionals can easily find answers to the **questions** they have
- provide a good **overview** of all health and care providers and care facilities.
- provide a 'buddy system' in which each health and care professional has a buddy at another healthcare organization.

Monitoring and Control aspect for caregivers:

- facilitate- **digital participation** for patients and their families. For video calls, overview results measurements done by the healthcare provider.
- improve **communication** throughout the care pathway
- better inform involved stakeholders about the **patient's needs and preferences**.
- **better manage expectations** of patients and their family about rehabilitation and recovery.

Prevention aspect of the application:

- **provide information** to patients on how to cope with the consequences of a stroke
- improve patient-centred care by **providing information** that is relevant to that particular patient.
- be an app for patients to **improve their lifestyle** with measurable goals and feasible goal setting to prevent stroke

Training aspect:

- give advice on how to improve working processes.

Feedback aspects:

- better inform healthcare and social care professionals about patients' experiences

For **Health and Social practitioners** in Rotterdam, the ValueCare solution should consider providing the following functionality:

Compliance aspect:

- support integrated care through an **electronic Health and Care Record system**, particularly important for patient transfers to other health and care providers.
- give **access to one personal health record ecosystem** for all professionals and patients
- enable one transfer system in which professionals are working together in the same **health record**.
- improve the **exchange of information between professionals**
  - improve data flows (by implementing a PHR)
  - what data is relevant to professionals and what is relevant to patients and how to improve data flows and communication throughout the care path.

Design of the ValueCare dashboard:

- easy to navigate

- clear presentation of data
- clear (digital) roles of professionals involved; who is the contact person?

Content of the application:

- a "map" about where to refer patients to who have specific questions.
- inform health and social care professionals who are the **other professionals involved in the care pathway**
- allow easy contact with other care providers
- well-designed system for professionals to enable patient feedback/ coaching.

Monitoring and Control aspect for caregivers:

- enable patients to play an **active part and be more involved** throughout the care process
- indicate **who** is responsible / the contact person at each point in time of a patient's care path.
- inform professionals what **network of professionals** is around a particular patient. This includes for example also their pharmacist, home and social care professionals.
- increase the **involvement** of the GP and social care providers in the care pathway, by trying to engage these professionals better.

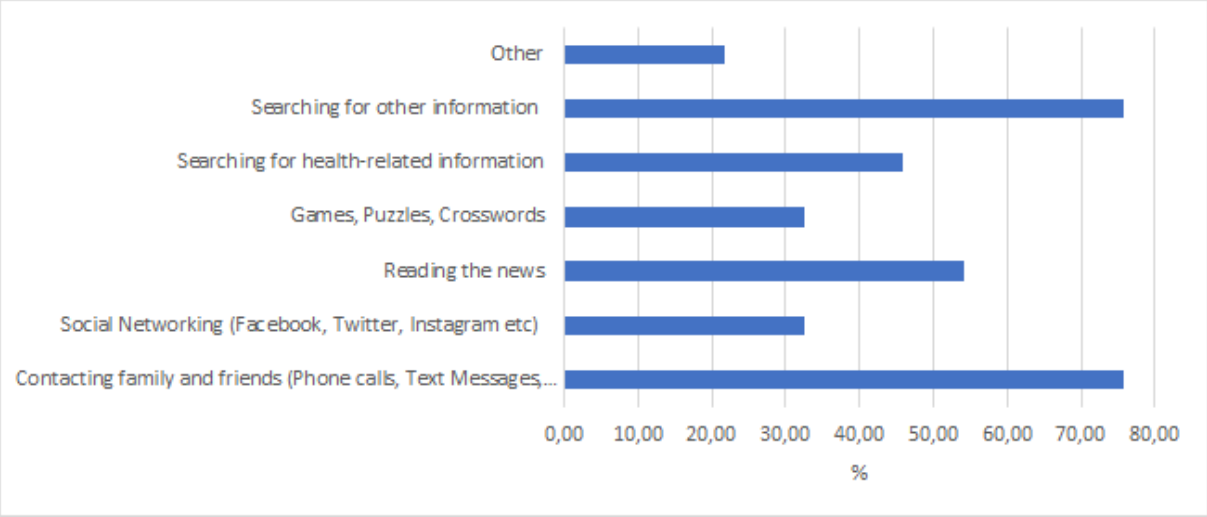
Training aspect:

- inform care professionals about **joint protocols** for primary and secondary prevention for stroke patients.

Digital literacy of older people in Rotterdam (sample: 37 participants):

Most of the older people who completed the questionnaire do have their own **computer or laptop** (89.19%) and most of them use the **Internet** every day (75.68%). The main **reasons** for using the Internet are to contact family and friends (75.68%) and searching for other information (76,68%) followed by searching information (63.64%).

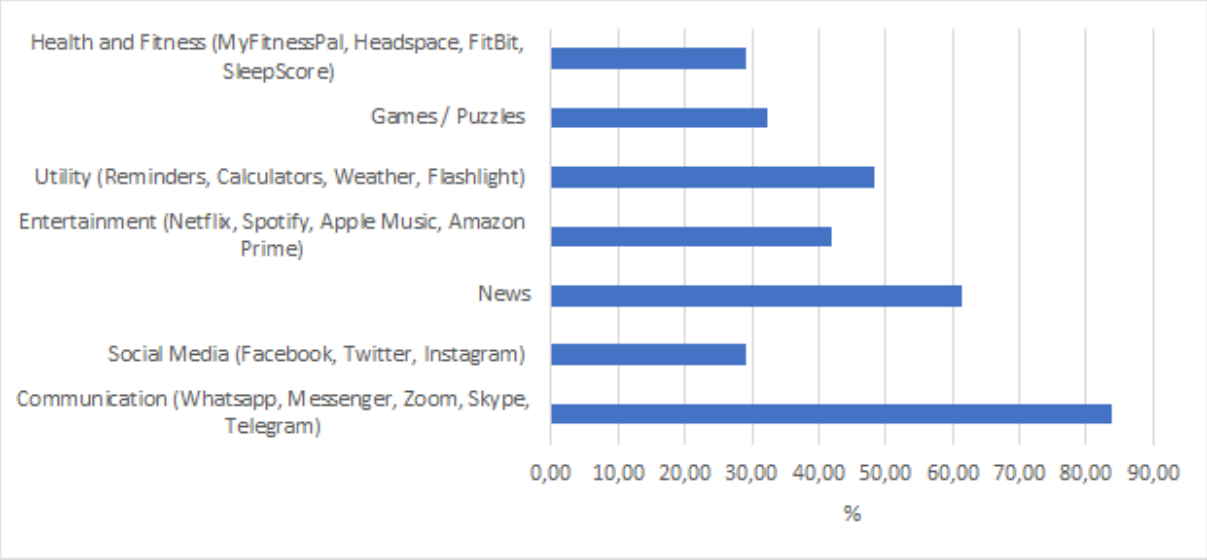
Figure 7: reasons to use the Internet by older people in Rotterdam



Most of the respondents own a mobile phone (91.89%), most of them a **smart mobile phone** (91.18%), and the majority has a **tablet** (67.57%). Most of them use the smartphone everyday (74,19%) or many times a week (19.35%).

66,67% respondents use apps every day, mainly for communication (83.87%), followed by read news (61.29%), and utility (48.39%).

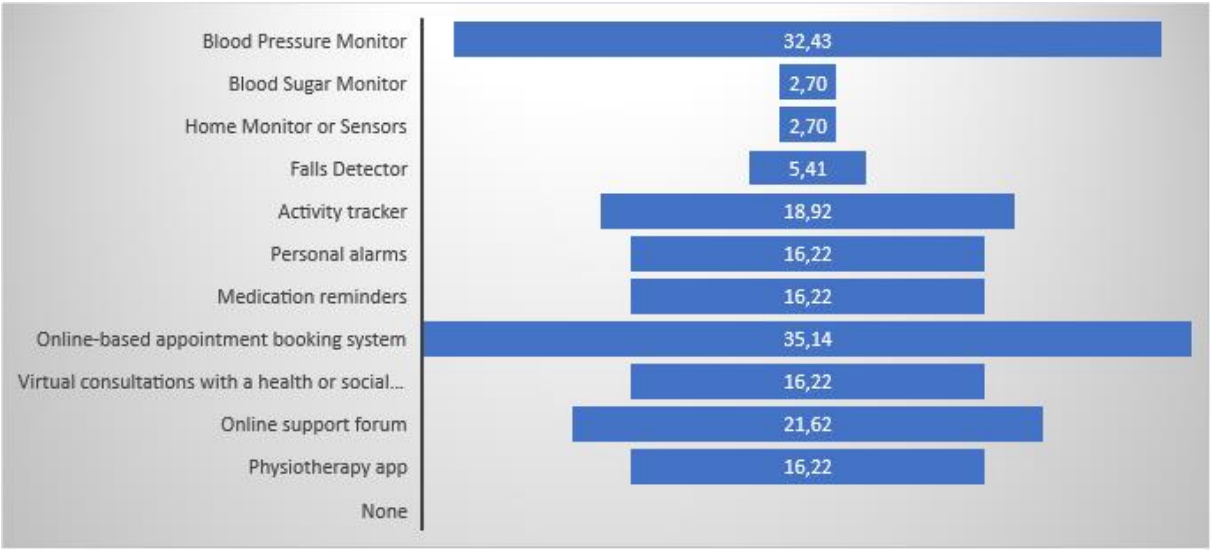
Figure 8: type of apps used by older people in Rotterdam



The 38.89% need help sometimes for using the technology; the 27.78% rarely need this help; and the 16.67% never.

Most of the respondents have never used technology as part of their healthcare (83.78%), but the 37.84% are somewhat interested in using it. About the features that had been suggested to be implemented in their healthcare using technology, participants pointed out:

Figure 9: features that older people would like to implement in their healthcare in Rotterdam



Treviso (Italy)

For **Older people** in Treviso, the ValueCare solution should consider providing the following functionality:

Design of the application:

- be immediate, intuitive and simple; user-friendly, coloured and engaging
- the solution should not be a source of frustration and anguish.
- the solution should contribute to the improvement of health and social care services.

Monitoring and Control aspect for caregivers:

- provide continuous monitoring of physiological parameters
- monitor the different parameters
- monitor vitals (blood pressure) and cognitive parameters
- useful also for caregivers but not substitute the professionals
- the solution should streamline the workload of health and care professionals.

Content of the application:

- reminders to help remember what to do to get better and / or improve
- include a timer that reminds the older person to take medications or other daily commitments and a reminder for pharmacological therapy
- provide reminders and tips on what is best to do to improve their health
- a stimulus to be active
- help patients to be more active, physically and mentally
- keep company when lonely

Training aspect:

- if an app were to become mandatory, the patient would certainly need help and ongoing assistance.
- providing help from a family member is necessary to use the application
- support from caregivers to tackle difficulties to use ICT solutions
- constant help from professionals and caregivers

For **Caregivers** in Treviso, the ValueCare solution should consider providing the following functionality:

Social aspect of the application

- connecting all the caregivers giving them the possibility to communicate
- creating connection with families living far away from the user
- communication between users to improve stimulation and provide psychological support

Compliance aspect

- indicators that stimulate the patient and not evaluate the performance
- monitoring from caregivers in a respectful way, non-invasive way

Design of the application

- application has to be clear, simple, easy to understand
- application should be coloured with contrast, used big letters, images and less text
- voice aspect: the virtual coach should not only be via written chat but via voice. If voice from AI is used, older people will probably use it

Content of the application

- add an audiobook as cognitive activities
- downloading of music
- online group activities included

Monitoring and Control aspect for caregivers

- provide a schedule and reminder, with deadlines, for taking medicine, physical activities, cognitive exercises
- tool for monitoring health parameters: blood pressure, heart rate etc.
- tool for facilitating and reducing bureaucratic work
- have all the information needed in one place, available every time everywhere even when the patient is not in the same place
- warning with the risk to over-monitor the parameters for the patient
- personalised the application to avoid this risk

Prevention aspect of the application

- the application should not be developed for other stages of disease

Training aspect:

- as human interaction is important, it is necessary to train end-users to know how to use the app and understand the aims
- provide a training for older persons and caregivers

- consider the person's character that can be resistant to an app

Help Desk:

- helpline for caregivers is needed
- section with all information needed to know how to reach services, where the downloaded information
- chatbot easy to use

Feedback aspects:

- all end-users should be able to give feedback on the application
- include improvement part in the app

For **Experts and Managers** in Treviso, the ValueCare solution should consider providing the following functionality:

Design of the application:

- the tool must be simple and intuitive to use
- for the patient, the tool must be simple to use, economical, adapted to needs.

Monitoring and Control aspect for caregivers:

- not adding bureaucratic tasks
- not a substitute human contact with the patient

For **Health and Social practitioners** in Treviso, the ValueCare solution should:

Monitoring and Control aspect for caregivers:

- orientate the user in the network of services and clarity with respect to the range of institutional responses present in the area
- giving faster answers and reaching more people than currently can
- easily find information about the route since they are necessarily more connected to each other.
- network services are easier to find or to contact
- the introduction of the new solution must go to streamline operations

Content of the application:

- help in organizing the day with pre-established activities and a program
- constitute a constant verification / monitoring of cognitive abilities and therefore help to have a greater awareness of the situation

Design of the application:

- intuitive
- for the practitioner, it must be easy to learn and use and have a high capacity to combine theory with everyday professional realty
- it can be requested and used with a small economic contribution
- for the patient, it must be a solution that is easy to assimilate and use and that quickly demonstrates a strong practical impact and personal gratification.

