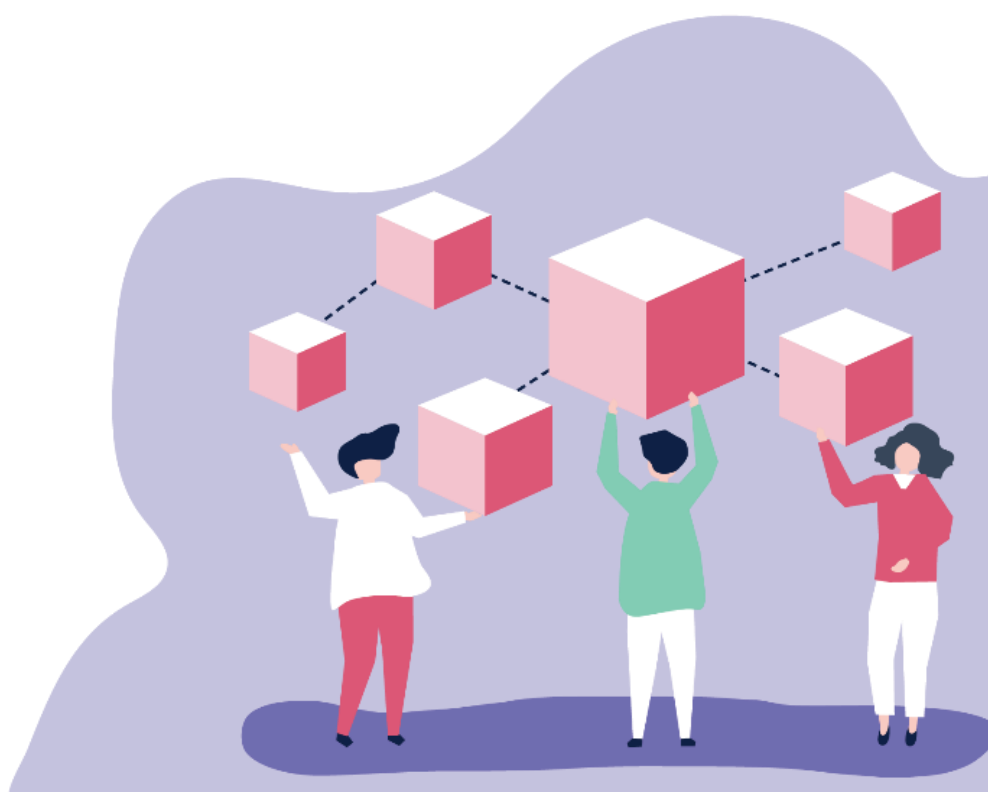




D2.9 Open Innovation and Co-creation Workshops

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Abstract

This deliverable reports on a first cycle of remote co-creation workshops organised by pilot regions of the GATEKEEPER-project in October-November 2020. During the project period two cycles of workshops will be organised to explore and reflect on dynamic positions of relevant stakeholders at the pilot sites towards values in the implementation and further deployment of GATEKEEPER solutions. Workshops aim to anticipate dynamics of values in the development, implementation and deployment phases, and thereby to facilitate a more responsible innovation practice.

Initially the workshops were designed as an in-person event, described in [deliverable 2.4](#). Due to the Covid-19 pandemic restrictions the workshop design has been adjusted to an online design. In October and November 2020 eight European pilot regions in the GATEKEEPER project organised a remote (Aragon, Basque Country, Cyprus, Greece, Milton Keynes, Poland, Saxony) or hybrid (Puglia) co-creation workshop. This deliverable reports on the organisation and key findings of the co-creation workshops. Reflecting on values proved to be meaningful for pilot sites. This helped them to develop implementation pathways for the innovations they want to implement at their pilot site. After all workshops took place, two sessions with all workshop organisers were organised by Utrecht University (UU). On November 12, 2020 workshops organisers shared the findings (as reported in their summary reports), on December 4, 2020 they reflected on these findings and implications for the GATEKEEPER project. Besides a raised awareness of the importance of looking at values, the co-creation workshops helped illuminate different challenges and opportunities for GATEKEEPER solutions. An overview of result highlights and reflections on these highlights by UU and workshop organisers is included in this report.

Note that the workshop design underlying the eight workshops draws on a Valuation Framework (D2.2) and feed backs into this same framework. The rationale behind the framework is described elaborately in D2.2. In short it provides guidance in reflecting on current and potential values as well as their implications in innovation practices in the field of ageing and technology.

Statement of originality

This deliverable contains original unpublished work except where clearly indicated otherwise. Acknowledgement of previously published material and of the work of others has been made through appropriate citation, quotation or both.

The summary reports included in Appendix C are edited by workshop organisers of the different pilot sites. UU edited the main text of this deliverable report.

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1 Introduction

This report presents the outcomes of the first cycle of co-creation workshops. The workshops were initially designed as in-person workshops but due to the Covid-19 pandemic the actual workshops had to be postponed for 4-6 months and were redesigned to enable having an online workshop. Despite the postponement and moving these workshops to an online environment, we can state this workshop cycle has been quite successful in engaging stakeholders in the co-creation of implementation pathways for the GATEKEEPER project, by reflecting on scenarios of better futures for ageing in place. Together with workshop organisers we successfully succeeded in innovating co-creation workshops to an online design.

As part of the Social Sciences and Humanities approach from which UU contributes to the GATEKEEPER project, two cycles of co-creation workshops are organised during the GATEKEEPER project, one in the starting phase, and one in the third year of the project. More about the background and rationale for these workshops can be found in the deliverable describing a script and template for co-creation workshops ([D2.4](#)) and in the Report presenting a Valuation Framework (D2.2, to be published simultaneously with this deliverable). In short, the workshops follow a bottom-up, open approach to map and explore values that are considered relevant by relevant stakeholders of pilot sites. Subsequently they distinguished key challenges and opportunities, that play an important role in the implementation pathway of each pilot site.

In October-November 2020 eight remote workshops took place, organised for different pilot regions in Europe. Between six and 36 relevant stakeholders participated per workshop. A total number of 137 stakeholders was involved. Interactive dialogues about perspectives towards values are evoked in online workshops with relevant stakeholders for different pilot regions in Europe. They reflected on values that are considered important when it comes to ageing and place and in relation to digital technologies and innovations for smart(er) living environments (i.e. technologies that support ageing people in their health and overall well-being in their everyday life). Professional as well as citizen perspectives, current and future ideals, existing and new technologies, all were discussed during these workshops. At the end of each workshop stakeholders defined key challenges and opportunities for the implementation of GATEKEEPER solutions in their pilot region.

Outline report

Before we present an overview of result highlights of the co-creation workshops, Chapter 2 summarises the aim of the GATEKEEPER project and the design of the Co-Creation Workshops. Although the design of the workshop was already described in deliverable 2.4, it had to be updated to a remote design. In Appendix A and B supporting documents are included about the workshops. In section 2.2 we present an overview of the result highlights, including key insights, of the eight co-creation workshops. Extended Workshop Summary Reports created by the workshop organisers can be found in Appendix C. Chapter 3 presents a first reflection on these highlights as discussed during a reflection session with workshop organisers. A preliminary analysis by UU of the presented result highlights is added and a summary of the reflection session with workshop organisers that was organised after the workshops were finished. The feedback received from workshop organisers shortly after the workshops took place is integrated in this chapter and will be considered carefully in the design for a second cycle of workshops to be organised in the third year of the project. In Chapter 4 we present some end remarks.

2 First Cycle of GATEKEEPER Co-creation Workshops

2.1 The GATEKEEPER Project and Workshop Design

The GATEKEEPER project is a largescale innovation project. For more information and updates we refer to the project's website: <https://www.gatekeeper-project.eu/>.

- "GATEKEEPER is a European **Multi Centric Large-Scale Pilot on Smart Living Environments**. The main objective is enabling the creation of a platform that connects healthcare providers, businesses, entrepreneurs, and elderly citizens and the communities they live in, in order to originate an **open, trust-based arena for matching ideas, technologies, user needs and processes**, aimed at **ensuring healthier independent lives for the ageing populations**.
- The **scope** of GATEKEEPER is the application of advanced Information and Communications Technologies (ICTs) to tackle the challenge of improving the quality of life of citizens while demonstrating its significant efficiency gains in health and care delivery across Europe
- The main objective of the Project is to create a GATEKEEPER, that connects healthcare providers, businesses, entrepreneurs, elderly citizens and the communities they live in, in order to originate an open, trust-based arena for matching ideas, technologies, user needs and processes, aimed at ensuring healthier independent lives for the ageing populations."

In the GATEKEEPER project 43 partners are involved, who contribute to the development of a digital GATEKEEPER platform [as part of the trust-based arena mentioned above]. In initially eight pilot regions spread over seven countries GATEKEEPER solutions are developed and deployed around reference use cases that cover three levels of prevention.

As part of the value co-creation approach, UU partners with all pilot sites to co-organize a series of eight co-creation workshops. The methodological approach to the series of co-creation workshop developed at UU is informed by what is known in the social sciences as a qualitative-inductive logic. Specifically, in this case this means that we followed a semi-structured approach to guiding the GATEKEEPER pilot partners through the organization of the pilot workshops. Unlike in for instance a quasi-experimental design or even a randomized controlled trial, where rigid control of the experimental settings allows to singly out pre-hypothesized cause-effect relations, our design needed to allow the participants in the workshops to articulate what was important to them. That is, we were not interested in confirming or rejecting specific hypothesis or assumptions about values, but rather understanding specific value positions and constellations as they were embedded in local practices and relations. A more specific exposition of the conceptual underpinnings of this approach can be found in Arentshorst & Peine (2018).

For the design of the GATEKEEPER co-creation workshop, this meant the following:

- For the first cycle of UU co-creation workshops, UU had a main contact and anchor at each of the pilot sites who was responsible for planning and execution of the co-creation workshop in close collaboration with UU.
- UU provided a generic template and a set of instructions for the organisation of the workshop, that was informed by the GATEKEEPER Valuation Framework (see D2.2).

In that way, it could be ensured that all co-creation workshops map and explore *values* that are considered relevant by relevant stakeholders of pilot sites, while remaining open to the specific foci and stakeholder constellation at each pilot site.

- The workshops were held in the respective native language of the pilot sites to give all participants the possibility to express themselves in a language they felt most comfortable with. The pilot site anchors then drafted a *summary report* for the workshop, according to a template provided by UU. As part of the inductive design, UU did not provide a strict template for this, but pilot partners could reflect in their reporting the specific set-up of “their” workshop.

The original script and template underlying the co-creation workshops is described in Deliverable 2.4, which was published at the end of 2019.¹

On February 27th, 2020 a simulation session was organised to instruct workshop organisers from the GATEKEEPER pilot sites. The session was organised during the First Technical Workshop of the GATEKEEPER project in Milton Keynes. A report of this session was shared with the GATEKEEPER consortium and can be found in Appendix A of this deliverable report.

Appendix B includes the updated design and instructions as shared with workshop organisers. In addition to this information we also shared a technical instructions file, with a practical overview of how to use the technical support tools (Zoom and Mural) and an example of the preparational assignment (homework) as requested by workshops organisers.

2.2 Key results and highlights per co-creation workshop

This section presents the main insights per workshop. Table 1 presents an overview of dates, local organisers and participants per workshop, before we present the main challenges and lessons learnt per workshop. Note that these overviews aim to give a good idea of result highlights, but that categories slightly differ per overview because each workshop was tailored to the specific needs of the pilot site that it was organised for, as explained in the previous section.

The full summary reports are included in Appendix C, in the order in which they took place. A great variety of stakeholders participated, including among others, researchers, engineers, professionals in the health and ageing domain, representatives of patient associations. An overview per workshop is included in the workshop summary reports that can be found in Appendix C.

¹ https://www.gatekeeper-project.eu/sites/default/files/GATEKEEPER_D2.4_M3_Open_Innovation_and_co-creation_Workshops_v1.0.pdf

Table 1 Remote co-creation workshop overview:

Date	Pilot Site	Workshop organisers (contact person)	Number of participants
October 7 th 2020	Aragon, Spain	Modesto Sierra, Rosana Angles	11
October 8 th 2020	Basque Country, Spain	Janire Orcajo, Olatz Albaina	28
October 8 th 2020	Cyprus	Maria Krini	6
October 8 th 2020	Puglia, Italy	Franco Mercalli, Marco di Ciano	36
October 15 th 2020	Greece	Eva Karaglani, Otilia Kocsis	11
October 22 nd 2020	Lodz, Poland	Przemyslaw Kardas, Pawel Lewek	20
November 3 rd 2020	Saxony, Germany	Lisa Stieler, Julia Schellong, Olaf Müller	8
November 10 th 2020	Milton Keynes, United Kingdom	Alessio Antonini, Jane Whild	17

Result Highlights Aragon Workshop

Main Findings		
<u>Challenges and Opportunities:</u> <ul style="list-style-type: none"> - Care should be citizen-centred (taking into account his/her opinion and adapted to his/her capabilities) - Privacy: awareness on information sharing + mechanisms to control information - Information management needs new software models and new IT infrastructures. Use of standards 	<u>Key messages:</u> <p>Innovation must:</p> <ul style="list-style-type: none"> • be conceived as a continuous process • have a person-centred approach but also a community perspective • be underpinned by health and social care coordination • be built on public-private collaboration <p>Goals of innovation related to elders should be:</p> <ul style="list-style-type: none"> • to maintain the independence of the elders at home as much as possible, • to minimize elders loneliness facilitating their communication • to involve elders and to make them participate in society • to make elders active taking advantage of their specific capabilities • to support elders during the ageing process 	<u>Most surprising insights:</u> <ul style="list-style-type: none"> - Concept of "auto-determination" The person him/herself must be the one expressing his/her needs - Smart management of limitations and empowerment on individual capabilities. - COVID19 has also raised the importance of the individual as a social being - Lack of concern on information sharing - Importance of data quality, mechanisms for data collection, management and storage and appropriate Information Systems
How the input helped the pilot: <ul style="list-style-type: none"> - Continuous participation - Provision of care should be personalized, adapted to users and continuously updated - Collection and generation of information must be done in a way that allows potential exploitation of data analysis - Promotion of standards use is a must 		

Result Highlights Basque Country Workshop

Main Findings		
<u>Strengths:</u> Elder population: <ul style="list-style-type: none"> - Rich personal experience - High professional experience - Brave people Diversity of knowledge due to different ages <ul style="list-style-type: none"> - Healthcare system - Multidisciplinary team of professionals Technology: <ul style="list-style-type: none"> - Advances in technology - Covid-19 has promoted the use of technologies 	<u>Opportunities:</u> <ul style="list-style-type: none"> - Traditional communication media - Promotion of physical activity: - Gamification (body and mind training) - Job/Tasks to maintain in active state - Personalised promotion: by the neighbourhood, administration, Osasun-eskola - Local health networks - Design of adapted spaces - Telemedicine, Assisted medical prescription, Alarms 	<u>Most surprising insight:</u> The need to make patients and caregivers aware of aging, about its consequences and even the death, including the actions that are involved at psychological support level and guidance.
How the input helped the pilot: The contributions collected will be taken into account in the design and implementation of the different pilots, such as: <ul style="list-style-type: none"> - Characteristics of the devices: easy-going, intuitive, non-invasive - Technological support - Questionnaires (satisfaction, quality of live, Ä¶) for their integration in the design of the interventions - Training of the health professionals 	Actions to be taken: <ul style="list-style-type: none"> - To coordinate the different environments where older people are integrated at social, municipal, sanitary and business level. - To evaluate the inequalities: socioeconomics, of gender, etc. - To give psychological and technological support to overcome the self-esteem. - To train and educate in technologies and health, not only to patients but also to their corresponding caregivers, family and professionals. - To use adapted, attractive and non-invasive technologies (APPs, smart-TV, Virtual Reality ...). - To promote physical activity and cognition exercises through i.e. the dance or virtual games, with other elder people as for example by group APPs. - To facilitate communication and the accessibility to maintain this population integrated within the society. 	

Result Highlights Cyprus Workshop

Main Findings		
<u>Challenges:</u> <ul style="list-style-type: none"> - The emergence of digitalization in the health sector - Reduce costs of health sector - Cost effective health care - Increase the empowerment of people in prevention of chronic diseases - Technology acceptance is an important matter in regard to older people's adoption of mHealth <u>Opportunities:</u> <ul style="list-style-type: none"> - The new digitalisation era (not only for the 65+ but also for the forthcoming generation) - Patient education - Achieve value-adding objectives with a digitalized tool - Quick access to health information 	<u>Key Insights:</u> <p>Ageing:</p> <ul style="list-style-type: none"> - Early detection/ early diagnosis and pro action - Access to medical/ psychological care - Pain management - Quality of life –spiritual, physical and psychological - Older adults and social intervention <p>Home environment:</p> <ul style="list-style-type: none"> - Importance of the home environment for healthy ageing - Create home environments that support healthy ageing - Active life and better health - Safe living environment 	<u>Most surprising insight:</u> <ul style="list-style-type: none"> - Even though the attendees have been digitally informed, they have not adopted the use of digital devices in their daily professional life. - The active collaboration between the different stakeholders and the lack of a common platform where different stakeholders may come together and discuss various opportunities - The use of smart watch and smartphone as the main digital channel for Smart Medical devices
Main findings for pilot implementation: <p>Smart phones and smartwatches already widely used</p> <p>Relevant aspects for digital healthcare (home care providers and patients)</p> <ul style="list-style-type: none"> • HCPs and patients access to real –time health care and information • Reliability, data overload, privacy and security • Remote monitoring of changes in the health status of the patients • Patients' education • Loneliness and social isolation of ageing population • Support and empathy are important 		

Result Highlights Greece Workshop

Main Findings		
<p><u>Future scenario for better ageing in place:</u></p> <p>Policy makers, community care centres, municipalities:</p> <ul style="list-style-type: none"> - novel devices and systems should be backed by social & healthcare services and personnel to promptly intervene (e.g. fall alarm); infrastructure, resources, willingness and knowledge are needed in particular in Greece at primary care level; - municipalities don't have the legal framework to intervene; - few municipalities in Greece have innovation offices or dedicated personnel for smart city development; - remote services of medical experts and health carers must be recognized and paid, similar to in-person services; - public healthcare personnel have difficulties in handling the number of patients assigned to them; - healthcare should be patient centric and synergistic, considering all necessary specialties and care providers (e.g. nurse, psychologist, nutritionist, physiotherapist, etc.); - overuse of healthcare should be also controlled, to ensure cost-effectiveness; - private & public healthcare system should be synergistic; need of unique/unified access point to healthcare services for the patient 	<p><u>Key Insights:</u></p> <p>What matters for the older persons:</p> <ul style="list-style-type: none"> - good health (physical & mental), independence, remaining professionally active, feeling capable (e.g. to learn new things, digital skills), feeling useful (e.g. for family, friends or society, volunteering), feeling safe (inside and outside), empathy (feeling that the others understand their problems), health and digital literacy (e.g. health information centres – KEP); feeling confident in using technologies correctly, privacy and personal data protection <p>What matters most for formal and informal care givers:</p> <ul style="list-style-type: none"> - continuous monitoring of older person's condition, regular and remote contact, simplified healthcare tasks (e.g. digital prescription), good health should be a lifelong goal (e.g. starting from childhood), prevention and healthy lifestyle before reaching the "older adult" age, formal/informal carers also need training and support, especially nowadays considering the unusual conditions that COVID19 has emerged and the required digital literacy, care burden reduction 	<p><u>Most surprising insight:</u></p> <ul style="list-style-type: none"> - Better ageing in place should not be considered as ageing inside the home, isolated, alone, inactive, unsecure... but as feeling good and safe in the home, neighbourhood, community, city, remain active professionally and socially - Stronger political will is needed in Greece to make use of the possibilities of new technologies and embed them in the healthcare system - Incentives should be provided to health care workers to adopt new technologies and not feel "threatened" by them
<p>How the input helped the pilot:</p> <ul style="list-style-type: none"> - (i) Help with the design and development of the mHealth app for self-management; (ii) engage stakeholders from the beginning of the project; (iii) Exploitation of project's results, policy and recommendations 		

Result Highlights Poland Workshop

Main Findings		
<u>Challenges:</u> <ul style="list-style-type: none"> - Social isolation - Poor intergenerational contacts - Lack of supportive and motivational environment - Multimorbidity and polypharmacy are real threats to elderly <u>Opportunities:</u> <ul style="list-style-type: none"> - New technologies are filling the gaps in social and technical areas - Digital technologies are not a barrier for new generations of elderly (as "we are future elderly") - Current development of eHealth solutions in Poland is expected to help active and healthy ageing through various channels - Multimorbidity and polypharmacy management may benefit from e-solutions - Utilization of remote communication may decrease social isolation of seniors 	<u>Key Insights:</u> <ul style="list-style-type: none"> - Being useful and/or professionally active is helpful for happy ageing - Currently ageing automatically is expected to lead to (multi)morbidity - One's health is assessed with the number of drugs taken - Mass media should be involved in education for better ageing - Healthy ageing is important skill that should be actively promoted and taught at schools - New digital technologies, such as ICT and wearables, are expected to increase quality of life and help active and healthy ageing - There is a need for further development of e-Health solutions in Poland - Medication management is an important question to ageing population - The future of senility should be prepared "for us", as "we" are the ones who will be elderly in future - Seniors should not be excluded from familial and social life 	<u>Needs and values:</u> <ul style="list-style-type: none"> - Basic need of ageing people is good health, yet this is not a stand-alone value, just the contrary, it is interlinked with other values - Other important values of ageing population are independence, activity, usefulness, and social contacts/immersion - Social and familial affiliation is of high value for seniors, especially lonely ones
Main findings for pilot implementation: <ul style="list-style-type: none"> - The time is high to include dedicated e-solutions helping active and healthy ageing in national and regional agendas in Poland - For various social, health, and economic reasons, multimorbidity and polypharmacy management should be adopted toward these agendas - E-solutions helping multimorbidity and polypharmacy management are well welcomed - Well established coordination team in primary care for seniors health management is of great value 		

Result Highlights Puglia Workshop

Main Findings	
<p><u>Key Insights:</u></p> <ul style="list-style-type: none"> - Values to be preserved are independence, family, human relationships – time must be available for these - Technology should help loved ones to know how elderlies are doing, and intervene (just) when needed; it must be invisible; invisibility of technology must be balanced with the need to avoid a dystopian “Matrix”-like future - The dichotomy among seeking medical outcomes vs achieving quality of life for the elderly citizens is an important aspect to be addressed and solved - Elderly citizens must be active, aware, and empowered actors in the transformation process, not mere passive onlookers; this implies, among other, the need for continuous communication, information, and education about the role of technologies for AHA - A coordinator role is yet to be identified for the uptake of technology for AHA in the healthcare system - There is also a need to understand how the different institutional levels in the (new) organization which is necessary to favour the uptake of AHA technologies must be best engaged, allied, and coordinated - New professional roles may need to be identified. E.g. people trained as “technology caregiver”: caregivers as ambassadors that foster the uptake of technology for AHA - An organizational matrix of “technology responsibilities” should be formulated (similarly to what is currently done when designing of conventional care pathways, in the regional healthcare system) - An organizational structure capable to foster AHA technology adoption should be based on the collaboration among a specialistic central hub and local “proximity of care” periphery; the current regional healthcare system is already well organized in a way that is conducive to this model, this is not a blocking factor; what is needed is continuous education for the involved professionals on AHA technology and its application, both at the central hub and at the periphery levels - New independent, multidimensional, and multidisciplinary measures of outcomes for “technology pathways” should be put in place 	<p><u>Most surprising insight about workshop design:</u></p> <ul style="list-style-type: none"> - Preliminary homework fulfilled by the participants - Full involvement of moderators who were volunteers outside the project team - Multiple stakeholders background (policymakers, physicians, users community managers, technicians, etc.) helped during the parallel sessions discussion - Personal life and self-inspiring point of view was extensively reported by the participants - Set-up scenario by the GATEKEEPER project partner keynote speech in line with the health Mediterranean forum goals hosting the workshop
<p>Main findings for pilot implementation:</p> <ul style="list-style-type: none"> - Opportunity to adapt the design of a strategy for future AHA; clear responsibility matrix who does what, Favouring the community feeling for elderly patients during pilot preparation/execution - Transfer some key message “invisible technology”, “self-configuring tech”, “trusted notification messages, privacy”, “bidirectional communication patient-doctor”, “caregiver as technology ambassador”, “training for professionals”, “conventional and unconventional data management”, “governance of clinical therapeutic pathways vs technological ones” 	

Result Highlights Saxony Workshop

Main Findings	
<p><u>Key Insights:</u></p> <ul style="list-style-type: none"> - Integration is important (cross-generational) - Balance of physiological and digital solutions - Keeping social connections, friendships and family bonds are important - Easy and simple access to digital world - Balance between digital & real world - Time for implementation has to be considered, training and usability are very important to increase the benefit of a new technology for users and carers - User empowerment can help to increase usability and acceptability of a digital solution - Various living forms and socialization opportunities can be implemented. Important is not to miss the connection between old and young generations - Consider the wants of elderly and respect their social preferences. Give them the freedom to choose the place where and with whom to live in 	<p><u>Most surprising insight:</u></p> <ul style="list-style-type: none"> - Isolation of old people - upcoming increasing digitalization, Covid-19 enforced this topic, present in all scenarios - Danger of discrimination between different generations - Contact among different generations living together in one community house - Self-determination and autonomy as active participation in life and society - Some participants repressed thinking of ageing in the past abstract topic important
<p>Main findings for pilot implementation:</p> <ul style="list-style-type: none"> - Committee of experts for further collaboration expertise, recruitment - Needs and requirements belong together and cannot be considered separately - The implementation of technical innovations should be based on social, political and financial framework of the society - The focus of key challenges should be on responsibility, reusability and scalability - Encouragement of elderly to participate in technical and social innovations, but at the same giving priority to their data protection and security is crucial - Avoiding digital overload should always be favoured, as it may lead to a feeling of isolation from the real world - Being embedded in the community and social life and maintaining close contact with young generations can also be preventive regarding mental illnesses - Generations can also be preventive regarding mental illnesses 	

Result Highlights Milton Keynes Workshop

Main Findings	
<p><u>Key Challenges and Opportunities:</u></p> <p>Participants highlighted how crucial is having in place an infrastructure and support for everyone, considering their different situation. An accent was placed on the issue of having different systems at different scales in the UK and the resulting "leopard spots" heterogenous disconnected criteria for eligibility for support. It is participants' opinion that central agencies, and a centralised policy would be an impending factor to the adoption of new technologies. Thus, they stressed the importance of building new solutions on the existing network of local organisations operating at street level.</p>	<p><u>Key Insights:</u></p> <p>The topic of technology accessibility was addressed in its several facets, such the need for financial support, learning opportunities, the transitioning to digital services and the access to an internet connection.</p> <p>Following participants identified the need to focus on personalised education and intervention with a clear take on practical positive effects on people's life. Furthermore, technology interventions should be fun and built on their active life.</p> <p>During the wrap-up session participants manifested their appreciation for this initiative and being given the opportunity to share their views and give input to the project. Overall, participants remarked the importance of building innovation on an active collaboration between the different stakeholders.</p>
<p>Main findings for pilot implementation (lessons learnt):</p> <p><i>The first home take is that all local stakeholders are facing a common set of barriers, such as access to internet for deprived population and digital literacy. Solving these barriers are beyond the scope of the GATEKEEPER pilot but, on the other hand, their existence is a threat to the UK Pilot and the project vision of technologies for all. In this regard, the best course of action is building and strengthen the ecosystem of the UK pilot on a) the awareness of these common issues and b) on the convergence of the different initiatives toward the same goal of finding a viable solution. While addressing these barriers is a long-term commitment, in the context of GATEKEEPER, we identified a key functional requirement for technologies that are resilient to the lack of internet connection and that can operate offline for days.</i></p> <p><i>The extensive discussion on collaborative learning is consistent with the strategy outlined in the UK Pilot protocol concerning the mutual support and training between batches. On the other hand, the discussion highlighted how crucial is socializing the introduction and use of new technologies, beyond the practicalities of the UK pilot. In this regard, we should consider this as a key non-functional requirement about a collective use of solutions and a clear pointer in the direction of revising and strengthen the socialization factor in the pilot.</i></p> <p><i>In this regard, pilot participants and communities in general should be included in the implementation of the interventions. This approach could be effective in creating a community of practice around the new technologies and, more in general, around community-care. In this view, the creation of common understanding of issues in the local elder population and shared caring responsibility should be the framework for the introduction of enabling technologies with a highly practical value for both carers and elders.</i></p>	

3 Reflection on co-creation workshops

This chapter provides an reflection on the result highlights from the workshops presented in the previous chapter and some first, preliminary findings based on analysis of all the workshop summary reports included in Appendix C. A summary of the discussions and outcomes from two reflection sessions is included in the third section of this chapter. These sessions were organised in 2020, on November 12th and December 4th, targeted at the different workshop organisers, to facilitate mutual learning via the sharing of insights between workshop organisers. Another aim of these sessions was to collectively reflect on the workshops' key insights, their underlying rationale and how these could potentially contribute to the success of the GATEKEEPER project. The different workshops organisers therefore shared their insights and reflected upon these. These insights provide crucial input for the second cycle of co-creation workshops, to be organised in the third year of the project, and for a further definition of next steps within the GATEKEEPER project. Feedback is described in section four of this chapter.

3.1 Key insights – a preliminary analysis of workshops' result highlights

A first analysis of workshop reports and of the presentations of key insights by workshop organisers provides some preliminary insights, summarised in this section:

- Care as citizen centred, citizen in control, "auto-determination"

In several of the workshops stakeholders discussed that care needs to be citizen centred. The citizen needs to be in control and should not only have autonomy, which includes the opportunity to self-manage their health. Home and social environments are considered as the main facilitating places. 'Individuality' was also mentioned as being important when talking about ageing. For instance in relation to data collection, data use and opportunities to improve personalised medicine.

- Tensions and balance between patient/citizen and (in)formal carer, health and the social environment

Discussions in workshop illuminated underlying tensions in a search for balance between a focus on an older person as a patient, or a citizen, but also when it comes to the role of the formal carers, informal carers and the wider social environment in the everyday life of older citizens.

In their discussions stakeholders in some of the workshops showed that they search for a balance between more medical-oriented care ideas and ideals when talking about ageing. For example, when talking about health deficiencies that people often face when getting older, versus a discussion that what older citizens want or should want is to remain meaningful and socially active in their community or the wider society. This discussion raised the question how to facilitate in-person human interactions, when considering that technology increasingly enters the home and thereby makes these interactions less urgent when solely focussing on medical needs.

- Smartphones and Smart watches as key technologies in healthcare

Many of the technologies that were identified in the workshop as key technologies for the GATEKEEPER project are already available in the everyday life of many (older) citizens. A smartphone and even a smartwatch are already used by many people according to the stakeholders who participated in the workshop. Especially future users, the next

generation of older citizen, is already familiar to and often already uses these technologies. The expectation is that future users will probably have much better digital skills and when they must use such a technology this will not be a real barrier for most. However, financial circumstances of older citizens do have a huge impact on the actual opportunities to use these technologies.

- Community and in-control vs self-configurability

In the workshops stakeholders reflected on values related to ageing and place from three different perspectives: 1. their own current professional perspective on what is important when it comes to ageing at home, 2. the perspective of an older relative or neighbour and 3. their own future perspective.

We found that there is a difference in how stakeholders talk about ageing at home, in place, and the ideals they attach to active and healthy ageing. What active and healthy ageing means is interpreted in diverse ways. Where some see a huge responsibility for people to take care of themselves and actively engage in their own health prevention activities, others mentioned to rely on doctors and other professionals. It was also mentioned that some people prioritise other things in their daily life over self-monitoring and having a role in the own health management.

Some values, like privacy, mean a lot to some, but way less according to other stakeholders. It was mentioned that they themselves, but also many other people, already share their information, for example via commercial monitoring apps. Some stakeholders mentioned that older citizens are often sceptical about innovations in their neighbourhood and suspicious when it comes to sharing their personal information.

3.2 Workshop achievements

Based on a first reflection on the key insights presented above and on the experiences during the workshops we come to a preliminary conclusion of what was achieved in the workshops.

- Raised awareness of importance to include multiple perspective on values

In the workshops an awareness was raised of the importance to include multiple perspectives when discussing the implementation of health and ageing innovations and the values that are important in relation to these innovations and the everyday life in which they have to be implemented. These multiple perspectives help to create responsible implementation pathways. That stakeholders and workshop organisers are aware now of a need to include multiple perspectives is a first step towards a reflective approach on underlying values, in addition to an approach that focuses on needs and requirements.

- Values are situated, dynamic (not stable) and multiple

Although many of the workshops discussed similar point, it is important to remain aware of that their specific contexts vary. Each pilot is embedded in a different region with differences in culture and health organisation. This 'situatedness' needs to take into consideration. However, overall, we noticed it was found important to pay attention to the social and societal context and to have an eye for the dynamic ideas and ideals about active and healthy ageing.

The reflection on underlying and dynamic values is a starting point as it also helps to become aware of these situated and dynamic, multiple values in the everyday lives of older citizens.

- The workshops helped to illuminate what makes places meaningful

In the workshops stakeholders reflected on values related to ageing 'at home'. The underlying approach to consider what is important in the everyday life can be considered as an additional, overarching approach, to the already existing approaches within the GATEKEEPER project, that focus on treatment value and business value. A reflection on the values that are important in the everyday lives of (older) citizens is important to enable implementing innovations that are considered meaningful in practice. This approach is elaborately described in D2.2, in which we present the Valuation Framework. The Valuation Framework helps to explore everyday life values.