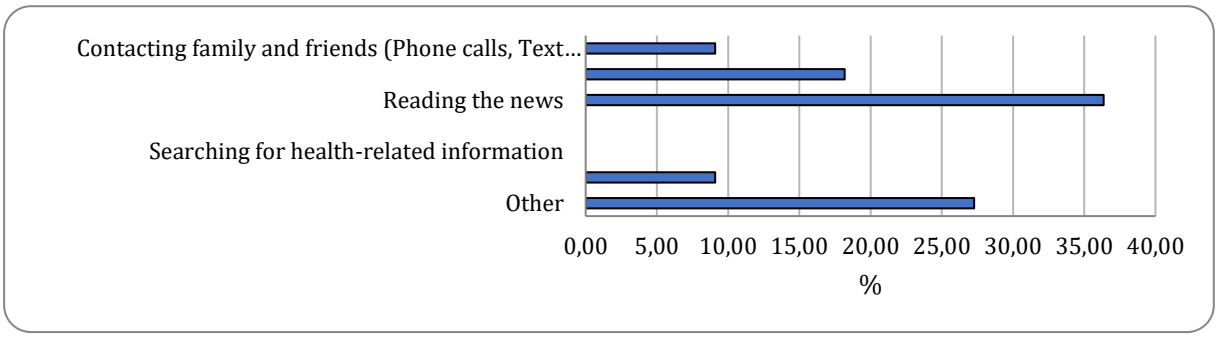
Help Desk:

- have a single, well-known coordinator of the network (or two figures but in close relationship with each other)
- have specialized personnel available organized in such a way as to cover as many hours as possible during the day

Digital literacy of older people in Treviso (sample: 20 participants):

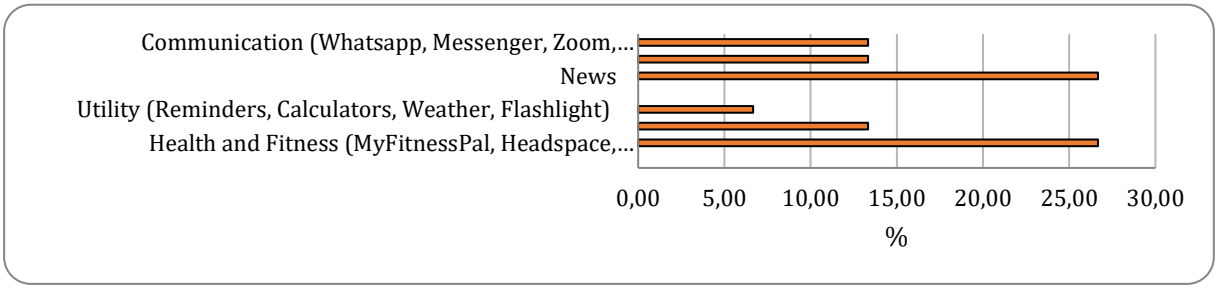
Most of the older people who completed the questionnaire do not have their own **computer or laptop** (80%) and most of them never use the **Internet** (85%). The main **reasons** for using the Internet are to read news (36.36%, followed by other issues (27.27%).

Figure 10: reasons to use the Internet by older people in Treviso



Most of the respondents own a mobile phone (61.29%), most of them a **smart mobile phone** (57.89%), but the majority has not a **tablet** (80%). Most of them use the smartphone everyday (81.82%). 55% respondents never use **apps,** but 30% use them every day, mainly for reading news (26.67%) and health and fitness (26.67%).

Figure 11: type of apps used by older people in Treviso



The 30.30% need help sometimes for using the technology, and the same percentage never requires help; the 20% regularly need this help.

All the respondents have never used technology as part of their healthcare, and the 45% are not at all interested in using it. About the features that had been suggested to be implemented in their healthcare using technology, participants pointed out: blood pressure monitor, blood sugar monitor, medication reminders, online based appointment booking system, and others.

València (Spain)

For **Older people** in València, the ValueCare solution should consider providing the following functionality:

Social aspect of the application:

- able to contact their relatives (granddaughters, children, etc.)
- information of social activities in the neighbourhood
- creating a social network in the neighbourhood would be applicable for the ValueCare project. It could be a broadcast channel. Doctors have access to activities that occur in the neighbourhood. It could be a prescription. Vademecum of community activities in the neighbourhood, that professionals know and can recommend ... walks, talks, etc.

Design of the application:

- adaptable font size
- facilitate the use of the camera, making video calls and making online purchases
- friendly
- clear messages
- simple to use
- hardly have to write -> use icons
- intuitive

- include possibility to introduce voice messages (instead of typing)
- limited amount of text included
- very visual

Content of the application:

- easy tips on recommended guidelines during Covid-19. For example, the correct use of a mask, etc.
- information about activities in the neighbourhood that he/she could join
- recommendations on the recommended and / or possible exercises / meals according to the user pathologies
- memory exercises / cognitive games
- reminder: time and type of drug to be taken, activities to do, appointments (with doctors, specialists, etc.), when they need to renew prescriptions with GP or at the pharmacy
- nutrition and hydration advice
- monitoring of exercise (walking) and health /intervention
- able to consult specific health aspects by contacting the doctor in an emergency (chat)
- access to their medical history, with their interventions, prescriptions ... the same as the doctor sees on his screen,
- links to videos with specific exercises for frailty or recipes
- do not oversaturate older people with unnecessary information. Give them options and, if they show interest, give them more information.

Control aspects:

- possible connection with devices such as: blood pressure monitor, sugar, etc.

For **Caregivers** in València, the ValueCare solution should consider providing the following functionality:

Design of the application for older people:

- large print
- icons and photos instead of words
- intuitive
- simple and easy instructions
- accessible for those with cognitive impairments
- friendly design:
    - voice activated
    - large letters
    - be very intuitive
    - touchscreen (some said it is difficult on the contrary)
    - use less text -> more icons and pictures

Content of the application:

- reminders for medication, physical activity, shopping list, key dates
- alerts to get up and have breakfast
- help with social services - to apply, resources available, etc.
- service search engine
- activities and social events in the area
- make an appointment with different services
- the messages that the application gives should be like orders, as if someone supervised them
- diet, meal plan, ideas to cook
- agenda with events (go to the pharmacy ...)
- connect with friends and family (chat)

- information on aspects related to tools that facilitate basic aspects of daily life such as putting on shoes, putting on socks, picking up keys from the floor if they fall. Teach them what tools are available to overcome these barriers.
- to be connected with other technological devices

Monitoring and Control aspect for caregivers:

- be a very simple application so that it is easy to use and intuitive
- access to older people's agenda

For **Experts and Managers** in València, the ValueCare solution should consider providing the following functionality:

Social aspect of the application:

- connecting older people with friends and family
- undertake activities with participants and refresher activities
- peer training (for the app)

Compliance aspect:

- non-intrusive
- it generates value for the user, and they know what the benefit is
- do not oversaturate older people with information
- support for caregivers
- do not overload health and social professionals

Design of the application:

- integrate information to avoid that older people repeat the same information in different platforms
- able to be adapted to existing technologies used by older people
- easy to use
- intuitive
- accessible
- simple
- attractive
- friendly design for older people:
    - large screen
    - little text
    - provide alternatives (decision tree) to reduce the text
    - avoid certain (technical) vocabulary
    - use emojis or images
    - include automatic subtitling
    - videos
- easy implementation for professionals

Content of the application:

- For older people:
    - reminders (one important reminder is hydration), medical appointments, etc.
    - save all the information about their health (recipes, diagnoses)
    - include voice assistants (like Alexa) -> better than text
    - virtual coach
    - alerts
    - training
    - information on physical activity resources, information on walks, cultural activities, etc. adapted to the profile of the person.
    - information on health and social resources in accessible language (avoid having to travel)
    - content tailored to their needs
    - Information on meals (the weekly menu).

The information must be accurate, precise, complete, understandable, compatible, accessible, secure, relevant, timely, easy to use, quality.

- For health and social professionals:
  - questionnaires to find out what we want to measure & satisfaction
  - generate alerts if older people do not follow the intervention plan or are not using the solution
  - prioritised views based on the status of people
  - ordered lists
  - simple to identify critical points of care
  - include indicators
  - older people monitoring and follow-up
  - make it bichannel. It can be used anywhere, and the information is updated on all channels
  - have graphics for the patient
- For both:
  - video call to contact service providers (doctors, social professionals ...) and family -> but define the hours of interaction for doctors

Feedback aspects:

- Importance to make older people aware about the improvement they achieve and perceive

For **Health and Social practitioners** in València, the ValueCare solution should consider providing the following functionality:

Design of the application:

For older people:

- voice activation / voice assistance
- to adapt the application to the particular needs of each patient (for example, patient with ALS or patient with hearing limitations). Older people can suffer various sensory / functional alterations and therefore, the applications intended for them must be flexible / adaptable enough to cover and adjusted to their needs
- very visual
- if text, short messages
- easy-to-use

For professionals:

- contribute to the integration of information, services and teams
- easy-to-use

Compliance:

- it would help to facilitate personalization of care for each person.

Content of the application:

For older people:

Focused on four areas of intervention with equal importance in frailty, but depending on the situation of each patient:

- Physical activity:
  - walk speed,
  - times per week,
  - local or virtual exercises classes (cardiovascular, flexibility, balance, and strength),
  - integrating social and physical activity prescription,
  - use of step-counter
- Nutrition:
  - balanced diet (Harvard plate): virtual coach,
  - number of intakes per day, automatic count of the nutrient intake (calories, fat, protein, etc.), based on the meals they report to have eaten
  - base blood analysis,

    - nutritional questionnaire at baseline
- Social participation:
    - information on the local social networks or groups (community groups, “fallas”, choirs, sports, etc.),
    - record their daily/weekly routines,
    - information on who is the older person’s main support contact
- Medication:
    - reminder to take daily/weekly
    - information (table for medication) which specifies what medications they are taking, what they are for, and how long they need to take them for.
    - updating (review the medication they are taking)
    - use STOP-START criteria,
    - alert for contraindicated medication,
    - include the pharmacists for detection of adherence/over-medication problems
- The information that is shown must be clear and concise, so that people are not overwhelmed and can't understand what is being asked, with a clear sequence of what they have to do

Regarding the professional portal:

- alerts or alarms for patients to be triggered in the system indicating more urgent problems (e.g., high blood glucose) for each patient or preventive behaviours that must be prescribed to the patient (e.g., tetanus vaccine).
- webcam connection
- integrated information
- allergies
- medication
- images
- medical history integration (social system and health system and restricted to the pharmacist)
- have information through the patient's devices (blood glucose, blood pressure ...) directly connected to the medical history.
- patients’ monitoring
- send personalised messages to patients

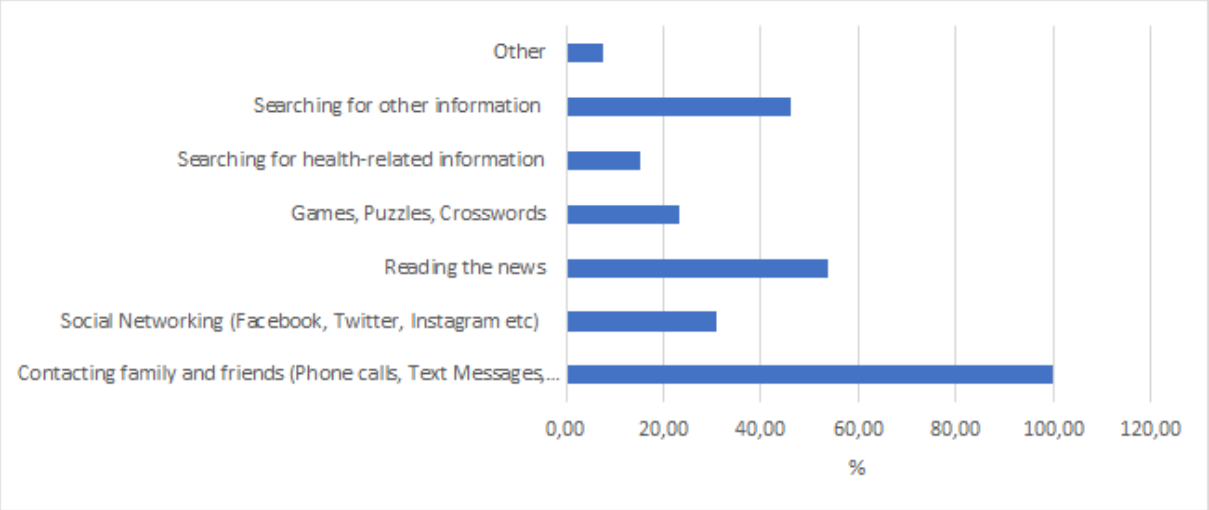
Factors that would help/impede the adoption of the new technology:

- Wi-Fi in health centres, including waiting rooms.
- Investment in technology and adapting the technological structure of health centres.
- Human team: collaboration of the entire multidisciplinary team
- Common political will vs fragmentation in the political responsibility.
- Cost-effectiveness evidence and scalability

Digital literacy of Valèncian older people (sample: 13 participants):