3.3 Summary Reflection Sessions

In November and December 2020 two reflection sessions with workshop organisers were organised. During the first two-hour session workshop, organisers presented their workshops insights to each other. The recording of the session is made available for all GATEKEEPER partners to enable mutual learning. Workshop organisers' presentations reflect the summary reports included in this report. At the end of the session some preliminary impressions were shared.

Next steps:

- When reflecting on the shared insights, workshop organisers suggested to consider an academic publication on the work done, in addition to informative output already being developed, to also share the major points with an academic public.
- It is considered important to capitalise the work that has been done so far, and synthesise, for example in a scientific publication, the different inputs.
- It might be relevant to also collect socio-demographic details of the different regions for a publication.
- In general, it seems there is a fertile ground for the GATEKEEPER project's underlying hypothesis. There seems to be 'a strong interest, willingness, and commitment' among the stakeholders involved.
- Now time for the next stage.
- As the session was intense for most participants with long presentations with lots of information, it was decided to organise a follow-up meeting to enable a more in-depth dialogue on values co-creation and the opportunities for further development within GATEKEEPER.
- Pilot sites asked for feedback from UU on the results of their workshops. An in-depth analysis of the workshops requires time, but findings will be shared with all pilot sites once available.

Between the first reflection session and the follow-up session, it was further agreed via email to collect input about potential ideas for a joint publication.

The second session took place on December 4th, with again representatives from all the eight different workshops present. At the start of the meeting Susan van Hees, on behalf of UU, gave a short presentation with key findings, which are based on a reflection on the presentations that were given on November 12th, 2020 and of a first analysis of the workshop summary reports.

After the presentation workshop organisers reflected in three breakout groups on these insights together. An overview of the reflections shared was collected on a Mural template. The Mural itself already provides a summary of the different input shared during the three breakout groups.

Overview of reflections in break-out discussion groups

During the second reflection sessions three break-out groups discussed what lessons we can learn from the workshops and how to use this input in the next phase of the project.

Below an overview of collected input can be found digital sticky notes.

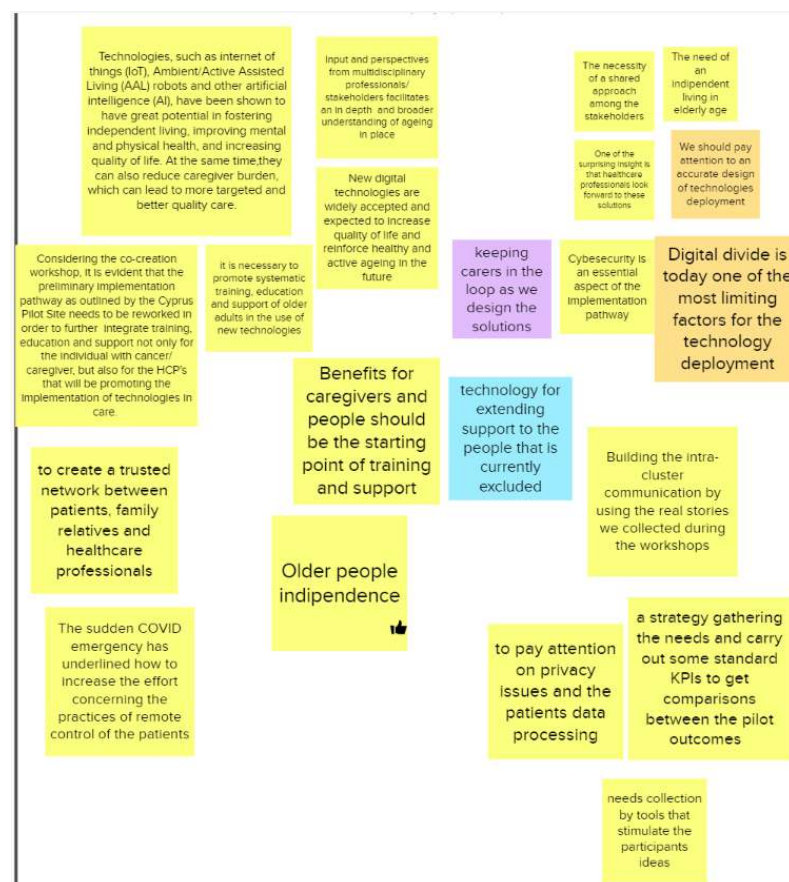


Figure 1 Reflections Group 1

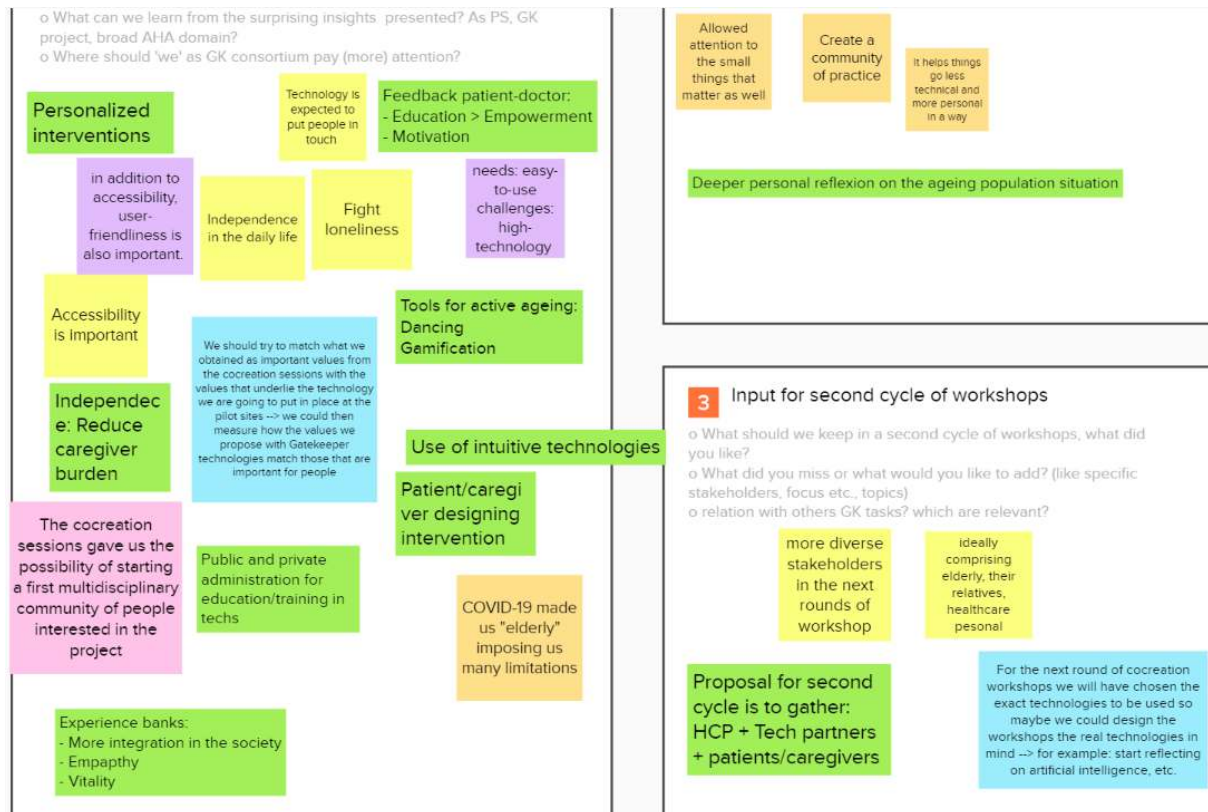


Figure 2 Reflections group 3



Figure 3 Reflections group 3 part 1

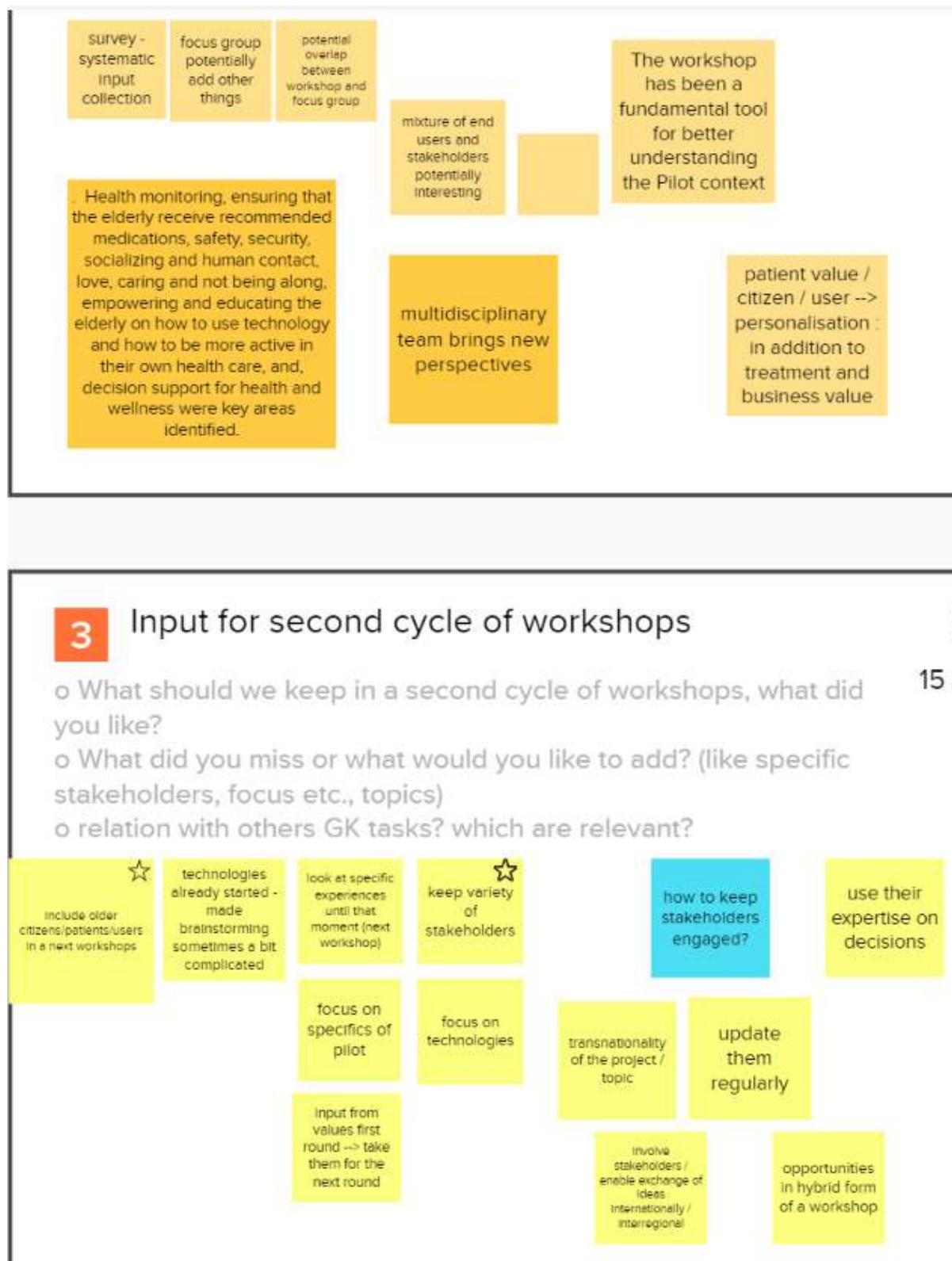


Figure 4 Reflections group 3 part 2

Wrap-up breakout group discussions

Group 1:



Figure 5 Summary discussion group 1

In the breakout groups it was discussed that:

- There is a very specific type of digital divide at some pilot sites. Healthcare professionals and care providers seem to be ready in terms of accepting technological solutions. Devices are there not the main problem.
- It is a necessity to look at those people most in need of help. Many of them are not (yet) connected to the internet, creating an infrastructural challenge.
- For some pilot sites there seems to be a gap between the GATEKEEPER project and the technical problems addressed there, versus the real life, that focuses more on everyday practices of citizens / patients and healthcare professionals. It is suggested to help bridge this gap by sharing these stories found 'on the ground'. It is important to share the everyday problems and bring it together in the GATEKEEPER project.
- In a next round of co-creation workshops, it is considered important to involve end-users, meaning older people and care professionals who will be using these technologies in their daily practices.
- To keep stakeholders tuned to the GATEKEEPER project the community of interest should be fed with such real-life stories. The idea is that each pilot site would share material, a real story, a video, a brief pitch, and feed the community of interest with this and make sure there is an ongoing communication on how GATEKEEPER is going to help solving the real life problems.

Group 2:

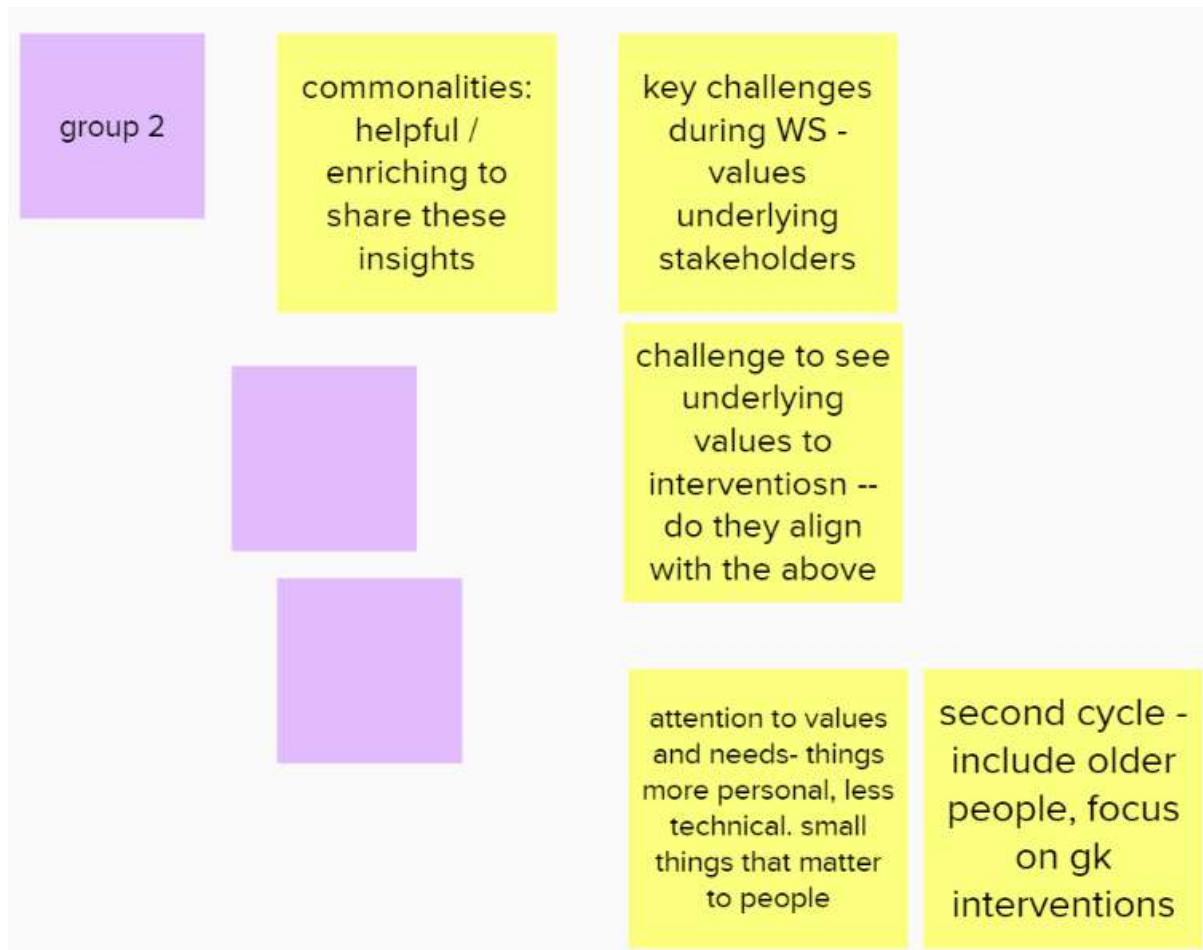


Figure 6 Summary discussion group 2

- The workshops were considered as very helpful. They revealed commonalities between different workshops, and it was helpful and enriching to listen and read to each other workshops.
- During the workshop values were discussed. The challenge is to find out what values underly the different interventions and to find out whether these values align with the values found in the first co-creation workshops.
- The workshops illuminated that technologies help to bring forward some values, like privacy, or independency. But at the same time values create challenges for other values, that needs to be considered. An example is technologies that make older people feel more secure at home, but at the same time should not make them feel lonelier.
- An attention to values helps things to become more personal, less technical, as you become aware of the small things that are also important to people.
- It would be interesting to include older people and focus more on the specific GATEKEEPER interventions.

Group 3:

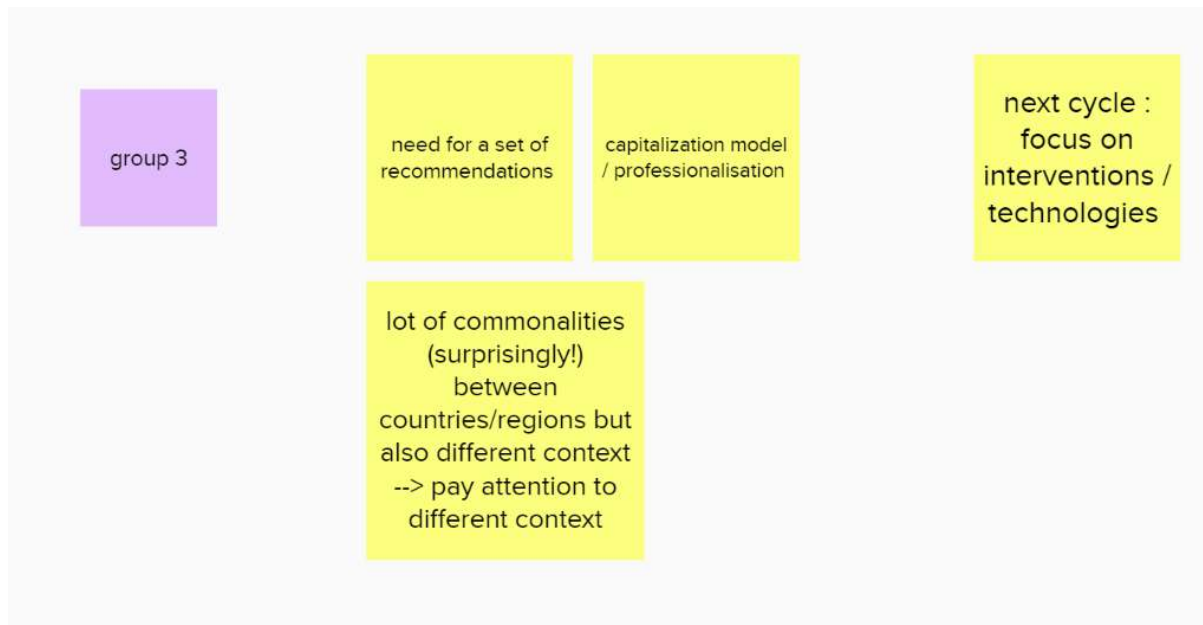


Figure 7 Summary discussion group 3

- It was a surprise that there are so many similarities between such different pilot regions. Although this is interesting, it was also mentioned it is important to keep in mind there are still many differences and that we need to stay aware of these different contexts. There are organisational and cultural differences that should be considered as they are crucial for the actual implementation and development.
- To help pilot sites in keeping stakeholders engaged and embed the valuation approach, a set of recommendations was considered important. To make sure this can become an ongoing approach, a capitalization of the valuation co-creation approach is now needed.
- In a next cycle of workshops older people should also be involved and they should include a focus on interventions and technologies.

3.4 Feedback

After each of the workshops workshop organisers were asked to fill in a short feedback form, reflecting on the practical sides and feasibility of the design of the workshops.

Initially the idea behind the workshop design was a real-life event as described in Deliverable 2.4. Important reasons to organize a workshop in place are that they make interactions between participants easy, that they enable to do some visual, active and interactive exercises (building exercises in our case) and that they facilitate a network or community-building in a good way. Workshop often can provide a solid ground to build a community on.

However, due to the Covid-19 pandemic an alternative design had to be created. In addition, workshops had to be postponed due to the situation. Originally, they were planned to take place between March and June 2020.

We designed a remote workshop, with the initial design as a starting point. Below we include a structured overview of the different feedback collected from the workshop organisers. In the appendix we included the full feedback forms.

In general, workshop organisers highly valued the material and support provided by UU before and during the workshops, which enabled to organise workshops that were very much appreciated by participating stakeholders, who appreciated to be pro-actively involved and were very much interested in the concepts and approach.

We asked workshops organisers for feedback on three points: (1) preparations (2) the workshop itself and (3) based on first impressions afterwards, lessons for the next cycle

1. The prepared material and support during conference calls, a webinar and an in-person exercise during a simulation workshop in Milton Keynes during the 1st GATEKEEPER Project Technical Workshop were appreciated widely by the organisers.

To include a huge variety of stakeholders and have this variety per breakout group was helpful.

Some organisers faced challenges in planning, mainly related to the Covid-19 restrictions which made it sometimes more difficult to get stakeholders interested to participate, although this also opened opportunities to involve stakeholders from a wider geographical area.

2. Most workshop organisers think the technological supporting tools, Zoom and MURAL, are well-chosen, as they help to create a user experience that is rather close to a face to face meeting. Discussions in breakout rooms and working on MURAL worked for most rather smoothly, as MURAL works quite intuitively. However, some stakeholders were not able to use due to access problems or as they found the tool too challenging. Ideas about whether all should be active on the MURAL template during the workshop or that a moderator should do this differed per workshop. We observed that where participants used the MURAL themselves they did not have big difficulties to use it, and difficulties that we observed (moving of content) can be solved by fixing elements in the template design and will also decrease when people are more used to the tool. It also possible, as was suggested by some, to work with one note-taker per group. A note-taker next to a moderator is advised to enable smooth moderation, combining both tasks can be quite challenging.

During one of the workshops a quite active 'silent' discussion could be observed in Mural, when all participants were working in it simultaneously. A challenge though, in this case, was to also verbalise the discussion. It was mentioned that all minor thoughts and ideas become visual and are not side-lined or overlooked as would be the case in a verbal discussion. Thereby participants who are less verbally active can be heard better than in more traditional workshops. For the homework that was included as a preparation for the workshop, some organisers suggest a more conventional way to lower the barrier.

A remote workshop's main advantage as recognized by organisers was that there is no travel time needed, taking away some barriers for participation, especially when professionals in healthcare with busy schedules are invited to participate.

However, at one place the feedback was given that remote workshops also lower a barrier to drop out last minute. To create an optimal planning expected calculated time needed per person could be helpful. Workshop organisers tried to balance the workload of participants with what was required for the workshop.

While participants do not have any travel time, most have limited time available and online workshops also can start to bore sooner than in person workshops. In the end most organisers experienced very actively engaged and interested participants, some even called participation remarkable. Warm social in person contact was what was missed most, some workshop organisers also expect an in-person workshop could have been more dynamic

The workshops design included an 'intentional vagueness', which did bring pilot sites some new ideas, but it was also shared they need more guidance and concepts to discuss, to avoid reiterations and steer towards more concrete results and preciseness in applicable conclusions. A good keynote speech is helpful in helping stakeholders to better understand the context and to focus on the right level (an example of such a by participants appreciated keynote was the keynote of Leandro Pecchia in the Puglia workshop).

3. Overall workshop organisers were enthusiastic after the workshop, sometimes even to their own surprise. The workshops brought them new insights and an awareness of talking about the more social side of innovation implementation. Participants were active in the discussions and provided positive feedback.

Challenges for the future:

- Personal interaction, especially when a remote workshop is organised.
- The rationale behind the framework was embedded in the workshop design. However, this is not so easily to grasp for people who are not familiar with the framework. Some of the feedback, including feedback on silences during discussion in one workshop, the reiteration of concepts or vagueness due follow from the design. The idea is that the workshop design stimulates a deeper reflection on values and thereby also to raise an awareness of valuation practices, revealing different values at stake and their dynamics. We did observe such reflections and see some in the summary reports. A challenge for a next cycle of workshop would be to deepen the reflection level while simultaneously making participants aware that this contributes a lot.
- Keep the stakeholders involved: participants of workshops expressed they liked the format, the unconventional style and being proactively involved. Some would have preferred to be involved already earlier on in the process. This was initially planned, but due to Covid-19 restrictions workshops had to be postponed. It is important now to keep stakeholders engaged. The GATEKEEPER community of interest provides an opportunity to start with this. Pilot sites will have to feed the community of interest developers, to help them understand what stakeholders are interested in precisely. An ongoing dialogue between pilot sites and the responsible partners for the community of interest is advised. In addition, pilot sites can decide on their own tailor-made activities to keep stakeholders involved in the upcoming period.
- A good communication on outcomes of the first cycle of workshop and the rationale behind the valuation workshop therefore is invaluable.

4 Conclusions

This deliverable reports on the first cycle of co-creation workshops within the GATEKEEPER-project. Despite the fact the workshops had to be moved to a remote environment, it was possible to successfully organise remote co-creation workshops at eight pilot sites with relevant stakeholders participating.

These workshops reflected on current and future scenarios of ageing and ageing independently and the potential role of health and ageing technology, making the home a smarter living environment and more importantly, help older citizens with the support of digital innovations to stay healthier and more active. Between the different workshops similar challenges and opportunities came forward, although contexts differ and matter. Therefore, it is important to pay attention to the specific situations and context.

In the development of a second cycle of workshop outcomes, reflections and feedback shared by workshop organisers will be considered.

5 References

Arentshorst, M.E., and A. Peine (2018). From Niche Level Innovations to Age-Friendly Homes and Neighbourhoods: A Multi-Level Analysis of Challenges, Barriers and Solutions. *Technology Analysis & Strategic Management* 30 (11): 1325-37.

Deliverable 2.2, Valuation Framework. GATEKEEPER Project.

Deliverable 2.4. Open Innovation and Co-creation Workshops. December 2019.
https://www.gatekeeper-project.eu/sites/default/files/GATEKEEPER_D2.4_M3_Open_Innovation_and_co-creation_Workshops_v1.0.pdf

Appendix A

Summary of co-creation test-session

By Susan van Hees and Carla Greubel (Utrecht University)

February 27th, 2020, Milton Keynes

A1 Introduction

In this document the idea behind the co-creation session is further explained and the test-session in Milton Keynes is summarised to give an impression of what the workshop at your pilot site will look like. In addition, we included some improved program guidelines and we adjusted the assignment and summary forms based on your input and our experiences in Milton Keynes.

If you have any remaining questions, please contact us as soon as possible.

A2 Background session

Design and aim

The co-creation workshop is designed to enable stakeholders at pilot sites to think and reflect on futures of ageing well, in their own pilot regions. The innovations and technologies introduced or implemented through GATEKEEPER aim to contribute to a better scenario of ageing independently. This workshop enables stakeholders to reflect on futures of ageing and to think about how the own perspective might differ from the perspectives of others as well as own future perspectives. Values that are considered important at the moment, such as autonomy, might change in interaction with other values, perspectives of other people and changes in the life course, including life events.

To enable the pilot to become reflective and dynamic, it is important to share these different understanding of ageing well and futures of ageing independently with each other. When creating and reflecting on scenarios, participants can create a shared understanding of what is important in their pilot and region and formulate key challenges and opportunities for the pilot. By including all different stakeholders perspectives in the workshop, the workshop contributes to responsible innovation.

Power of imagination

- The design is based on previous studies and projects in which imaginaries and future scenarios where used. For more information about the power of

imagination, we refer to the interview with professor Nick Dunn, which was presented at the beginning of the test-session (<https://youtu.be/BtSM1zt8eMo>)

A3 An example session layout & summary

Introduction:

During the introduction of your workshop you will:

- Provide some context to the workshop, such as what the pilot is about.
- Give a short introduction to the program of today: agenda / overview and talk about expectations
- You can include a short presentation or key note by an inspirational speaker. For instance a mayor in your community. The idea behind this talk is to get participants in a constructive mood, open for talking about future scenarios of ageing well at home and in the neighbourhood.

Introducing the different steps of the co-creation workshops

Preparation: participants are given an assignment they make at home / in their office approximately two to one week in advance. In this assignment people are asked to think about what they consider to be important when thinking about ageing well at home, now and in the future. They are asked to collect three tangible items that represent their thoughts in relation to three different perspectives:

1. Current perspective
2. (imagined) future perspective
3. Perspective of an older citizen (neighbour, relative)

The aim of the assignment is twofold: 1. This assignment helps people to start reflecting on what is important in relation to ageing. 2. In this assignment people are asked to bring tangible items. The tangible items can be used in one of the steps of the workshop exercises.

Building guidelines

Participants are asked to build, in groups of 3-5 persons, a future scenario of ageing at home. They can use materials provided by the workshop organisers (such as, but not exclusively, paper, pens, sticky notes, cardboard, coloured markers).

Some notes:

- Participants might need some time to think about what they want to build.
- But also encourage them to start building and emphasise that it is good to physically add or change something at each step of the exercise.
- It is not about showing of your creative skills, but about allowing you to think differently and build something tangible that helps to reflect on what makes this

important and what the future might look like. It is also important to mention there is no right or wrong way to do this.

The workshops has three different rounds:

1. Build
 2. Reflect
 3. Act
1. During the first round, participants will build scenario's and add things to these scenario's during three steps. First they build a scenario (*15 minutes*), then they add technology (*10 minutes*) and then their tangible items (*20 minutes*). At the end of each step a form is handed to participants to shortly summarise what they did. At the end of round 1 the built scenarios are summarised by one group member, plenary (*about 3-5 minutes per group*).
 2. In the second round participants change tables and reflect on the built scenario of another group. This round exists of three steps: First they add a disruption to the scenario (*5 minutes*), then they add something to solve the problems caused by the disruption (*5 minutes*) and then they reflect with each other using a set of questions to guide them (*20 minutes*). At the end findings are summarised to each other (*2-3 minutes per group, 10 minutes total*).
 3. The third round is a plenary round. There is a dialogue with all, distinguishing key challenges and opportunities for the pilot (*20 minutes*). Participants, a moderator or facilitator can write these down on a flip chart.

Then stakeholders will get together for a stakeholder requirements focus group (30-60 minutes) in which they define requirements in relation to health management. Further instructions about organising a focus group are provided by Tecnia (as part of T2.3.)

Finally, there will be a plenary wrap-up, during which final thoughts can be shared and the session will be closed by the moderator (*10 minutes*)

In short, by exploring different possible futures the different stakes values by stakeholders can be illuminated. For example the importance of values such as autonomy, independence, human connectivity, freedom.

Using imaginaries helps participants to think out of the box, not restricted by boundaries. By doing the different exercises in break-out groups and summarising and reflecting upon them, it is possible to:

- Create a shared understanding of ageing well and the meanings of home
- To define key challenges and opportunities as input for the pilot site

Summary example session

Two weeks before the Milton Keynes session we sent out an assignment to potential participants of the test-session (WP2 contact persons). We collected their input before the workshop. The powerpoint used during the session includes a slide with an overview of input for the session. Just to give you an idea of the different kind of ideas that we collected in this way. We adjusted the assignments to make it a bit simpler and easier to understand.

Although no personal details will be shared, it is possible to collect data anonymously as well. In that case we can set up a survey monkey (or similar).

Introduction

During the introduction some background and an overview of the test-session was provided (see the slides). In your workshop you will prepare an introduction that suits your audience. The actual simulation started after this introduction.

START SIMULATION

[note: To give an impression what the summary you write can include, we include here an example based on the MK test-session]

Round 1

Building scenario

Participants are asked to build future scenarios of better ageing in place, implying growing old independently at home, in the neighbourhood.

Participants are asked to build a future scenario, then to add a technology and eventually to add the items they collected beforehand, as part of the assignment given to them two weeks in advance. Participation by people who did not prepare the assignment is possible, although preparing the assignment makes participation easier and provides valuable input.

Summaries of the built scenarios:

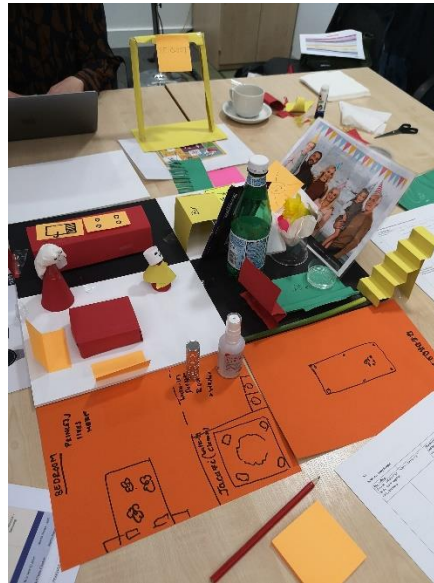
First scenario:

A fully smart bungalow

Before entering the first building, people pass a (yellow) smart entrance, which does a security check, a virus check and cleanses the person before entering the house. Near the door is a camera, and the house responds to the visitor and automatically heats and

isolates. For socialisation the house includes a bar, which provides whatever the resident prefers. For physical activity there is an indoor garden, that becomes an outdoor garden by lifting the roof. The space becomes whatever you like it to be: a pool, a grass field, there are exercise machines, a flower.

In the home there is a smart chair, the dining room has other smart technology. In the home the older person is assisted by a robot and the kitchen includes a smart cook island and a smart fridge, that not only holds food but also grows it. Further facilities in the home include cleansing, clothes cleaning, cleaning but also companionship by the robot and smart monitoring and measurements by the self-regulating bed.