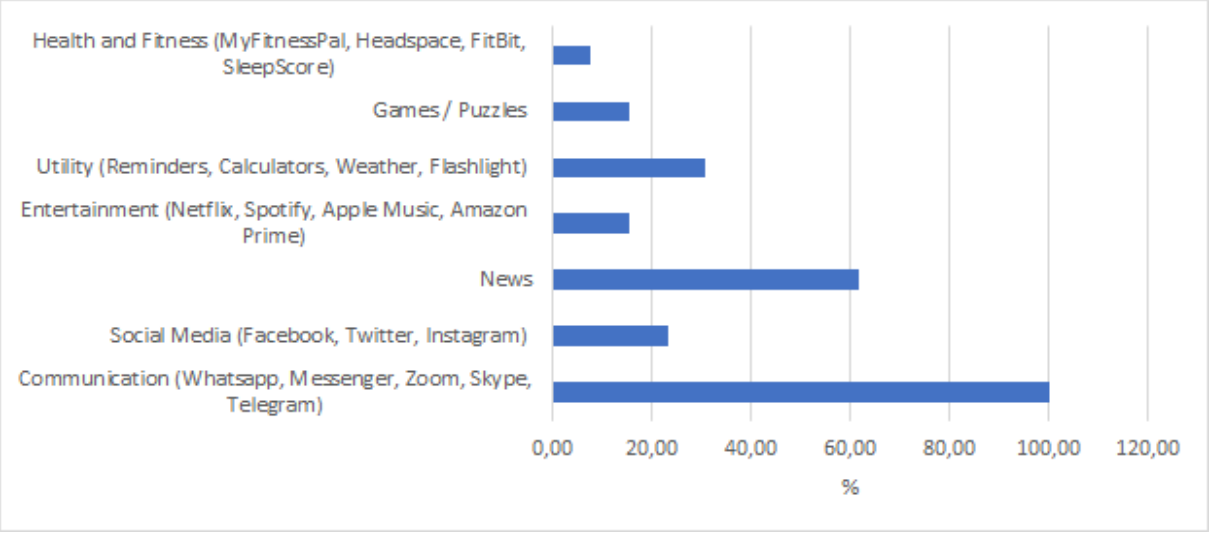
Most of the older people who completed the questionnaire do not have their own **computer or laptop** (69.23%) but most of them use the **Internet** every day (69.23%) and also many use the Internet many times a week (23.08%). The main **reason** for using the Internet is to contact family and friends (100%) followed by reading news (53.85%) and searching for information (46.15%).

Figure 12: reasons to use the Internet by older people in València



All the respondents have a **smart mobile phone**, and most of them use it every day (92.31%). 23.08% have a **tablet**. 84.62% respondents use apps every day for communication (100%), read news (61.54%), and consult specific information like weather, reminders, etc. (30.77%).

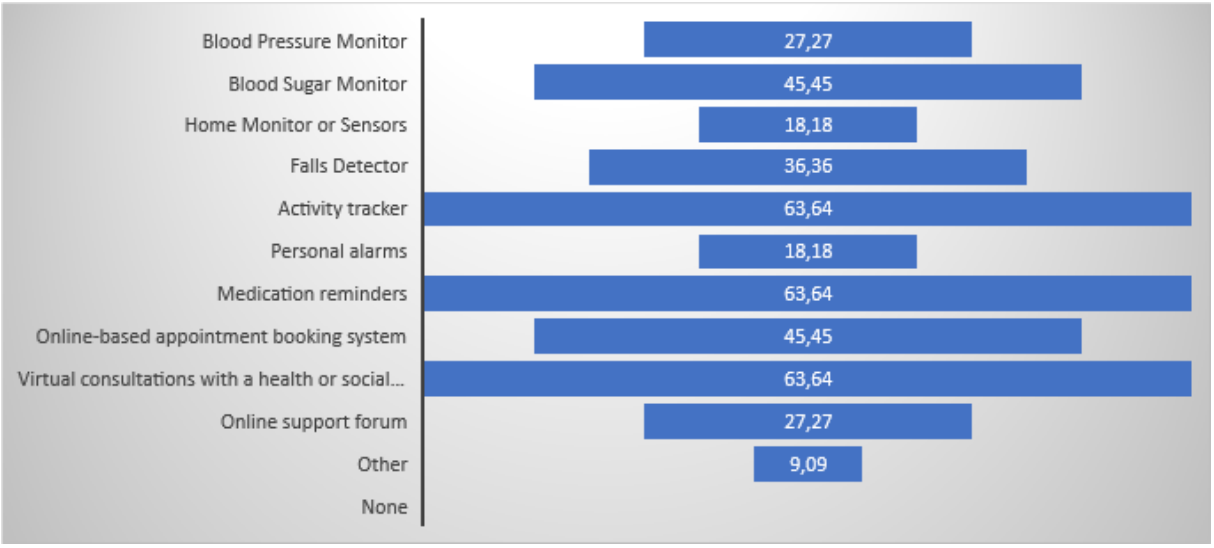
Figure 13: type of apps used by older people in València



The 46.15% need help sometimes and regularly for using the technology.

Most of the respondents have never used technology as part of their healthcare, but 54.55% are somewhat interested and 27.27% are very interested in using it. About the features that had been suggested to be implemented in their healthcare using technology, participants pointed out the features detailed in the next figure:

Figure 14: features that older people would like to implement in their healthcare in València



Coimbra (Portugal)

For **Older people** in Coimbra, the ValueCare solution should consider providing the following functionality:

About the **content**:

- include automatic reminders (alarms for meals, medication, medical appointments and physical exercise practise)
- spending time chatting and video calling with family and friends
  - Facilitating the communication with others
  - Making online appointments
- providing games to improve older people's memory

About the **interface**:

- large letters and numbers (accessible)
- various types of alarm sending: visual alerts, audio alerts, etc. For audio alerts, it should do it slowly. It should produce sound signals, to help individuals with visual problems to interact with the technology
- simple and clear / appealing

For **Caregivers** in Coimbra, the ValueCare solution should consider providing the following functionality:

In relation to the care provided and the needed support:

- reminders for the caregiver regarding prescriptions, appointments, meals, medication
- list of useful numbers to call in if necessary
- social network with the possibility of performing video calls
- previous training to help people using the app
- guidelines to informal caregivers for a better care
- information on how to better manage care, time, and money
- create opportunities for care through dedicated online platforms
- requesting for transportation, vaccines, prescriptions and medication
- health ID information available (Ex.: through health number or insurance number)

In relation to the older people monitoring and care

- sensors to detect emergencies and falls at home but also to monitor their healthy routines

- Being able to ask for help in an emergency
- Monitoring the older person (Ex.: know how many times the older person got up, went to the toilet, drank water or has eaten something)
- Alerts on the older person situation (Ex.: if he/she did not have lunch, did not take the medication, left home)

- assistance in measuring blood pressure and / or blood glucose
- cognitive stimulation for the older person would be great
- regular video calls with the Primary Health Care centre for the users who do not read and write

For **Experts and Managers** in Coimbra, the ValueCare solution should consider providing the following functionality:

- enable online appointments that allow easier, quicker, and more effective online contact between users and professionals, promoting primary, secondary and even tertiary health
- contribute to the promotion of self-care, health literacy, improvement of lifestyles and quality of life
- provide online assessment tools that would avoid unnecessary trips to the emergency services at hospitals, when possible. Ex.: registering blood sugar measure in the tablet. With the due permission, the relevant data on the older adult could be downloaded and sent through email to the manager or to a family member
- contribute to reduce social isolation and allow remote contact with families,
- act like an integrated tool
- be linked, so there is no duplication of information (i.e., sometimes internal documents are filled for health care, other for social care, others for projects, others about the caregivers' work, etc. and the information is very similar
- allow caregivers to monitor the older person they care
- is adapted to the older adults´ capacities
- connects automatically to the Wi-Fi network, without the need to do it manually
- easy to use (i.e., only click on a button and call people)
- including a card to make calls could be included. Cards with phone numbers to which users can call and request appointments or medication would be useful. Now, it is already possible to book appointments and get prescriptions through messages, but a lot of people are not able to do it, thus the helplines are still a very important way to get to older people
- be simple, easy to understand, using bright colours
- not present a lot of information on the screen and nor have too many functions

For **Health and Social practitioners** in Coimbra, the ValueCare solution should consider providing the following functionality:

- integrate care between primary health care services and supportive care (i.e. many unnecessary communications would be saved)
- indicate immediately the procedure to be followed
- save user's time and improve service quality
- bring users closer so they do not feel alone (i.e.: sending a good morning message)
- foster solidarity between users (i.e., through which older people would support each other, like peers). Within this purpose, Idovis project from CDC has been mentioned,[1] since it aimed at creating groups of independent older people who were visiting other dependent older adults (in their homes, healthcare units or

[1] The IdoVis project was launched in March / 2016 with the aim of creating groups of independent older people who were visiting other dependents after adequate training. More information here: https://en.caritascoimbra.pt/project/idovis/

residential units), to reinforce their support network and improve their emotional status, after receiving adequate training for this purpose
- Monitor through a pre-established profile for data collection, whose information could feed tips for good practices implementation
- Have an email system, video calls, telephone
- Present tips based on users' needs and share them with friends, neighbours, reference contacts (i.e.: alerts that indicate failures in the routine: "Have you eaten yet? Have you already taken your medication?")
- Detect risk of fall through sensors. Connection with a simple bracelet that monitored immobility and fall

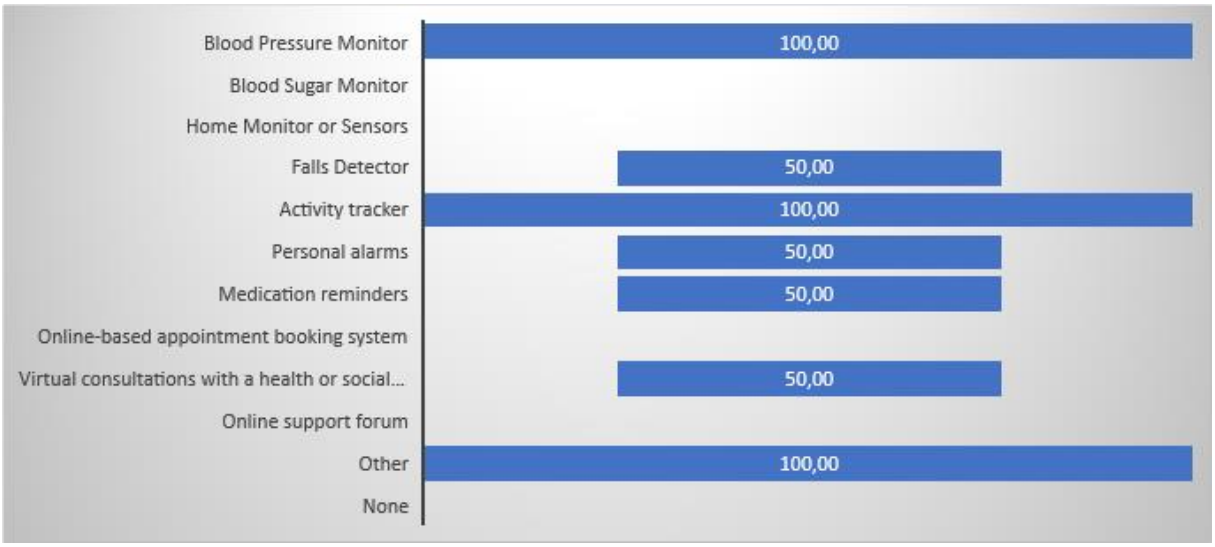
Digital literacy of older people in Coimbra (sample: 7):

Most of the older people who completed the questionnaire do not have their own **computer or laptop** (71.43%) and most of them never use the **Internet** (51.14%), but nearly half of them use the Internet everyday (42.86%). The main **reason** for using the Internet is to contact family and friends (100%) followed by reading news (66.67%) and social networking (33.33%).

All the respondents have a **mobile phone**, but only 28.57% have a smartphone that they use every day. Most of them do not have a **tablet** (57.14%). Respondents use apps never (57.14%) and every day (42.86%), The main reasons to use the apps for those who use them are: read news (42.86%), communication (28.57%), and social media (28.75%). The 42.86% need help sometimes for using the technology, while the 28.57% need this help all the time.

Most of the respondents have never used technology as part of their healthcare (71.43%), but all of them are neutral about the possibility of using it. About the features that had been suggested to be implemented in their healthcare using technology, participants pointed out:

Figure 15: features that older people would like to implement in their healthcare in Coimbra



Barriers and concerns related to the digital solution

The barriers and concerns reported by **older participants** in relation to the digital solution are:

- Some of them do not believe that technology is suitable for older adults who have no previous experience. In this sense, they highlighted the importance of capacity building and they suggested peer-learning and intergenerational activities with school/college students. **Therefore, it is important to include among the training**

activities planned in the preparatory activities in pilot sites dedicated sessions to older people (link with WP4).

- Some participants pointed out that the price of smartphones is not accessible to all. **This is an economic barrier that the project addresses as it includes a budget for pilot sites to cover participants' expenses (technological equipment and mobile data packages). Solutions for its sustainability should be analysed in WP7.**
- Some others stated that the technology can be impersonal and can cause frustration and anguish in the user; **for that reason, ValueCare should reinforce the user-friendly aspect of the digital solution and respond to the requirements expressed by end-users in the co-design activities and during the implementation phase of the project.**
- Some participants recognised that they need support of family members / caregivers to use the app. **ValueCare digital solution is aimed to be used autonomously by the end-user (when possible, according to his/her capacity) and for that reason partners are implementing these co-design activities and trying to respond to an easy, friendly, and useful solution for older people.**
- Privacy issues were also highlighted by some participants. **ValueCare is addressing this topic in WP8.**

In this case, **caregivers** also reported the low technological literacy of older people, so they highlighted the need for capacity building. **Here again the importance to include among the preparatory actions in ValueCare (WP4) dedicated training sessions to older people.** Caregivers also reported that most older people do not have smartphones and those who have them they use to be very basic mobiles. As mentioned before, **ValueCare includes a budget for pilot sites to cover participants expenses but solutions for spreading the use of smartphones and apps should be analysed in WP7 (exploitation).** On the same topic, and in the particular case of Cork/Kerry, caregivers highlighted the difficulties for older people to have Wi-Fi/mobile connection. **Among the ValueCare budget the cost of connection is covered, and the access to remote areas with low access will be analysed in the WP about sustainability and exploitation**.

Health and social care practitioners and experts participating in the co-design activities also stressed the potential barriers related to the WIFI and costs of using the Internet and the digital solution proposed. As mentioned before, **among the ValueCare budget the cost of connection is covered, and the access to remote areas with low access will be analysed in the WP about sustainability and exploitation**.

Experts and managers reported some resistance and difficulty in using technologies from some workers and services, but not all agree with the same point of view. An example given by a participant (Coimbra): "*João is part of an NGO senior management team. It was suggested to the managers some innovative solutions to be more in touch with people that are isolated at home, using new technologies and video calls. The reaction of the teams was that they were not prepared, it would take much longer to get ready, and it is necessary to buy new equipment.*" In addition, managers stressed that clinicians are also not accustomed to technology and need to be shown the value of using it and be trained in their function. In the same line, some managers marked that professionals do not want video calls as they prefer to see patients in person; consequently, they should understand and be aware of the possibilities of using technology to perform visits in the cases that this is possible. **Training activities during the preparatory phase in ValueCare should then also be addressed to this target group and raising awareness activities should be implemented to make them aware of the benefits of using technology for some tasks, considering technology as a supportive tool (not replacing human interaction)**. Also, the need for training older people with regular follow up meetings and training with the participants was mentioned. **Training activities with older people are foreseen during the ValueCare preparatory actions before the implementation phases, but the need to include periodic meetings/training with older people should be analysed (link with WP4).** They also stressed the importance of testing the new solution, with a small sample, to validate it and then, expand it. **In**

ValueCare the solution will be tested during the implementation phase and co-design activities are being implemented with end-users to adapt the solution to their needs and requirements.

Conversely, some participants also reported some **enablers** related to the technology:

- Population habits are changing and due to the pandemic, there are older people using WhatsApp in their phones that might not be able to answer the messages but most of them can read them and answer calls.
- Sometimes, even illiterate people that do not know how to read or never played games, are able to use technologies through logic and intuition.
- Managers and experts are quite aware of the technical and functional potential of such an app, being easier for them to provide information on the matter.

Comparison of the digital literacy among older people in ValueCare pilot sites

There is a great disparity in terms of access to a computer between countries, there are only a majority of yes in Rotterdam and Rijeka. However, except in Treviso (where 61% say they never use the Internet), and Portugal (57% never use it); in the rest of the pilot sites, almost all the respondents use the Internet every day or many times a week.

In all pilot sites (except Treviso) almost everyone uses the Internet, especially to contact family and friends. Most also use it to read the news and search for information. Only in Rijeka and Rotterdam, about half of surveyed older people use the Internet to seek health-related information.

Almost all respondents in all countries have a mobile phone. Regarding the type of telephone, in all countries except Portugal; between 70% and 100% of those surveyed have a Smartphone. Among the owners of a Smartphone between 74% and 90% say they use it every day (except in Cork where the use drops to 50%).

The percentage of owners of Tablets varies greatly between countries, with a large majority in Cork, Rijeka and Rotterdam and a minority in Treviso, València, and Portugal.

València has the highest percentage of people who use apps every day, in Rijeka and Rotterdam they are also the majority. In the rest of the countries the percentage of users who say they use apps many times a week or every day and that of those who say they never use them is similar. Portugal has the highest percentage of people who never use apps.

The most common uses of apps in all countries are similar, highlighting communication, networks, news, and utilities. However, health apps are not widely used.

In all countries, over 40% need assistance sometimes when using technology. In Cork and València about half of the population needs it regularly or all the time. Only in Rotterdam is less than 20% the number of people who need assistance regularly or all the time.

In all countries except Ireland, respondents have never been prescribed the use of technology as part of their medical treatment. Among those who have never used technology as part of their medical treatment, the interest in using it in the future is moderate except in València and Rijeka where the interest is higher.

As for the services that they would like to incorporate, they are varied and do not coincide between different countries. Some of the most demanded are:

- in Italy they would like to monitor blood pressure,
- in Ireland a home monitor,
- in Spain some kind of reminder of medication and online consultations,
- in Croatia a blood pressure meter as well than in Portugal where an activity tracker is also required, and
- in Rotterdam book appointments for online consultation.

The most repeated standard practice in health care in Italy, Croatia and Rotterdam is to monitor blood pressure, in Spain they are medication reminders.

3. The DART model in ValueCare

As described in the D.2.6, applying the DART model into ValueCare implies to follow the four basic **DART components (Dialogue, Access, Risk-benefits, Transparency)** (Prahalad and Ramaswamy, 2004) with at least the main target groups of the project (older people, caregivers, health and social practitioners - care team, and managers). During the second round of co-design activities, the interaction between the ValueCare main target groups is foreseen with co-design activities mixing profiles. As detailed later, at least the following **activities involving different target groups** are requested at each pilot site:

- One activity with older people, informal caregivers, and health/social practitioners to discuss the ValueCare concept and the app.
- One activity with health/social practitioners together with managers to discuss the ValueCare concept and dashboard.

The following table (Table 5) summarises how the co-design process and the ValueCare project responds to the DART model:

<table>
<tr><th></th><th>Older people</th><th>Caregivers</th><th>Care team</th><th>Managers</th></tr>
<tr><td>D</td><td colspan="3">Through the ValueCare digital solution the communication between the care team and the older people will be improved to the extent of:
- In some pilots the solution will include the video call feature that will allow the close communication between patients/caregivers and the care team and avoid unnecessary visits to the health centre.
- As the care team will monitor the patients, the face-to-face or video call appointments can be dedicated to other issues than monitor the patients' status.
- To define the personalised care pathway, the care team will meet the older person to define with him/her the health goals.
A dedicated co-design activity involving these three profiles is proposed during the second-round of co-design.</td><td></td></tr>
<tr><td>A</td><td rowspan="2">Some pilots will monitor vital signals</td><td colspan="2">Monitor older people through the dashboard</td><td rowspan="2">Overview of older people health
Intervention programmes applied</td></tr>
<tr><td></td><td>Data to be analysed to adapt the care pathway according</td></tr>
<tr><td>R</td><td colspan="4">The risk mitigation in ValueCare will be directly linked with the impact expected in each of the target groups addressed. This is part of the evaluation phase of the project implementation (WP5).</td></tr>
<tr><td>T</td><td colspan="4">In ValueCare, there is a concrete WP on ethics and data protection (WP8) to ensure the participants' data privacy and security, operationalised through a set of deliverables responding to the related demands.</td></tr>
</table>

Table 5. DART model applied to ValueCare project

4. Lessons learnt

During the implementation of the co-design activities with the different ValueCare target groups, pilots reported the following lessons learnt:

In relation to the Research team at pilot sites:

- They had been empowered to perform co-design activities at local level using different tools and addressed to the ValueCare target groups; also adapting the initial plan to the Covid-19 restrictions.
- Most of the answers gathered from the target groups are biased by the pandemic situation; although this is an opportunity to increase the acceptance of a digital solution to solve the lacks detected in their care pathways and support them to have an active healthy life adapted to their chronic conditions.

About older people and caregivers:

- Some barriers had been faced from pilots to recruit participants because of the pandemic (fear to be infected), that has been a critical point mainly in the vulnerable group of older people. Although face to face co-design sessions are more efficient than telephonic interviews; the activities had been adapted to respond to the Covid-19 restrictions. This challenge has been overcome with:
    - Focus groups with reduced number of participants to collect more detailed information.
    - WhatsApp groups that seem to be easier to use for older participants than other online platforms.
    - In-person interviews in open spaces.
- Interviewers should help older people during the interview and make questions easier with a more accessible language.
- Creating a good and warm environment facilitates participants to talk as well as let the space for storytelling.
- In relation to the content to be discussed:
    - It is important to have in mind the different stages that caregivers should face during the pilot.
    - Single interviews can be better for MCI patient avoiding judgment from others.
    - Bring participants to focus on the first stage of disease and not in a “here and now” situation to better respond to the requests.
    - Illustrate with concrete examples the concept, either when asking questions to the patients or receiving answers from the patients.

Older people:

- Previous training and support in the technological solution use would be important, but most of them are motivated to use technology to improve their health.
- Desired health pathways / support digital solution:
    - Allowing people to feel active, less alone and safer, regarding any emergency when they are on their own.
    - Including reminders, alarms, notifications, closer interaction with peers, family and friends is most appreciated.
    - Facilitating remote communication with healthcare public services, but face-to-face contact with doctors is needed to maintain confidence.
- Lacks on the current care they receive:
    - Lack of integration between social and health care in their current care pathways.
    - Lack of support to manage administrative tasks.

    - Lack of social and psychological support (more than physical support), that had been aggravated due the pandemic; the issue of loneliness is very important among older people.
    - Lack of follow-up and continuity of care.
    - Lack of aggregated information for patients.
    - More attention to healthy lives than drugs.
    - No importance of the value of putting the person at the centre.
- They should be asked about if they wish that their family or caregivers are involved in the care process. Their data should be treated appropriately and according to the law.

Technology is seen as a complement and not a substitute. It should be simple and intuitive, using more voice than text.

Caregivers:

- In relation to the care for older people, they recommended:
    - Older people need time and resources to be dedicated to them.
    - Professionals should talk to them with empathy but not in a condescending manner.
    - There is a lot of focus on the basic care needs but not enough on emotional support.
    - Preventive measures / exercises are key aspects.
    - The role of geriatrics should be enhanced.
- In relation to the digital solution for older people:
    - Voice interaction is recommended.
    - The instructions should be given in a way that encourages older people to do the recommendations.
    - Calendar with important events.
    - Older people need to feel they are listened to.
- Lack of staff to attend older people.
- Too much paperwork and time needed to manage the services that older people are entitled to.
- Lack of recognition of their work.

Managers and experts:

- Lack in the integration with general practitioners and in the continuity of the treatment between the hospital and the local area.
- Further exploration is needed in the multidisciplinary collaboration, promoting services on the territory that aim at social-healthcare integration paths (improving the continuous quality of care and assistance, favouring early and after diagnosis support and cognitive stimulation rehabilitation paths and the creation of accessible information paths on evidence-based services and programs).
- They are better at explaining the main hurdles related to the institutional and professional care process nowadays, through a more macro perspective.
- They are quite aware of the technical and functional potential of such an app, being easier for them to provide information on the matter and better communicate about a patient and allowing a fast identification of patients and follow-up of their respective care pathway.
- The use of data should have a more prominent role in the care process. More discussion should be dedicated to understanding what data is relevant to professionals and to patients; and how data flow can improve personalised care pathways but also working processes.
- A lack of social and health integration persists, a suggestion is to invest more in e-health interventions.
- ICT solutions are spreading more and more in healthcare, significantly improving the quality and quantity of services provided to citizens.

- The topic of ICT solutions could be deepened by asking concrete examples that focus on integration, elicit the thoughts on human and economic resources, going on concrete examples and not theoretical ones (e.g., by better understanding patients' experiences and needs).
- The ICT solutions could be a solution in providing life-long learning to health and social care providers to ensure continuous quality care.
- The 'value' in value-based healthcare is related in providing a sense of security among patients, so they know that they contact anyone anytime for help within the health and social care system.
- The fear of using technology is a shared one between older people, but also health and social care professionals. This apprehension needs to be addressed through adequate training. In this sense, the technology should be adapted to the person and not the person to the technology (importance of the co-design process).
- It is important to have a follow-up training of the App to ensure adherence.
- There is a need to alleviate the bureaucracy for older people to demand social services.
- The benefits of a new concept/solution should be clear to encourage participants to adopt it.
- It is important from the beginning to consider the scalability and replicability of the solution.

Health and social practitioners:

In relation to the co-design activities:

- Important to reduce and focus the questions to be addressed in the co-design sessions to be able to respect the timeline of the interview.
- Difficulties to make a synthesis of the main concept in the allocated time.
- The next round of codesign activities should include questions about data (what is relevant to professionals and what is relevant to patients, how to improve data flows and communication throughout the care path) and stakeholders for exploitation.