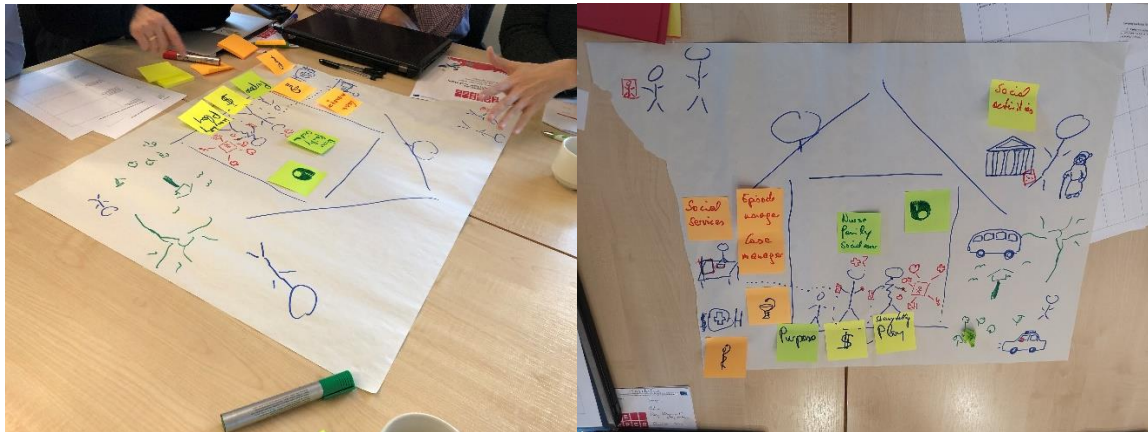
Picture 1: A fully smart bungalow, table 1

Table 2

The new family home

in the second home built, people of different ages live together in the same place. They all want a purpose in life, especially the older residents. For instance by playing with the children, telling stories and sharing knowledge. It is easy to connect with family living abroad or not so close, as there are plenty of services connected via technologies. There is an intelligent car to pick resident up and bring them to friends or a museum. These trips are important to feel integrated. The outside environment is as important as the inside, it should be comfortable and friendly, including opportunities for personal preferences, like birdwatching.

In terms of health, help from a human being, a family member or a neighbour, is preferred over a robot. The person is connected to the world system, including pharmacy, primary care, hospital, social services, and similar kind of infrastructure and this is meant to be easy. When something goes wrong, the resident would like to take care of themselves.



Picture 2 and 3, table 2: a new family home

Table 3

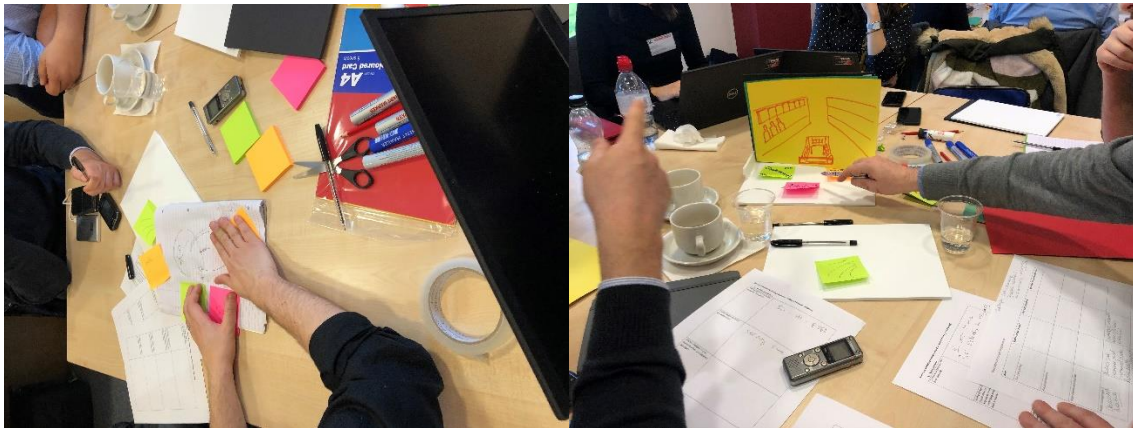
The indoor community house

The third building is based on three pillars: connectivity, augmented reality and artificial intelligence.

5G (or the like) enables this building to become whatever you like it to be. You can go for a walk in the wood, to shop in the supermarket. If you want to go out there are self-driving cars that pick you up and drive you wherever you want to go. This scenario enables you to be wherever you want to be whenever you want to be there. The doctor can visit your home via the technology. The house responds to what you like it to be and it enables you to do this together with family in China for instance.

This is essentially a system that could be integrated and then have add-ons, like the doctor saying that you need to measure your blood pressure on a regular base. It is safe and more efficient, you do no longer have to go to the hospital. The AI picks up your behaviours and can flag when you have not got out of bed, when you haven't gone through the front door for a while etcetera.

However there are potential issues, including isolation. The question if you will still meet real people if everything happens there and does it excuse others from visiting you. The scenario does not enable simple human contact. Further issues include data and social mobility and obviously, the scenario is way to expensive to ever be implemented in poor communities. However, the alternative is to have a community based scenario, a community venue, in which you can book a room for an hour, to have dinner with your family living in Australia for instance.



Pictures 4 and 5, table 3: the indoor community

Table 4

Outdoor ageing

The fourth scenario describes an environment that enables people with deteriorating health conditions (e.g. mild cognitive impairments, respiratory condition). Technology in this scenario enables these older people to still go to the cinema, the supermarket, the church or whatever they like, by themselves. No need to bother the family to go to place. The idea is that some simple tools that are already out there, like a smart watch and GPS and an app on the mobile enable people to go out and get back to the home if they do not remember their way home

The home in which they live provides access to care. As the person living there does not like to go from one healthcare institution to the other one to find out his condition and medical needs. Therefore there are barometers in the home that monitor the condition. The person is surrounded by a circle of carers that virtually support the health management and prevent hospital visits.



Picture 6, table 4: outdoor ageing

Round 2

Reflecting on scenario

After changing tables, participants are asked on the second round participants to think of a possible disruption to the scenario in front of them, and subsequently of a solution. Furthermore they are asked to reflect guided by some more overarching reflection questions.

Summaries of reflections

Table 1 – by table 4

"Our little community was in opposition to the other three because it was a community based on autonomy. The most important lessons learnt: privacy is a concern, isolation was embedded in the other three solution and the sedentary life is encouraged by them."

Table 2 – by table 3

Public transport was taken away. Access to the community is crucial in the scenario and transportation / mobility is essential. For inactive older people a solution is added by providing them with a wheelchair that can drive in the car that takes them everywhere.

However, this scenario comes with some challenges. There are issues such as privacy.

The underlying assumption of this scenario is that there is going to be a community and we hope that community will continue but it might be that we are already moving to a far more insular way of living.

Table 3 – by table 2

This scenario holds two potential dangers: internal there is the danger that AI is not working fine, that something goes wrong, external there is the danger of hackers, who ransom your family. Therefore security is added. To prevent residents get socially isolated, a door was added to enable physical and human contact and activity (to go outdoors, to the supermarket, cinema etc).

Connectedness and being safe are thus important in this scenario.

Table 4 – by table 1

The idea that 'we start ill' is questioned. Scenarios start with the idea that older people are in a bad shape and that they need help. This is starting on the wrong foot. we have created a lot of human dependencies in this new community built here. The good thing about it is that it has a lot of activities and connections like a transport system, which comes in, and your pharmacy comes. To remove the human dependencies more automation is added (e.g. robots).

The table that built the scenario opposes this idea, saying that it was not a bad situation to start with, but a purpose. A person who is old, not sick, just wants to be happy.

END SIMULATION

Normally, after round 2 a round 3 starts, in which lessons learnt and key challenges and opportunities are gathered. In addition requirements can be collected after which the session is closed.

Lessons and additional guidelines

Role of assignment

The assignment enables people to start thinking out of the box and to prepare themselves on talking and working with what they think is important in relation to ageing independently, at home and in the neighbourhood.

Importance of time

Participants need time to get in the mood and to get engaged with their buildings. After that, there is a possibility to reflect on the buildings and subsequently formulate lessons, including key challenges and opportunities. Therefore it is important the indicated time for each activity is taken into account, as only in this way the workshop allows for valuable outcomes.

Afterwards

As workshop organiser you will write and distribute a summary of the event. The research team of UU will use the reports in addition to the input from the assignments and the audio recordings for further analysis. The outcomes will be shared with the pilot site, and, can be shared with other pilot sites if permitted (outcome sharing).

Stakeholder and user requirements focus group

Stakeholder and user requirements focus group are structured meetings, aiming to define requirements.. The focus groups are designed by Tecnalía, they will provide further instructions. Pilot sites can decide to have one or both focus group as an additional part to the workshop, as stakeholders are already together for the workshop. They can also choose to organise different events for these focus groups.

Appendix B

Updated guidelines for remote co-creation workshops

GUIDELINES for the organisation of remote co-creation workshops at European pilot sites

Future scenarios for better ageing in place

Introduction:

This document provides further details about the organisation of a remote co-creation workshop at the pilot sites in the GATEKEEPER project. For background information and the rationale of these workshops we refer to the deliverable, 2.4 ([available in Alfresco](#)) that was published end 2020.

Please check this information and discuss specific issues with UU via Susan van Hees (s.v.vanhees@uu.nl).

Instructional webinars are organised on:

July 8th 14-16 CET and July 9th 12-14 CET (same webinar, pick one date to attend).

Covid-19 update: Because of restrictions introduced in order to manage the Covid-19 pandemic, we have developed a remote model for the co-creation workshops. An advantage is that it costs participants less time (no travel required) and also allows for equal access and participation at their own pace (no travel time, a moderator can more easily give a participant the ability to share his /her thoughts by muting the rest; people can add information in various ways, including talking, comments in chat, adding information and ideas via the co-creation software² used in these workshops). This allows participants to contribute in a way they feel comfortable with.

This document includes:

1. Updated background and context of the workshop (in addition to the deliverable 2.4)
2. List of practicalities / checklist

² During the workshop a combination of Zoom (for video conferencing) and Mural (co-creation software) is used. Conditions have been checked to be compatible with GDPR requirements.

3. An exemplary agenda and description of the (online) preparational assignment is included (in appendix).

Updated templates for the invitational letter and informed consent can be found in a separate document.

Background information co-creation workshops

The workshops will be organised around the conjoint development of **scenarios** for ageing in place, i.e. scenarios in which opportunities to remain living at home while ageing are explored. During the workshop participants (i.e. key-stakeholders) explore what they think is important when it comes to ageing and innovations in their pilot region.

The program and assignments that are part of the program (including preparational assignment) are, to some extent, **intentionally vague**. This enables participants to think out of the box and to not stick to conventional ideas or restrictions about what ageing / a 'good old day' should look like. It might be good to mention this intentional vagueness during the introduction of the workshop or when stakeholders ask for more guidance prior to the workshop or for more information about the workshop set up.

We use **imaginaries** to help workshop participants to think out of the box and reflect on different perspectives to needs, requirements and values in relation to ageing in place and technologies. We use Covid-19 as a scenario and future scenarios. The co-creation workshop enables participants to reflect on values and what these mean for a responsible development of innovations and technologies. Reflecting on both a 'Covid-19 scenario' and on an 'ideal future scenario' helps to find out what values are important and to become aware of their dynamic character. They differ not only between participants but also change during the life course, in interaction with other individuals and stakeholders and due to (unforeseen) contextual changes. Once these dynamics are recognized, participants can start thinking about their shared understanding of ageing in place, and about how to anticipate these dynamic values:

The Covid-19 pandemic has created a real life scenario that challenges ideas and ideals about older people living at home. Therefore we include **Covid-19 as a scenario** in the workshop design. This can help stakeholders reflect on current and recent events and also to ventilate possible concerns that they have as a result. Covid-19 measurement might have affected their ideas about innovations for older people. In the crisis situation the prioritisation and meanings of values changed and it probably influenced stakeholders' perspectives towards different values they consider to be important when it comes to enabling ageing in place and specific GATEKEEPER solutions (the technologies introduced at pilot sites).

The workshop participants are asked to imagine **future scenarios** and co-create their ideal scenario for ageing at home. They are asked to not only consider their present perspectives, but also take future changes and the perspectives of older people in consideration. This helps them to formulate realistic key challenges and opportunities at the end of the workshop.

At the end of the workshop, participants identify **key challenges** and **opportunities** for the pilot site. By doing this they contribute to the development of responsible innovations in their region and create a shared understanding.

Per pilot site specific arrangements to make the workshop fit the pilot sites needs can be discussed with UU.

An online workshop is more energy demanding than a physical workshop. Possible variations in organising the workshop that can be discussed include:

Based on your preference as a workshop organiser you can opt for a shorter workshop with more offline preparation for participants (also see checklist with practicalities below). Provide participants before the workshop with videotaped instructions and an inspirational talk instead of live talks and reduce the time for plenary talks during the remote workshop. This has advantages (reduced duration) and disadvantages (less interactive, less insight in how much participants know, which can result in breakout groups in which more guidance is asked). Another alternative to a full session is to cut one workshop in several shorter sessions. An important advantage is that this might be experienced as less intense while it enables participants to 1. reflect on the workshop content between different sessions, and 2. connect with other stakeholders when participating over a longer period of time.

Practicalities (requirements and checklist)

Below you can find a checklist that includes the practicalities you need to take care of when planning and organising the co-creation workshop. This document provides a general scenario for the remote workshop. Do not hesitate to contact UU via Susan van Hees (s.v.vanhees@uu.nl) if you have a question about this document.

a. Workshop details and requirements:

Workshop organisers:

The workshop will be organised by the pilot sites. They do this within the PM allocated to them in WP2. Within WP2, pilot site partners organise two co-creation workshops (one between the beginning of September and before the second half of October 2020, and a second workshop in 2021/22 (both designed by UU)). User needs and requirements will be or are already mapped in focus groups / via questionnaires, organised by Tecnia (in 2020) and are part of Task 2.3).

If there are changes in the responsible contact person for the workshop, please inform UU.

Language workshop:

Workshops will be held in the language of preference. At some pilot sites plenary parts will be done in English, while in break-out groups the participants can speak in their local language. At other pilot sites the whole program will be in the local language. This is up to the pilot sites to decide.

UU requires English summaries of all workshops and breakout groups, provided by the workshop organisers shortly after the workshop (1 week). The privacy of participants should be taken into account when writing these summaries, as they will be shared with participants and can be shared with other pilot sites.

In case the workshop takes place in a language not understood by the researchers, the pilot site makes sure one of the pilot site partners involved in the organisation can translate for UU, or a translator is available to translate on request / crucial elements for the researcher observing during the workshop.

Location = remote workshops

All workshops will be organised remotely, using a video conferencing tool (Zoom) combined with software that enables interactive collaboration (MURAL). Links will be provided by UU before the workshop.

In breakout groups small groups work together. It really benefits interaction if participants switch their cameras on and identify themselves when working in the online environment together, but it is up to the participants if they want to do this. This needs to be carefully communicated and in the workshop summary privacy of participants should be taken into account. After the workshop the online working space will be digitally locked to prevent changes are made afterwards. Recordings will only be available for the research team and pilot site workshop organisers. The additional considerations when it comes to privacy of data / participants in online workshops are checked by UU (in conprivacy manager at UU and within GATEKEEPER).

CHECKLIST Workshop preparations (timeline, starting before the summer)

i. Before the summer

- ☐ Read this document and information letter. Contact UU in case you have any questions.
- ☐ Attend webinar (remote co-creation instruction session) on July 8th (2-4 PM CET) or July 9th (12-2PM CET). Calendar invitations with links will be send out by UU.
- ☐ Create workshop organisation planning, based on the specificities of your workshop. Use this checklist as a starter, to create an overview of what is required.

ii. Two months prior to the workshop

- ☐ Send out a save the date to relevant stakeholders at least **two months** in advance.

Note: we advise to send out a save the date this early as it increases the chance to have a good number of participants during the workshop. You know your stakeholders best and we rely on you to choose a strategy that works for you.

- ☐ Workshop organisers identify and invite approximately 10-20 stakeholders at pilot site, including all parties that are important for the pilot. E.g. policymakers, physicians, community managers, engineers (the document created as part of Task 2.1 to map the GATEKEEPER eco-system can be helpful to detect these relevant/ key-stakeholders).

- ☐ Moderator: decide who will moderate the remote workshop and make sure there are enough co-moderators to host break-out groups (size of breakout groups: 3-5 participants).

Requirements workshop moderator:

- has knowledge about topics discussed;
- can lead a dialogue / discussion;
- keeps track of the program/time;
- can explain the details of the program;

Requirements breakout groups moderators:

- make sure everyone is heard and that basic rules of conversation online are respected;
- the moderators are also responsible for summarising the breakout group / plenary session in English.

- ☐ Arrange an inspirational speaker to open the workshop. You can also share a pre-recorded talk. The pilot sites will choose a person from their region who they consider as inspirational (for their pilot). For instance, a mayor, local entrepreneur or academic with a vision on the future of healthcare and who can speak about this in an engaging way.

- ☐ Prepare a short talk with instructions and basic information about the pilot site (possibly combined with the inspirational talk).

- ☐ Translation during the workshop: at least one of the UU researchers will observe during the remote workshop. To enable them to follow the discussion live, a translation (for instance by one of the people involved in the workshop organisation) is required if the workshop does not take place in English, German or Spanish.

iii. At least 14 days prior to the workshop

☐ Ask participants for their **(written) informed consent prior to the meeting**. Include an invitation letter and the consent form. Templates are provided by UU in a separate document. As a workshop organiser you are responsible for a translation and adjustments to the own pilot. Add relevant information and adjust if needed to make it attractive for possible participants.

Informed consent is asked of participants, as they will be subjected to an observational, qualitative study. Informed consent forms should be (digitally) signed and returned to s.v.vanhees@uu.nl prior to the workshop: participation is not possible when no informed consent is given.

☐ Preparation is requested from participants. An assignment will be given **14 days prior** to the workshop (a link will be provided by UU and should be forwarded by workshop organisers to participants). Ask participants to not spend more than 30 minutes on the assignment.

After confirmation of participation you can send them the link to the online assignment (a description of the assignment is included below this checklist).

In MURAL, the online co-creation software, stakeholders participate as guests. They can choose whether they want to share their identity with others. In the videoconference environment all participants use their own name.

iv. At least 3 days prior to the workshop

☐ UU provides the workshop organisers with the link to the remote meeting and to the online co-creation space.

v. 2 days prior to the workshop

☐ UU closes the opportunity to add new contributions to the online assignment (the link that was send out after confirmation of participation).

☐ Workshop organisers send out a reminder to participants, the links provided by UU and a leaflet / some information about the pilot site and related technologies.

☐ It is important that you do not send out this information before the template is closed for further contributions. In addition, based on the specific workshop planning and agenda, this is the time to send out a video clip with an inspirational and instructive talk.

☐ The breakout groups need to be created in advance to enable a smooth process / meeting. Make sure details of participants are available in time.

The number of rooms for breakout groups depend on the number of participants.

vi. Workshop day

☐ Stick to the planning / agenda (like the example agenda that can be found below this checklist, that provides a possible workshop structure, estimated duration based on organisation detail 2-3 hours (2 hours with additional instructions and preparation before the workshop)).

☐ Register attendants.

☐ Make notes for summaries.

vii. **Within 1-2 weeks after the workshop**

□ Write summary of workshop (plenary part and breakout group outcomes), check with UU and after approval distribute when finalised among participants. Use the information collected on MURAL (sticky notes, drawing, photographs, notes) as input. Focus on key points: different perspectives (on values) distinguishing between current and future positions per stakeholder, challenges and opportunities. Include next steps.

Assignment

[Note for organiser: in an online co-creation template in Mural (co-creation tool), an online template will be created with the assignment described below. Please ask stakeholders to do the assignment beforehand. As background you can share the description below]

We are looking forward to meeting you in our co-creation workshop on **[add date]**

*Please read the questions below and add some visuals / keywords / sentences to the template **[add link]** at least **2 days before the remote co-creation workshop [add date]**.*

We advise you to follow your first ideas and associations and to not spend more than approximately 30 minutes in preparing the assignment.

1. Add a drawing, photograph, keyword, sentence, or other visual that symbolises what you consider as important when you think about a better future of ageing at home. Think for instance about elements you find important in your daily activities and life, but you can also think about specific health and technology related items.

Add visuals / text that represent:

- 1) Your own current professional perspective towards ageing at home (and if this has changed due to the Covid-19 situation, also add something to illustrate how it changed).
- 2) Something that you consider to be important in the future, when you yourself are an older person, ageing at home.
- 3) Something that you think is important for someone in your environment who is currently ageing at home (an older citizen / relative / neighbour) (approximately 65 years or older).

To help you prepare for the workshop, also think about:

- a. What have you chosen and why is it important for you?
- b. Why do you consider this important, in relation to the topic of the workshop?

This assignment aims to help you define key values. Add some key values on one or more digital sticky notes in the online environment.

We value your first ideas. There are no right or wrong answers.

Possible agenda

Below a possible agenda for the workshop is included. The red text provides additional information / advice for workshop organisers, not to be included in the agenda that should be distributed among participants.

9.30 Remote co-creation workshop	
<i>A moderator or other organiser should be available should be available 15 minutes before the workshop for participants who arrive early.</i>	
1 introduction	
9.30	<p>Welcome and introduction by moderator</p> <p><i>Include an icebreaker to enable interaction early on in the workshop. use the co-creation software to have a playful start with it.</i></p> <p><i>If participants have made the assignment as requested, they have had the chance to practice a little, but allow people to play a little during the first part of the meeting. Explain the idea behind this meeting and the particular aim to have much interaction in breakout groups.</i></p>
9.40	<p>Key note / speech</p> <p><i>This is a short engaging talk about the Pilot site to enthuse people to contribute to this session. This can be an inspirational talk by a key person in the region (like a mayor).</i></p> <p><i>If you choose for a shorter workshop version, you can prepare an introduction and inspirational talk in a video clip, to be distributed 2 days prior to the workshop.</i></p>
2 reflect	
10.00	<p>Changing scenarios of ageing in place (interactive session in breakout groups, instructions will be provided by the moderator).</p> <p><i>In this session participants reflect on how their own and the perspectives of other people towards values related to ageing at home and the role of technologies (such as privacy, autonomy, caring for others) changed during the past couple of months (crisis time).</i></p> <p><i>Allow participants to share and reflect on unpredicted changes in (needs) and values.</i></p> <p><i>The software tool will be actively used throughout the workshop to visualize these changes, encourage participants to add and change.</i></p> <p><i>For each break-out group a moderator should be available (workshop organiser takes care of this)</i></p>
10.40	Summarise the discussions in a plenary session to each other
10.50	Short coffee and tea break
	<i>Breaks are optional, based on total duration of workshop. Consider a reasonable length of sessions and breaks required for a good energy level among participants.</i>
3 imagine	
11.00	Breakout groups

	<i>In breakout groups: collect 'building blocks' / key topics for an ideal scenario together with other stakeholders by imagining what an ideal scenario for ageing at home would be. Be creative, use photographs, sticky notes, draw. Use input from the prepared assignment.</i>
4 act	
11.40	Dialogue with all <i>addressing 1. needs, values, user requirements and, 2. key challenges and opportunities: co-creating agendas towards responsible embedding of technologies and innovations in ideal future scenarios.</i>
12.20	Wrap up: Final thoughts, ideas → <i>wrap up the session</i> Next steps → <i>communicate to participants how you will keep them up to date, that they will receive a summary of the workshop within two weeks and what they can do if they want to remain involved in the pilot and / or the GATEKEEPER ecosystem.</i>

A more informal network part can be included, e.g. a remote speed-date-session. If you need instruction for this, please contact UU (s.v.vanhees@uu.nl)

Appendix C

Summaries Co-creation Workshops

Workshop 1 Aragón

Summary and Key Notes

1. Workshop context

GATEKEEPER is a European Multi Centric Large Scale Pilot on Smart Living Environments, with 42 European partners and eight pilots across seven countries. The main objective is to enable the creation of a platform that connects healthcare providers, businesses, entrepreneurs, and elderly citizens and the communities they live in, ensuring healthier independent lives for the ageing population. This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement N° 857223. The project is described at: www.gatekeeper-project.eu.

This workshop is part of an international cycle of co-creation workshops that are organised throughout Europe in October-November 2020. Together they inform the GATEKEEPER project as well as a qualitative study by Utrecht University, investigating dynamic needs and values in health and ageing innovations. Outcomes of this and other workshops organised at pilot sites throughout Europe, will inform the further development of a framework for the mapping and anticipating of dynamic needs and values in health innovations.

The workshops will be organised around the conjoint development of **scenarios** for ageing in place, i.e. scenarios in which opportunities to remain living at home while ageing are explored. During the workshop participants (i.e. key-stakeholders) explore what they think is important when it comes to ageing and innovations in their pilot region.

2. Preliminary work

a. Agenda

9.30	Taller de co-creación remota 7 Octubre 2020
1 - Introducción	
9:30	Verificación Técnica y pruebas
9.40	Presentación proyecto (Unidad de Innovación)
9:50	Bienvenida (Juan Coll. Coordinador transformación digital de la asistencia sanitaria – Servicio Aragonés de SALUD)
9.55	Presentación del taller (Unidad de Innovación)
2 – Reflejar	
10:00	Escenarios cambiantes para el envejecimiento independiente (sesión interactiva en grupos paralelos)
10.30	Puesta en común de los grupos paralelos
10.40	Pausa
3 - Imaginar	
10:45	Cómo sería un escenario ideal para el envejecimiento independiente (Grupos paralelos)
4 - Actuar	
11.15	Puesta en común
11.30	Cierre, pensamientos, ideas Sigüientes pasos
11:45	Fin del Taller

Table 1: Final Agenda of the workshop (Spanish)

b. List of attendants and breakout groups

The list of attendants includes a wide variety of stakeholders, representing healthcare (primary and hospital care), social care, patients and carers, the industry and also profiles related to health innovation.

i. Participants

	Position	Organisation (descriptive)
1	Head of the Digital Health Research Unit	Health Institute
2	Director of Nursing Primary Care Sector	Regional Health services
3	CEO	Patient platforms
4	Manager	Regional Health Cluster
5	Head of Project and Innovation	Association supporting people with mental health
6	FEA Ophthalmology	Regional Health Services

7	Technical Manager in Smart Healthcare	ICT R&D centre
8	Vice president	National Society of Health Informatics
9	Social Worker	Regional Social Services
10	Director of Nursing Hospital Care Sector	Regional Health Services
11	Nursing Area Supervisor Material Resources and Bed Management	Regional Health Services

ii. Support and coordination

Nombre	Puesto	Organización
Susan Van Hees	Investigadora post doctoral	Universidad de Utrecht
Carla Greubel	Investigadora de doctorado	Universidad de Utrecht
Rosana Anglés Barbastro	Técnico de Innovación	Servicio Aragonés de SALUD
Modesto Sierra Callau	Técnico de Innovación	Servicio Aragonés de SALUD

iii. Breakout groups

In red participants that could not attend.

GROUP 1	GROUP 2
Research Unit in Digital Health Chief (Instituto de Salud Carlos III)	Vice-president (Sociedad Española de Informática de la Salud)
General Manager (ARAHEALTH Aragón Health Cluster)	Technical Manager in Smart Healthcare (GRADIANT)
General Manager (Plataforma de Pacientes)	Social worker – Social Services (Comarca del Somontano)
Medical Specialist- Ophthalmologist (Servicio Aragonés de Salud)	Projects & Innovation Manager (Fundación INTRAS)
Nursing Supervisor – Resources & beds management (Servicio Aragonés de Salud)	Primary Care Nursing Director –Barbastro Area (Servicio Aragonés de Salud)
Hospital Attention Nursing Director –Barbastro Area (Servicio Aragonés de Salud)	Project Manager (Servicio Aragonés de Salud) (moderator)
Project Manager (Servicio Aragonés de Salud) (moderator)	

3. Workshop content

Pictures are described and not included because most of them were extracted from the internet and may have copyright.

a. Welcome and Presentation.

The workshop started with a welcome from the organisers, presentation of the agenda and introduction of the participants.

Mr Juan Coll (Coordinator of Digital Transformation of Healthcare at SALUD) performed a short introduction speaking about the trajectory of the innovation unit at Barbastro Healthcare Sector of SALUD and also expressing some thoughts on the impact of the COVID-19. He spoke about the important effect of the pandemic on highlighting weaknesses of some care models, on the population pyramid and also on the economy.

b. Preliminary task. Inputs. What you consider as important when you think about a better future of ageing at home

i. Your own current professional perspective

- **Input 1.** Picture of a road with the letters "start". Note; "We are building the future"
- **Input 2.** Picture of a flow diagram with different alternative boxes and paths. Notes
 - o "What happened next" .
 - o "Knowledge: in our experience, here and now"

"We learn "inside others head" if we all make an effort to listen to each other.

Diagram shows how there are three different alternatives for a person with cancer. Three options have advantages and disadvantages (with different weight on values from those implied in the decision: sick person, family, clinician, ensurance company, ...). Once one option is chosen, the probability of this option to be chosen afterwards is higher (taking into account my experience...). One additional option could be better for those who have to make the decision afterwards, but this option can only be evaluated if it is taken at some stage. Those subjects who were under one of the options that were chosen will have suffered changes and will have provided more information and be a "control group" for those who can start a new option for a similar health decision.

Shorter learning cycles, based on "shared experiences" of big cohorts is a need and a moral duty for all...

- **Input 3. "Not without my mobile phone"** Picture of a set of elders interacting with their mobile phone. Mobile phones can be a good tool as all the elders will be able to use them in the future. They can be useful to get in touch at any moment everywhere without needing to be continuously at home. Carer, healthcare system, intelligent home.
- **Input 4.** Elders interacting with a computer (one of them having a videoconference session with a child).
- **Input 5.** Picture of a computer, a pair of glasses and a pen.
- **Input 6.** Picture of a crystal ball with two hands around it. "Anticipate the future".

- **Input 7:** (the input coming from a picture showing elders using mobile phones). Mobile phones are the tool that we, as professionals, have identified as the tool to reach patients to provide healthcare attention anywhere anytime. Mobile communications permit a total connectivity.
- **Input 8:** Predictive tools to follow up patients. Tools for professionals that provide the intelligence and support on the decision taking. Data exploitation for pattern detection and prevention.
- **Input 9:** Currently we are under an era of data availability. It's the moment to visualize that data on a simple manner to understand it, create knowledge out of it, and enhance the processes for prevention. New ways of data visualization, evolutions on different themes, more profiles, groups of target patients.

ii. Something that you think can be important in the future

- **Input 1.** Picture of a bathroom with adaptations for elderly people. Note "Physical and digital adaptation of home + home services".
- **Input 2.** 3 pictures of small plants with different colours. Everything in health is multi-cause – multi-effect, there is never a single cause of the same effect. Models that make simpler relations "cause-effect" to obtain scientific evidence should evolve to multi-cause probabilistic models. "Frequentist" vs "Bayesian" models.
- **Input 3.** Use of new technologies, artificial intelligence. Picture of a man shaking his hand with a robot. "With you, I feel safe". Artificial intelligence can be a substitute and help during isolation (as during Covid-19). We will be accompanied, informed, comforted, they will know about our health needs, medication, monitor our vital signs and in many cases they will take care of our basic needs for daily life.
- **Input 4.** "Active ageing is the process of optimizing opportunities for health, participation and security in order to enhance quality of life as people age" OMS, 2002-79. A picture of four carers interacting with a woman is presented: one of them showing a bulb, other one writing in a computer characteristics of the woman, other one with a stethoscope listening to the woman's heart, and the last one with a measuring tape taking a measurement.
- **Input 5.** Picture of a group of elders (women) walking together arm in arm. "Active and social life".
- **Input 5.** Closeness to family.
- **Input 6.** A picture of a device that captures automatically vital signs of people without their intervention "Follow up, monitoring".
- **Input 7.** Social circle / Social life.
- **Input 8.** Picture of a group of people forming a human castle. Comment "Platforms for coordination of resources and social initiatives at macro level".
- **Input 9.** "Beyond maintaining life, maybe we could NOT loose: physical autonomy, interest, and contact" (pictures of a two children in a swing, an old man playing with a small girl and a small boy giving a kiss and handling his hands around the head of an old man).
- **Input 10.** Futuristic picture of a man whose brain is visible with connections, and lights / spots- Lines and figures also throughout all the picture. Caption "Can brain-machine interfaces give us that opportunity?"

- **Input 11.** Diagram of data. Follow up of patients.
- **Input 12:** Enhance communication. Bidirectional effective channels patient-health provider.
- **Input 13:** Enhance collaboration between public & private sectors.

iii. **Something that you think is currently important for an older person**

- **Input 1.** Image of a group of elders laughing. Note "Social circle"
- **Input 2.**
 - o Data from a woman (recently died), her daughter and her great grand daughter . The great grand daughter asks her grandfather. "Why do we have to go".
 - o "Ya no" ..different from "ya yo". (Play on words). "Ya no" means "not any more", "yayo" is an informal word for "grandfather" and "ya yo" is "me already". It is related to limitations of ageing and the different attitudes towards them.
 - o Elders often feel grief and sorrow. This is the impression that arises from many conversations among elders. This feeling is internalized to some extent and this has an impact on one or several facets of their own personality and the relationship with others and with themselves.
- **Input 3.** Pictures of elder people cycling and other one running with children. "Independent but not alone". Ageing does not have to be shared only by elders. Best ageing is sharing activities and being accompanied by people from every age as this promotes living in real life, progress, news, fashion. To promote activities and spaces where age is not a condition.
- **Input 4.** Picture of a couple of elders with two children.
- **Input 5.** Picture of a set of sponges. Caption "Independence".
- **Input 6.** Picture: An old and one young woman doing a "selfie". Caption "I am independent and I do not feel ALONE".
- **Input 7.** Picture of cartoon with his hand over his head (thinking) in an arrow with several alternatives. Caption "And now, what do I do? Support for decision making, ALSO for patients".
- **Input 8.** Picture of a casserole with food.
- **Input 9.** Picture of two hands belonging to an elderly woman driving. Caption "autonomy".
- **Input 10.** Picture of an old telephone. Caption "We can also bring technology to those who do not know what technology is".
- **Input 11.** Independent but not alone.
- **Input 11.** Independent but not feeling lonely.
- **Input 12.** Close to my relatives.

c. Breakout session 1. Evolving scenarios for ageing at home and independent living

i. Breakout group 1

Group 1 members put in common the pictures shown as toDo task to debate the needs of scenarios for a future independent living as professionals, carers and future elders.