In relation to the content:

- Professionals are very limited in the time they can devote to each patient, so the ValueCare should positively impact their time management (i.e., allowing patients to be monitored at home and requiring less face-to-face meetings) and do not entail an overload.
- The role of General Practitioners can be strengthened allowing a more widespread dissemination of services and allows the creation of ad hoc interventions for the older persons, but also for the implementation of the project, to increase the awareness of the territory.
- The health and social practitioner stresses that despite possible initial difficulties with the use of ICT solutions, involving trained staff would allow ICT solutions to be accessible to all, which however must be tangible and usable.
- ICT solutions could generate an initial reticence so it is necessary to provide simple and useful solutions for the patient and ask the health and social practitioners if they can exemplify this aspect.
- The aim in the forthcoming co-design activities should explore both how to provide a more functional integrated care for the older persons and what characteristics an ICT solution should possess, such as being easily assimilated and usable and quickly demonstrating a strong practical impact.
- The solution should pay much attention to the relationship with the patient and to be ready to open a dialogue and to make a confrontation.
- It is important to work with older people to make them aware of the tool and demonstrate its usefulness to avoid lack of interest in its use due to digital literacy.

- The training courses planned in each pilot site should also raise awareness of the population and professionals on the ValueCare topic and about the existing resources that can be useful for their patients at health and social sectors.
- To contribute to the personalised plan based on a multidisciplinary team at the care centre, that also promotes continuity (professionals of reference and time).
- Professionals really demand an integration of social and health care and the related data to better respond to their patients' needs. In this sense, it is important to consider the improvement of data flows by implementing Personal Health Records (PHR).
- There is a lack of resources to provide online support to patients.
- The 'value' in value-based healthcare is related to good interpersonal relationships: practitioner's competencies and knowledge, empathy, working experience, humanitarianism, communication with colleagues and patients and trust and the feeling when a practitioner does something good for the patient.
- The collateral costs of care should also be considered and not jeopardise the general health of patients as personalised care is usually more expensive.
- The quality care can be enhanced thanks to a synchronized interface that can be accessed via a smartphone.
- There is a need to raise the awareness of the governance.
- An important aspect to the project implementation is to identify the best situate entry-point to the ValueCare intervention.
- The aspect of prevention needs to be further explored trying to grasp the link between early diagnosis and integrated and personalised care.

New figure: The figure of the pharmacist arose from the co-design activities. It is recognised as very important since this is an asset in controlling adherence and monitoring of patients' medication. In fact, pharmacy professionals should also have access to the patient's medical history (perhaps with some restrictions or with explicit permission) because this gives much room for improvement in the management of patient care.

5. Updated guidelines to develop the second round of co-design activities in pilot sites

The 1st round of co-design activities was addressed to define the concept of value, the treatment pathways, and the desired IT support solution. **This report is now focused on providing guidance for implementing the 2nd round of co-design activities addressed to merge-versions and identifying improvement points of ValueCare solution based on target groups' needs**. The inputs gathered in these activities will be used to improve the solution before its deployment in the pilot sites.

5.1 Target participants

The following table (Table 6) summarises the participants to be involved in the next round of co-design activities. Please take into account that the representativeness of the target group has been reinforced in this round of activities with the proposal to involve an ideal scenario (to be adapted to each pilot site), and that some groups must be involved in the activities (those with the *) and other are optional (those without *).

Profiles	Description	Number of participants
Older people*	People 65+ facing the target chronic disease in the pilot site	At least 20 representatives Ideal scenario: try to involve a diverse group that represents the older people in your local context considering: - Age group - Gender

<table>
<tr><td></td><td></td><td>
- Migrant background
- Digital literacy
- Socio-economic background
- Physical and loneliness conditions
- Other relevant criteria according to your local context
For example, in the València pilot site the participants to be involved should respond to the following characteristics:
- Gender: 59.5% women (12 women)
- Age group (Àrea de gestió de recursos,2020):
<table>
<tr><td>Age group</td><td>% population</td><td>Nº of participants</td></tr>
<tr><td>65-69</td><td>26,11%</td><td>5</td></tr>
<tr><td>70-74</td><td>24,52%</td><td>5</td></tr>
<tr><td>75-79</td><td>19,74%</td><td>4</td></tr>
<tr><td>80-84</td><td>13,86%</td><td>3</td></tr>
<tr><td>85-89</td><td>10,08%</td><td>2</td></tr>
<tr><td>90-94</td><td>4,40%</td><td>1</td></tr>
<tr><td>95+</td><td>1,28%</td><td>0</td></tr>
</table>
Loneliness: 23.76% (Healthy loneliness project) - 5 participants.
</td></tr>
<tr><td>Informal caregivers*</td><td>Persons who provide care for older people living with cognitive impairment, frailty, and multiple chronic conditions.</td><td>At least 20 carers of the 20 older people by pilot site.
Ideal scenario: try to involve a diverse group that represents the caregivers in your local context considering:
- Age group
- Gender
- Migrant background
- Digital literacy
- Socio-economic background
Other relevant criteria according to your local context</td></tr>
<tr><td>Family members and friends</td><td colspan="2">Relevant persons in the social network of the older persons (i.e., daughters, sons, grandson, neighbours…)</td></tr>
<tr><td>CARE TEAM: Health and social professionals* (formal caregivers)</td><td>Practitioners from Health and Social Care delivery organisations such as doctors, nurses, physiotherapists, gerontologists, psychologists, social</td><td>At least 10 practitioners from the care team members.
Ideal scenario: try to involve a diverse group that represents the care team in your local context considering:
- Gender
- Professionals from the health and social system
Different roles in the older care plan</td></tr>
</table>

	workers, healthcare assistants, pharmacists[2]	
Managers*	Those who are responsible for the administration and management of financial and human resources of health organisations on national, regional, and local level (i.e., Hospital Director, Hospital Scientific Director, Primary Care Manager, Health Emergency Manager, and the like).	At least 3 per pilot site Ideal scenario: try to involve a diverse group that represents the managers in your local context considering: - Age group - Gender - Health and social system - Position
Stakeholders relevant for the exploitation, i.e., deployment of the ValueCare solution*	The stakeholders will be identified by the pilot sites during the Spring of 2021. They will be engaged in the co-creation workshops for two reasons: 1/ to engage them in the co-creation of the solution to better suit their need, 2/ to present the ValueCare solution to them and attract them to the next activities of the project Some examples: Managers and directors of public and private providers of health and care organisations in charge of planning and monitoring health and care services. Market innovation managers, ICT experts	At least 3 per pilot site
Other stakeholders (local NGOs)	Representatives of organisations providing support services.	
Policy makers*	Political representatives of European, National, Regional or Local levels with competencies to legislate in health and care policies.	At least 2 policy makers by country, selecting when possible, the regional level where health and/or care policy making is more influential in that country
Other	Representatives of relevant organisations in each local community, such as the priest in Christian communities.	

*Compulsory profiles to be involved in the second round of co-design activities

Table 6. Profiles to be included in the second round of co-design activities by ValueCare pilot sites

Participants described above can be involved in one or different activities (sessions) to achieve the requested number of participants. Among the activities implemented at pilot sites, during this second round, some **mixed activities** (combining profiles in the same activity) are suggested to follow the DART model and get a comprehensive understanding of the local context and the implication for the ValueCare concept and digital solution. Participants in the mixed activities can be considered as part of the participants requested in the table above to get the minimum number of participants requested in each profile. **At least the following mixed activities should be implemented at each pilot site:**

- **One activity with older people, informal caregivers, and health/social practitioners where to discuss the ValueCare concept and the app.**

[2] Pharmacists were mentioned in the co-design activities of the Valencia pilot site as an interesting group to be involved in the care plan of older people as they have direct contact with them and can monitor the medication.

- **One activity with health/social practitioners together with managers to discuss the ValueCare concept and dashboard.**

5.2 Timeline

According to the meetings performed with pilot sites and technical partners, there is a common agreement **to perform the second round of co-design activities during the preparatory activities for the ValueCare implementation (planned from April 21 to October 21)** due to the following reasons:

- This second round of co-design activities will be used to confirm that the proposed solution responds to the requirements expressed in the first round of co-design activities.
- This will allow pilots to share with participants the prototype of the ValueCare solution before the implementation and train them in its use.
- Technical partners will gather relevant information to avoid further errors in the implementation phase.

Consequently, the second round of co-design activities should be implemented during the months of June and July 21 and reported in August 21 as detailed in the following table (table 7):

	April 21	May 21	June 21	July 21	August 21	Sept 21	October 21
Preparatory actions (WP4)							
Digital solution (WP3)		**Ready prototype to be tested**				**Integration of pilots' feedback in the digital solution and ValueCare concept**	
Co-design activities at pilot sites			**Co-design activities implementation**		**Feedback**		

Table 7. Timeline for the second round of co-design activities

5.3 Activities

The activities to be implemented at pilot sites can take any form suitable for the project aim and respecting local rules in regards with the current sanitary situation: co-design the ValueCare concept and digital solution. In this sense, partners can organise focus groups, interviews, world cafes, national seminars, etc. (online or in-person) according to their experience gained in the first round of co-design activities and the current situation in their country. According to the Dow, each pilot site should organise:

- **National seminars**: each pilot site should organise dedicated seminars open to wide public to collect suggestions on how the ValueCare concept should be and how the supportive IT solution should be integrated to respond to the needs of the target groups. This activity was not implemented during the first round of co-design activities by any pilot site due the pandemic situation. **During this second round, pilots should explore the possibility to organise it (also considering online means) with the guidelines provided in the D.2.6.**
- **World Café with end-users**: once the ValueCare concept and the IT support solution is defined by the scientific/technical partners according to the information collected during the national seminars, each pilot site should organise a World Café to present the ValueCare concept and IT supported environment. End-users (older people, their

families and health and social professionals and managers) will participate in discussion sessions together to provide valuable feedback to ValueCare approach. This activity was also not implemented during the first round of co-design activities due to the pandemic situation. **During the second round, pilot sites should explore the possibility to implement it with the guidelines provided in the D.2.6 (also considering online means).**

- **Focus Groups with experts in the field**: finally, the concept and the IT supported solutions will be presented to experts in health and social care field and IT experts to collect the final remarks. For that, partners will organise 2 focus groups with 8-10 participants to discuss about the ValueCare approach, standards and their interoperability. One focus group was planned for health and social professionals and managers together with IT experts; and the second focus group will be tailored to policy makers. **Mixed activities were not planned in the first round of co-design activities, so pilot sites should now address this activity, at least mixing the groups proposed in previous section 5.1.**

The number of the activities can be adapted to the pilot sites' needs to: achieve the number of participants and profiles requested during this second round (section 5.1) and the questions to be addressed (section 5.2).

5.4. Resources

5.4.1. Resources available

Up to now different resources had been developed in the project within the different WPs that can be used in the co-design activities:

Project videos for pilot sites:

IFIC, as leader of the communication and dissemination activities, has developed videos for each pilot site (at this moment the following pilot sites have their own video: València, Rijeka, Athens, Cork/Kerry, and Treviso) that can be used to explain the project, recruit participants for the co-design activities, and introduce the project at the beginning of the co-design activity.

Mock-ups and prototype:

The technological partners shared with the consortium some practical presentations and mock-ups[3] that can be also used during the co-design process. Moreover, it is expected that they deliver a first prototype of the ValueCare digital solution before the second round of the co-design activities, so it is recommended to use it during the activities to gather comprehensive feedback of the target groups. In fact, the questions about the digital solution to be addressed in the second round of co-design activities are based on the use/testing of the solution by participants in the co-design activities.

Intervention plans at pilot sites:

The care pathway designed at pilot sites can be also used during the co-design activities to align the questions and explore when the ValueCare can be an added value to the care delivered. In fact, the questions formulated for the second-round had been aligned with a basic care pathway, to facilitate the input collection.

5.4.2. Requested guidelines from pilots

Templates

As detailed in the D.2.6 here you have the basic steps for a co-design activity:

- Welcome the participants

[3] https://invis.io/FEZM1IUBC5W The password is: ValueCare

- Make sure you have adopted an inclusive approach:
    - If activities are organised online, make sure participants have access to the right equipment and have been informed on how to join the virtual meeting room.
    - If activities are organised physically, make sure the venue is accessible to all participants, refreshments are available, the activities were organised at a time that allowed male and female participants to come, people with reduced mobility were offered an alternative to join in case they could not have their own transportation.
- Check if all the participants have signed a consent form to take part in the activity.
- Share with the participants the structure of the session. The coordinator or moderator should clarify how they will proceed, the objectives of the activities and how each member can contribute.
- Ask the permission of the participants to record the session, to better keep track of each intervention.
- Present the project (you can use the video for each pilot site) and the results of the previous co-design activities performed in your local context.
- Present the purpose of the session: gather inputs on the ValueCare concept and digital solution to adapt them to the target groups.
- Allow participants to present themselves.
- Start with the questions. For each question asked, space will be given for an open discussion, followed by a wrap-up by the moderator. You can use the patient journey (intervention plan) to drive the questions.
- When all the questions have been asked, and before the group ends, the moderator will give the chance to participants for providing final comments/points to be further discussed.
- The moderator will tell the members about any next steps that will occur, and what they can expect to happen.
- Thank them for their participation.

Trying to avoid Covid-19 bias

Most of the inputs gathered during the first round of co-design activities were biased by the current pandemic situation. Although this had been used to reinforce the need of ICT tools to provide personalised care for older people, pilot sites requested some tips to avoid this bias during the second round of the co-design activities. In particular because they need to identify those responses determined by the pandemic situation, how to treat these questions, how to formulate questions to avoid/reduce the bias, in order to deliver useful inputs to develop the ValueCare concept and digital solution also adapted to the local contexts when the situation returns to the normality. In this sense:

- Give participants first a special time to reflect on the current situation with Covid-19 if it comes to the conversation and give them the right to express their views and concerns. Then, make them think about how things were before Covid-19 times and remain nowadays.
- Phrase sentences in a way that things have not become worse, i.e. “Have you still been supported when you needed it?”
- Then, state that the following discussion should focus on how things were before Covid-19 times and remain nowadays.

Technology introduction

Some pilot sites requested some guidelines to introduce the technology to older people and professionals. Here some tips are provided:

Face-to-face session: in case you plan to implement in-person co-design activities with **older people and professionals**, you can apply the guidelines provided in the D.2.6. but considering the prototype discussion: the organisers can provide step-by-step guidelines to download the prototype of the app in the participants phone, sharing with them screenshots on how to download it and providing support in the process. Once the participants have downloaded the app, if participants feel comfortable, give them time to navigate on their own and collect their feedback using the questions provided later in this report. If participants need more technical support, go through the app together with them, show them how to click, etc. and when they feel confident enough, give them time and space to discover the app on their own for feedback.

Remote session: in case you plan to implement remote sessions with **older people**. Before starting the session, please check with the older people if they have a device to get online and Internet access (Public Health Degrees, 2021). Send them easy instructions with step by step about how to connect to the online session. The session organisers should download the same app for the online session so they can assist older people to connect the session. During the session (Public Health Degrees, 2021; Versanen et al., 2019):

- Introduce yourself again
- Have a second device (i.e., telephone to assist them)
- Validate the difficult of learning new skills
- Ask participants about how they feel using the technology
- Avoid technical names
- Be calm, patient, didactic, clear, flexible, repeat if needed and enjoy.
- Focus on one thing at a time

To test the prototype, send them written instructions (step by step) on how to download the prototype of the app, give them time to download and navigate (you can also assist them), and collect feedback using the questions provided later in this deliverable.

The same tips can be used for the sessions with **professionals** with or without the digital literacy support and reinforcing the benefits of using the digital solution for their work.

A dedicated leaflet to perform online focus groups is included in **Annex III**, likely to be adapted to online interviews, or other online activities.

In **both cases**, during the session (online or in-person) you must introduce the project and the solution using the ValueCare **video** adapted to your pilot. Moreover, you can develop a use case (**demonstration**) adapted to the pilot profile and patient journey (stroke, frailty, etc.) that will facilitate participants to understand the digital solution and the benefits of using it for their health/work.

Online co-design activities

In addition to the tips given in previous deliverable and in the **annex III**, please consider the following:

- At least two facilitators should be present when performing the online activity (one can drive the conversation and the other will be looking after the technological issues and responding to the participants' needs).
- It is recommended that at least one of the facilitators have a clinical background.
- Not all participants will be able to use the proposed online tools (i.e., AhaSlides) so the moderator can directly ask them and the facilitator in charge of technological issues can write their answers.
- When the connection is broken or not of good quality, ask participants to switch off their camera. If the person who was talking loses the connection, ask another participant to continue and when this person is again in the meeting, ask him or her to finish the intervention. If the connection is poor and not audible, those participants can be encouraged to participate in the chat, previously explained to the participants how to make use of it.

- Check that the tool you want to use is appropriate to the target group. Some pilots reported that AhaSlides are not appropriate as managers where under time pressure and they recommend having discussion instead.

Some reminders also for online and in-person meetings:

- You can consider sending the topics to be discussed in advance, so they have time to think about them and provide better feedback during the activity.
- Start the activity asking participants to present themselves and their role (especially significant for health and social practitioners and managers; but also, for caregivers who can describe their family caregiving circumstances), that will allow a better understanding of their interventions.
- Avoid duplication of questions, and group them by thematic topics.
- If questions can be covered in one session instead of two, just plan one session, we do not want that participants feel overburdened with too many meetings. Try to be efficient in the session organisation and encourage measures also for further activities with the same people.
- Start the session 15/10 minutes before to allow people to join early (online) take a seat (in-person).

SoCaTel platform

Thanks to the Digital Twinning done by ISRAA as Partner in SoCaTel DHE 2020/2021, it is now possible to proceed with a full adoption of the Platform. It means that SoCaTel will be available in ISRAA's server, since June 2021, and that it could be adapted to the Focus Groups rounds contents that will be asked to the ValueCare targets. The core element for its adoption, by ValueCare Pilots, will be the facilitator role. ISRAA team could train the partners that will use it along with the codesign phase.

5.5. Target questions

Independently of the activity carried out, **pilot sites should involve all the target groups marked with an * in the table 6 in the second round of the co-design process**. In these activities, partners should respond to the following questions (pilots can address all questions in one or more activities). Please consider that the questions below are just a starting point. It is anticipated that each pilot site should adapt and tailor the questions as appropriate. Please remember that the profiles will have access to different tools that are part of the whole ValueCare digital solution as detailed in the following table (Table 8):

User/roles	Access on mobile app	Access on web platform
Patient	√	
Caregivers		√
Health & social professionals		√
Health centers / hospitals		√

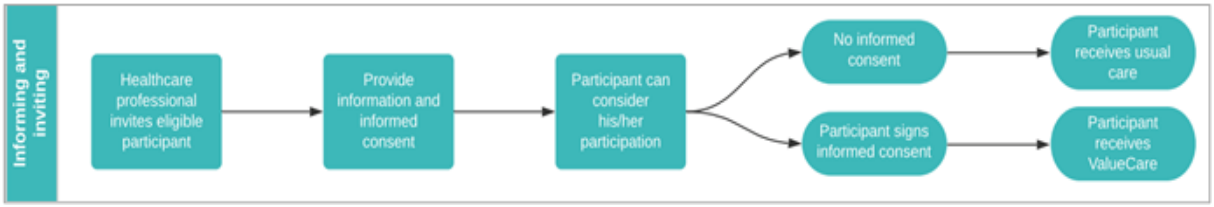
Table 8. Access to the app and dashboard according to the user profile

5.5.1. TARGET GROUP: Older people

OVERALL AIM: to co-design the ValueCare App and concept

QUESTIONS:

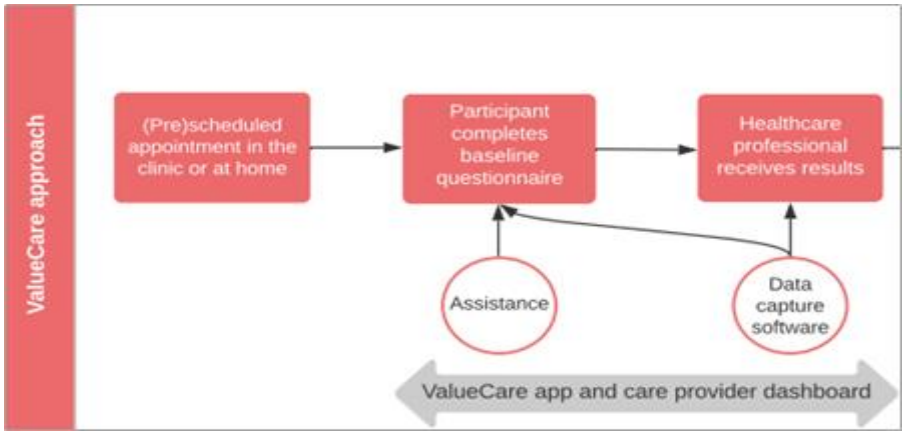
Figure 16: ValueCare informing and inviting steps



Theme 1: Information and communication

1. How would you like to be approached?
    a. In-person, via a letter, leaflet, or e-mail?
2. What information would you like to receive?
    a. From whom would you like to receive this information?
    b. At what point in time would you like to receive information?
3. How would you like to sign the informed consent (on paper, digitally)?
    a. Would you like assistance to give informed consent digitally?
4. What would be an incentive for you to participate in the ValueCare implementation phase?

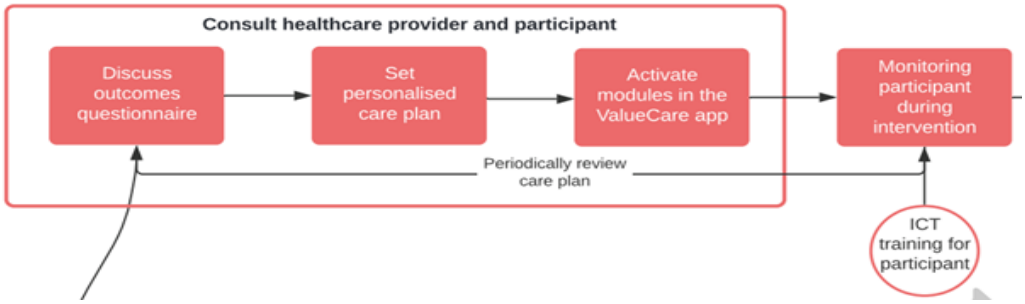
Figure 17: ValueCare first approach



Theme 2: Questionnaire

5. How would you like to complete the questionnaire? (e.g. digitally, in-person, with assistance)
6. Where/ when would you like to complete the questionnaire? (e.g. before meeting healthcare professional, in waiting room, separate moment in time)

Figure 18: ValueCare care plan



Theme 3: ValueCare intervention (ValueCare concept and ValueCare app)

ValueCare concept	ValueCare IT solution (IT mobile app)
We would like you to reflect on the value-based approach (Explain the value-based approach to participants using the previous tools) 7. What is according to you essential in the consultation with the healthcare provider to set the personalised integrated care plan? (if needed explain what the personalised integrated plan is using the patient journey). a. How would you like to be engaged during the consultation to set your personalised care plan? For example, do you want the health care provider to set the care plan, or would you like to set the care plan together through shared decision-making? *Can you explain why you prefer either option?* b. How would you like to be engaged in setting the personalised care plan? c. Do you have any suggestions on how to improve this consultation?	To support the personalised integrated care plan, modules can be activated in the ValueCare app. We will show you the prototype of the ValueCare app. During this meeting you will have the opportunity to test it. 8. Before using/ exploring the ValueCare app: a. What do you expect to be able to do with the ValueCare app? b. How do you expect the ValueCare app to look like? (user-friendly, purpose, functionalities…) Remind participants that their feedback can still change the way the app looks, and that is the reason for the session. 9. Once you show the participants the prototype: a. Do you understand what it does? b. How does it measure up to your expectations? (from 1 to 5 considering 1 it does not achieve at all my expectations and 5 it fulfils all my expectations) 10. By holding and exploring this app: a. How do you feel about this service? b. What features are missing? c. Does anything seem out of place or unnecessary? What would you change? d. In which scenarios can you picture yourself using the modules in the ValueCare app? e. How likely or unlikely are you to use this service? 11. OPTIONAL: Could you provide suggestions on the expected dialogs for the virtual coach intervention areas defined for each specific pilot? (you can base your suggestions on the reference documents produced by pilots and FBK earlier in the project) 12. Would you like any ICT training to use the ValueCare app? If yes, what kind of training do you prefer? (e.g., based on specific questions/ topics, how to use the app in general) 13. In what form do you prefer to receive the training? (e.g., chat, tutorials, in-person, telephone helpdesk) 14. Should there be ongoing support (e.g., helpdesk) available during the time you use the app? a. Do you have suggestions how this support could look like?

Table 9. Questions for older people

5.5.2 TARGET GROUP: informal caregivers

This group of questions can also be adapted in the case you involve in the co-design activities family and friends.

OVERALL AIM: to co-design the ValueCare App and concept

QUESTIONS: ValueCare aims to deliver personalised integrated (health and social) care services to achieve better outcomes for older persons and their families, to improve care

experiences and to better coordinate care services. We would like to monitor how you, as an informal caregiver, can benefit from the ValueCare approach we offer to patients. To monitor this, we will ask caregivers to complete a questionnaire.

Theme 1: Information and communication

1. How could we approach informal care providers to join the project?
    a. How would you like to be approached? (e.g., in-person, via a letter, leaflet, or e-mail)
2. What information would you like to receive?
    a. From whom would you like to receive this information?
    b. At what point in time would you like to receive information?
3. How would you like to sign the informed consent (on paper, digitally)?
    a. Would you like assistance to give informed consent digitally?
4. What would be an incentive for you to participate?

Theme 2: Questionnaire

We would like to know how you are doing as an informal caregiver. We have developed a short questionnaire for this purpose. The questionnaire will be sent three times to monitor your wellbeing; the first time upon inclusion in the study, the second time after 12 months and the last time after 18 months

5. How would you like to complete the questionnaire? (e.g., digitally, in-person, with assistance)
6. Where/ when would you like to complete the questionnaire? (e.g., before meeting healthcare professional, in waiting room, separate moment in time)
7. Would you prefer any support (e.g., additional information, assistance in completing the questionnaire digitally)?