- The enhancement on the mobile communications and the massive use of mobile phones by elders has to be exploited as the via of communication with elders on the provision of healthcare services and attention. Patients are still independent having a total connectivity which will permit to reach patients anytime anywhere, avoiding the need to attend healthcare centres or stays at home. From the professional perspective it is important to reach older persons without limiting them in their liberty. A mobile phone allows this more than current monitoring technologies that can only be used at home.
- Data availability: Under this era of data availability, the healthcare providers are still not exploiting these big amount of data to create knowledge and enhance the health processes. It will be needed 'outils' and tools that permit not only to follow up patients providing new visualization methods, more intuitive and that permit to take decisions easily and more quickly. Also that permit the data analysis on new themes, more profiles and the exploitation of data in comparison by groups (i.e. groups of profiles, of pathologies, of patterns.). These should have the aim to help professionals on the decision taking, prevention of diseases, managers on the enhancement of the care processes and exploit the generated knowledge.
- Enhance communication. Currently the group identified the weakness of the current communication methods. Factors as the age, lack of economic resources, patients and professionals not reachable, only single direction of communication (i.e. patient associations think that older people would need to easily initiate communication themselves). This communication should be enhanced thanks to the board use of ICTs, the new communication points and the potential of communities.
- The group identified that neither technology, neither data availability are barriers on the provision of an effective integrated care to patients. The challenge is to promote the collaboration of the public and private care stakeholders to achieve effective, long lasting and sustainable solutions. Private market is full of solutions on a market where the care is mainly provided by a single public health organization. Both sectors must collaborate with a win-win approach so that private solutions would meet the requirements of the public sector and have a potential successful market.
- Eliminate silos of attention between social and health systems in the provision of care. Data sharing and create collaboration links among care agents to achieve a full patient-centred integrated care and the sustainability of the care systems.
- Loneliness management. In many cases, the loneliness is an election. The aim shouldn't be that elders are not alone, but to manage this state.
- Filling years with content. Getting older should not be a state of waiting, not only being active, but also doing things, being able to continue practising hobbies or learning new ones where ICT can help on this target.

- Adapt technology to elders to promote usability. Easy interfaces, big tablets or new screens and visualization methods. Technologies will evolve and are not a problem.
- Telemedicine and teleassistance doesn't have to eliminate the humankind. Processes must be adapted to promote a universal care, that reaches all patients, with a better quality on the attention and on the processes, without the elimination of the approach and human touch.
- Keep independence. While elders keep their independence they may not need cares, but learn how to take care of themselves. Empowerment, and co-responsibility.

ii. Breakout group 2

Members of the group choose one of the pictures they had used in the preliminary task and spoke about what they consider important in terms of home ageing and independent living.

- The future knowledge should be based and exploit previous knowledge. We should change the perspective from my experience to our experience. There should be shorter cycles of learning, based on indicators and continuous study. There should be explicit feedback and to incorporate continuously innovation and/or new knowledge.
- Intelligent assistants at home should be considered as a valuable asset, as they can be good companions. They should be connected with health and care systems.
- Innovative health and social care models should be adapted to "real people", and person centred (change from disease and procedural perspectives to those based on an integral vision of the person, taking into account value and singularities).
- IoT, Big Data, Artificial Intelligence should underpin person-centred models, and should contribute to increase social life.
- Some solutions do not reach market, maybe because the solutions are not adapted to "real" end users.
- Elders need to communicate, they may be isolated but not alone, they should feel that they are important in the society, they should have more communication with relatives, friends and their beloved ones.

iii. Dialogue with all 1. needs, requirements and values

1. Needs

- Capture and storage of information through precise and multivariate.
- Support for elders so they can use technology.
- Innovation in models of social and health care.
- To take into account the person, his/her needs and his/her wishes.
- Promote solutions for keeping independence, empower persons, and helping to fill with content the elders' life.
- Work for an integrated care, patient-centred with the participation and collaboration of all agents.

- Use of technology for elders needs: communication, hobbies, empowerment, adoption of healthy habits, co-responsibilisation, loneliness management.

2. Requirements

- Explicit feedback from the beginning.
- Continuous network connection.
- Infrastructure and technology that reaches market.
- Build a collaboration framework between public and private stakeholders to create win-win solutions that have a bigger impact on the market and ensure its effectivity and impact.
- Technology adapted to elders, non-intrusive, secure and ensuring its usability.

3. Values

- Share experience
- Taking into account the final goal: to help people
- Technology is a means to an end but not an end itself
- Person-centred care
- Prevent loneliness
- "Autodeterminant" The person him/herself must be the one expressing his/her needs
- Smart management of limitations. Ageing is a process during which capacities of each person should be maximized but also limitations (at individual and at environmental level) should be taken into account.
- Empowerment of people. Elders do not always need care, but want to still be independent the longer they can. They want to be learnt on how to take care of themselves.
- Effective management of the loneliness
- More effective solutions thanks to the dialogue with the market.
- Longer independent living.

d. Breakout session 2. Imagine an ideal scenario for independent ageing.

i. Breakout group 1

- The ideal scenario is that where the moving from the own's house is delayed as much as possible. Keep independence.
 - o Interfaces should be oriented to keep and maintain cognitive development: maintain user's capabilities, hobbies, usual activities...
- Elders houses or elder residential areas may not be the preferred solution, as seems as ghettos of elders. Elders "integrated" into the society. Continue living at home with the support of a platform of demand of needs and offer of services

targeted to elders, creating communities of exchange of goods, help, support, etc. Create a platform of sharing knowledge where patients/elders can share their knowledge gained from similar experiences and create a social network of help support. Applications of support between pairs, search for information and contacts that can provide support. Artificial Intelligence on the support to accompanying, attention to basic needs, psychological support. Engineering with the support of healthcare professionals to meet patients' needs. Robots used as support (i.e. sensors, method of communication, etc.). AI solutions with the aim to main the physical independence and security of elders: i.e. Chatbots, walkers, elevators, emotional support.

- Social networks for communication with the aim of maintaining the social life and support although virtual.
- Environments adapted to elderly/ smart cities, smart homes, but with the warrant of independence and privacy. Ubiquitous integrated sensors and seamless communications. Passive use of the technology integrated on the environment. Management of the exposition to avoid intrusions.
- Interconnected services.
- Patient education and empowerment addressed from multiple approaches. SALUD provider is one of the main responsible in health education, but social stakeholders, patients' associations and community can also be responsible as tackle other areas of knowledge.
- Data sharing is not a barrier as the privacy is guarantee through regulation and understood as accomplished. Data sharing is widely accepted is provides added value to the basket of services.

ii. Breakout group 2

- Importance of the concept of information. Information must be objective and immutable. New information resources must be created in a new way, not from traditional databases but with information in a context, Information should be generated from the very beginning, and should include multiple perspectives.
- Information generated by user is very important, but the person must have control over that information, and make the decision on providing consent. Most people are not used to share information, but they are used to receive services that may result from the use of that information. It is necessary to educate and to make people aware of the importance and the implications of information sharing.
- Promotion of the use of standards (FHIR)
- The concept of active ageing is of utmost importance and it must include several facets as: health monitoring, participation (co-creation), anticipate (devices), security and safety (people must feel safe), life in society, to preserve privacy.
- Technologies that might participate in future scenarios
 - o Connected (network) sensors
 - Skin (glucose, blood pressure, heart rate)
 - Manipulated by professionals (digital stethoscope, new generation ultrasound devices,...)
 - Environmental sensors (air, pollution, falls, isolation)

Different sensors from different sources can work in a coordinated way to provide an added-value monitoring (e.g. sensors in diapers to monitor the need, the position and to reduce the infection rate)

- User- oriented Technology (with support of interfaces through for instance, smartphone that can act as a hub for variables, sensors and wearables). Sensors should be as easy to use /automatic and less intrusive as possible.
- One layer of Intelligence (Artificial Intelligence, Big Data, Machine Learning)

iii. Dialogue with all 2. Key challenges and opportunities

1. Key challenges

- Information
 - Control over own's information. Social contract for data use. Commitment vs potential benefit. Awareness-raising on information sharing. Self-regulatory systems.
 - Preservation of privacy. Even though there is not a direct concern on data sharing, many stakeholders think that the new systems are somehow invading private lives.
- IT models
 - New models of information. Use of standards.
 - New architectures. Old ones are useless. Extension of Federated Machine Learning Architectures (extract value without extracting information from its environment)
- Innovation
 - Technological solutions based on person-centred innovation. Definition of models having as a basis specific use cases.
 - Innovation based on social responsibility. Maintain independence as long as possible.
- Maintain independence as long as possible.
 - Provide support via technology, devices, platforms, social networks, communication mechanisms, empowerment and encourage of hobbies activities. Do not interfere in the care of elders, as they are not kids.
- AI and robots for basic needs support and as communication channel.
- Integrated care: tackle care from multiple approaches with the collaboration of social, health agents and community.
- Empowerment

2. Opportunities

- Responsible connectivity
- Public-private and social and health care collaboration.
- Information Systems for public health. All we do has a community dimension. Individual is a social being.
- Social agreement for data sharing.
- New architectures for the IS.

- Technological progress is an opportunity itself.
- The widely introduction of ICT technologies and mobile phones in XXI century and its use by elders has promoted the innovation change, and the introduction of new methods of interaction with people changing the health processes. Services as video consultations, reminders of medications, empowerment via TV or mobile, social support or teleassistance or videocalls with relatives are accepted now. This innovation opens a wide range of new services to offer for the integrated care and support of elders. Moreover, permit changes on the care processes that can enhance the health and social systems, encourage the empowerment patients and helps on the sustainability of the welfare systems.
- Use of intelligent mechanisms for the data exploitation and data analysis with the aim of analysis of risks, prevention and generation of knowledge for support.

e. Closing and conclusions. Key messages

- The future of independent healthy ageing must be based on continuous innovation with a person-centred approach but also from a community perspective.
- It is mandatory to promote public-private collaboration and health and social coordination.
- According to the sharing of information, many patients don't see it as a burden as understood their data privacy is widely and extensively regulated by European and National laws. Nevertheless, agents stated the importance to create awareness on the implications of information sharing and also to provide mechanisms so each person can have control over his/her information.
- Information capture, management and exploitation will have to be accompanied by new Software models and new IT infrastructures.
- Innovation should be oriented to maintain the independence of the elders at home as much as possible, minimizing their loneliness facilitating the communication, to involve them and to make them participate in society, make them active, taking advantage of their specific capabilities and to support them during the ageing process.
- Technology is a mean not an end in itself. Technology progress is an opportunity.

4. Lessons learnt

- The variety of profiles provides a wide perspective and different points of view that enhance the discussion
- Participants were very proactive and active during the discussion
- Time for the sessions was short and there was not enough time to have a more productive discussion. We already knew that this could happen but professionals workload is very high.
- Remote sessions have as main advantage that people do not have to invest time in travelling. The main disadvantage is the lack of warm and of social contact that arises from physical meetings. Mural and zoom tools have worked perfectly for the plenary and for the break-out sessions.

1st Workshop at Basque Country Pilot Site

Co-creating futures of better ageing in place

Abbreviations

APP	Application
ICT	Information technology and communication
R+D+I	Research and development and innovation
UU	University of Utrecht
WHO	World Health Organization

1 Introduction

Due to the ageing population and advances in medical science, people with chronic diseases are living longer. European Healthcare Systems are struggling to cope with the cost burden of chronic diseases and its impact on their sustainability. Over the last decade, Healthcare Systems have increasingly recognised the potential of digital health solutions. Digital solutions play a growing role in achieving better diagnosis, treatment and management of citizens across the continuum care and prevention.

GATEKEEPER project, financed with European funds within the HORIZON 2020 innovation framework of the European Commission, aims to ensure a healthier independent life for ageing populations. GATEKEEPER seeks to develop a platform, at European level, based on standards, interoperable and secure, available to healthcare providers, businesses, entrepreneurs, elderly citizens and the communities they live in, in order to originate an open, trust-based arena for matching ideas, technologies, user needs and processes, aimed at ensuring healthier independent lives for the ageing populations. Therefore, identifying the needs and values of this population is a key issue in the development and incorporation of ICT in health.

This document provides further details about the organisation of a remote co-creation workshop at the Basque Country Pilot Site in the GATEKEEPER project. For background information and the rationale of this workshop we refer to the deliverable, 2.4 ([available in Alfresco](#)) published on 2020.

1.1 Title

Workshop: Co-creating futures of better ageing in place.

1.2 Organizations involved

This workshop has been organized by the Basque Country Pilot Site formed by Biocruces Bizkaia-Osakidetza and Kronikune. The event was remotely performed by ZOOM platform and following the guidelines provided by the University of Utrecht (UU).

1.3 Objectives

1.3.1 Main objective

To obtain an overview and create a common understanding regarding the needs and values for the development and implementation of digital technologies and health innovations, as well as to identify the key aspects, opportunities and challenges for creating independent active ageing in smart homes for elderly people.

1.3.2 Secondary objectives

- To share the perspectives of the participants on the most exciting health and ageing innovations in the Basque Country.
- To create futures for better ageing in place.
- To collect and share best practices, while acknowledging environmental differences in future developments, including relevant perspectives and available technological opportunities.
- To enable data sharing collected through these innovative technologies, used to support active and independent living via prevention and the provision of better care.
- To join forces in a collective effort to create a world in which GATEKEEPER leads to better care.
- To explore the benefits of a Europe wide platform that connects regional insights with European developments.

2 Workshop details

2.1 Practicalities

The workshop was scheduled on October 8th from 9:30 to 12:30 a.m. and was organised remotely using a video conferencing tool (ZOOM) combined with a software that enables interactive collaboration (MURAL). The links were provided by the University of Utrecht (UU) before the workshop.

The whole workshop was carried out in Spanish. The UU designed one observer (with knowledge of Spanish) to supervise the development of the meeting.

The workshop sessions, both the plenary and the sub-group sessions, were recorded with the participants' acceptance. Recordings will only be available for the research team and pilot site workshop organisers. When working in sub-group sessions, participants were asked to turn on their cameras and identify themselves, to promote better interactions between them.

2.2 Planning & Programming

2.2.1 Participants, invitations and informed consents

The Basque Country Pilot Site identified and invited 28 participants from different sectors: sanitary coordination, healthcare professionals, technological companies, R+D+I, policymakers and aging foundation.

Position	Organisation (descriptive)
Managing Director	Integrated Health Organisation
Head of Primary Care Unit	Health research institute
Health Care Sub-direction	Head Office
Head of service in the Technology Area	Head Office
Head of Nursing	Healthcare centre
Head of Primary Care Unit	Healthcare Centre
Section Head, Pharmacy Service	University Hospital
Responsible for the Care Integration and Chronicity Service	Head Office
Director	Engineering company
Innovation Technician	Foundation for healthcare innovation and research
Medical practitioner	University Hospital
Medical practitioner	Primary Care Units

CEO	Institute/foundation that realizes the innovation strategy for healthy ageing of the provincial government
Occupational therapist	Hospital
Social Health Analyst	Foundation for healthcare innovation and research
Advanced Technician in Organization	Foundation for healthcare innovation and research
Director of communication and business development	Health organisation
Technical director of innovation	Institute/foundation that realizes the innovation strategy for healthy ageing of the provincial government
Medical practitioner	University Hospital
	Hospital
CEO	IT service company, AI in healthcare
CEO	IT service company, AI in healthcare
Director	Regional governmental service in the field of innovation
Director	Engineering company
Technical Director	Institute/foundation that realizes the innovation strategy for healthy ageing of the provincial government
Head of service	University Hospital
Nursing	University Hospital
Director of Organizational Innovation and Management	Foundation for healthcare innovation and research

The participants were invited to the workshop 2-3 weeks in advance by e-mail (**Appendix I – Spanish version**) which included:

- A short description of the GATEKEEPER project
- A short description of the Basque Country Pilot Site
- A preliminary agenda
- Formal invitation and the informed consent (**Appendix II – Spanish version**) for their acceptance of participate into an observational qualitative study
- Links to websites and social networks for further information

- Contact e-mail

The signed informed consent were sent to the UU contacts before the workshop. Participant list and the sub-groups that should be created during the workshop for the dynamic activities were scheduled to enable a smooth process meeting.

2.2.2 Reminder

Two days prior to the workshop participants received a reminder (**Appendix III – Spanish version**) with:

- Confirmation of the date, hour and duration of the workshop
- Link to ZOOM previously facilitated by UU
- Objectives of the workshop
- Assignment (**Appendix IV – English version**): participants were asked to carry out a reflection on what symbolizes for them a better future for ageing at home
- Final agenda
- Links to websites and social networks for further information
- Contact e-mail

2.2.3 Agenda

The workshop was scheduled as following:

Table 2 Workshop Agenda

Time	Duration (min)	Activity
09:30	10	Welcome and "registration"
09:40	20	Introduction and technical aspects
10:00	40	Dynamic 1: Working on the dimensions of the Intrinsic Capacity for advanced ages (<i>in groups</i>)
10:40	10	Conclusions Dynamic 1
10:50	10	Break
11:00	40	Dynamic 2: Construction of new scenarios based on Intrinsic Capacity (<i>in groups</i>)
11:40	10	Conclusions Dynamic 2
11:50	30	Wrap-up and closure

2.2.3.1 Introduction

The main moderator opened the workshop with a brief welcome and a presentation of GATEKEEPER project, explanation of the Basque Country Pilot Site, the workshop objectives, an inspirational introduction of the importance of the well ageing in place including the Intrinsic Capacity (World Report on Aging and Health 2015, WHO), and an introduction to the activities that were scheduled within the workshop. The workshop was structured in two parts:

- Dynamic 1: Working on the dimensions of the Intrinsic Capacity for advanced ages
- Dynamic 2: Construction of new scenarios based on Intrinsic Capacity

To address the two parts of the workshop, participants were divided into 4 sub-groups of 7 people. A moderator was assigned to each sub-group (1 subgroup was led by Kronikgune, 3 subgroups were led by Biocruces-Osakidetza). Sub-groups were named as following: "Txitxarrillo", "Petanca", "La Brisca", and "La Huerta".

2.2.3.2 Dynamic 1: Working on the dimensions of the Intrinsic Capacity for advanced ages

This first part of the workshop aimed to reflect on the needs, values or requirements for elderly people that could be considered to promote independent ageing in smart homes.

In this session participants reflected on the needs, values or requirements considering the intrinsic capacities of the elderly. The intrinsic capacity is the combination of all the physical and mental capacities that a person has. MURAL platform was used to collect all the ideas and contributions made by the participants. The platform was prepared for the workshop considering the 5 dimensions of the Intrinsic Capacity: **'Physical condition & Mobility'**, **'Cognition & Intellect'**, **'Psychosocial State & Environment'**, **'Sensory Functions & Independence'**, and **'Vitality & Emotional State'**. MURAL platform was managed by the moderator who filled up each dimension with as much aspects as possible based on the inputs of the participants, as it is shown in **Figure 1**.



Figure 8 Dynamic 1: Image of the MURAL platform template by Basque Country PS

The term “aspects” refers to the ideas, keywords and solutions found by the participants to cover the needs identified for a well ageing in place.

To work on this, participants considered the reflection developed in the assignment (**Appendix IV – English version**) in order to start the brainstorming to find a conclusion for each dimension.

2.3.3 Conclusions Dynamic 1

All participants from the four sub-groups, met together again in the initial plenary group. A speaker was designated from each sub-group to explain the ideas and conclusions generated during the reflection.

2.2.4 Break

During the break session, the main moderator gathered all the aspects (by dimension) listed at MURAL from the different sub-groups.

2.2.4.1 Dynamic 2: Construction of new scenarios based on Intrinsic Capacity

The second part of the workshop aimed to define the key elements for developing an ideal scenario for independent ageing in smart homes, and to identify opportunities for the incorporation of innovations and technologies to facilitate ageing in smart homes.

In this session, moderators of each sub-group made a brief description of the use cases in which the Basque Country is working within the GATEKEEPER project, in order to explore novel ideas and solutions (services, technologies, administrative support...) that could be implemented. Specific slides (PowerPoint) were prepared for each of the use cases to explain briefly the use cases and to gather the ideas and conclusions, as it is shown in **Figure 2**. To work on the different scenarios, the conclusions obtained in Dynamic 1 were used by participants to reflect on the use cases highlighting the key aspects to consider, opportunities and challenges.

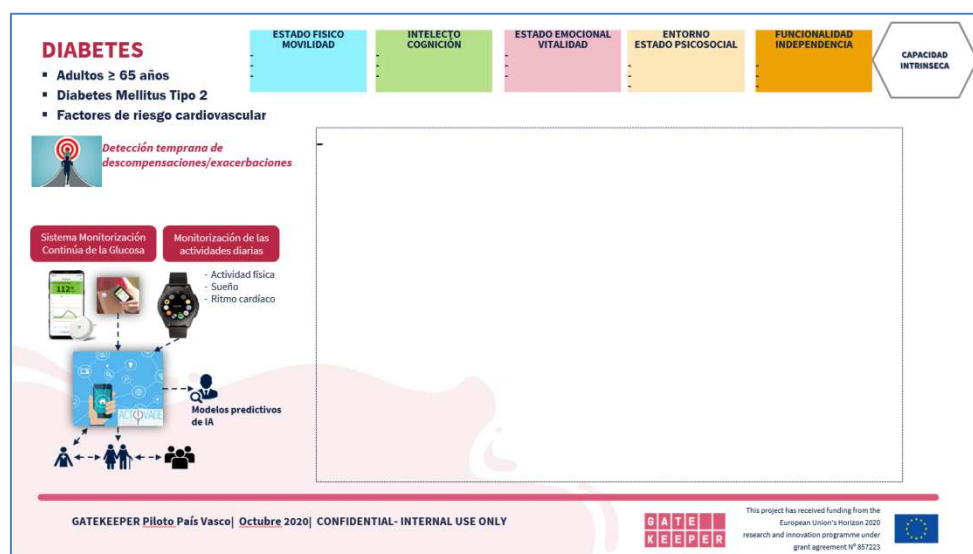


Figure 9 - Dynamic 2: Working on a better scenario of a Reference Use Case of the Basque Country PS based on the dimensions of the Intrinsic Capacity.

For a better understanding of the GATEKEEPER platform and the significance of the project, a short video is shown at the beginning of the session: ACTIVAGE Project (**Figure 3**). This makes easier to understand the interventions and facilitates working on the use cases.



Figure 10 - ACTIVAGE project video subtitled in Spanish.

Participants also reflected on the development of a new use case that could be implemented in GATEKEEPER project. This exercise was carried out on a blank slide (**Figure 4**).

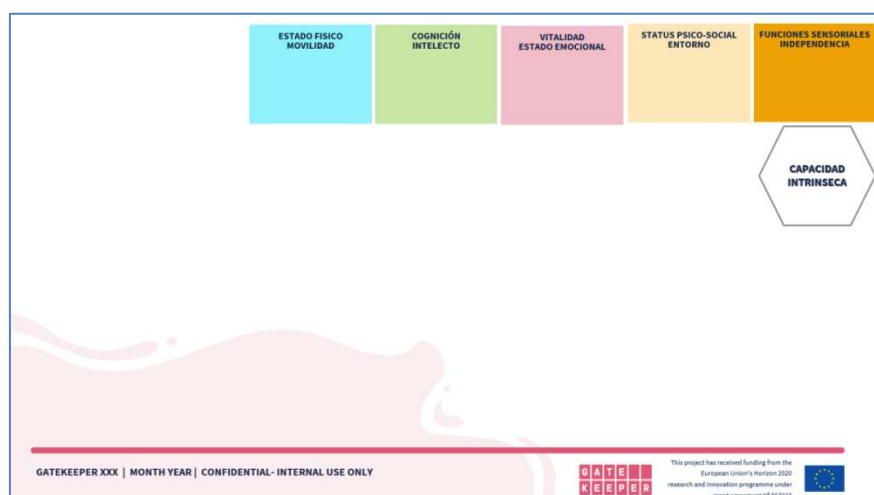


Figure 11 - Dynamic 2: To create a new Use Case and working on the best scenario based on the dimensions of the Intrinsic Capacity.

As a result, participants worked on 8 uses cases (5 use cases of GATEKEEPER project, and 3 new possible use cases that may be implemented within the project).

2.2.4.2 Conclusions Dynamic 2

All participants in the sub-groups met together again in the initial plenary group. A speaker was designated from each sub-group to explain the ideas and conclusions generated to the rest of the sub-groups.

2.2.4.3 Wrap-up and closure

At the end of the workshop, the main moderator highlighted the needs, values, requirements, key challenges and opportunities that have arisen during the different sessions.

Before the workshop closure, it was accorded with the participants to provide a summary of the workshop and to invite them to get involved in the GATEKEEPER ecosystem through the next Open Calls.

3 Workshop Ideas and Conclusions for Ideal Scenarios in Ageing in Place

The workshop was organised around the conjoint development of scenarios for ageing in place, i.e. scenarios in which opportunities to remain living at home while ageing were explored. During the workshop, participants explored and reflected on issues that were important when it comes to ageing and innovations in their pilot region.

3.1 Ideas

3.1.1 Dynamic 1: Working on the dimensions of the Intrinsic Capacity for advanced ages

According to the Ageing and Health (2015) report, developed by the World Health Organization (WHO), the physical function generates two crucial concepts to address health problems which are functional capacity and intrinsic capacity. The intrinsic capacity, according to the WHO, is the combination of all the physical and mental capacities that an individual can use at a certain moment. This implies that the person can maintain autonomy and retain the ability to make decisions on matters that concern him and execute his decisions.

To help participants to think out of the box and reflect on different perspectives to needs, requirements and values in relation to ageing in place and technologies that can enrich the intrinsic capacity we use objects, images, even phrases, words or values that they consider important based on their personal and professional experiences. It was also used Covid-19 as a scenario and future scenarios.

Gathering the ideas from the sub-groups, we find the following solutions for a better intrinsic capacity dimensions:

3.1.1.1 Physical condition & Mobility

- It is believed that there is a need for simple, attractive, age-oriented and adapted applications.
- It is commented that traditional communication channels such as television could be used to promote physical activity in the elderly. On the Basque public television, during the lockdown a 30 minutes program of physical activity for elder people at home began to broadcast. Given the success, it is still broadcasting.
- Promotion of physical activity, i.e. dance. Dance has been demonstrated to have not only benefits on the physical condition of elder people (strengthens the muscles, especially the legs, hips and, depending on the dance, the arms; increases flexibility and endurance; improves coordination and balance, thus helping to prevent falls; ...), but also on the emotional and psychological state (encourages the creation of new social relationships and interacting with people). In a scientific congress it was used as ice-breaker enhancing the networking.
- A specialist on stroke episodes highlights the importance of the design of adapted spaces. This disease involve, in many cases, the disability of patients with specific

needs. Then, it will be easier to create new spaces bearing in mind this kind of necessities rather than eliminate the current architectural barriers.

- Communication means, informing about social and physical activities
- Activities in place for ageing people: theatre, walks, bike rides...
- Osasun eskola : It is a service of Osakidetza and the Health Department that offers information and training to citizens, in order to achieve a responsible and active attitude around your health and illness.
- Municipality : Local (city/town) activities
- Assisted medical prescription

3.1.1.2 Cognition & Intellect

- It is considered important that applications could have reward functions with incentives, achievements, or points. In addition, they should offer the results of the activity with messages, to generate motivation among elderly people.
- It is relevant that the older person who is using technology receives feedback from a professional periodically, someone who supervises in some way what they are doing.
- The barriers that exist with technology are: rejection and frustration to use the technologies, accessibility problems or difficulties to handle the technologies (problems with navigating the applications).
- It is emphasized that technologies can provide opportunities to the population living alone. It may also help people increase mental skills or self-esteem.
- The importance of training and informing older people in the use of technologies is emphasized, as this could awaken their interest. They also point out that it is important that health professionals should be trained to be able to properly prescribe the technologies.
- Promote gamification as learning technique
- Technological management: to build an infrastructure with tools that the users of the system can use and that allows easy access to the information and knowledge that is needed.
- Provide virtual reality, for education, to exercise memory, for therapies, ...
- Offer personalised activities, based on the illness, limitations, hobbies, preferences,

3.1.1.3 Psychosocial State & Environment

- Interactive Smart-Television: Nowadays, this type of technological devices are being broadly used at homes. They can be enhanced by including a service of feedback in streaming with other patients/family/friends, to improve communication and social aspects.
- Traffic lights timing-adapted for older people: In many European cities the time to cross from one side to other is too short. It is too dangerous to persons with physical limitations. This must be considered socially to achieve the integration of this population.

- It is mentioned that technologies must be adapted to the specific needs of the elderly. The common factor of this group is age, but the capacities and needs are very different. It is a heterogeneous group from several perspectives: economic, educational, social, functional, gender, burden of disease, role of the caregiver, etc.
- The new digital solutions that are designed must avoid gaps and inequalities, and must be generalizable.
- Telemedicine (with an alarm system) is mentioned as a useful technology for the elderly, since it provides them with security and reduces loneliness. Similarly, it is useful for family members, because they can access the clinical data of the elderly person, and for health professionals, because it allows better monitoring of the elderly person and allows decisions to be made in time.
- Neighbourhood movement: dynamism of the members to achieve the development of the quality of life of that community
- Local health networks

3.1.1.4 Sensory capacity & Independence

- Interactive Smart-Television: The feedback in streaming with other patients/healthcare professionals facilitates the independence. For example, attending a medical consultation through a Smart-TV would avoid the assistant to accompany the patient to the health centre.
- Call app: an application that turns the personal phone book into one with very complete information about our contacts
- Health folder: an information, training and communication channel instrument within Osakidetza
- Personalized psychosocial support
- Job, to maintain in active i.e. educating in gardening, giving support in activities related to their experiences,
- Some improvements that the technologies could include to facilitate accessibility to older people are mentioned:
 - 1) possibility of receiving calls through the application,
 - 2) access with the fingerprint,
 - 3) possibility to call with the screen,
 - 4) try to adapt the solutions to the needs of the elderly (more intuitive, easy-to-use applications...).

3.1.1.5 Vitality & Emotional State

- Social and family support (building connections) helps improve older people's emotional state.
- It is mentioned that any change (routines, environments) in the older person generates stress. The technologies should be postulated as tools to avoid alterations in the state of people.

- Neighbourhood movement to improve conditions in the area: traffic lights that last longer to allow time to cross, for example. To take into account limitations like that and promote changes for the best adaptation to any condition, may encourage to older people to actively participate in their communities. Supporting networks, i.e., psychological support network for the acceptance of getting old and decrease the feeling of loneliness
- To inform about the resources and activities around the neighbourhood, in general, increases the vitality of the persons
- Older people the need to feel together, to feel closer to the referring physician. In this sense, technology could help promote greater contact with professionals (approach to the health system)

3.1.1.6 Key notes for all dimensions:

The followings are applicable within each dimension:

- Devices: Must be easy to use, friendly, customized, and intuitive. The technologies must be adapted to the heterogeneous capacities and needs of elderly people from several perspectives: economic, educational, social, functional, gender, burden of disease, role of the caregiver, etc.
- Applications could have reward functions with incentives, achievements, or points. In addition, they should offer the results of the activity with messages, to further generate motivation. The older person who is using technology receives feedback from a professional periodically, someone who supervises in some way what they are doing
- Promote training and education between older people, keep active by informing them in the use of technologies what could awaken their interest
- The importance of health professionals to also be trained in the use of technologies to be able to properly prescribe the technologies
- The solutions should not be compartmentalized; integral solutions have to be provided
- The interventions must avoid gaps and inequalities, and must be generalizable

3.1.2 Dynamic 2: Construction of new scenarios based on Intrinsic Capacity

Participants were asked to imagine future scenarios and co-create their ideal scenario for ageing at home. To this end, they had to not only consider their present perspectives, but also to take future changes and the perspectives of older people. So, this could help them to formulate realistic key challenges and opportunities.

3.1.2.1 Use Case LIFESTYLE-RELATED EARLY DETECTION AND INTERVENTIONS (GATEKEEPER UC1, Kronikgune)

- **Moderator's proposal:**

Target population: Adults ≥ 70 years old with risk factors.

Objective: Promote healthy lifestyle habits in older people

Solutions within GATEKEEPER: Mobile health application to promote healthy lifestyle habits

- **Participants' contributions:**

- It is considered necessary that the application could have the function of exchanging information between the professional and the patient.
- The application must be able to collect data from the users and that can be visualized by the professionals.
- For the evaluation of the collected data it is necessary to have staff.
- The application can offer services and resources already available in Osakidetza
- The application should offer personalized information to the patient.
- The application must offer a periodic progress report.
- The application must offer incentives as lifestyle challenges are achieved.
- Co-create the application with the end users to know if it is easy to use or not.
- Use the information that exists in other application (e.g. use the BetiON network and the network of people with dementia).
- To be able to customize the application with Osakidetza content.
- To take advantage of the interest of the elderly to have an application that can give them information, motivational messages, reminders, information. Users request and ask for consultations through "video calls"

3.1.2.2 Use Case DIABETES (GATEKEEPER UC3, Biocruces-Osakidetza)

- **Moderator's proposal:**

Target population: Adults ≥ 65 years old, diagnosed of Diabetes Mellitus Type II with cardiovascular risk factors.

Objective: Early detection of decompensations and exacerbations.

Solutions within GATEKEEPER: Continuous glucose monitoring system and smartwatch for monitoring daily activities.

▪ **Participants' contributions:**

- Measurement of blood pressure.
- Possibility of doing electrocardiogram at home.
- To participate in groups to exchange experiences.
- Surveys to evaluate the quality of life.
- Tips for a good nutrition.
- To facilitate printing the data they are monitoring.
- To integrate the gamification within the smartwatch/platform.
- Motivation: Make a challenge between the European countries that take part into GATEKEEPER.

3.1.2.3 Use Case PARKINSON (GATEKEEPER UC4, Biocruces-Osakidetza)

▪ **Moderator's proposal:**

- **Target population:** Adults ≥ 65 years old, diagnosed of Parkinson Disease.
- **Objective:** Early detection of worsening of the disease.
- **Solutions within GATEKEEPER:** Holter for Parkinson Disease and smartwatch for monitoring daily activities.

▪ **Participants' contributions:**

a. **Identified needs:**

- Comprehensive approach of the patient: psychologically, environment, social conditions.
- Social coordination, to increase the identification of patients who are not being detected (Socio-sanitary history project).
- Quality of life influenced by depression, apathy → Avoid.

b. **Solutions:**

- Prediction of AI with clinical relevance (data collection linked to who will use this data).
- Clinical relevance: detection of fluctuations difficult to identify in the medical consultation, and monitor circadian rhythm, activity, sleep.
- Journey Map: To identify contact points and interactions they have in their daily life and reinforce the good moments.
- To make know the patient and caregiver what data they are providing. This promotes self-esteem and stability.

3.1.2.4 Use Case STROKE (GATEKEEPER UC6, Biocruces-Osakidetza)

- **Moderator's proposal:**

Target population: Adults ≥ 65 years old that have suffer from stroke or with cerebrovascular and cardiovascular risk factors.

Objective: Early detection of acute episodes and acknowledgment of "alarms".

Solutions within GATEKEEPER: Virtual reality for education and empowerment of the disease and smartwatch for monitoring daily activities.

- **Participants' contributions:**

- The devices should be:
 - 1) Non-intrusive devices
 - 2) Easy to use
 - 3) Intuitive
 - 4) To count with personalized APPs to create interest and motivation
 - 5) Self-programming and automatic operation
- To integrate the patients and end user into the design of the intervention.
- To promote motivational communication strategy and on-the-job training new systems of treatment from the Public Administration. (It is essential to define prescribers that could be the Culture Area of the town/city, private companies...)
- Gamification.
- User achievement feedback, this motivates to the user.
- Knowledge of the assets of the environments.
- To stablish what is called as "single window"; that is, a socio-sanitary information point.
- To simplify the methodology of aid application to get involved in a program like this.

3.1.2.5 Use Case MULTI-CHRONIC ELDERLY PATIENT MANAGEMENT INCLUDING POLIMEDICATION (GATEKEEPER UC7, Kronikgune)

- **Moderator's proposal:**

Target population: Adults ≥ 70 years old with chronic conditions with polypharmacy.

Objective: Improve adherence to treatment

Solutions within GATEKEEPER: Mobile health application to improve adherence to treatment

- **Participants' contributions:**

- The medication has to be reviewed by professionals.
- It is important that the professional could have some technology that could help in the revision of the medication.
- Possibility to automatically incorporate the medicines in the App.

3.1.2.6 New Use Case 1

Target population: Patients ≥ 65 years old, from remote towns or others with limited access for any reason.

Objective: To establish a medical screening of diseases of easy identification (cutaneous i.e. pressure ulcers, muscular, nerve, eye pathologies i.e. retinopathy).

Participants' proposals:

- APP for the diagnosis of the pathology, including:
 - 1) Photos with the phone (through algorithms).
 - 2) Questionnaires of quality of life.
 - 3) Treatment advices.
- The information is incorporated into the ACTIVAGE platform for a closer control of the patient's skin/whatever pathology.

3.1.2.7 New Use Case 2

Target population: Patients ≥ 75 years old. In an urban environment but in loneliness situation.

The family lacks of time and closeness for care. Age-specific pathologies.

Participants' proposals:

- Mobile phone or other devices: interactive intervention from public (or private) services, monitoring and promotion (information, support).
- To avoid isolation through simple videoconferencing between different elders.
- Classrooms or experience banks, to continue "active" after retirement.
- Search for solutions that are attractive and non-invasive for them, that see them as useful.
- Regular information to caregivers.
- APP promoting group activities with other majors of common interests.
- Access to associative movement that promotes community activities.
- APP that tells you which activity would be the most suitable for you among what is offered: physical exercise, culture, speech therapy, etc. AI algorithms that find what you like best.
- To integrate the solution in a device that they already have promoted by municipal entities.

3.1.2.8 New Use Case 3

Target population: Patients 75 ≥ years old with moderated functional ability (not frailty) in remote populations with limited access to services.

Participants' proposals:

- Due to lack of technology, the steps to follow are:
 - 1) identification of the target population (primary care),
 - 2) evaluation (to know the environment: personal and social) for stratification,
 - 3) and intervention.
- To create an approved/certificated evaluation tool for the criteria unification of the target population.
- There must be a connection between the intervention agents. This will facilitate the control and tracking of the patient independently to the healthcare professional.
- All this will allow to stablish a common model.

3.2 Conclusions

Considering our finding solutions and novel ideas gathered in dynamic 1 and dynamic 2, a SWOT analysis was developed to assess the current scenario of the use cases based on the internal (strengths and weakness) and external factors (opportunities and threats) that were mentioned in this study and that could be bearing in mind, as it is shown in **Figure 5**.

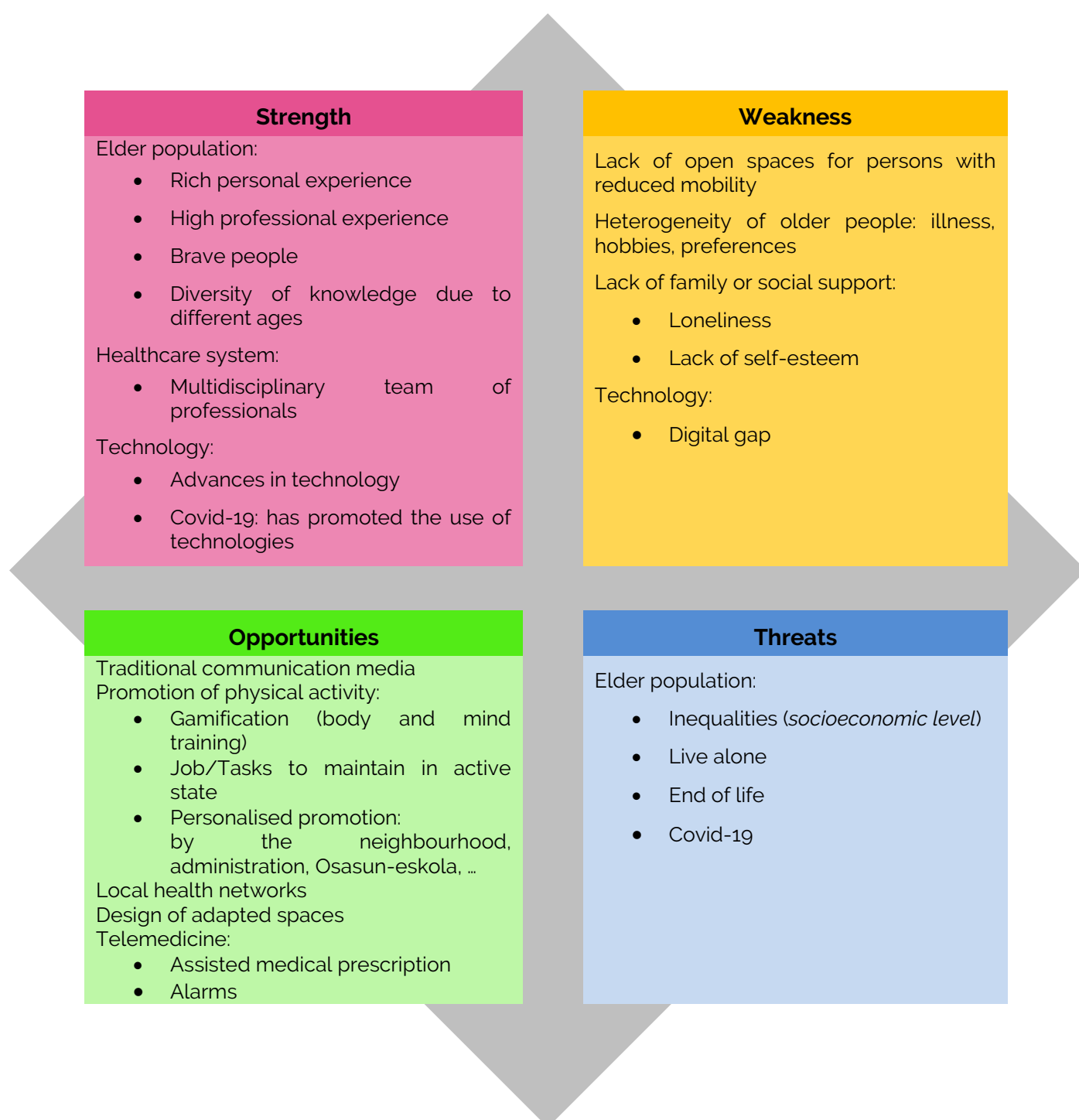


Figure 12. SWOT analysis of elder patients

We all have strengths and weaknesses, but what sets us apart is the way we deal with moments of weakness and how we act in moments of strength. That is why some points here can be treated, depending on the situation, as strengths or as a weakness. For example, the family support. The term "family" is usually understood as commitment, comprehension, good communication, coexistence... However, when talking about caring for the elderly, it is easier to hear about loneliness, lack of time or family abandonment. The same happens with the technology. Advanced technologies have come into our lives to solve many problems, but also to create others. Especially in the use of technologies and devices as tools for a better ageing, the digital gap between generations is clear and cannot be underestimated.

The actions that might be carried out to take advantage of the opportunities, to boost the strengths and to reduce the weakness in order to avoid the major threats were, as concluded in this workshop:

- To consider the real individual needs to customize interventions. That is:
 - 1) What does the patient want?
 - 2) What is his/her current and future (more probable) scenario?
 - 3) What intervention should be carried out in each stratified group?
- To coordinate the different environments where older people are integrated at social, municipal, sanitary and business level.
- To evaluate the inequalities: socioeconomics, of gender, etc.
- To give psychological and technological support to overcome the self-esteem.
- To train and educate in technologies and health, not only to patients but also to their corresponding caregivers, family and professionals.
- To use adapted, attractive and non-invasive technologies (APPs, smart-Television Virtual Reality ...).
- To promote physical activity and cognition exercises through i.e. the dance or virtual games, with other elder people as for example by group APPs.
- To facilitate communication and the accessibility to maintain this population integrated within the society.
- To implement the digital solutions in Osakidetza's system.

Appendix I

A.1 Invitation e-mail

A.1.1 Appendix

Invitación - Taller






Co-creando futuros para un mejor envejecimiento en el hogar

G A T E K E E P E R

G A T E

K E E P E R

Estimado/a Sr./Sra.:

Nos ponemos en contacto con usted para invitarle a participar en el taller “Co-Creando futuros para un mejor envejecimiento en el hogar” que se llevará a cabo en formato no presencial el próximo 8 de octubre.

Este evento que está organizado por el Servicio Vasco de Salud – Osakidetza, BioCruces Bizkaia y el Instituto de Investigación en Servicios de Salud - Kronikguner, en colaboración con la Universidad de Utrecht, surge de la necesidad de informar sobre los avances regionales y europeos hacia unos entornos de vida que aprovechen la información existente para la mejora del bienestar de la sociedad y está enmarcado dentro del proyecto europeo H2020 GATEKEEPER.

GATEKEEPER es un proyecto multicéntrico que pretende explotar las oportunidades tecnológicas y en el que están involucradas más de 40.000 personas pertenecientes a países de la Unión Europea. Su objetivo principal es permitir la creación de una plataforma que interconecte a los proveedores de servicios de salud, las empresas y las personas de edad avanzada y las comunidades en las que viven, a fin de crear un ecosistema que promueva la conciliación de ideas, tecnologías, necesidades de los usuarios y procesos, y de esa manera poder garantizar una vida independiente más saludable para las poblaciones de edad avanzada.

Para ello, GATEKEEPER pretende desplegar diversas soluciones innovadoras basadas en la inteligencia artificial, internet de las cosas y Big Data para la detección personalizada de riesgos, la monitorización de la salud y las intervenciones tempranas para las personas que se enfrentan a mayores riesgos sanitarios y sociales en 8 pilotos Europeos: País Vasco y Aragón (España), Lodz (Polonia), Milton Keynes (Reino Unido), Nicosia (Chipre), Puglia (Italia), Región de Grecia y Attica (Grecia) y Sajonia (Alemania).

Osakidetza, Biocruces-Bizkaia y Kronikguner conforman el piloto del País Vasco cuyo objetivo es promover un envejecimiento activo, mejorar la calidad de vida de pacientes y cuidadores, y mejorar la independencia de las actividades diarias a través de dispositivos tecnológicos destinados a facilitar el manejo de su propia autonomía. Por tanto, dentro del contexto del proyecto GATEKEEPER, necesitamos conocer su experiencia para crear un mundo que conduzca a una mejor salud, cuidado y autonomía de las personas mayores.

En esta reunión, examinaremos cómo las tecnologías de la salud nuevas y emergentes pueden hacer posible una vida independiente, socialmente integrada y saludable en el hogar.

Al compartir sus perspectivas con otros participantes de la reunión, usted contribuirá a la creación de soluciones innovadoras que ayuden a sustentar una vida autónoma en el hogar en el País Vasco, así como al desarrollo de la futura plataforma europea de intercambio de datos que se está desarrollando actualmente en el proyecto europeo GATEKEEPER junto con las contribuciones de los otros 7 pilotos. El análisis de dichos datos permitirá ir modulando las actuaciones futuras y seleccionando las intervenciones y tecnologías más efectivas y eficientes.

Su participación le permitirá acceder de manera preferente a los resultados del proyecto y su impacto.

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Deseamos contar con su participación y conocer su visión en la creación soluciones innovadoras para un mejor envejecimiento de la población y para que usted pueda colaborar, hemos planificado las siguientes actividades a realizar durante el taller:

Co-creando futuros de un mejor envejecimiento en el hogar

Fecha y hora: jueves 8 de octubre de 2020, de 9:30 a 12:30 h (aprox.)

Acceso ZOOM: El link al taller será facilitado previo a su comienzo

Hora	Duración (min)	Actividad
09:30	10	Bienvenida y registro de participantes
09:40	20	Introducción y aspectos técnicos
10:00	40	Ejercicio 1: Evolución de los escenarios del envejecimiento en el hogar (<i>en grupos</i>)
10:40	10	Conclusiones ejercicio 1
10:50	10	Descanso
11:00	40	Ejercicio 2: Construcción de nuevos escenarios (<i>en grupos</i>)
11:40	10	Conclusiones ejercicio 2
11:50	30	Resumen y finalización del taller

Esperamos su respuesta.
Atentamente,

Puede encontrar más información en Twitter con los hashtags:

#GATEKEEPEREU NEWSLETTER! #ArtificialIntelligence #BigData #IoT

Y en los siguientes links:

<https://www.gatekeeper-project.eu/>


<https://www.activageproject.eu/>

https://ec.europa.eu/eip/ageing/home_en?cookies=disabled

Para cualquier duda, contactad con
Servicio Vasco de Salud OSI EEC:

Appendix II

A.2 Formal Invitation (document attached to the Invitation e-mail)



Co-creando futuros de un mejor envejecimiento en el hogar

Fecha y hora: jueves 08 de octubre de 2020, a las 9:30 h

Acceso ZOOM: El link al taller será facilitado previo a su comienzo

Estimado/a Sr./Sra.:


Nos complace invitarle al próximo encuentro de "Desarrollos regionales y europeos hacia entornos de vida más Inteligentes". Necesitamos su experiencia para crear un mundo que conduzca a una mejor salud y atención.

El Servicio Vasco de Salud - Osakidetza y el Instituto de Investigación en Servicios de Salud – Kronikgune se han unido en un estudio piloto del proyecto europeo GATEKEEPER que tiene como objetivo conectar a profesionales de diversos sectores (médico, tecnológico, investigación sanitaria, ingenieril, etc.) con la ciudadanía para generar un ecosistema que permita garantizar una vida independiente más saludable de las poblaciones envejecidas.


Ahora, el equipo piloto del País Vasco junto con la Universidad de Utrecht, lo invitan a unirse a una reunión de mentes virtual sobre futuros para un mejor envejecimiento en el lugar. En sesiones virtuales interactivas, que tienen lugar en el contexto del piloto europeo a gran escala GATEKEEPER, analizaremos cómo las tecnologías sanitarias nuevas y más inteligentes pueden permitir una vida independiente, significativa y saludable en el hogar. Así, al compartir sus perspectivas con otros socios clave en su región, contribuye a la creación de soluciones innovadoras para una vida más inteligente en el hogar. De esta forma, usted contribuye al desarrollo de una plataforma europea de intercambio de datos y tecnología con contribuciones de 13 países.

Durante las sesiones de este taller trataremos y compartiremos temas como:


- La creación de futuros para un mejor envejecimiento en el lugar.
- Las perspectivas sobre las innovaciones en salud y envejecimiento más interesantes, incluido el empleo de tecnologías inmersivas como la realidad virtual en la mejora de la actividad física, los sistemas domóticos, el empleo de dispositivos para el control de determinadas patologías, y otros sistemas innovadores que usted considere pueda aportar valor a este encuentro.
- Las diferencias regionales en los desarrollos futuros, incluidas las perspectivas relevantes y las oportunidades tecnológicas disponibles.
- Establecer una agenda para el envejecimiento y las innovaciones en salud que permita inspirarse y aprender de otros pilotos europeos.
- Permitir el intercambio de datos recopilados a través de estas tecnologías innovadoras, que se utilizan para apoyar una vida activa e independiente a través de la prevención y la prestación de una mejor atención.




Osakidetza
osakidetza berriak institutua
instituto de investigación en servicios de salud



kronikgune
osakidetza berriak institutua
instituto de investigación en servicios de salud



b+ocrucis bizkaia
osakidetza berriak institutua
instituto de investigación sanitaria



Utrecht University



Este taller forma parte de un ciclo internacional de talleres de co-creación que se organizan en toda Europa entre los meses de septiembre y octubre de 2020 y los resultados de los pilotos organizados en toda Europa informarán del desarrollo futuro para la asignación y la anticipación de las necesidades y valores dinámicos de las innovaciones en salud.

Durante el taller, aprovecharemos a reflexionar sobre las necesidades y medidas introducidas para gestionar el brote del virus Covid-19. Recientemente se han creado escenarios imprevistos en los que los ciudadanos mayores se enfrentan a desafíos diarios y a los que debemos buscar solución. En estos escenarios ya existentes, están en juego valores nuevos y a veces conflictivos. En la sesión de co-creación, meditaremos sobre qué y cómo las necesidades y los valores juegan o jugaron un papel en el escenario del Covid-19, así como en sus ideales actuales y futuros de envejecer bien. Le pedimos para ello que adopte la perspectiva de un ciudadano mayor, de este modo genera una visión de las oportunidades y los desafíos potenciales que se presentan con la introducción de tecnologías en la vida diaria de los ciudadanos mayores.

Una asignación individual antes del taller combinada con asignaciones grupales durante el taller ayudará a explorar sus perspectivas y las de otras partes interesadas sobre lo que es importante cuando se trata de permitir el envejecimiento independiente (envejecimiento en el lugar).

Esperamos contar con su participación en este evento tan especial en la fecha y hora señalada.

Se despide atentamente,

GATEKEEPER es un piloto europeo multicéntrico a gran escala sobre entornos de vida inteligentes, con 42 socios europeos y nueve pilotos en siete países. El objetivo principal es permitir la creación de una plataforma que conecte a los proveedores de atención médica, las empresas, los empresarios y los ciudadanos mayores con las comunidades en las que viven, garantizando una vida independiente más saludable para la población que envejece. Este proyecto ha recibido financiación del programa de investigación e innovación Horizonte 2020 de la Unión Europea en virtud del acuerdo de subvención N° 857223. El proyecto se describe en: www.gatekeeper-project.eu.



Osakidetza

kron+kgune
maximale produktivität durch bewährte technologie

investiciari partizan, care funcționează mult mai bine
într-o țară de investiții decât în țările cu servicii de calitate

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Utrecht University

G A T E K E E P E R

CONSENTIMIENTO INFORMADO AL PARTICIPANTE

TÍTULO DEL EVENTO: CO-CREADO FUTUROS PARA EL MEJOR ENVEJECIMIENTO EN EL LUGAR

PERSONAS QUE TOMAN EL CONSENTIMIENTO:

Yo, con DNI-....., he sido invitado/a a participar en un taller en línea. Este taller se lleva a cabo en línea, a través de videoconferencia con Zoom y mediante el uso de software de co-creación (MURAL), configurado de acuerdo con los requisitos de GDPR¹. La participación durará aproximadamente 3 horas (preparación incluida). Durante este taller, los organizadores del taller me pedirán a mí y a otros participantes que desarrollen y reflexionen sobre escenarios en los que se introducen innovaciones y tecnologías de salud y envejecimiento para facilitar la continuación del envejecimiento independiente. Durante el taller recibiré instrucciones más específicas que me guiarán a mí y a otros participantes. El taller se llevará a cabo principalmente en castellano.

Antes del taller se me pedirá que prepare una tarea de aproximadamente 15 minutos. Durante las actividades se pueden hacer grabaciones de audio, notas y copias de la sesión en la que participo para su posterior análisis. Mis respuestas serán anónimas para fines de investigación. Todos los datos registrados se almacenarán en una ubicación segura de la Universidad de Utrecht, solo accesible para los miembros del equipo de investigación que firmaron una declaración de privacidad. Los archivos anónimos se guardarán durante al menos 10 años (de acuerdo con la política de investigación). Las publicaciones, incluido un resumen de la reunión, basadas en esta investigación no incluirán mi nombre ni ninguna otra información personal por la cual pueda ser identificado. Las grabaciones pueden ser revisadas por los departamentos de la Universidad de Utrecht responsables de la supervisión regulatoria y de investigación.

Al establecer un taller de co-creación digital, la Universidad de Utrecht y Osakidetza y KronikGune garantizan un entorno lo más seguro posible. No hay riesgos plausibles previstos al participar en el taller. Mi participación en este estudio es voluntaria. No se me pagará por mi participación. Puedo elegir no participar o, si acepto participar, puedo retirarme en cualquier momento sin ser penalizado². Después del taller tendré la oportunidad de dar mi opinión en el resumen del taller. También puedo compartir ideas y perspectivas adicionales con los investigadores.

He leído la información anterior. He tenido la oportunidad de hacer preguntas al respecto y cualquier pregunta que he hecho ha sido respondida a mi entera satisfacción. Doy mi consentimiento voluntario para participar en este estudio.

Fecha:

Firma del Participante:

Declaración del investigador o persona que toma el consentimiento:

Confirmando que el participante tuvo la oportunidad de hacer preguntas sobre el estudio, y que todas las preguntas formuladas por el participante fueron respondidas correctamente y lo mejor que pude. Confirmando que la persona no ha sido obligada a dar su consentimiento, y que el consentimiento se ha dado de forma libre y voluntaria. Se ha proporcionado una copia de este formulario al participante.

Fecha:





Firma del tomador del CI:

¹ <https://bbbprograms.org/programs/all-programs/bbb-eu-privacy-shield-consumers/ProcessForConsumers>

² Si tiene preguntas, comentarios o inquietudes sobre el estudio, puede comunicarse con Susan van Hees (s.v.vanhees@uu.nl) de la Universidad de Utrecht. Si tiene preguntas sobre sus derechos mientras participa en el estudio o si tiene inquietudes sobre el tratamiento de datos de los participantes de la investigación, llame a la profesora Dra. Liesbeth Wiertman + 316-51224293 o escriba un correo electrónico a: Vertrouwenspersoon-wi@uu.nl

Appendix III

A.3 Reminder

Recordatorio Taller

Co-creando futuros para un mejor envejecimiento en el hogar

Repositorio online

Estimado Compañero/a:

Con este mensaje queremos recordarle su asistencia al próximo encuentro “**Taller: Co-Creando futuros para un mejor envejecimiento en el hogar**” este **jueves 8 de octubre** y que tendrá inicio a las **9:30 h**.

A continuación, le facilitamos el link a la plataforma para poder participar:

[Join Zoom Meeting](#)

Meeting URL: <https://medtronic.zoom.us/j/91318586138?pwd=bmITMnpMZUpTdUpYUFZCZXROVGfadz09&from=msft>

Meeting ID: 913 1858 6138

Passcode: 937729

Es muy importante hacer el acceso a la plataforma Zoom con vuestros Nombre y Apellidos

Mediante la realización de este taller pretendemos:

- conocer su visión en la creación de soluciones innovadoras para apoyar un mejor envejecimiento de la población
- desarrollar un conjunto de escenarios futuros para un envejecimiento saludable
- imaginar futuros y no solo considerar las propias perspectivas presentes, sino también las perspectivas (imaginarias) de un familiar/persona del vecindario mayor y/o su “yo” mayor del futuro

Contamos con su experiencia, sus perspectivas, sus ideas y sus valores para hacer de este taller un encuentro creativo, dinámico y enriquecedor. Para ello, vamos a pedirle que realice una sencilla **actividad de reflexión** antes de dar comienzo al taller. Le recomendamos que este ejercicio no sobrepase más de aproximadamente 15 minutos. Por favor:

1. Piense en una **palabra clave**, una **frase**, básiense en un **dibujo**, una **fotografía** u otro **elemento visual** que para usted simbolice lo que considera importante cuando piensa en un futuro mejor del envejecimiento en el hogar. Piense, por ejemplo, en elementos que considere importantes en sus actividades diarias y en su vida o en elementos específicos relacionados con la salud y la tecnología.
2. Ahora, piense de nuevo en una imagen o un texto que representen:
 - a. Su propia perspectiva profesional actual hacia el envejecimiento en el hogar y, si esto ha cambiado debido a la situación actual del Covid-19, inclúyalo para ilustrar cómo cambió.
 - b. Algo que considere importante en el futuro cuando usted mismo sea una persona mayor envejeciendo en casa.
 - c. Algo que usted crea que es importante para alguien de su entorno que actualmente está envejeciendo en su hogar (un paciente, un familiar, una persona del vecindario, ... de aproximadamente 65 años o más).
3. Para ayudarle a prepararse para el taller, piense también en:
 - a. Lo que ha elegido, ¿Por qué es importante para usted?
 - b. ¿Por qué considera esto importante en relación al tema del taller?
 - c. Esta tarea tiene como objetivo ayudarlo a definir valores clave. Agregue algunos valores en una o más notas.

Valoramos sus primeras ideas. No hay respuestas correctas o incorrectas.

Co-creando futuros de un mejor envejecimiento en el hogar

Fecha y hora: jueves 8 de octubre de 2020, de 9:30 a 12:30 h (*aprox.*)

G A T E K E E P E R

Hora	Duración (min)	Actividad
09:30	10	Bienvenida y registro de participantes
09:40	20	Introducción y aspectos técnicos
10:00	40	Dinámica 1: Trabajando en las dimensiones de la Capacidad Intrínseca para edades avanzadas (<i>en grupos</i>)
10:40	10	Conclusiones dinámica 1
10:50	10	Descanso
11:00	40	Dinámica 2: Construcción de nuevos escenarios basados en la Capacidad Intrínseca (<i>en grupos</i>)
11:40	10	Conclusiones dinámica 2
11:50	30	Resumen y finalización del taller

¡Nos vemos muy pronto!

Le enviamos un saludo de parte de todo el equipo organizador.

Puede encontrar más información en Twitter con los hashtags:

#GATEKEEPEREU NEWSLETTER! #ArtificialIntelligence #BigData #IoT

Y en los siguientes links:

<https://www.gatekeeper-project.eu/>

<https://www.activageproject.eu/>

https://ec.europa.eu/eip/ageing/home_en?cookies=disabled

Para cualquier duda, contactad con
Servicio Vasco de Salud OSI EEC:

Appendix IV

A.4 Assignment

1. Think of a keyword, phrase, drawing, photograph, or other visual element that symbolizes what you consider important when thinking about a better future of aging at home. Think, for example, of items that are important to you in your daily activities and life, or of specific items related to health and technology.
2. Now, think again about an image or text that represents:
 - a. Your own current professional perspective towards aging at home, and if this has changed due to the current Covid-19 situation please include it to illustrate how it changed.
 - b. Something that you consider important in the future when you yourself are an older person growing old at home.
 - c. Something that you think is important to someone in your environment who is currently aging in your home (a patient, a relative, a person from the neighbourhood... approximately 65 years or older).
3. To help you prepare for the workshop, also consider:
 - a. What you have chosen, why is it important to you?
 - b. Why do you consider this important in relation to the topic of the workshop?
 - c. This task is to help you define key values. Add some values in one or more notes.

Co-Creation Workshop Summary Cyprus

Pilot site: Cyprus

Date conducted: 08/10/20

Time: 9:30-12:30

Workshop organizer: Ms Maria Krini (Research and Development Manager, Cyprus Association of Cancer Patients and Friends (PASYKAF))

Chair of the workshop: Mr. Andreas Christodoulou (Senior Technology and Innovation Officer, PASYKAF)

Workshop moderators: Ms Artemis Komatina (Counselling Psychologist/ Psychosocial Service Coordinator, PASYKAF), Dr. Maria Matsangidou (Senior Researcher, Archangelos Michael Nursing Home (AMEN) / Research centre on Interactive media, Smart systems and Emerging technologies (RISE))

Keynote speaker: Prof. Constantinos Pattichis (Professor of Computer Science, University of Cyprus (UCY) / RISE)

Stakeholders/ participants:

- PwC | Manager | Advisory
- Director IICC- International Institute of Compassion Care
- Cyprus University of Technology
- German Oncology Centre
- Ministry of Health
- University of Cyprus

Introduction

The co-creation workshop commenced with a welcome and introduction from Ms Maria Krini. Ms Krini briefly presented the two organizations from Cyprus that will be participating in the Gatekeeper Pilot, AMEN and PASYKAF. She proceeded to provide information about the European large-scale pilot on smart living environments, outlining the clear objectives of the Gatekeeper pilot. Stakeholders were also briefed about why they were asked to

participate in the workshop and the value of their ideas and expertise in creating a framework for health innovations and better ageing in place.

Introductions from the workshop moderators and the chair of the workshop followed, as well as a pre-recorded message from key-note speaker, Prof. Pattichis.

Workshop participants were then asked to introduce themselves and to choose one item in their immediate environment that has meaning for them. Items selected during this icebreaker exercise included a smartphone (a means of communication/ the future for us), a painting (symbol of a holding environment that clients need), smart watch (will play a big role in the ageing population), wheelchair (impactful), smart watch (potential for development for use with the ageing population), smartphone (increased communication - calls and messages to son). The workshop moderators also participated, and items presented included art piece (made from son, something personal in work space) and mask (Covid-19 protection measure).

Mr Christodoulou continued with an overview of Mural and how participants can access and use the co-creation tool for the purpose of the workshop.

Reflect – Input Assignment

Participants were asked to think of three tangible items that symbolize what they consider important when they imagine a better future of ageing in place; an item that is important from their own current perspective, an item that they consider important from a future perspective and an item that they think is important from the perspective of an elder person (Figure 13).

Tangible items identified as important from participants' own perspective included a smart watch and a smart phone. The smart watch was considered important to partakers since:

- It is considered as having huge potential in health, and, as a device, it can be easily adapted for and used by the elderly and it's use can be easily explained to the elderly
- It can be further developed in the future to help the ageing. A sense of security is considered particularly important for the elderly and a smart watch can provide connection with medical services; particularly in case of accident/ emergency
- It can monitor and generate a lot of data

The smart phone was described as important to participants because:

- It is easier to use in comparison to other devices and it symbolizes emotional and physical connection. Also, individuals can have easy access to professionals through a smart phone
- It is a means of social communication (e.g. Covid-19 lockdown)
- It can enable contact with HCP's - digitally enabled communication. Individuals can have easy contact and direct communication with HCP's, which in turn can reinforce individual's trust. Apart from a smart phone, digitally enabled communication can also be established via a virtual hospital, a smart watch or even a telephone call. Nonetheless, direct contact is also important.

Items identified as important from participant's future perspective also included a smart watch and a smart phone. According to participants:

- A smart watch can deliver data via an online live platform. Data can be collected and connected to the server of the HCP and the HCP can be notified (message/alarm); this enables a proactive approach with immediate and direct communication; prevent bad news/ early detection
- Connection and communication are important; smart devices can enable contact with the GP at any time and can assist in a number of other ways, e.g. GPS tracking (dementia)
- Mobile applications are a faster way of communicating; the use of applications in the future can save time and cost for patients and HCP's. Applications can provide information to patients, they can inform the HCP's of needs, and they can facilitate access to care. Individuals can schedule an appointment, ask for help, ask questions, can utilize applications for psycho education and even intervention purposes (e.g. mindfulness, values work). Communication, immediate connection, immediate provision of information, and immediate interventions are all part of a future scenario
- Future scenarios might entail increased trust whereby individuals can be monitored using remote sensors in the house and where one can interact and respond based on decisions provided through AI and other technologies. At present digital skill and culture are not in place yet for individuals to be able to trust and interact with a system of remote care and decision support
- The smart phone has the potential to be updated

- Decision support system diagram/ smart devices have the potential to provide so much data that can be used for personalized medicine that can help us alleviate the burden of elderly health issues

Finally, participants described what they considered important when thinking of the perspective of an elderly individual:

- Better communication and understanding of what are really going on with their health/ better communication between HCP's and the elderly/ collaboration
- Tangible items identified included a clock, smart watch, and Bible. The Bible as a symbol of the Church that could possibly do more to help the ageing people more with social and religious occasions
- A house where the elderly can be provided with care, both medical and psychological was considered important. QOL, comfort, pain and symptom management were identified as important to elder individuals
- Physical contact is important and the elderly need company. The adverse health effects of loneliness and no physical contact have been well documented in the elderly population; support and empathy are important
- The ageing population needs help; they need to be trained on how to use smart phones (e.g. grandparents don't know how to use smart phones). It's important to avoid leaving the elderly alone.
- Social isolation is considered an issue at the moment. Although Cyprus is still a family-oriented culture, the elderly are becoming more isolated and increasingly people are ageing alone in care homes and hospices.