Theme 3: ValueCare intervention (ValueCare concept and ValueCare app)

ValueCare concept	ValueCare Dashboard
As part of the ValueCare approach, the patient will complete a questionnaire before the consultation with the health care provider. The questionnaire includes (health) outcome measures that matter to the patient. The health care provider receives the results of the patients' questionnaire in his/her dashboard. During the consultation, the patient and health care provider discuss the outcomes of the questionnaire. Based on these outcomes, and the patient's needs and preferences, a personalised integrated care plan is set and monitored for 12 months. 8. How would you, as an informal care provider, like to be engaged during the consultation where the patient and the care team establishes the care plan? (e.g., involved in monitoring health parameters, check medication intake, check physical activities, etc.)	During the consultation between the patient and health care provider a personalised integrated care plan is set. ValueCare offers an application to patients in which a combination of modules can be activated to support the goals in the personalised care plan. By means of a dashboard (web-application), caregivers can use a range of functionalities. These functionalities aim to monitor the progress of the patient. Additionally, the dashboard can, for example, provide more (disease-specific) information, advance communication with care providers and help in the coordination of care. We will show you a prototype of the ValueCare dashboard for caregivers. During this meeting you will have the opportunity to test it. 9. Before using/ exploring the ValueCare dashboard. a. What do you expect to be able to do with the ValueCare dashboard? b. How do you expect the ValueCare dashboard to look like? Remind participants that their feedback can still change the way the app looks, and that is the reason for the session. 10. Once you show the participants the prototype.

a. Do you have any (general) suggestions for this consultation?	a. Do you understand what it does? b. How does it measure up to your expectations? (from 1 to 5 considering 1 it does not achieve at all my expectations and 5 it fulfils all my expectations) 11. By exploring this dashboard: a. How do you feel about this service? b. What features are missing? c. Does anything seem out of place or unnecessary? What would you change? d. In which scenarios can you picture yourself using the ValueCare dashboard? e. How likely or unlikely are you to use this service? 12. Would you like any ICT training to use the ValueCare dashboard? If yes, what kind of training do you prefer? (e.g. based on specific questions/ topics, how to use the app in general) 13. In what form do you prefer to receive the training? (e.g. chat, tutorials, in-person, telephone helpdesk) 14. Should there be ongoing support (e.g. helpdesk) available during the time you use the app? a. Do you have suggestions how this support could look like?

Table 10. Questions for informal caregivers

5.5.3 TARGET GROUP: health and social care practitioners

OVERALL AIM: to co-design the ValueCare Dashboard, app and concept

QUESTIONS:

ValueCare concept	ValueCare IT solution
We would like you to reflect on the value-based approach applied as part of the ValueCare concept. [Explain the value-based approach to participants] 1. What is, according to you, essential in the consultation with the patient to set the personalised integrated care plan? a. Do you have any suggestions on how the consultation should look like? b. How do you plan to engage the patient during the consultation? c. How are you going to discuss with them their values related to care? 2. What is essential about the coordination of care? a. What is missing? b. Do you have any suggestions for improvement?	We will show you a prototype of the ValueCare dashboard for professionals. During this meeting you will have the opportunity to test it. 6. Before using/ exploring the ValueCare dashboard: a. What do you expect to be able to do with the ValueCare dashboard? b. How do you expect the ValueCare dashboard to look like? Remind participants that their feedback can still change the way the app looks, and that is the reason for the session. 7. Once you show the participants the prototype: a. Do you understand what it does? b. How does it measure up to your expectations? (from 1 to 5 considering

3. What is essential about value-based personalised care? (remind participant of this concept) a. What is missing? b. Do you have any suggestions for improvement? 4. What is essential with regard to monitoring the patient? a. Do you have any suggestions for monitoring/ follow-up? b. How (e.g., in-person, virtual meeting, chat/email) and when (e.g. after 3 months, after 6 months) would you like to see (or interact) with patients for follow-up? i. What would you like to know/measure during this follow-up? ii. What would be appropriate time intervals for patients to complete (parts of) the questionnaire for monitoring? iii. What is the best way to adapt/change care goals for patients according to their monitoring results? 5. In relation to the intervention plan proposed for the pilot: Would you like to propose some topics for the ValueCare app? a. OPTIONAL: Could you provide suggestions on the expected dialogs for the virtual coach intervention areas defined for each specific pilot? (you can base your suggestions on the reference documents produced by pilots and FBK earlier in the project)	1 it does not achieve at all my expectations and 5 it fulfils all my expectations) 8. By exploring this dashboard: a. How do you feel about this service? b. What features are missing? c. Does anything seem out of place or unnecessary? What would you change? d. In which scenarios can you picture yourself using the ValueCare dashboard? e. How likely or unlikely are you to use this service? 9. Would you like any ICT training to use the ValueCare dashboard? a. What kind of training do you prefer? b. In what form do you prefer to receive the training? (e.g., chat, in-person, telephone helpdesk) 10. Should there be ongoing support (e.g., helpdesk) available during the time you use the app? a. Do you have suggestions how this support could look like?

Table 11. Questions for health and social care practitioners

5.5.4 TARGET GROUP: managers from health and social services

OVERALL AIM: to explore the potential exploitation of the ValueCare solutions and approach

QUESTIONS:

ValueCare concept	ValueCare IT solution
We would like you to reflect on the value-based approach applied as part of the ValueCare concept. [Explain the value-based approach to participants]. 1. About the ValueCare concept:	We will show you a prototype of the ValueCare solutions (app for patients and dashboard for professionals). During this meeting you will have the opportunity to analyse the potential of this ICT solution for providing value-based integrated care in the institution you manage. 3. Before using/ exploring the ValueCare dashboard:

1.1 How the ValueCare concept would improve your work? And the work of your staff? 1.2 How do you think it can improve the care provided to older patients and their wellbeing? 1.3 What do you like about this concept? 1.4 What is missing? 1.4 Is it aligned with the care you provide? Is it feasible to implement it? 2. About the outcome-based care plan provided: 2.1. Is it aligned with the care you provide? Is it feasible to implement it? 2.2. Do you think the selected areas of intervention will improve the care received by the targeted patients at the pilot site? 2.3. Is anything missing? Is something to be improved?	3.1. How do you expect this kind of tools to improve the work in the organisation or unit you manage? Which functions do you think the ValueCare solution should have? Remind participants that their feedback can still change the way the app looks, and that is the reason for the session. 4. Once you show the participants the solutions and care plan: 4.1. Do the solutions meet your expectations? (from 1 to 5 considering 1 it does not achieve at all my expectations and 5 it fulfils all my expectations) 4.2. Do you think these solutions will be useful for your entity? (from 1 to 5 considering 1 they are not useful at all and 5 they will very useful) 4.3 Can they reinforce/improve the care you provide to the older people targeted in your pilot site? 4.4 How do you relate the selected interventions for your pilot (e.g. nutrition, physical activity, medication, etc.) with Value-Based Care? 5. In relation to implementing the solutions: 5.1. Are you interested/would you be interested to apply the solutions in your organisation? 5.2. Do you think they will be welcomed by the staff and patients? If not, why? 5.3. Would you need training? 5.5. Would you need assistance? 5.6. Do you think the implementation of those solutions will report benefits (health and economic) in the long term? 6. How much would you pay for the solution? Just shoot a number based on your experience with the similar tools and the budget you manage.

Table 12. Questions for health and social care managers

5.5.5. TARGET GROUP: Stakeholders relevant for exploitation

OVERALL AIM: To understand how the solution suits the needs of the stakeholders who could possibly decide about the deployment of the ValueCare solution. This can include the managers, representatives of the insurers, representatives of the health technology assessment agencies etc.

QUESTIONS:

ValueCare concept	ValueCare IT solution
We would like you to reflect on the value-based approach [Explain the value-based approach to participants]. 1. How the ValueCare concept would improve your work? 2. What do you like about this concept? 3. What is missing?	We will show you a prototype of the ValueCare solutions (app for patients and dashboard for professionals). If this solution was to be deployed in your country, region, or your institution: 6. How would you rank its usefulness on the scale 1-5 (1: not valuable at all, 5: very valuable) 7. How is this solution unique (1-not unique at all, 5-very unique)

4. What benefits can provide to your clients/users?	8. Is this solution something new that does not exist on the market in your country / region? To what extent? 9. What would you need to deploy this solution (in terms of financial, technical, human resources) 10. How do you relate the selected interventions for the pilots (e.g., nutrition, physical activity, medication, etc.) with the value provided to your clients/users? 10. Do you think there are any legal aspects attached to the deployment of this solution? 11. How much would you pay for the solution? Just shoot a number based on your experience with the similar tools and the budget you manage.

Table 13. Questions for stakeholders relevant for exploitation

5.5.6. TARGET GROUP: Other stakeholders - NGOs

OVERALL AIM: To understand how the solution suits the needs of the stakeholders who could possibly promote the ValueCare solution to their colleagues, clients, or patients.

QUESTIONS:

ValueCare concept	ValueCare IT solution
We would like you to reflect on the value-based approach applied as part of the ValueCare concept. [Explain the value-based approach to participants]. 1. How the ValueCare concept would improve your or the work of your colleagues? 2. How the ValueCare concept would improve the life of your clients or patients? 3. What do you like about this concept? 4. What is missing?	We will show you a prototype of the ValueCare solutions (app for patients and dashboard for professionals). If this solution was to be deployed in your country, region or your institution: 5. would you recommend using it (1-not at all, 5- very much) 6. What would be the reasons for recommending or not recommending it? 7. What are the features you like? 8. What is useful? 9. What is useless? 10. What would you improve to make sure it's a successful and valuable solution?

Table 14. Questions for other stakeholders

5.5.7. TARGET GROUP: Policy makers

OVERALL AIM: To understand how the solution can suit the policy priorities at local, regional, national or EU level to align the ValueCare solution and exploitation plan.

QUESTIONS:

ValueCare concept	ValueCare IT solution
We would like you to reflect on the value-based approach applied as part of the	We will show you a prototype of the ValueCare solutions (app for patients and dashboard for professionals). If this solution was to be

ValueCare concept. [Explain the value-based approach to participants]. 1. About the ValueCare concept: 1.1 How do you think the ValueCare concept fits the general development of the health and care services to older people in your area/region? 1.2 How do you think it can improve the care provided to older patients and their wellbeing? 1.3 What do you like about this concept? 1.4 What is missing? 2. About the outcome-based care plan provided: 2.1. Is it aligned with the vision of care to be provided in your area/region? 2.2. Do you think the selected areas of intervention will improve the care received by the targeted patients at the pilot site? 2.3. Is anything missing? Is something to be improved?	deployed in your country, region, or your institution: 3. How would you rank its usefulness on the scale 1-5 (1: not valuable at all, 5: very valuable) 4. How is this solution unique (1-not unique at all, 5-very unique) 5. What do you think would be needed in terms of policies to deploy this solution in the area? 6. Do you think there are any legal aspects attached to the deployment of this solution? 7. Who do you think should pay for this solution?

Table 15. Questions for policy makers

6. Conclusions

This deliverable 2.7 "Report on the co-design activities for the ValueCare concept mid-term" is part of the task 2.4 "Co-design with older citizens and professionals". The deliverable addresses two main objectives:

1. To report the results obtained during the first round of co-design activities at pilot sites in order to guide the work of the partners in charge of developing the ValueCare concept and digital solution (WP2 and WP3). In this sense, the report provides the complete inputs gathered at pilot sites in relation to the ValueCare concept (section 2.2.1) and digital solution (section 2.2.2). It is important to remark that these sections report all the wishes highlighted by participants at pilot sites in the form of a general "wish list"; however, partners responsible to develop ValueCare concept and digital solutions will review them and analyse what is in the scope of ValueCare project. Deliverable 3.3 will provide further details of which "wish list" items will be included in the ValueCare digital solution. In the same sense, the Deliverable 2.1. will formulate the ValueCare concept based on this "wish list".

   The deliverable also includes an overview of the activities and profiles involved during the first round of co-design activities (section 2.1 and 2.2) and some lessons learnt reported by pilot sites (section 4).

2. To provide new guidance to implement the second round of co-design activities (section 5). In concrete: some tips requested by pilot sites after the implementation of the first round of co-design activities, and new questions to be addressed during the co-design activities according to the project needs; all aligned with the DART model (section 4) as described in the DoA.

In relation to the first part of the report (**co-design reporting**): some conclusions reported by pilot sites are summarised below:

Regarding the **activities implemented:** No national events or world cafés were possible during this period because the pandemic situation. These activities are suggested to be considered, if allowed, during the second round of co-design activities as included in the DoA, also considering online means.

For **older people**:

- The ValueCare technology must be accessible and adapted to older people's use.
- The team should analyse the added value of including periodic meetings/training with older people to build their capacity in the use of technology.
- A close communication with the care team is important, access to information, monitoring, etc. are well received.

In relation to **informal caregivers**:

- Most of the informal caregivers lack support from the health and care public services. that makes them too tired and overburdened, lacking help and support to their care tasks.
- Being at home taking care of their older relatives, informal caregivers are more concerned with health care than with social isolation.
- Most of their needs are related to physical and financial help, so they struggled to understand how an app could respond to their practical daily challenges and demands, and reduce bureaucracy, unnecessary visits, etc.

For **social and health professionals**:

- The idea to be able to personalise the app interaction with the older user through the team care professionals, for instance, is quite enthusiastic.
- They feel quite concerned about the lack of time to pay more attention and to communicate more with each user, also a concern of using technology is highlighted by this group.
- Saving time functionalities (through quicker information exchange with families and other formal carers – ex.: in public services) is quite appreciated.
- The idea of receiving alerts when the user is by him/herself is also well received.
- Straightening family support and interaction is indicated as a significant need.
- Integrated care is lacking, so a tool that reinforces a holistic approach of the patient care is well received.