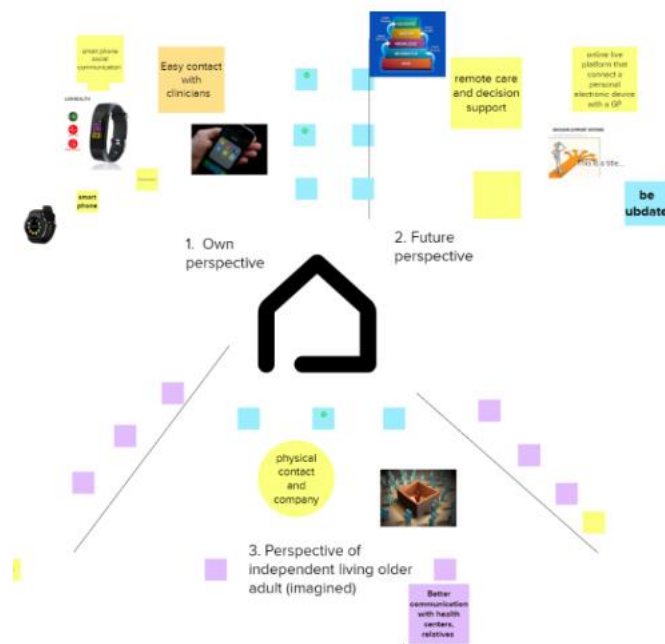


Figure 13: Mural presentation of Input Assignment

The workshop proceeded with two break-out sessions; breakout session group 1 was moderated by Ms Artemis Komatina and break-out session group 2 was moderated by Dr Maria Matsangidou.

Break-out Session – Round 1 – Imagine and Build

The aim of the breakout session was to explore how visuals relate to values when it comes to ageing, the home environment, and the role of technologies. Participants were asked to reflect on the visuals and the texts and to contemplate how these visuals relate to values when it comes to ageing, the home environment and the role of technologies.

Group 1

To start, the moderator prompted a discussion around values and how participants perceive and understand the concept of values. Values were defined as 'things that are meaningful to us; values give us meaning in life, they are things that we live for'.

In view of their previous assignment, participants described a number of factors that they considered important when it comes to 'ageing':

- Early detection/ early diagnosis and pro action

- Access to medical care
- Access to psychological care
- Quality of life – spiritual, physical and psychological
- Pain management
- Communication with people around them
- Connection with people
- Connection with data and science
- Training and education so that the elderly can learn how to use technological devices
- Focusing on the elderly persons mood and supporting them to do things that they love

In regards to the 'home environment', participants suggested that:

- The home is of great importance, because particularly for the elderly, this is where they are likely to spend the most time
- Communication with people and society is important; it is essential that the ageing population is not isolated
- Security is important as is help in case of emergency
- Practical issues, such as not having too many stairs in the home, is imperative, as is being able to move around the house easily (e.g. an individual with cancer who could no longer use the stairs to go upstairs to sleep in the bedroom/ sleeping down stairs and how the family dynamic is impacted)
- Comfort is vital when thinking about the home environment
- Entertainment

Reflecting on the role of technologies, participants expressed that:

- It is important that the elderly population are able to do as many things as possible (use a smart phone, use as smart watch, watch movies on Netflix)
- Values clarification can be key in developing technologies; exploring what is important to the elderly citizen can lead to committed action towards engaging in what is meaningful to them
- Increased communication and connection with children and grandchildren appears to be important to the elderly; hence, technology in the form of a mobile application that connects children and grandchildren might be useful

- From personal experience – when an elderly person has an incentive to learn how to use technology (e.g. see grandchildren), they are likely to respond positively, and after using technology for one purpose, they may be more open to using other features (e.g. You Tube)
- Figure 14 presents the Group's 1 Mural Input

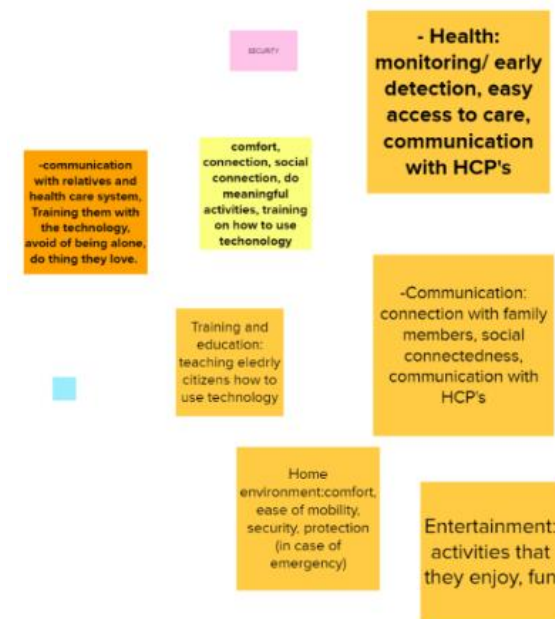


Figure 14: Mural presentation of Group's 1 Input: Break-out Session: Round 1 – Imagine and Build

Group 2

In line with the Reflect – Input Assignment, the participants described several values related to the tangible items of their choice. As can be seen in Figure 15 the items that symbolize what they consider important when they imagine a better future of ageing, were a *smartwatch*, a *smartphone*, and a *decision support system*.

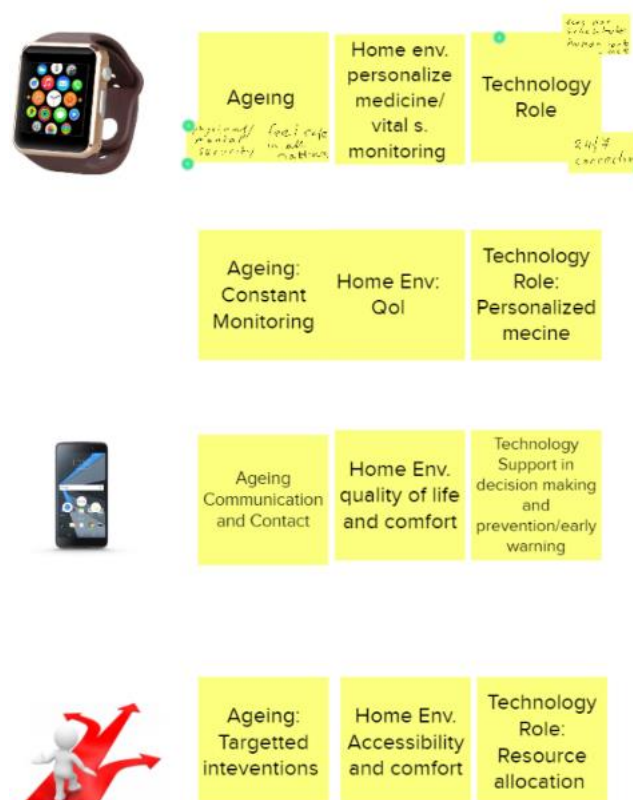


Figure 15: Mural presentation of Group's 2 Input: Break-out Session: Round 1 – Imagine and Build

- Smartwatch

The smartwatch was linked to the value of **security** since it can offer a physical and mental assistance to the elderly by connecting them to the medical, social, and legal services. In detail, the participants claim that a smartwatch on its own cannot substitute for human contact and/or human company and as a result it cannot reduce the feeling of loneliness, but it can offers to an ageing person – especially the one who lives on their own-, the feeling of security. This can be done via the smartwatch, since it can connect the ageing person to medical doctors, police, social officers, and psychologists, at any time.

In addition, participants suggested that the smartwatch can serve as a constant monitoring tool to assess in real-time the order adult's vital signs and activities (e.g., heart rate, blood pressure, oxygen levels, steps, etc). Therefore, a smartwatch can be linked to **personalized medicine**, which offers early detection and diagnosis of medical conditions and as a result it can improves the **quality of life** of the elderly.

- Smartphone

The smartphone was also linked to the value of **security** and **health** since it can serve as a real-time monitoring system and it can also link the person with the outworld and services. It was hinted that a smartphone can offer to the ageing person an additional channel of communication and contact with the health care providers. This communication can be direct via a virtual consultation or indirect via connection with ambient and body sensors. It was further suggested that having technologies incorporated into home environments can improve the mental and emotional health of the aging person since they offer an advanced quality of care, comparable to assistant living facilities, nursing homes and hospitals. This was further enhanced by the ability of the systems to offer support in health decision making via the collected vital signs. For example, being able to monitor the Heart Rate levels can lead to the prevention of adverse effects for the elderly. Specifically, having a real-time heart monitoring it can prevent a possible heart failure.

- Decision Support System

The decision support systems once again were linked to the value of **health**, since they can help with providing targeted interventions which links with the previous explanations, related to personalized medicine and support, given for the smartwatch and smartphone devices. Apart from the constant health monitoring, having a decision support system incorporated into the aging person's life it can lead to an improved and more usable system, with less accessibility issues which enables the developers to allocate the system resources more appropriately.

Finally, the participants suggested that the role of technology in human's life has been emphasized and accelerated by the COVID19 situation. Therefore, the participants suggested that there is a better realization and respect toward technology.

Break-out Session – Round 2 – Imagine and Build

Using the input from the previous session, participants were asked to co-create an ideal environment for ageing at home. Participants were encouraged to build a scenario for better ageing in place, a living environment, which could include solely the home, but which might also be oriented around the broader environment of older people.

Group 1

Some ideas that were presented and discussed between participants included (Figure 16):

- Something simple and easy to use
- Easily accessible (not many stairs)
- Accessible and easy to use devices
- Smart watch and the smart phone - the standard devices that are accessible and easy to use
- Virtual reality (e.g. entertainment/ VR Coach Interventions for the elderly)
- Could a smart watch be too small? / They will just have to wear the device, they won't have to interact with it/ It will primarily be for information to HCP/ physiological measurements/ more data gathered/ 24.7 picture of health/ smart watch can be connected to an alarm
- Security
- Safety / Smart entry/ Disinfection pre-room
- Automatic opening doors/ face recognition
- Smart screen/ identifies you, measures temperature/ full scan once you enter the house/ Health screening/ Physiological measurements
- Data shared automatically via online platform to HCP's/ real time information sharing
- Not isolated/ socially connected
- E.g. Grandma – fell down and nobody was there – call somebody
- How can technology provide support/monitoring during sleeping hours
- Disabled people/ wheelchairs/ eyesight
- Push buttons/ information may be confusing / voice recognition device/ also can act as an alarm
- Social connection – technological devices like smart watch and smart phone to connect to other people/ peer support and family members
- Smart screen/ feel more real in order to connect
- TV, dancing, sports (through a screen) or they can actually do it
- Real environment / actual organized events for the elderly/ subscription to a group – discuss, play

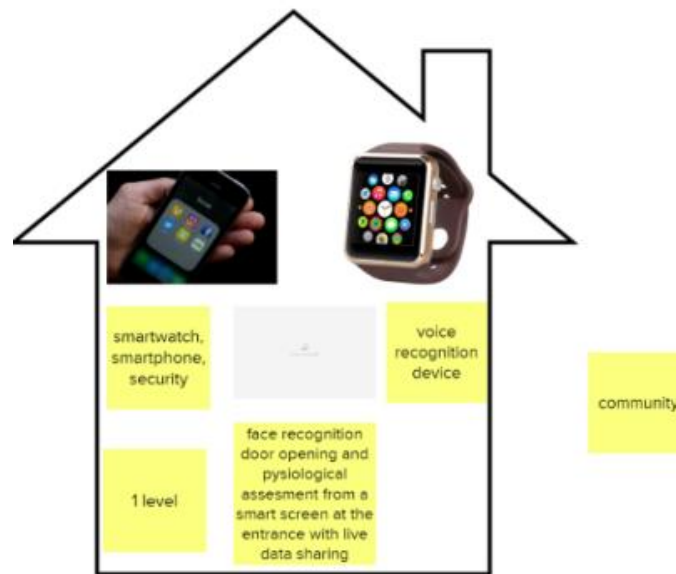


Figure 16: Mural presentation of Group's 1 Input: Break-out Session: Round 2 – Imagine and Build

Group 2

Some ideas that were presented and discussed between participants included (Figure 17):

- Smart locking
- Renewable energy panels
- Virtual assistant AI technology (eco dots) to preserve comfort
- Smart devices that enable monitoring and interaction with HCPS's and social network
- Smart textiles and smart cameras for remote monitoring of vital signs and well being
- Direct communication and decision support systems
- Virtual Reality systems for exercise and socialization
- Online delivery support services
- Smart self-driving cars / Smart bus passes / fast-connection to Uber services



Figure 17: Mural presentation of Group's 2 Input: Break-out Session: Round 2 – Imagine and Build

Round 3 – Reflect - Break-out Session Group 1&2

Following on, each break-out group presented the ideal environment for ageing at home that they co-created in the previous exercise.

Group 1 described:

- A one- level home with no stairs
- Safety features of the smart home included doors opening automatically with a face recognition screen
- Physiological assessment of the person via automatic health screening as they enter their home

- Automatic real time transfer and sharing of data with HCP's (How can this be done, is it possible?)
- Smart phone
- Smart watch
- Voice recognition device in the house so that the elderly can call their children, order food, etc. It can also act as an alarm in case of emergency
- Social connectivity – peer support and connection with family members with an interactive I Pad or a smart screen
- Entertainment via Virtual Reality
- Other activities like playing sports, dancing and music with other similar aged people is important and can be accomplished by enabling the elderly to meet online but also to meet in person
- Smart technology to enable smaller communities for the elderly, a smart home within a wider community
- Smart devices that can be used by the elderly to subscribe to an online group for example (gathering online and also meeting outside the home)
- Practical needs – shower/ supermarket – automatic shopping list
- Smart transportation to get to medical appointments and other destinations

Group 2 described that the ideal environment for ageing is based on a nice comfortable and familiar home that is enhanced with hidden smart technologies and that includes features such as:

- Smart safety measures, like smart locking
- Renewable energy to power the home and to ensure that the ageing population is using sustainable energy (e.g. hot water)
- A cosy home environment that preserves comfort, safety and quality of life
- Smart devices that enable monitoring and interaction with HCP's and social network
- Monitoring of vital signs in an ambient environment; wearable sensors such as smart textiles and remote monitoring via smart cameras
- Direct communication and decision support with HCP's (alerting)/ decisions about their health and about their lifestyle
- Lifestyle devices such as a smart sound system operated via voice recognition that the elderly can also use to make calls to and communicate with loved ones

- Virtual Reality systems whereby the elderly can exercise in the comfort of their own home but feel as though they are in a group environment/ they can feel like they are outdoors whilst they are actually indoors
- Delivery/shopping at home/ pharmacy prescriptions delivered to the home
- Smart bus passes/ accessing Uber via smart device
- More sophisticated technology like smart self-driving cars
- Self-driving cars can also be enhanced by health monitoring sensors for the driver and the passenger

Round 4 - Act

The workshop proceeded with an overview of user needs, values and requirements that were identified by the participants during the previous sessions. Health monitoring, ensuring that the elderly receive recommended medications, safety, security, socializing and human contact, love, caring and not being alone, empowering and educating the elderly on how to use technology and how to be more active in their own health care, and, decision support for health and wellness were key areas identified.

With the aim of co-creating the agenda towards responsible implementation of solutions, participants were asked to address key challenges and key opportunities that technology can present for better ageing in place.

Social isolation was identified as a potential challenge; however, it was considered that digital interaction in the future will be more acceptable. For the newer generations that are growing up as digital natives, communication and interactions via smart devices will not be perceived as socially isolating to the degree that it may be for the older generations. It was suggested that society is changing based on our digital skills.

The pandemic Covid-19 was also referenced as a recent situation whereby society was pushed towards technology and digital health.

Further challenges that were identified related to the potential overload of data and how data can be filtered and analysed in order to be utilized efficiently. Trust in data-driven decision making, confidentiality, the ethics of AI, actually educating the elderly, and state funding were other potential challenges. The issue of customization was also discussed and to what extent technological devices can be adapted and created to cater to individual needs.

Key opportunities that were outlined by partakers related to the improvement of health outcomes of the elderly population, prolongation of life and desaturation of the health care systems. Additionally, technology was considered a means for increased access to care.

Round 5 – Wrap Up

The co-creation workshop concluded with participants and moderators sharing their final thoughts.

- A great opportunity to meet and interact with other people from other disciplines. This workshop made me think more of the challenges of the elderly, we need to do more and pay more attention
- The workshop was enlightening and a means for self-reflection. As a technology person, my focus is on building technology solutions around health care and I have full trust in data security and so much more. This discussion makes me realise how important it is for us to work on these issues within a multidisciplinary team in order that the technology solutions reflect the psychological and social needs of people. Sometimes we work in silos and it's important that technology is built with the aim to provide a patient experience that will address the holistic needs of persons – trust/adoption
- Through this workshop we have proved that talking about the subject within a group of multidisciplinary professionals, the opportunities and ideas that come up are broader and we are in a better position to find solutions that would otherwise be impossible
- Partaking in the workshop within a double role, as a HCP on the one hand and as a person that is going into the ageing process; insecurity seems to be a central emotion for me. Building the house with all the facilities was enlightening in that it showed that there are endless technological opportunities that are actually attainable
- Coincidentally this workshop is related to a proposal I have submitted about an application regarding battling social isolation in the elderly; more information and a lot more to say about it

- Good experience, good ideas, expressed a lot of things Technology is important, we need to use it more in health care fields, a challenge to train the elderly and the opportunity for social

The co-creation workshop concluded with final words from the moderators, Ms Krini and Mr Christodoulou and participants were thanked for their participation and informed that they will receive a summary of the workshop.

Puglia Pilot Cocreation workshop #1

Final Report

Date: October 8th, 2020

Title	Preparare lo sviluppo di “ambienti di vita intelligenti” a livello regionale ed europeo
Date and time	08/10/2020, 09:20-12:40
Venue	Bari, Forum Mediterraneo in Sanità Fiera del Levante, Sala 6 e 7

1 Introduction

The workshop was organized according to well formulated guidelines, prepared by UU. These guidelines revolved around the following elements:

- Invitation for participation 14-10 days before the Workshop day
- Request to send in initial assignments, to be completed 2 days before the Workshop, jointly with the invitation
- Collection of all Informed Consent Forms at the day of the Workshop
- Conduction of the Workshop according to the following agenda:
 - Introductory keynote speeches, in plenary session
 - Breakout session #1 on "Reflect"
 - Breakout session #2 on "Act"
 - Plenary session on:
 - "Dialogue with all"
 - Wrap up and next steps

The invitation, with the Workshop agenda, is attached in subsection 0.

In total 36 participants took part in the Workshop, and they were subdivided in three breakout groups of 12 participants each. Among these participants almost 70% were present physically and the remaining were connected through zoom platform.

Breakout Groups have provided heterogeneous viewpoints on the content and aspects investigated in the different sessions, due both to the diversity of participants expertise, experience, and professional roles as well as to the diversity of moderators' styles and approaches. This has led to richness and complementarity of outcomes, as reported in the following.

Names of participants and moderators have not been included in this report, to make it anonymous and thus freely shareable, while maintaining full compliance with privacy protection regulations and, in particular, the GDPR.

2 Keynote speeches

The Workshop opened with the keynote speeches given by prof. Leandro Pecchia (University of Warwick), who discussed the current and future context of active and healthy aging (AHA) technologies – at both the national and EU level and in view of a post-pandemic world – and Mr. Franco Mercalli (MultiMed Engineers) who illustrated the specific objectives of the GATEKEEPER Puglia Pilot, which will experiment the large scale deployment of a set of AHA technologies on the Puglia regional territory.

Prof. Pecchia highlighted to the audience the following elements:

- Presentation of the research group he leads at University of Warwick, in terms of research interests, current projects, and applications, particularly in the AHA field

- Evolution of healthcare, with continuous growth of the application of innovative technologies, as incessant progress makes them available
- Expectation for a “tsunami of medical devices” to invest the healthcare sector in the near future, as modern IoT, big data and Artificial Intelligence (AI) technologies converge to shape unprecedented solutions – in medical technology, biotechnology and pharmaceuticals – for better caring of patients, support doctors decisions, and improve the care process
- A presentation of the overall objectives of the GATEKEEPER Project, targeting the large-scale deployment of existing innovative technologies, across several EU regions and healthcare systems, with the objective to early detect health risks and enact in correspondence timely interventions for risk mitigation, thus ensuring healthy and active aging for all EU citizens
- The role of AHA in the EU strategy to respond to the Covid-19 pandemic
- The barriers that currently stand in the way of the wider adoption of AHA technologies for elderly citizens
- The steps forward that need to be undertaken to overcome such barriers, and the policies that need to put in place to do this

Mr. Mercalli presented the specific objectives of the GATEKEEPER Pilot to be deployed in the Puglia Region, mentioning the following aspects:

- The medical use cases that will be experimented in the Puglia Pilot, including preventative interventions toward healthy aged people at risk of health decay as well as moderate complexity intervention towards (multi-)chronic elderly patients, enrolled in the Regional Chronic Care Model (CCM) “Care Puglia”.
- The overall technology architecture that is being set up by the project to support the Puglia Pilot, identifying the medical and wellbeing data that will be collected and the innovative technologies that will be leveraged to collect them; the component that will process such data; and the user roles involved in exploiting such data to implement the above mentioned medical use cases, ultimately improve the care process
- Few examples to show how the above mentioned technologies and architecture will make Puglia ready to make the most out of the upcoming “tsunami of medical devices” hinted to by prof. Pecchia, and benefit of the elderly citizens in the territory
- A brief presentation of the road ahead

The presentations of prof. Pecchia and Mr. Mercalli are reported, respectively, in subsections 0 and 0 below.

Stakeholders' overview

Organization / Role	Count
Enterprise	8
CEO	4
Co-founder	1
Manager	1
Sales and Marketing director	2
Local Health Authority	2
Public health director	1
Unit Control Manager	1
NGOs	2
President	1
Vice president	1
Private hospitals or doctors' offices	1
Project Manager	1
Public Administration	2
Project Manager	2
Public hospitals	1
Medical Manager	1
Research authorities or Universities	15
Consultant	1
Officer	1
PhD Student	2
Professor	6
Researcher	2
Scientific director	2
Student	1
Total	31

3 Input assignment

In this section we summarize the input provided by participants prior to the Workshop, and transferred to the Workshop Mural workspace (the link to the Mural workspace is provided in subsection o).

On current professional perspective

- Supporting the elderly is my professional mission, and it must be conducted with the highest possible dedication
- Participants put a strong accent on the need that technology considers not only the (very important) organizational relationships but also the interpersonal, social, and cultural relationships – i.e. extending to the human aspects – which are a crucial element for the success of any professional endeavor
- The need of coordination among multiple professionals involved in the process is a key element. There is a need for “group bonding” and activation of an ongoing discussion among involved professionals.
- Professionals should have a clear understanding of the new, technology-based paradigm and related new clinical processes; this implies continuous education
- A key objective is to streamline work tasks, so that they do not overwhelm professionals
- Telemedicine will provide better outcomes for people, both in terms of effectiveness and efficiency. Other expected outcomes are improvement of elderlies' quality of life, better adherence to therapeutic recommendations, and optimization of healthcare resource usage (additional note for clarification: Participants considered telemedicine an important process for improving the quality of life of the elderly as long as they are trained in the use of these new technologies. In addition to this, it was mentioned the possibility to spare elderlies frequent travels to/from hospital for follow up visits, if telemedicine will allow these to be conducted from home)
- Perhaps, technology should support even higher-level information and emotion-aware exchanges, as they are important in the patient-physician interaction.
- Telemedicine should go hand in hand with the effort to improve Information Technology (IT) literacy of elderly people.
- Sometimes technology seems to be a hindrance rather than a benefit. The key is to start from people needs. Also, a risk is represented by the possibility to induce inequalities through technology
- The current pandemic requires more professional dedication, as elderlies are among the more exposed segments

On future perspective

- There is a need to share the new modalities of interaction introduced by remote technologies (additional note for clarification: the meaning lies in the necessity to replace healthcare professionals-patients live interactions, with remote interactions to foster hospitalizations and reduce costs for Public Healthcare. In fact, it is expected that remote interactions would differ – perhaps significantly –

from face-to-face interactions (e.g. in norms, trustability, patient-physician relationship...)

- It will be possible to live later years with joy, enthusiasm, and fulfilment – with both mind and body – avoiding isolation and dependence and being actively part of society
- Fostering solidarity is a fundamentally desirable outcome for the future
- Using technology to favor more and more care outside the hospital, through seamless integration among different healthcare settings, included in the home
- Ways to promote physical activity and healthy nutrition habits will be available, in a way that elderlies will adhere to, with willingness and commitment, engaging actively in the management of their care – not just as mere “executors” of decisions made by the healthcare professionals (HCPs)
- Sometimes the elderly is more worried of the wellbeing of others, rather than of her own, with the effect of insufficient self-care

Perspective on someone who is currently ageing at home

- Elderlies should be given the possibility to live the full “meaning” of their lives and feel free to enjoy it (removing all types of barriers, e.g. architectural barriers, favoring connection with nature, etc.)
- Elderlies should be ensured with the possibility to provide a concrete, own contribution to society, even as abilities decrease
- Technology will support remaining active, avoid isolation, and remove fear of disease, fear of being abandoned, even as body and mind change
- Go beyond the concept of the nursing home, towards more modern visions, such as appropriately technology-supported neighborhoods (shrink distances, remove architectural barriers, more green areas, cultural and entertainment events, easy transportation to visit family and friends who are far – to avoid feeling as “a prisoner”)
- Proactive support for healthcare, avoiding that the elderly person feels abandoned by a cumbersome and inaccessible healthcare system
- Technology will help avoid isolation, ensure company, favor contact with nature
- Future technology will reduce inequalities and digital divide

4 Breakout session #1: Reflect

In this section we summarize the results from Breakout session #1, from each of the three breakout groups.

4.1 Group A

In group A, the following issues were discussed:

- Many participants feel that there is a strong need to improve IT literacy for all involved actors: the patients, their caregivers, the HCPs. Without a decisive effort in this direction, telemedicine approaches will hardly take up (think e.g. to a telemedicine equipped home). Other participants feel that some devices do not

require much IT literacy (e.g. wearables one) and that it is also important to improve the user experience (see below).

- It is believed that – in principle – most patients would be happy to be cared from their own home, rather than travelling to the hospital or the doctor practice, with involved inconveniences. Willingness of the patient should not be an issue. However, resistance to change may be an issue (possibly, according to some participants, caused by insufficient IT literacy as discussed above). In such case, caregivers can be helpful as facilitators.
- There is the case of young patients affected by autoimmune diseases or with immunodeficiency, who have difficult access to hospitals: they would be happy to experiment as early-adopters of telemedicine technology
- In case of complex devices, to be used at home, they should be operated by appropriately trained caregivers
- Patient experience is an important aspect to be considered, to favor uptake. Ideally, patients affected by chronic diseases, such as COPD, diabetes, hypertension, etc. should be monitored from home and/or with wearable devices with maximum possible unobtrusiveness and user-friendly interfaces (i.e. the patients should do “almost nothing”)
- There is also a need to rethink the patients' enrollment processes, according to the new scenarios opened by telemedicine: who has to involve the patients in a telemedicine program, also including relevant aspects such as personal data protection, management – e.g. where data will be stored and by whom? – and GDPR compliance; for example, which organization shall assume the role of data controller, when multiple ones are involved? There is also the need to outline who should be the leader for such restructuring of the processes, according to the new vision. Decision Support Systems can help.
- There is also lack of appropriate technical infrastructure support that should be based on a standardized platform, to easily adapt to the specific and heterogeneous needs of each patient and disease, and also adapt to incorporate new heterogeneous devices as they become available.

4.2 Group B

In group B, the following issues were discussed:

- In their work, Group B imagined technology as a “magic wand” that allows to obtain whatever is wished, and the availability of a “time machine” to travel back and forth in time, to gain a wider view
- Technology should support the elderly people in tasks they are not able to complete by themselves, when abilities naturally decline; technology should make a person independent
- Technology is an inescapable path
- Technology can save time, e.g. for self-reflection; technologies has also brought more liberty to express own thoughts and beliefs; technology should help elderly to continue to engage in their hobbies, travelling, cultural interests, etc. as they did when they were younger

- Technology can impact and even become an enabler of empathy and interactions with family, solidarity, etc. There is a need to understand the role of face-to-face relationships
- The aspect of technology accessibility is relevant
- Covid-19 had several interesting impacts:
 - By taking some liberties from us, they, in a sense, "made us elderly" and allow us to see some of their problems, as follows
 - The value of interpersonal relationships has been highlighted, and allowed us to better understand who the most important persons in our lives are
 - The importance of travelling has been underlined
 - In some cases, persons with difficulties have been abandoned
 - It will impact the future lives of youngsters
 - It contributed to make us more lazy

4.3 Group C

In group C, the following issues were discussed:

- It is acknowledged that the Covid-19 pandemic has accelerated the digital transformation process
- Technology should ensure a bidirectional flow of information, allowing a process of continuous review
- Human aspects linked to the digital transformation process are important to consider; it is acknowledged that the patient must be at the center of such transformation, even with a leading role
- The role of culture – both from the physical health side as well as from the civic side – is central to develop a society ready to embrace the advantages of telemedicine, while at the same time avoid potential drawbacks
- Elderly citizens can themselves be active actors in the cultural process (e.g. addressing schools and businesses with mentoring and consulting)
- Attention should be paid that minor technical glitches can become blocking factors, such as the Italian Covid-19 contact tracing app "Immuni", which could not run on older generation smartphones
- The integration among health and social care is an essential element to achieve a governance process which is conducive to telemedicine; the regional organization of healthcare in Italy and deployment of territorial healthcare assistance services is an advantage to be exploited; integration of public and private providers is to be achieved
- The deployment of telemedicine represents an opportunity to be seized for creating a comprehensive "knowledge base", that can be a foundation for building better predictive and epidemiologic models; interoperability is a central factor in this effort

5 Breakout session #2: Propose

In this section we summarize the results from Breakout session #2, from each of the three breakout groups.

5.1 Group A

In group A, the following issues were discussed:

- On proposals side
 - There is a need to conduct a relevant organizational effort, to drive the digital transformation process, based on a structure adaptable to technology change
 - Devise an organizational matrix for technology related responsibilities
 - Create virtual meeting rooms for the shared analysis of patient's data
 - Consider multidimensionality in clinical analyses
 - Start telemedicine support with immunodeficient disorders support
 - Transform from inter-disciplinarity to multi-disciplinarity
 - Pursue hospital-territory integration
 - Pursue continuing education, covering all relevant aspects
- On the challenges side
 - Complement existing care pathways with technology-related care pathways
 - Create auto-configuring telemedicine technology for the home
 - Use AI to measure multi-dimensional KPI, for actors involved in the care pathways
 - Provide elderly with a sense of community and allow them to enlarge their communities
 - There is a need of a national-level vision for telemedicine
- On the opportunities side
 - Exploitation of AI in medicine
 - Ensure independent and participatory assessment of activities
 - Create collaborative networks, including with institutional actors (e.g. mayors, as municipalities have the overall responsibility of the health and wellbeing of their citizens – even as the responsibility for services provision stays with the healthcare authorities)
 - Use data to conduct Health Technology Assessments, as a way to prove the value of introducing telemedicine solutions
 - Exploit the social worker as a cross-cutting role for home assistance

5.2 Group B

In group B, the following issues were discussed:

- Rather than technology, what is needed is to continue living independently in the current home, with pets for company and a garden to ensure contact with nature, and also contact with loved ones, good physical activity, contact with younger people, conventional paper books to read, and a rocking chair too
- Technology should be smart, disappear in the background, leaving ample choice and be more humane, e.g. even tell jokes from time to time; services should be proactive
- Some participants argued that technology should not make predictions for the elderly and tell her what will happen (see next bullet); others believe that sending notifications on health status, including on cognitive decline, and alerts on vital parameters (e.g. based on sensors such as environmental sensors or fall sensors) is to be recommended
- The risk is that a telemedicine supported life becomes an unauthentic life
- Consider a mobile home, that can be displaced at will as more convenient or more pleasant (e.g. seaside view) for the elderly
- Internet connection for all is a must
- Social services should be accessible

5.3 Group C

In group C, the following issues were discussed:

- Create a polyfunctional hub that provides telemedicine services as well as face-to-face services, with continuous interaction with periphery (deploying an integrated system of skills and competences)
- Full digitization of a patient's health history, based on data collection orchestrated by the GP for each citizen, independently of current diseases, to formulate predictions and deploy a care model along all patient's life seasons, including social and lifestyle aspects (i.e. multidimensional health concept)
- Continuing education for caregivers engaged in local services (on devices, on addressable diseases, on telemedicine), in connection with the hub mentioned in the first bullet
- Patient communication on health self-management, through communication and dissemination programs (in schools, with testimonials, etc.) to form health-literate citizens

Plenary session #3 – Act

6.1 Dialogue with all

Under the coordination of the plenary session moderator, the participants to the breakout sessions met jointly in the final plenary session, during which the following combined considerations were drawn:

- Values to be preserved are independence, family, human relationships – time must be available for these
- Technology should help loved ones to know how elderlies are doing, and intervene (just) when needed
- Technology should be invisible
- Invisibility of technology must be balanced with the need to avoid a dystopian “Matrix”-like future
- The dichotomy among seeking medical outcomes vs achieving quality of life for the elderly citizens is an important aspect to be addressed and solved
- Elderly citizens must be active, aware, and empowered actors in the transformation process, not mere passive onlookers; this implies, among other, the need for continuous communication, information, and education about the role of technologies for AHA
- A coordinator role is yet to be identified for the uptake of technology for AHA in the healthcare system
- There is also a need to understand how the different institutional levels in the (new) organization which is necessary to favor the uptake of AHA technologies must be best engaged, allied, and coordinated
- New professional roles may need to be identified. E.g. people trained as “technology caregiver”: caregivers as ambassadors that foster the uptake of technology for AHA
- An organizational matrix of “technology responsibilities” should be formulated (similarly to what is currently done when designing of conventional care pathways, in the regional healthcare system)
- An organizational structure capable to foster AHA technology adoption should be based on the collaboration among a specialistic central hub and local “proximity of care” periphery; the current regional healthcare system is already well organized in a way that is conducive to this model, this is not a blocking factor; what is needed is continuous education for the involved professionals on AHA technology and its application, both at the central hub and at the periphery levels
- New independent, multidimensional, and multidisciplinary measures of outcomes for “technology pathways” should be put in place
- The creation of a unique multidimensional health record, including unconventional data from IoT technology, is envisaged; it should not be limited to the conventional

EHR, but extend to include the whole health history of the patient, including not only clinical, but also social aspects; this also raises the issue of how to benefit at best of the consequent data analytics opportunities, e.g. for predictive modelling

- Responsibilities for data management must be clarified and assigned

6.2 Wrap-up

In the final wrap up session, the following next steps were proposed by the plenary session moderator:

- Produce a final report on the Workshops, including those conducted at other GATEKEEPER Pilot sites, to share with participants, as a follow up to the effort started today
- Remain informed on GATEKEEPER's activities, most importantly about the next issuing of Open Calls to add more technologies and/or deployment contexts to the current Project's landscape
- Remain informed about the organization of a second Workshop in 2022
- Consider following the GATEKEEPER's communication channels, such as social media channels, newsletter, website. Any comment from Workshop participants would be welcome. Consider participating in the GATEKEEPER community practice (reference on the project website)
- Consider watching the GATEKEEPER educational webinars, which are publicly available on the project website
- Participate in the GATEKEEPER Puglia Pilot online questionnaires survey, which is aimed to better understand the needs and requirement of the Puglia territory vis-à-vis AHA technology deployment in the Pilot

Appendices

7.1 Workshop invitation and agenda



Co-creazione di scenari futuri per favorire la vita indipendente delle persone anziane, presso la propria abitazione

Preparare lo sviluppo di "ambienti di vita intelligenti" a livello regionale ed europeo

Bari - Forum Mediterraneo in Sanità
08/10/2020, 09:20-12:40
Fiera del Levante, Sala 6 e 7

Collegamento all'incontro telematico "Zoom":
[il link sarà fornito ai partecipanti ad avvenuta registrazione]

Collegamento all'ambiente di collaborazione elettronico "Mural":
[il link sarà fornito ai partecipanti ad avvenuta registrazione]

Gentilissima/o,
i partner del "sito pilota" del progetto GATEKEEPER sviluppato in Puglia¹ (Regione Puglia, Agenzia Regionale Strategica per la Salute e il Sociale, InnovaPuglia, MultiMed Engineers, Fondazione Politecnico di Milano, Fondazione Casa Sollievo della Sofferenza IRCCS) in collaborazione con l'Università di Utrecht, La invitano a partecipare a un incontro di riflessione sul tema

"Scenari futuri per favorire la vita indipendente delle persone anziane presso la propria abitazione"

Durante l'incontro – che, per aderire alle norme di distanziamento sociale in vigore, sarà organizzato con il supporto di strumenti telematici e in remoto – si cercherà di far emergere uno **sguardo nuovo** su quanto le tecnologie innovative possono fare per consentire alle persone anziane di mantenere la propria indipendenza e di continuare a vivere presso l'abitazione che preferiscono, il più a lungo possibile.

Chiediamo la disponibilità della Sua competenza per aiutarci a immaginare nuovi scenari, in cui il progresso tecnologico sia efficacemente messo a servizio delle persone anziane per migliorarne la salute e il benessere.

¹ <https://www.gatekeeper-project.eu/region/puglia-italy>





Condividendo il Suo punto di vista con gli altri partecipanti all'incontro, offrirà un contributo importante alla co-creazione di nuove soluzioni da sviluppare e localizzare sul territorio regionale e – insieme all'analogo sforzo condotto in altre 7 Regioni Europee – consentirà al progetto GATEKEEPER di creare una "Piattaforma" tecnologica comune, per la realizzazione efficienti ed efficienti di tali soluzioni.

I temi che Le proporremo di affrontare sono i seguenti:

- Immaginare scenari futuri che favoriscano l'indipendenza delle persone anziane e la permanenza presso l'abitazione preferita, il più a lungo possibile
- Condividere la **Sua prospettiva** sulle **più interessanti innovazioni in sanità presenti sul Territorio regionale**, nate dalla collaborazione tra pubblica amministrazione, sistema sanitario, centri di ricerca e industria.
- Individuare le **migliori pratiche** per l'applicazione delle nuove tecnologie, che potranno divenire realtà nel prossimo futuro, riconoscendo al contempo le **particolarità del Territorio regionale**, che possono richiedere speciale attenzione
- **Ipotizzare un'agenda per lo sviluppo di innovazioni per l'invecchiamento attivo e in salute** per il territorio Regionale e condividerla con gli analoghi sforzi condotti nelle altre Regioni Europee che partecipano al progetto GATEKEEPER, favorendo il mutuo apprendimento
- Verificare se e come la generazione di **grandi quantità di dati** resa possibile dalle nuove tecnologie (smartphone, smartwatch, tablet, sistemi domotici, ecc.) e la **condivisione** degli stessi tra attori diversi (pazienti, medici, operatori socio-sanitari, familiari, ecc.) possa contribuire a **migliorare la cura e l'assistenza per le persone anziane**.
- Immaginare il miglior modo di coinvolgere gli attori locali insieme ai colleghi europei, per esplorare i benefici che lo sviluppo di una **piattaforma europea comune GATEKEEPER** può generare, per contribuire al miglioramento della salute e della cura delle persone anziane

La riflessione potrà trarre spunto anche dai nuovi scenari che si sono delineati





negli ultimi mesi a motivo dell'emergenza per la pandemia Covid-19, che hanno spinto a pensare e mettere in opera in tempi relativamente brevi nuovi modi di agire, con particolare riguardo alla salute e alla cura delle persone anziane, caratterizzati spesso dal sovrapporsi di opportunità, minacce e conflitti tra obiettivi e valori in competizione tra loro. Questi sviluppi possono favorire la riflessione sugli scenari che ci si possono attendere per il futuro e su come essi possono essere meglio indirizzati.

Il workshop sarà preceduto dall'assegnazione di un piccolo "compito a casa" – della durata di non più di 15 minuti – nel quale Le chiederemo di iniziare a esplorare il Suo punto di vista sul tema.

L'incontro fa parte di un ciclo di "laboratori internazionali" organizzati nei "siti pilota" del progetto GATEKEEPER (insieme alla Puglia, vi sono Paesi Baschi, Sassonia, Lodz, Aragona, Milton Keynes, Attica e Cipro oltre ad alcune sperimentazioni pilota in fase di studio e predisposizione anche a Singapore, Hong Kong e Taiwan all'interno di accordi specifici di progetto) durante i mesi di settembre e ottobre 2020. L'Università di Utrecht utilizzerà i risultati degli incontri per investigare le dinamiche di innovazione in sanità, nelle diverse regioni europee. I risultati dello studio saranno utilizzati per impostare lo sviluppo futuro del progetto GATEKEEPER e saranno condivisi con tutti i partecipanti agli incontri.

Se desidera ulteriori informazioni sul progetto GATEKEEPER e sui suoi obiettivi, può visitare il sito web <https://www.gatekeeper-project.eu/>. Il progetto è finanziato dalla Commissione Europea nell'ambito del programma di ricerca e innovazione "Horizon 2020", con sovvenzione n. 857223.

Per iscriversi al workshop utilizzare il seguente link:

<https://forms.gle/1VqRYFxAPDtTWDvg9>

Persona di contatto del Sito Pilota: [Franco MERCALLI]

Indirizzo email: [f.mercalli@multimedengineers.com]

Numero di telefono: [+39 349 4592877]





Agenda dei lavori

9.20	Co-creation workshop
	Collegamento dei partecipanti
	1 introduzione
9.30	Introduzione e avvio dei lavori <i>Modera Ing. Marco Di Ciano – Servizio Ricerca e Innovazione, InnovaPuglia S.p.A.</i>
9.40	Le politiche regionali e i processi di innovazione digitale in sanità <i>Dott. Giovanni GORGONI – Direttore Generale AReSS Puglia</i> Elderly homecare and Active Age: iniziative europee e nazionali nel post covid-19 <i>Leandro PECCHIA – Associate Professor Int eHealth Lb - Università di Warwick</i> Il Pilota Puglia e il contesto di sperimentazione <i>Franco MERCALLI – Project Manager MultiMed Engineers srls</i>
	2 riflessione
10.15	Il cambio di paradigma nello scenario dell' "Active aging at home" <i>Moderano i lavori dei tre sottogruppi</i> <ul style="list-style-type: none"> - (A) Prof. Marco Benvenuto, Università del Salento - (B) Dott. Francesco Giuliani – Sistemi Informativi, Innovazione e Ricerca, IRCCS Casa Sollievo della Sofferenza - (c) Prof. Gianluigi Degennaro, Università degli Studi di Bari Aldo Moro <p><i>In questa prima sessione interattiva in remoto i sottogruppi lavorano in parallelo e riflettono su come stanno cambiando le prospettive rispetto ai valori legati all'invecchiamento attivo alla domiciliazione delle cure e al ruolo delle tecnologie (privacy, autonomia, cura degli altri) anche alla luce di quanto accaduto negli ultimi mesi in relazione al periodo di emergenza pandemico.</i></p> <p>Obiettivo: riflettere e raccogliere idee su requisiti, esigenze, esperienze, capacità ed altro utili nel processo di adeguamento ai cambiamenti imprevisti nei fabbisogni e nei valori.</p> <p><i>Il confronto nei gruppi di lavoro sarà guidato dai moderatori attraverso l'uso della piattaforma software MURAL (vedi link lettera di invito) con la finalità di visualizzare, aggiungere e modificare idee e scenari di riferimento.</i></p>
11.00	Breve intervallo
	3 proposta





11.15	<p>Il cambio di paradigma nello scenario dell' "Active aging at home"</p> <p><i>Moderano i lavori dei tre sottogruppi</i></p> <ul style="list-style-type: none"> - (A) Prof. Marco Benvenuto, Università del Salento - (B) Dott. Francesco Giuliani - Sistemi Informativi, Innovazione e Ricerca, IRCCS Casa Sollievo della Sofferenza - (C) Prof. Gianluigi Degennaro, Università degli Studi di Bari Aldo Moro <p><i>In questa seconda sessione interattiva in remoto i sottogruppi lavorano in parallelo su possibili proposte, sfide e opportunità per un invecchiamento attivo e domiciliare in grado di interfacciarsi con il paradigma della medicina partecipativa, personalizzata, preventiva, e predittiva</i></p> <p>Obiettivo: raccogliere argomenti chiave ed elementi costitutivi "building blocks" in grado di rappresentare uno scenario ideale per l'invecchiamento attivo e domiciliare evidenziando gli attori e gli agenti principali e i loro collegamenti principali.</p> <p><i>Il confronto nei gruppi di lavoro sarà guidato dai moderatori attraverso l'uso della piattaforma software MURAL (vedi link lettera di invito) con la finalità di visualizzare, aggiungere e modificare idee e scenari di riferimento.</i></p>
4 azione	
12.00	<p>Sintesi e piano d'azione</p> <ul style="list-style-type: none"> - (A) Prof. Marco Benvenuto, Università del Salento - (B) Dott. Francesco Giuliani - Sistemi Informativi, Innovazione e Ricerca, IRCCS Casa Sollievo della Sofferenza - (C) Prof. Gianluigi Degennaro, Università degli Studi di Bari Aldo Moro <p><i>Sessione plenaria interattiva in remoto nella quale i moderatori dei tre sottogruppi riportano la sintesi dei lavori svolti nelle sessioni parallele dai gruppi di lavoro (A, B e C) e sollecitano un confronto più ampio con tutti i partecipanti con la finalità di avviare un percorso di co-creazione in grado di disegnare scenari futuri nei quali sarà possibile realizzare un'inclusione responsabile e non invasiva di tecnologie e innovazioni in grado di colmare la distanza percepita tra salute e tecnologia nei processi di "Active aging at home"</i></p>
12.30	<p>Conclusioni e prossimi passi</p> <p><i>Ing. Marco Di Ciano – Servizio Ricerca e Innovazione, InnovaPuglia S.p.A.</i></p>
12.40	End of workshop



7.2 Mr. Marco Di Ciano presentation

BARI 08/10/2020, Fiera del Levante



Co-Creation Workshop

Scenari futuri per favorire la vita indipendente delle persone anziane presso la propria abitazione

<https://www.gatekeeper-project.eu/>

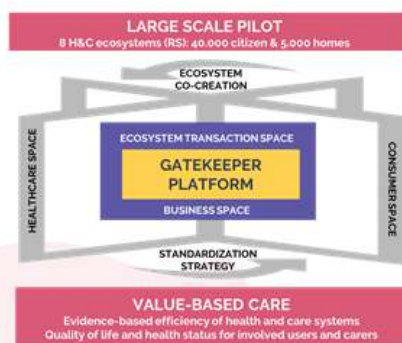
This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement 101017228



GATEKEEPER VISION

DIGITAL INDUSTRIAL PLATFORMS AND LARGE SCALE PILOTS

"Digital industrial platforms and large-scale piloting are key to establishing a European leadership in digital technologies, in the era of the digital revolution."



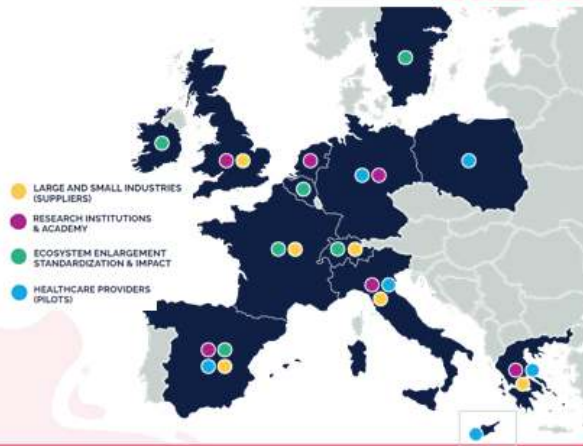
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GATEKEEPER IN NUMBERS

**52** partners**16** countries**40k** individuals**8 + 3** medical pilots**01/10/2019** project start**31/03/2023** project end**22,6 Mio EUR** project costs

- LARGE AND SMALL INDUSTRIES (SUPPLIERS)
- RESEARCH INSTITUTIONS & ACADEMY
- ECOSYSTEM ENLARGEMENT STANDARDIZATION & IMPACT
- HEALTHCARE PROVIDERS (PILOTS)



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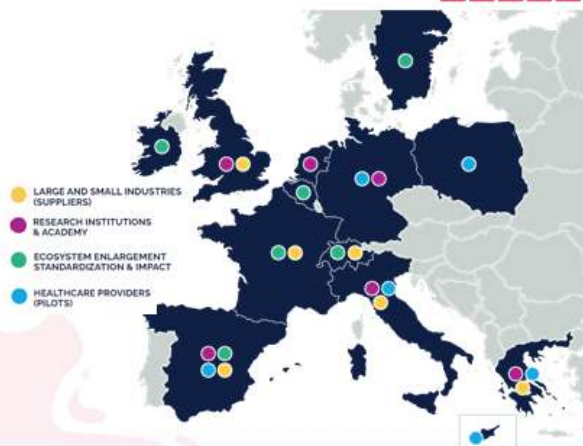


G A T E K E E P E R

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1a. Elderly homecare and Active Age: national and european initiatives in post covid-19



Prof. Leandro PECCHIA - Associate Professor Int eHealth Lb - Università di Warwick, UK

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement N° 2017229



1b. The Puglia Pilot in GATEKEEPER project and the experimentation phase



Ing. Francesco MERCALLI - Project Manager MultiMed Engineers srls

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement N° 2017229



2. Reflect “Active aging at home”

Needs, requirements and ideas on ageing at home transformation values and the role of technologies.

This project has received funding from the
European Union's Horizon 2020
research and innovation programme under
grant agreement N° 2017229



3. Propose “Active aging at home”

Key topics, building blocks, agents and connections that in an ideal scenario on ageing at home should be considered

This project has received funding from the
European Union's Horizon 2020
research and innovation programme under
grant agreement N° 2017229



4. Act

Plans and priorities on future scenarios to narrow user distance perception between technologies and health care on AHA.



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement 101017220



Next steps



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- Co-Creation report with the results of all the pilot site workshops **[planned on January 2021]**
- Open Call for Project Proposal: Provides an opportunity to technological SMEs, start-ups, MID caps, industries, research center and universities to locate their innovative solutions based in AI and big data in our market with a large potential growth. **[Call publication: October 2020 - Call deadline January: 2021]**
- Open Call for new use cases and pilots: Provides opportunities for extending, validating and evaluating the technologies introduced in GATEKEEPER **[Call publication in 2021]**
- 2nd Open Innovation Workshop **[expected in 2022]**
- Public Webinar explaining approach for ecosystem **[available on project websites]**
- Be part of the community of interest of relevant stakeholders **[receive regular newsletter]**

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement 101017220



Next steps



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Thanks for signing up to the GATEKEEPER newsletter. Stay tuned to the latest achievements of the project.

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Regione Puglia



AReSS
Agenzia Regionale per la Salute e il Sociale Puglia



CASA SOTTILE DELLA SOFFERENZA
SAN GIOVANNI ROTONDO



MultiMed Engineers



Fondazione Politecnico di Milano



Marco Di Ciano

m.diciano@innova.puglia.it



InnovaPuglia

InnovaPuglia
Società assoggettata alla direzione e controllo della Regione Puglia
Servizio Ricerca e Innovazione

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7.3 Prof. L. Pecchia presentation

Elderly homecare and Active (and Healty) Ageing: iniziativa europea e nazionali nel post covid-19

Dr Leandro Pecchia

Reader of Biomedical Engineering

Director, *Applied Biomedical Signal Processing and Intelligent eHealth lab*

Secretary General, *IUPESM* (2018-2021)

President Elect, *EAMBES* (2019-21)

Treasurer, *IFMBE CED* (2018-21)

Laboratory: [link](#) | Staff web page: [link](#) | Scholar profile: [link](#)



Research interest

- ☑ Applied Biomedical signal processing, Internet of Things, Artificial Intelligence
- ☑ Early stage Health Technology Assessment (HTA) and User Need Elicitation methods
- ☑ Medical Device design, regulation, assessment and management (Clinical Engineering)

Main applications:

- ☑ Active/healthy ageing chronic cardiovascular diseases and falls in elderly
- ☑ Disease Management Programs, patient pervasive monitoring and Telemedicine
- ☑ Medical devices and medical locations in low-resource settings and LMICs

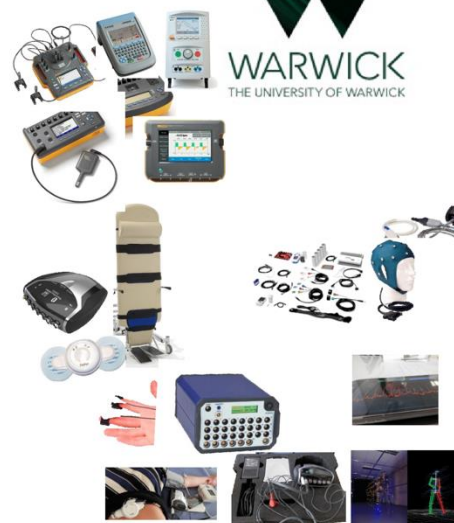
Main Projects

Current projects (£40mil)

1. 2020/2024, H2020, Smart Hospital (ODIN, COVID-19)
2. 2020/2022, PAndeVita, H2020 call on COVID
3. 2020/2023, H2020-SC1-FA-DTS-2018-2, GATEKEEPER (COVID-Open Calls)
4. 2020/2022, EPSRC, Hypoglycemia via AI and ECG in controlled environment
5. 2020/2022, Wellcome Trust, NoHypoglycemia
6. 2019/2023, H2020-SC1-FA-DTS-2018-2, GATEKEEPER
7. 2018/2020, GCRF, Medical devices design for Sub-Saharan Africa

Former projects

1. 2018/2019, EPSRC, Closed-loop control for optimising chemotherapy
2. 2016/2020, EPSRC IAA, HTA&Design of medical device in low-resource settings
3. 2015/2016, The Royal Society, Sleep quality & balance
4. 2014/15, European Commission, MAFEIP tool



Applied Biomedical Signal Processing and Intelligent eHealth Lab

In response to the complexity of medical devices, we are a multidiscipline team

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Post-doc Researchers



Rossana Castaldo
BME
Signal processing/AI



Alessia Maccaro
Philosopher
Medical Devices/
Ethics/Africa



Michaela Porumb
Computer Scientist
Deep Learning



Carlo Federico
Health Economist
eHTA



Martina Andellini
BME
HTA of Medical Devices



Katie Stokes
Biologist
AI/LMICs



Open
Position
...



PA



Muhammad Haleem
Computer Scientist
AI/Big data/
Deep Learning



Silvio Pagliara
Electronic Eng
Telemedicine/
Assistive Tech



Tim Siu Wang
Math
Behavioural modelling



Davide Piaggio
BME/EU
Med Devices in LMICs



Busola Oronti
BME
Medical Devices



Hardip Boparai
Mech Eng
Medical Devices

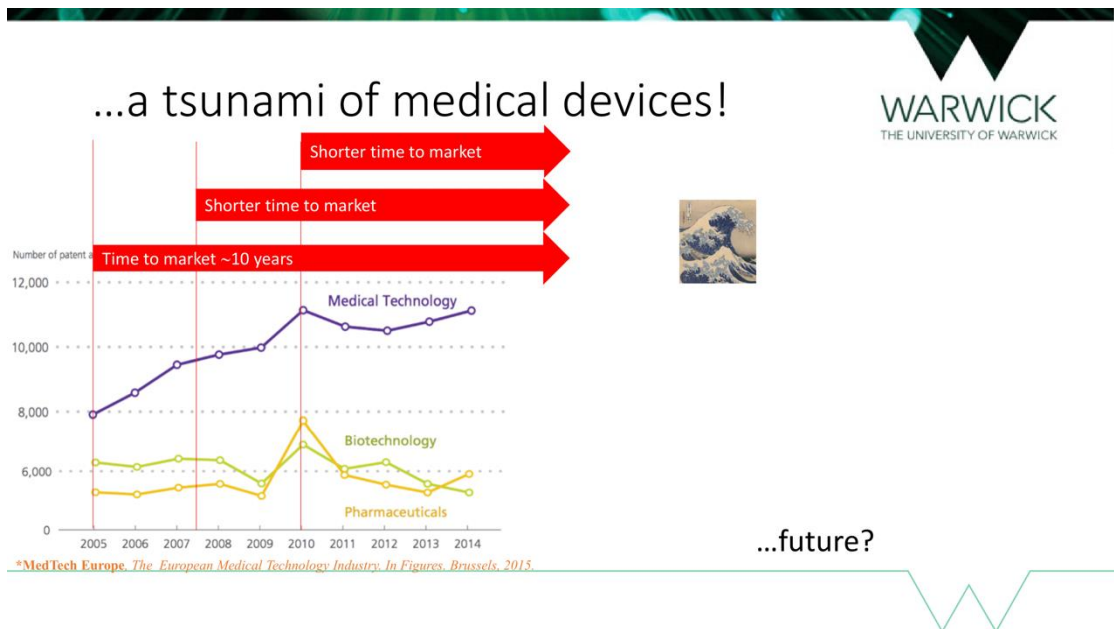
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Past...




Present...



European Economic and Social Committee (EESC) and BME

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centre Publications Countries Programmes Governance About WHO

Medical devices

World Health Organization

Biomedical engineering global resources

Trained and qualified biomedical engineering professionals are required to design, evaluate, regulate, maintain and manage medical devices, and train on their safe use in health systems around the world.

“Modern medicine predominantly secures important advances through the use of the products of biomedical engineering”
(2015/C 291/07)

4.9.2015 EN Official Journal of the European Union C 291/45

Opinion of the European Economic and Social Committee on Promoting the European single market combining biomedical engineering with the medical and care services industry
(2015/C 291/07)

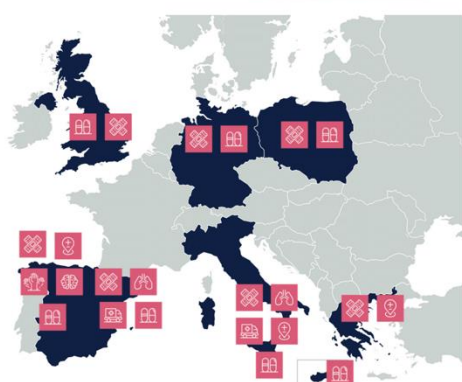
Rapporteur:
Edgardo Maria IOZIA

GATEKEEPER GATEKEEPER LSP is going to be a **federation of multicentre longitudinal cohort studies**, demonstrating the effectiveness and the cost-effectiveness of KET such as **AI, big-data and IoT** for the prevention of adverse events and the management of health in later life

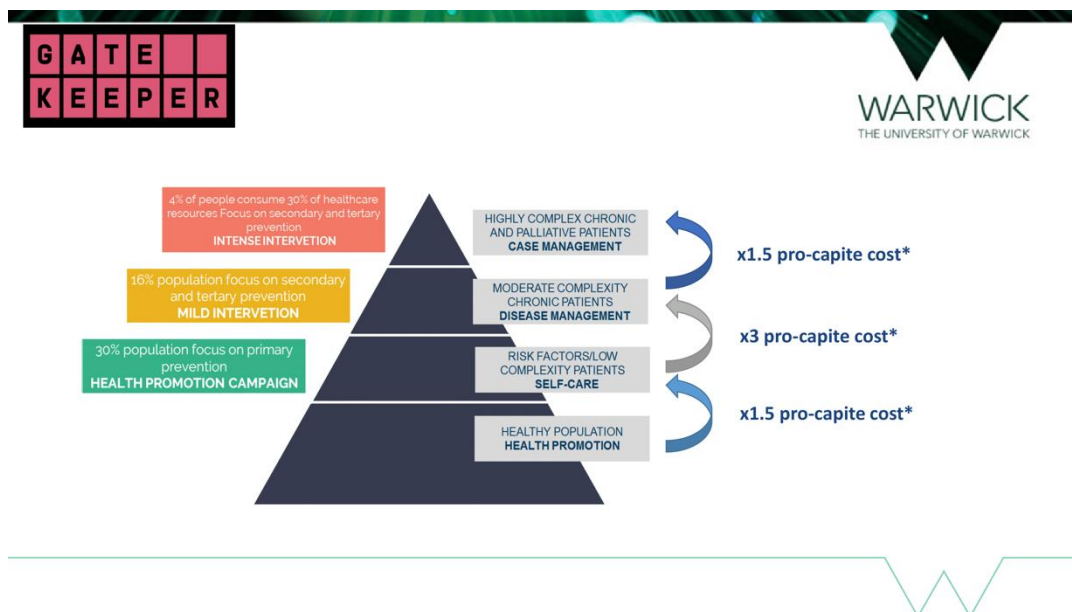
<https://www.gatekeeper-project.eu/>

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- Lifestyle-related early detection and interventions
- COPD exacerbations management
- Diabetes: predictive modeling of glycemic status
- Parkinson's disease treatment Decision Support System
- Predictive readmissions and decompensations in Heart Failure
- Primary and secondary stroke prevention
- Multi-chronic elderly patient management including polimedications



8



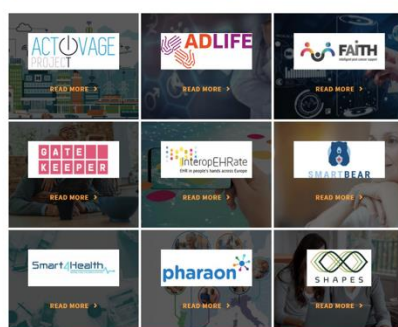
European Response to AHA & COVID-19

WARWICK
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<https://www.opendei.eu/>

Total Budget
€154.000.000

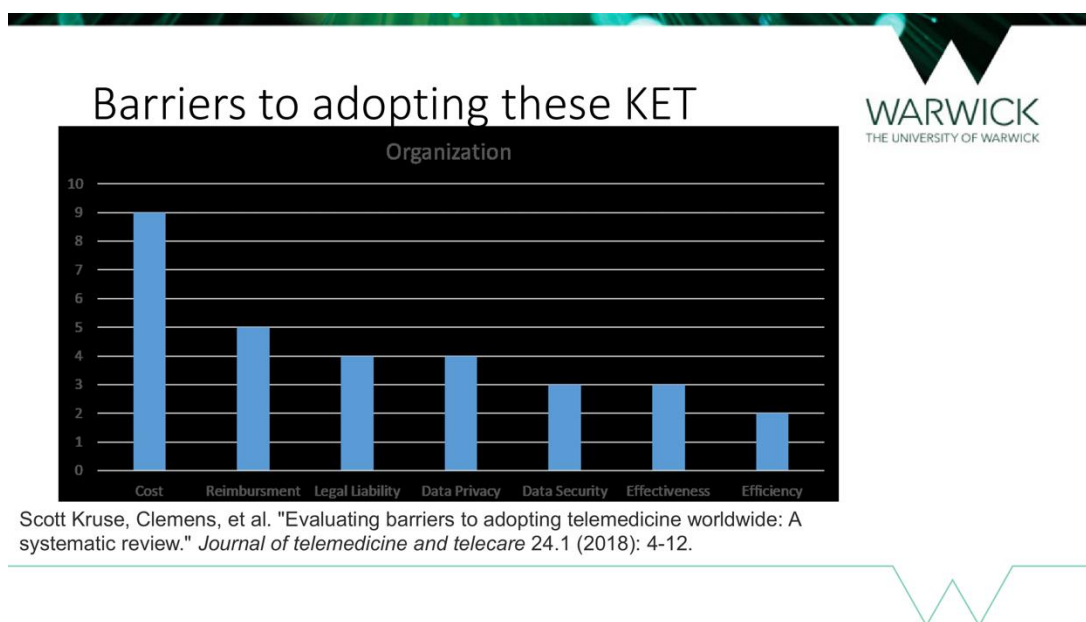
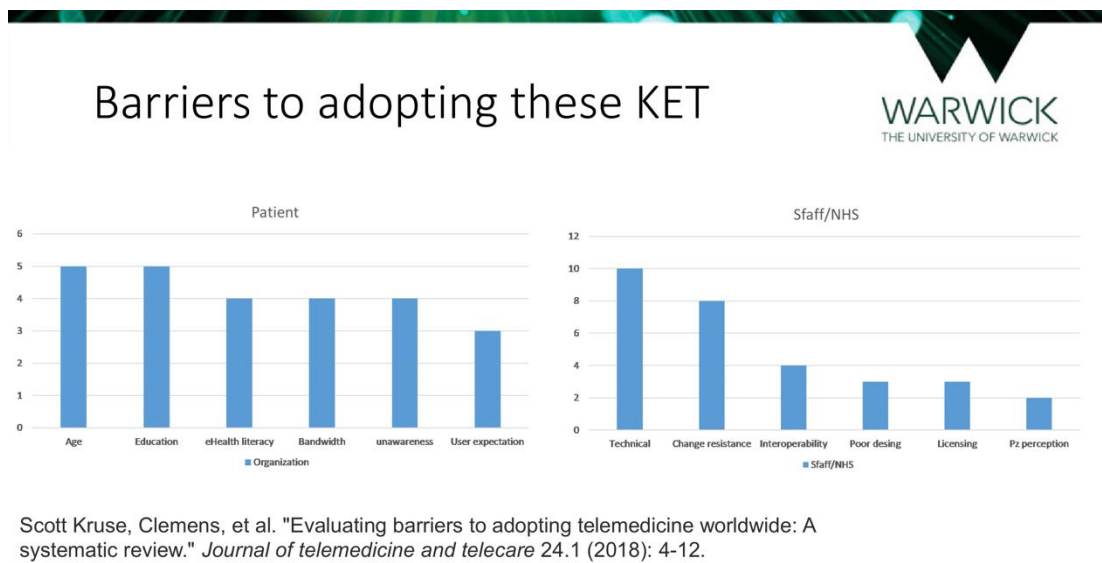


Boosting Research and novel business models

- €140 million to develop **vaccines**, new treatments, diagnostic tests and medical systems to prevent the spread of the coronavirus and to save lives
- €72 million for **therapeutics and diagnostics** via the Innovative Medicines Initiative (IMI) in addition to €45 million contributions of private partners
- €122 million in an **urgent call** to strengthen capacity to manufacture and deploy solutions and to improve understanding of the epidemic
- €48.2 million which has already been granted to 18 projects and 140 research teams via the EU's **Horizon 2020 research programme**
- €314 million for SMEs and startups for **innovative solutions** to tackle the COVID-19 outbreak via the European Innovation Council accelerator programme
- Pre-Commercial Procurement (PCP) tenders (e.g., MSMonitor Nov 2020)