Recommendations coming from the pilots reporting:

- To include dedicated training activities to build the capacity of older people and health/social practitioners in the use of technology during the preparatory actions planned in pilot sites before the intervention implementation in WP4. This is, in fact, an activity already foreseen in the project, but a new approach coming from the co-design activities will be to implement them with an intergenerational perspective, that is, pilots can implement those training activities encouraging younger people to implement them. Of course, with no access to the clinical data unless the older participants provided their consent.

Based on the activities and inputs reported by pilot sites, the following **strengths and weaknesses** can be concluded from the first round on co-design activities:

Strengths detected in the first round of co-design activities	Weaknesses detected in the first round of co-design activities
• Pilot sites demonstrated a high level of adaptability to implement the co-design activities and involve the required participants (number and profile). Thus, although the pandemic situation, pilot sites had implemented the co-design activities gathering the needed inputs for the project, adapting, and changing the initial activities committed in the DoA. • Thanks to the flexibility of the team in each pilot site, not a single target group was excluded from the co-design activities (i.e., organising in-person interviews with older people in open spaces to reduce the fear to be infected). • Pilot sites also take the pandemic situation as an opportunity to reinforce the potential use of ValueCare digital solution to support and monitor older people health and wellbeing and provide them a personalised integrated care. • In the same way, the potential burden alleviation for caregivers and health and social practitioners was highlighted in the co-design activities thanks the use of the ValueCare digital solution (dashboard and app) in a period where the in-person visits are restricted. The proposed digital solution will allow caregivers and health and social practitioners to have a comprehensive monitoring of the older patients using online means. • Co-design activities allowed partners to observe a real motivation from all stakeholders claiming a change that is needed for a better inter-professional communication, better integration of care between health and social care, better access to information, and better recognition of quality care. • Moreover, the co-design activities implemented reinforce the conclusion that stakeholders need to work together and not in silos.	• Difficulty to explain the concept behind the ValueCare. -> for that, dedicated videos for each pilot site are developed; and the questions proposed in this deliverable 2.7 are aligned with the care pathway to facilitate the understanding on where the ValueCare approach can be supportive. • Most of the inputs gathered during the first round of co-design activities were biased by the current pandemic situation -> some guidance to avoid this bias is proposed in this deliverable 2.7 • Digital literacy of older people -> this is considered in the development of the ValueCare app. Moreover, dedicated training sessions are planned in each pilot site before the implementation phase of the project. • In the same line, co-design activities pointed out the need for equal access to digital solutions -> this is being addressed by providing digital training to older people but also health professionals and making sure digital tools used are widespread and not expensive ones. • Lack of time of health and social practitioners because the saturation of health and social care centres and institutions -> pilot sites adapted their time and activities to involve professionals in their co-design activities (i.e., virtual meetings at nights). • WIFI and costs of using the Internet and the digital solution proposed was pointed out as a concern during the co-design activities -> among the ValueCare budget the cost of connection is covered, and the access to remote areas with low access will be analysed in the WP about sustainability and exploitation. • Some concerns about the use of technology instead of in-person appointments with the care team were mentioned by older people and their caregivers -> ValueCare considers technology as a supportive tool (not replacing human interaction).

Table 16. Strengths and weakness from the first round of co-design activities

Regarding the second part of this report, pilot sites will implement the second round of co-design activities according to the following **guidance**:

Objectives of the second round of co-design activities: to confirm that the proposed solution responds to the requirements expressed in the first round of co-design activities, to share with participants the prototype of the ValueCare solution before the implementation and train them in its use, and to gather relevant information to improve the prototype and to avoid further errors in the implementation phase.

Timeline: June-July 21 to implement the activities and August 21 to report.

Participants to be involved (section 5,1): each pilot site should involve at least:

- 20 representatives of older people,
- 20 informal caregivers,
- 10 health/social practitioners,
- 3 managers,
- 3 stakeholders relevant for exploitation, and
- 2 policy makers.

For some groups, an ideal scenario has been suggested to gather feedback from a representative group of the target group addressed. Moreover, some additional optional target groups had been identified to be involved in this second round: family members and friends, other stakeholders, and other entities relevant at local level.

Activities to be implemented: along this second round, pilot sites should implement, as included in the DoA, national seminars, world cafes with end-users and focus groups with experts. Moreover, pilot sites can implement the activities they wish (focus groups, interviews, etc.) to achieve the planned participants (profiles and numbers). In this second round, mixing activities are also proposed to follow the DART model. Those activities are, at least:

- One activity with older people, informal caregivers, and health/social practitioners where to discuss the ValueCare concept and the app.
- One activity with health/social practitioners together with managers to discuss the ValueCare concept and dashboard.

Pilot sites can use the guidelines provided in the D.2.6, the new resources available in the project (see section 5.4.1) and new tips provided in this report (see section 5.4.2). The questions to be responded by pilot sites are detailed in the section 5.5. according to the target profile. Pilots will be requested to provide their inputs in an online questionnaire or by completing the **annex IV**.

In the DoA, pilot sites are requested to implement at least two rounds of co-design activities, so after the analysis of the inputs gathered in this second round, partners will discuss in a consortium meeting the need to perform a **third round of co-design** activities and the timeline for it.

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Annexes

Annex I. Template used for reporting the first round of co-design activities at pilot sites

GENERAL OVERVIEW:

Pilot site*	• Rijeka (Croatia) • Athens (Greece) • Cork/Kerry (Ireland) • Treviso (Italy) • Coimbra (Portugal) • València (Spain) • Rotterdam (NL)
Promoter*	
Target group addressed*	• Older people • Caregivers • Older people and their families • Health and social practitioners • Managers • Others
Nº of participants (target group)*	
Other stakeholders involved	
Nº of stakeholders participating	
Type of co-design activity implemented*	
Date*	
Duration*	
Aim of the activity*	
Achieved goals*	

ACTIVITY INVITATION*: *Please report on how you recruited the participants and, in case, copy the emails, pots, etc. used.*

ORGANISATION*: *Describe the problems faced in implementing the initiative, how were they overcome, and the problems that remain to be solved. Provide a summary of tools, methods, and/or benchmarks that were used for assessing performance*

AGENDA*: *Please copy here the agenda of the event.*

CONTRIBUTIONS FROM PARTICIPANTS*: *Please add here the feedback received from participants.*

Inputs for the ValueCare concept	
Inputs for the ValueCare app	

LESSONS LEARNT*: *Describe the three or four most important lessons learnt and how these lessons have been or are being incorporated in your pilot in this or next co-design activities. Describe how these lessons can be also considered in the guidelines for co-design activities.*

MISSING GUIDELINES*: *What did you miss from the guidelines document for co-design activities that you would like to have in the next version of this document?*

PRESS RELEASE – LINKS AND SOCIAL NETWORKS USED*:

REGISTRATION LIST

PICTURES: *Please attach to the report the registration lists and pictures.*

Annex II Inputs from pilot sites provided in the questionnaire

All the inputs received from partners can be consulted in the following link:

https://erasmusmc.sharepoint.com/:x:/r/sites/VALUECARE/_layouts/15/Doc.aspx?sourcedoc=%7BFBB6E401-4F43-4DD5-BF7B-379C5A3943D0%7D&file=Reporting%20co-design%20activities%20at%20pilot%20sites%20(respuestas)%20(4).xlsx&action=default&mobileredirect=true

Annex III Focus Groups Online – practical tips

BEFORE THE SESSION:

Decide the platform to conduct the online focus group. Check their accessibility, friendliness, and security. Here you have some suggestions:

- Zoom (it allows parallel sessions)
- Skype
- Teams (with whiteboard)
- Gotomeeting
- Mobile apps: WhatsApp video and Facetime
- BigBlueButton

Ask for paper signature via post (you send the informed consent by email or post, then they have time to read and ask questions (for answering questions you can have a call with them), then the participants sign and send back by post or scanned by email). **Not possible to tick a box.**

Schedule:

- Online groups for discussion tend to be reduced, around 4-5 participants instead of 8-10 participants requested in in-person focus groups, to allow better interaction.
- Plan the session for no more than 90 minutes.
- Designate roles inside your organisation team:
- One person should lead the discussion
- One person should take notes
- One person should be aware about potential technical problems and assist participants if needed (e.g. answer phone calls in case the person has issues connecting online or cannot find specific features).

Are you going to use tools to dynamise the session?
If yes:

- test them in advance,
- define a clear purpose for each tool,
- be sure it will not be an extra burden for the target audience (also consider their capacities, i.e. older people with cognitive impairment).

Know the participants: do they have digital skills? If not:

- Send them an instruction letter with the practical guidelines to connect to the platform you are going to use. You can support the text with screenshots (un/mute, camera, connect to the platform, take part in polls...). Make sure the instructions are with the appropriate font, contrast, etc.

Test the system with participants in advance to implement the session (session 0 to support them step by step): Check if...

- they can find the link and are able to open it in their browser
- Internet connection
- they have installed the necessary applications
- they know how to use their audio, micro...

Have a plan B if the technology fails (e.g. telephone of the participants to call them).

Ask for paper signature

Make a reminder the day before the session with the following information:

- ❑ Send again the link to the online session or remind the platform to be used.
- ❑ Send the agenda with the questions; so, participants will know what is expected from them.
- ❑ Remind to send the informed consent of they have not send it yet.

DURING THE SESSION:

1. Ask participants **to sign into the platform 10-15 minutes before** the session.
2. **Call participants and check they are connected** (use a list of attendees). For missing participants, check if they are facing technical problems (the person in charge of technical problems from the organising entity should call them to be sure they are not facing technical problems to access the platform).
3. Remind participants about **ValueCare** in simple words and remind them about the purpose of this discussion.
4. Give **clear instructions** to participants:
   - ❑ Mute the micros when not speaking
   - ❑ Turn off the camera if the Internet connection fails (until here it is recommended to have the camera on, so participants can see the rest of participants and do not feel they are alone; but from now if Internet is not running correctly, participants and organisers can turn off the camera)
   - ❑ Methodology and tools to be used along the activity, considering also the functionalities of the platform used (what do the buttons mean with screen shots or videos)
   - ❑ Rise hand tool (if you want to use it)
   - ❑ Duration and follow up (if any)
   - ❑ Make them aware they are going to be recorded only for research purposes (if you are going to record the session)
5. Consider **enough time** for the participants **introduction**
6. Be sure all the participants are **following** the discussion and **interact**. If any technical problem arises, the person responsible for the technical problems from the organising entity should contact the participant and try to solve it in order to not break the discussion.
7. Do not forget to **thank** the participants for their time and fruitfully information shared during the session.

These practical tools can be adapted to other online activities such as interviews.

SOME KEY CONSIDERATIONS

Verbal consent:
Verbal consent is not enough. The participant must act actively in providing informed consent. Consequently, signed consent on paper is preferred, but there is also the possibility to have an online informed consent form. Via a link the participant can open the online consent form and indicate if they agree, and thus give consent. Just like online questionnaires.

Representativeness and co-design
Be sure you are involving in the session representative profiles of your target population (based on the knowledge of target population that each Pilot Partner has got it should include a sample of user that fit the diverse digital literacy levels foreseen).

Technological responsiveness
Be sure that people without digital skills (ICT equipment, with less social interactions, etc.) are also involved in your sessions through e.g. their caregivers' support, using their phones, etc.

Pdf in this link:

https://erasmusmc.sharepoint.com/sites/VALUECARE/Shared%20Documents/Forms/AllItems.aspx?id=%2Fsites%2FVALUECARE%2FShared%20Documents%2FWork%20Packages%2FWP2%2DISRAA%2FTask%2024%2FLeaflet%5F%2Epdf&parent=%2Fsites%2FVALUECARE%2FShared%20Documents%2FWork%20Packages%2FWP2%2DISRAA%2FTask%2024

Annex IV New reporting template to be used for reporting the second round of co-design activities at pilot sites

Pilot sites should report the following information completing the template provided; one for each target group. That is, all the activities implemented with older people can be summarised in the same template, indicating the total number of older people involved, the number of activities implemented to achieve this number, the type of activities and highlighting the main findings in relation to the ValueCare concept and digital solution.

Pilot site*	• Rijeka (Croatia) • Athens (Greece) • Cork/Kerry (Ireland) • Treviso (Italy) • Coimbra (Portugal) • València (Spain) • Rotterdam (NL)
Target group addressed*	• Older people • Caregivers • Families and friends • Older people and their families • Health and social practitioners (care team) • Managers • Stakeholders relevant for exploitation • Other stakeholders • Policy makers • Others
Nº of participants (target group)*	
Number of activities implemented, type of activities and participants in each of them	*Example: 3 face-to-face interviews and 3 focus groups of 5 members each.*
How do you recruit the participants?	*Example: via the health professionals, mailing, etc.*
Date*	

Duration (average for each type of activities implemented)*	*Example: interviews had an average of 45 minutes and focus groups an average of 90 minutes.*
Inputs for the ValueCare concept*	*Please summarise the main inputs of this target group to the ValueCare concept. You can do it in bullet points.*
Inputs for the ValueCare app*	*Please summarise the main inputs of this target group to the ValueCare digital solution. You can do it in bullet points.*
Lessons learnt	
Pictures you want to share	*Please check you have the permission to share them*