10



Take-home messages



- **The Technology is there**
- **There are technological barriers but the European Commission is doing a great job to solve some issues including:**
 - Costs (i.e., substantial co-investment)
 - Legal Aspects (GDPR, MDR)
 - Interoperability (e.g., ACTIVAGE, GATEKEEPER...)
- **Policy-makers should now:**
 - Strengthen the organization of national NHS/Hospitals, considering the relative importance of medical devices: more biomedical and clinical engineers are needed and in Puglia you have outstanding scholars (e.g., Vitoantonio Belivalcqua, Poli. Bari, Lucio De Paolis, Univ. Salento among others)
 - Strengthen the organization of national agencies for Health Technology Assessment (HTA): *assessing medical devices requires biomedical engineers as assessing drug requires pharma*
 - Harmonise reimbursement strategies across EU Countries
 - Introduce clear reimbursement strategies for (tech-enables) prevention

7.4 Mr. Franco Mercalli presentation



PANORAMICA PARTNER COINVOLTI



- Regione Puglia (con AReSS e InnovaPuglia)
 - Indirizzo generale, arruolamento dei partecipanti (cittadini, pazienti, personale sanitario), aderenza alle esigenze del modello regionale di presa in carico Care Puglia
- Casa Sollievo della Sofferenza
 - Conoscenze cliniche, coinvolgimento di specialisti ospedalieri per sperimentazione su casi complessi, modelli predittivi per l'evoluzione del diabete di tipo 2
- Fondazione Politecnico di Milano (FPM)
 - Messa in opera di una tecnologia di "self-empowerment", basata su messaggi trasmessi attraverso le più diffuse app di comunicazione (ad es. WhatsApp, Facebook Messenger, ecc. – sperimentata a Lecce su piccola scala nel 2018)
- MultiMed Engineers (MME)
 - Configurazione e specifiche tecniche e coordinamento dell'interazione tra Pilota Puglia e partner di GATEKEEPER che forniscono la piattaforma tecnologica



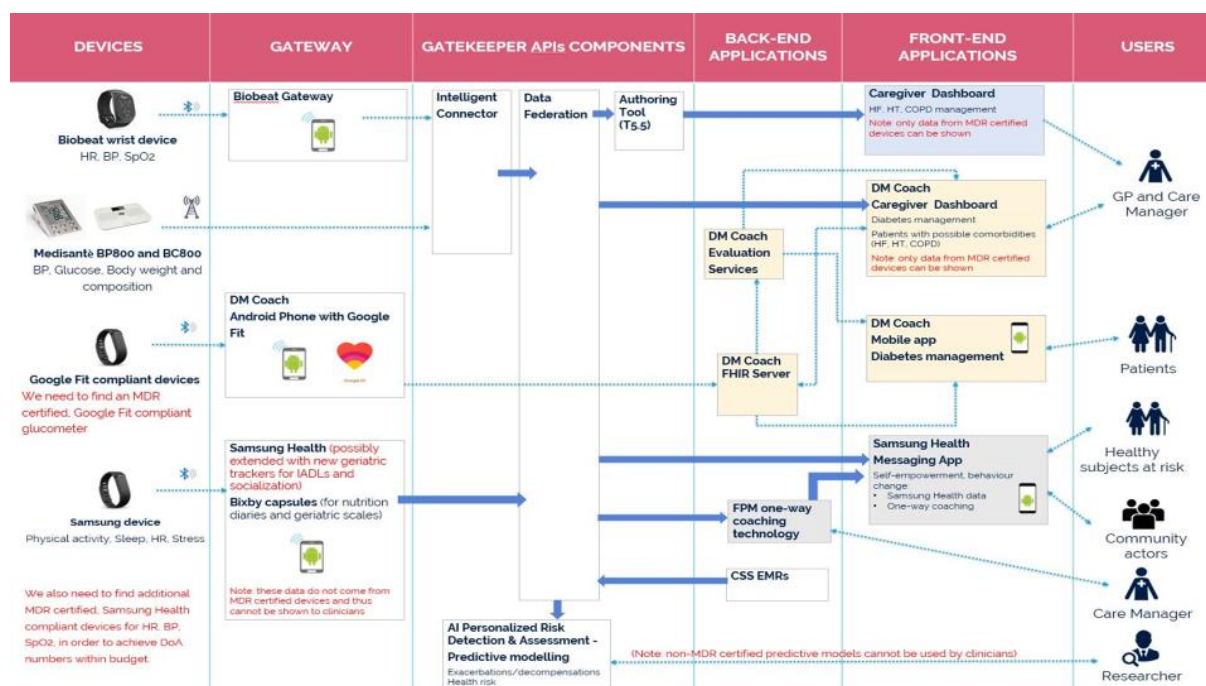
PANORAMICA OBIETTIVI



- **Bassa complessità**
 - Usare le nuove tecnologie per consentire l'automonitoraggio dei comportamenti da parte delle persone anziane sane (ad esempio, attività fisica)
 - Promuovere l'adozione di comportamenti salutari, attraverso la tecnologia di «coaching» di FPM
- **Media complessità / 1**
 - Consentire il monitoraggio continuo e poco intrusivo di parametri clinici per i pazienti affetti da cronicità (inclusa multimorbidità)
 - Pazienti arruolati in Care Puglia
- **Media complessità / 2**
 - Unire dati clinici convenzionali (da cartella clinica) e dati «non convenzionali» (ad es. smartwatch Samsung) per valutare l'effetto dell'attività fisica sui pazienti affetti da diabete di tipo 2
 - Pazienti che hanno subito ospedalizzazione

3 GATEKEEPER Puglia Pilot Webinar | April 2020 | CONFIDENTIAL- INTERNAL USE ONLY

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement N° 857223



TECNOLOGIE PER CONDIZIONE



- **Broncopneumopatia cronica ostruttiva**
 - SpO2 (wrist device Biobeat)
- **Diabete di tipo 2**
 - Glicemia (home device Medisanté)
 - DMCoach (app Engineering)
- **Scompenso cardiaco**
 - SpO2 (wrist device Biobeat)
 - Frequenza cardiaca (wrist device Biobeat)
 - Peso e composizione corporea (bilancia Medisanté)
- **Ipertensione**
 - Pressione continua (wrist device Biobeat)
- **Tutti**
 - Pressione (home device)
 - Attività fisica (app Samsung Health)
 - Qualità del sonno
 - Questionari nutrizionali
 - Scale geriatriche
 - Tecnologia di «coaching» FPM (via WhatsApp)

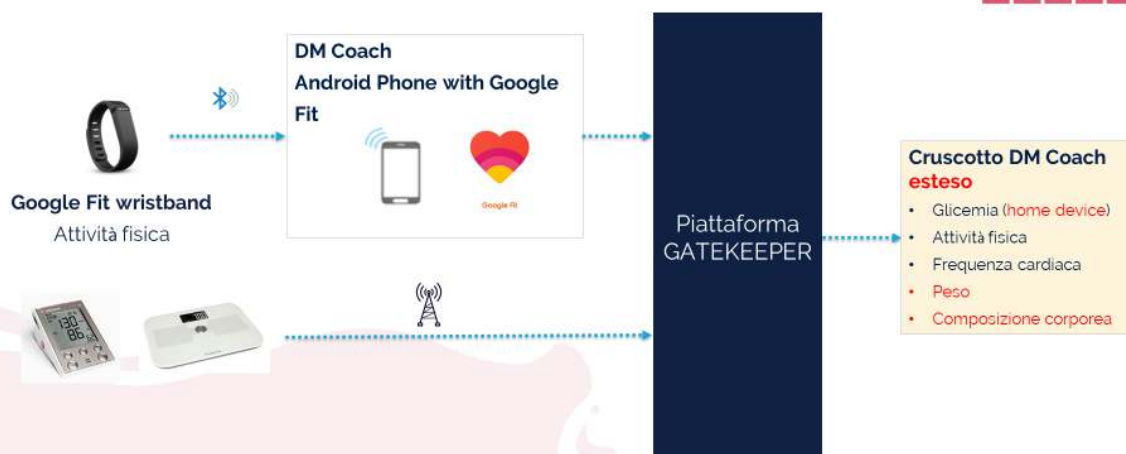


5 GATEKEEPER Puglia Pilot Webinar | April 2020 | CONFIDENTIAL- INTERNAL USE ONLY

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ESEMPIO PAZIENTE DIABETICO E SCOMPENSATO



6 GATEKEEPER Puglia Pilot Webinar | April 2020 | CONFIDENTIAL- INTERNAL USE ONLY

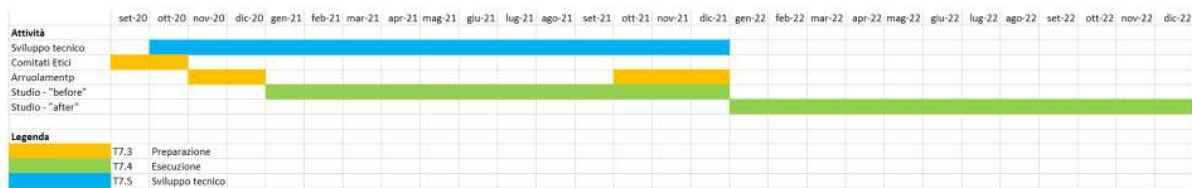
This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement N° 857223



ESEMPIO PAZIENTE DIABETICO E COVID-19



PIANO TEMPI



7.5 Mural workspace

Accessible at the URL:

<https://app.mural.co/t/cocreationworkshops3297/m/cocreationworkshops3297/1600761295858/e935cc5b53cfea890c1c6f2e56aba8d85ab73a8d>

7.6 Signed Informed consent

Signed informed consent forms are saved at a secured drive of UU.

Co-Creation Workshop Summary – Greek Pilot

Co-Creation Workshop Setup

1. Implementation details

- a. **Location:** the workshop took place online, using Zoom as a communication platform and MURAL as a co-creation workspace
- b. **Date & time:** October 15, 2020, 9:-00-12:00 CET
- c. **Moderators:** Prof. Yannis Manios, Dr. George Dafoulas, Ms. Eva Karaglani
- d. **UU:** Dr. Susan van Hees, Ms. Carla Greubel
- e. **Other Greek Pilot representatives:** Eleftheria Polychronidou (CERTH), Ioanna Drympeta (CERTH), Otilia Kocsis (UPAT)

2. Agenda

- 9:00-9:10 – Welcome, Prof. Yannis Manios
- 9:10-9:45 – GATEKEEPER Project and Greek Pilot: objectives and approach, Prof. Yannis Manios
- 9:45-10:00 – Co-creation Workshop: introduction, objectives and practicalities, Prof. Yannis Manios
- 10:00-10:20- Assignments: participants introduce & discuss own visuals & keywords
- 10:20-12:00 – Making/doing session: future scenario for better ageing in place
- 12:00-12:30 – Reflection session
- 12:30-12:50 – Summary of key challenges and opportunities for the pilot/project
- 12:50-13:00 – Closing

3. Preparatory activities performed

- a. **Preparation of stakeholders list to be invited**
- b. **Preliminary invitation & doodle setup sent to all stakeholders (~1 month before)**
- c. **Final invitation, including details on workshop and informed consent form sent to interested attendees that filled in the doodle (~2 weeks before)**
- d. **Workshop assignment & practicalities sent to confirmed attendees (~1 week before)**
- e. **Reminder sent to confirmed attendees regarding the assignment (2 days before)**

Attendants

Position	Organisation (descriptive)
President. Expertise: dietitian, nutritionist and psychologist	National Dietitians and Nutritionists Association
Professor. Expertise: Internist, Diabetologist	University & International Diabetes Federation (IDF) Europe.
Representative. Expertise: architect, urban sustainable development, healthy urban environments	National Inter-municipal Network of Health Cities – Health Promotion & Municipality
CEO Expertise: software engineer, eHealth systems.	SME that develops innovative commercial services in the fields of assistive technologies and homecare
Elected member/ Associate Professor Expertise: dietitian, nutritionist.	ESDN Obesity Committee, European Federation of the Associations of Dietitians (EFAD) / University
Professor and member of the National Committee on Nutrition Policy Expertise: endocrinologist, nutritionist, obesity expert.	University
President and Research associate Expertise: dietitian, nutritionist	National Dietetic Association Agricultural University Nutritionist-Dietitian at General Oncology Hospital
Chairman. Expertise: health service manager, health economist, European project manager.	Board of Directors of the NGO "Alliance for Integrated Care" AfIC Municipality School of Public Health
Representative. Expertise: social worker, healthcare units management, preventive healthcare for older adults.	National Inter-municipal Network of Health Cities – Health Promotion.
Representative Expertise: psychologist.	National Inter-municipal Network of Health Cities – Health Promotion & Municipality

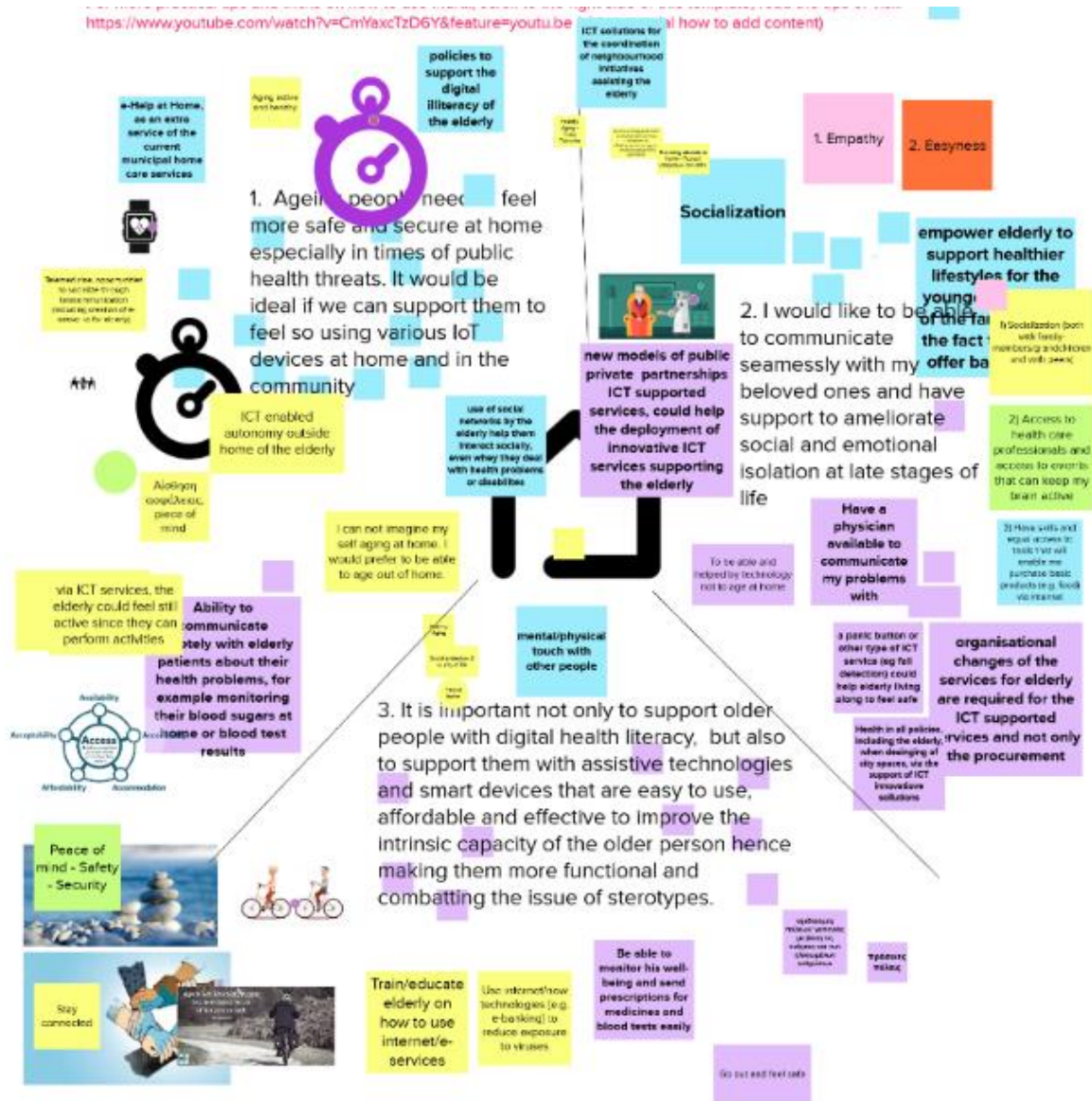
Although not a very high number of participants, the differences in and multiple expertise of some of the participants ensured a spherical view in relation to future scenario. The following table summarizes the expertise of the participants.

Expertise	Number of attendants
Dietitian	3
Nutritionist	4
Psychologist	2
Diabetologist	1
Internist	1
Architect (healthy urban environments)	1
Software engineer (eHealth systems)	1
Endocrinologist	1
Obesity expert	1
Health service manager/economist	2
Social worker	1

Note. The initial invitation was sent to more than 20 stakeholder organizations, but many of these did not responded at all or the final date/time of the workshop did not suit their availability. These included: Greek Federation of People with Diabetes (POSSASDIA), Greek Diabetes Federation (ELODI), 50plus Greece (AGE Greece), Greek Carers Association (EPIONI), Greek Society of e-Health Services and Education (EEMEPY), Greek Ministry of Health, Greek National Organization for the Provision of Health Services (EOPYY), 5th Regional Health Authority of Central Greece (5YPE), ATTIKO Regional University Hospital, Attika, Greece, Greek Diabetes Association (EDE).

Assignments – Visuals & Keywords

1. Co-creation board – visuals, keywords and key sentences related to own professional and personal perspective



2. **Identified important daily living spaces:** home, outdoors, public spaces, street, bank, supermarket, healthcare spaces, transportation means
3. **Where the technology can help:** safety & security in all spaces, access to health- and social care services (availability, cost), support to self-manage health (e.g. reminders, alarms, coaching), connectivity, socialization, support to remain active (e.g. physical activity, professional activity, engaged in other societal activities), quality of life, education and skills, transportation (e.g. smart pedestrian crossings, smart bus stops), access to public/private services (other than health), less time to doctors'/hospital visits (e.g. e-prescription, telemedicine).

4. **Whom to help:** the older people, family members, informal carers (e.g. relatives, friends), formal carers.

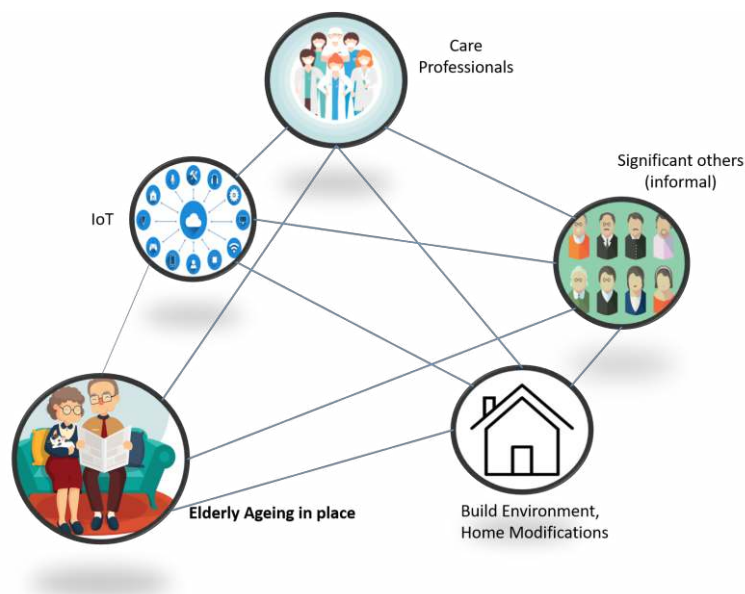
Why are all the above important and how technology can help?

- Peace of mind: the older persons can feel security and safety for themselves but also for their relatives/carers (who are responsible to look after them) when they have a sense of monitoring (without feeling this intrusive), that the others can easily intervene and support them when needed.
- Remain connected with the community and their family/ friends: not only social relations with friends and family, but also up to date with daily news and events, feel active members of the community.
- Access to care (not only medical care but also social care/support): possibility to offer services (availability) whenever and wherever needed (even remotely, at home) but also financially accessible (affordable).
- High quality of life is not only about survival, it is more substantial; to achieve active living and fun living, whether you are alone at home or you participate in activities with others. Also, maintain good mental health.
- Older persons want to feel useful and capable: we should enable them having access to new technologies and train/educate them on how to use those.
- Self-empowerment: regular contact through technology with the health care team and informal carers for health education, support and monitoring of adherence
- As older persons usually take care of the growing grandchildren, healthy ageing is linked with the healthy growth of the grandchildren too.
- Sociability: create social networks for older persons.
- Empathy: for older people it is important to feel empathy from the others, that we understand their needs and that we try to help them remain active and healthy, maintain their quality of life, just like we do for our children or other beloved ones.
- Lifelong good health: already from childhood so that during adulthood, middle age and then when elderly be able to maintain a good health.
- Safety and security: older persons feel insecure outside the home due to lack of infrastructures, risk for injury, falls etc. Alarm systems and warning systems to allow them feel more safe.
- ICT enabled self-management is the main way forward for active and healthy ageing.
- Older persons value/need to remain professionally active, productive and not only "remain at home, take care of their children/grandchildren etc."

Future scenario for better ageing in place

During the workshop participants talked about a future scenario for better ageing in place. Firstly, they defined the profile of an older person living in this imaginary scenario. Then, they agreed that instead of focusing on one structure (e.g. to design a "smart home"), it is important to think of all daily activities/ aspects of the older person's life and how they affect the person's well-being and quality of life as a total. It is not only about the home environment but also about the neighbourhood, the community facilities, the health centers/hospitals, the social life, the supermarket etc. So, we imagined what an older person's life looks like and how it could ideally be in a future scenario facilitated by IoT.

The visual below was used to guide the discussion on the scenario, depicting all different actors in the older persons' life.



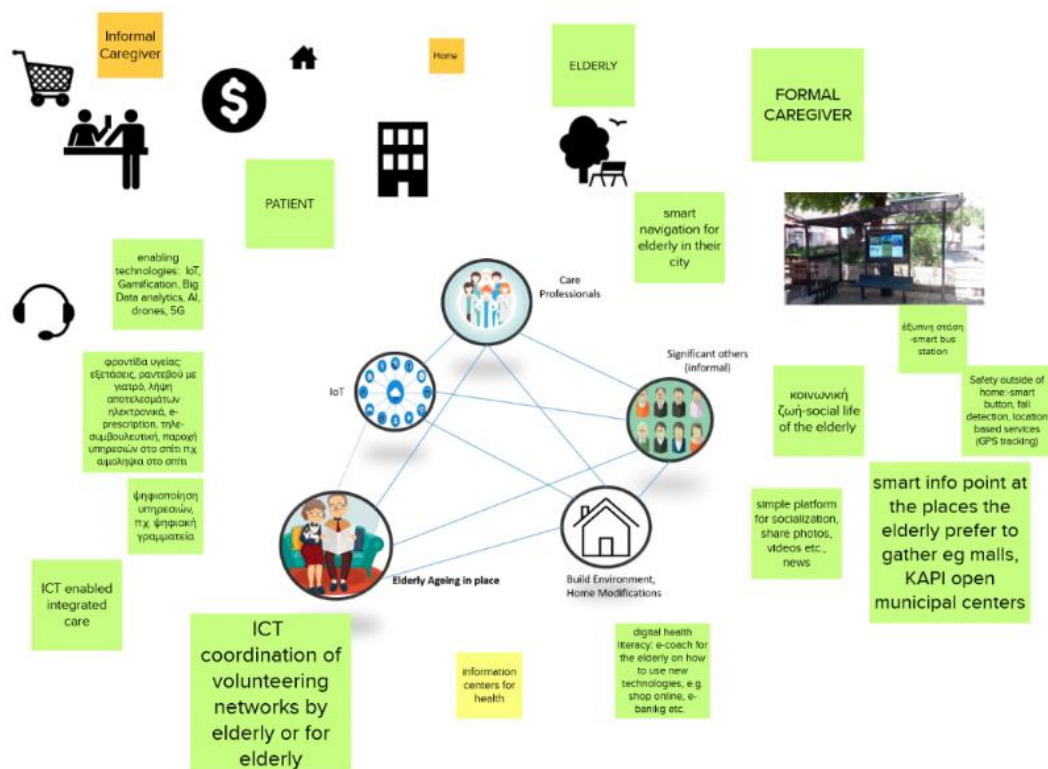
1. **Older person's profile:** female, age>65, living alone, living in Athens, children and grandchildren living in the same city, she doesn't drive, she is suffering from diabetes
2. **Spaces:** house, neighbourhood, community centre, supermarket, bank, primary care office, park
3. **Daily activities during a week**

The older person is not isolated in her home. She has to perform several different tasks during the week. For example, we imagine that in an ideal scenario:

- a. On Monday she is going to the community centre for group gym session. Important aspects:
 - i. Socialize, group support, physical activity
 - ii. Social network beyond face-to-face meetings (share photos, video, messaging)
- b. On Tuesday she has to visit the primary care office to do a medical check-up. Important aspects:

- i. Via new technologies, she can set quickly and easily the appointment
 - ii. She can receive reminders for the scheduled appointment, she can have information on how to get there and support to get on time
 - iii. Receive check results remotely in digital format
 - c. On Wednesday she is going to the bank. Important aspects:
 - i. Feeling safe outdoors (GPS location, safe trip maps, fall detection)
 - ii. An interactive screen at the bus station provides real-time information (e.g. bus arrival, weather, neighbourhood events/actions)
 - d. etc.
- 4. **Things that matter for this elderly woman (what are her needs at this age):**
 - a. keep in touch with family,
 - b. doing useful things (e.g. helping with grandchildren daily care),
 - c. feeling confident (safe, secure, able to do things) during daily activities,
 - d. keep in touch with friends and other community members (isolation is accompanied by psychological and behavioural issues, e.g. unhealthy diet),
 - e. being able to move around in the city (city infrastructure should take into account older person's needs)
- 5. **Particularities during COVID19:**
 - a. using web/mobile services (e.g. e-banking) and ICT devices (e.g. tablet, computer) for shopping, for socialization, for medical appointments,
 - b. physical and outdoor activities affected by the lockdown → exercise at home
 - c. avoid crowding by making use of migrating healthcare services at home (e.g. blood sample collection by a nurse at home) or e.g. send a photo to doctor for a first diagnosis, or send lab results etc.
- 6. **What she needs as a caregiver herself (while caring for the grandchildren):**
 - a. help to use the public transportation to go from home to grandchildren, take them to school and then at their home,
 - b. help to cook healthier food for herself and for the grandchildren (in the supermarket regarding things to buy, choose the recipe),
 - c. better understand the good/bad habits for the grandchildren (e.g. playing outdoor versus watching TV),
 - d. help to remain safe while caring for the grandchildren or while cooking
- 7. **Technologies:** communication, assistive technologies, health and wellbeing devices (e.g. smart watch), other IoT devices (e.g. smart door, comfort devices, weather alarm and notification system)

within an ideal scenario.



Key challenges & opportunities for the Greek Pilot

1. What matters from the older persons' perspectives:

- a. good health (physical & mental),
- b. independence, not being a burden to their children, but be self-dependent and be able to live in their own home.
- c. remaining professionally active,
- d. feeling capable (e.g. to learn new things, digital skills),
- e. feeling useful (e.g. for family, friends or society, volunteering),
- f. feeling safe, in terms of ease of movement/ transportation and security in the streets/sidewalks or security at home, but also with regards to having alarms in place for falls detection. Also, considering the COVID19 situation, safe in terms of avoiding unnecessary transportations, crowding or having to go to the health centre/hospital for doctor's appointment or medical exams.
- g. empathy (feeling that the others understand their problems)
- h. health and digital literacy (e.g. health information centres – KEP) to feel up to date and part of the current "trends" in society; in the same context they need simplified access to social networks and social media.
- i. feeling confident in using technologies correctly which also helps them maintain their sociability but also make use of the telehealth services.
- j. Privacy and Personal Data protection
- k. unified point of access to health and care services

2. What matters from the formal and informal health carers' perspectives:

- a. continuous monitoring of person's condition,
- b. regular and remote contact,
- c. simplified healthcare tasks (e.g. digital prescription),
- d. good health should be a lifelong goal (e.g. starting from childhood),
- e. prevention and healthy lifestyle before reaching the "older adult" age,
- f. formal/informal carers also need training and support, in particular regarding the special case of COVID19 and required digital literacy
- g. care burden reduction

3. What matters from the professionals' perspectives:

- a. being able to perform remote meetings etc. with their patients to reduce time per visit and be able to manage better the volume of patients (decrease burden); but be reimbursed for these services as they would for the regular face to face meetings
- b. have secretarial support and digitalise health/medical records and services to be able to access a patient's record online (currently there is a lack of

such e-records in Greece) and decrease burden for the health care professionals

- c. training to be able to use new technologies and telehealth services
- d. integrated and coordinated care, patient-centred care, multi-disciplinary collaboration

4. Tools:

- a. telemedicine, to avoid crowding, for direct and immediate contact with carers, to reduce burden and time for both the older person and the carers
- b. electronic patient record (to enable interoperability between healthcare services)
- c. smart healthcare services,
- d. gamification technologies (e.g. train memory, learn digital skills),
- e. security and safety tools for home and also outdoor activities, to detect falls, injuries and alert the carers (either informal or formal); e.g. smart/ panic button, GPS tracking etc.
- f. digital social networks for older people,
- g. smart city infrastructure (e.g. smart pedestrian crossing, smart bus station),
- h. information and guidance on health self-management, prediction and alarm regarding health risks,
- i. smart devices (e.g. smart watch and app) for behavioural self-management (diet, physical activity, sleep monitoring, medication adherence), for live information, smart GPS itinerary creation, e-coach

5. Policy makers, community care centres, municipalities:

- a. novel devices and systems should be backed by social & healthcare services and personnel to promptly intervene (e.g. fall alarm);
- b. infrastructure, resources, willingness and knowledge are needed in particular in Greece at primary care level;
- c. municipalities don't have the legal framework to intervene;
- d. no business models in place for municipalities to provide such services;
- e. very few municipalities in Greece have innovation offices or dedicated personnel for smart city development;
- f. remote services of medical experts and health carers must be recognized and paid, similar to in-person services;
- g. public healthcare personnel have difficulties in handling the number of patients assigned to them
- h. healthcare should be patient centric and synchronized, considering all necessary specialties and care providers (e.g. nurse, psychologist, physiotherapist, etc.)
- i. overuse of healthcare should be also controlled, to ensure cost-effectiveness

- j. the patient should have the option to use private healthcare services
- k. private & public healthcare system should be synergistic
- l. need of unique/unified access point to healthcare services for the patient

We should ask them what they really want and what they value!

Ageing At Home: feeling good and safe in my home, neighbourhood, community, city, remain active professionally

and not

Ageing In Home: isolated, alone, inactive, unsecure, useless...

GATEKEEPER project

Co-creation workshop POLAND

Summaries

GATEKEEPER project Co-creation workshop POLAND

How to create conditions for better ageing?

(in Polish: Jak stworzyć warunki do lepszego starzenia się?)

Thursday, October 22nd, 2020, 9:00-12:00 hours.

Workshop held at ZOOM

Working space made available at MURAL, results available at:

<https://app.mural.co/t/cocreationworkshops3297/m/cocreationworkshops3297/1600761346335/adbe81a1bae16b88915d1d3dafb65798587df0c7>

Organizers:

Medical University of Lodz

- Prof. Przemyslaw Kardas
- Dr. Pawel Lewek
-

Participants:

List of stakeholders (positions) based on subscriptions to the workshop

Position	Number
Biostatistician	1
Dentist	1
GP	4
Medical student	2
Nurse	6
Pharmacist	2
Physician	1
Public Health	3

Assistance:

Utrecht University

- Carla Greubel
- Susan van Hees

Agenda

09:00	Opening of workshop
09:10	Problems of healthy ageing in Poland and GATEKEEPER project (presentation by Prof. P. Kardas)
09:30	Current scenarios of ageing in Poland (discussion in breakout groups – part 1)
10:10	Summary of group discussion
10:20	Break (10 min)
10:30	Opportunities for bettering aging conditions in Poland (discussion in breakout groups – part 2)
11:10	Needs and expectations of older people and major challenges of ageing in Poland (plenary discussion)
11:40	Summary and conclusions

Breakout groups round 1 - Current scenarios of ageing in Poland

Participants actively took part in assignment (see photo below), and provided their comments to these materials during breakout group.

1 Wprowadzenie

Co łączy Cię z lepszą przyszłością starzenia się w warunkach domowych?
Dodaj elementy wizualne / obraz / fotografie / słowa kluczowe / istotne stwierdzenia, myśląc o dobrym starzeniu się z 3 perspektyw wymienionych poniżej:

- Twoja obecna perspektywa zawodowa (która mogła się zmienić na przykład z powodu sytuacji Covid-19, konieczności sprawowania opieki na odległość, lub interakcji "tworząc w twarz"). Nie ma złych odpowiedzi na to pytanie. Pomyśl na przykład o elementach, które uważasz za ważne w codziennych czynnościach i życiu, ale możesz także pomyśleć o zdrowiu i technologii w odniesieniu do starzenia się w domu.
- Coś, co może być ważne dla Ciebie w przyszłości, gdy będziesz osobą starszą mieszkającą w swoim domu.
- Coś, co według Ciebie jest obecnie ważne dla osoby starszej (np. sąsiada, krewnego)

W celu uzyskania praktycznych porad jak używać narzędzie MURAL, przejdź na prawą stronę tego ekranu, przeczytaj pomoc lub odwiedź <https://support.mural.co/en/articles/283695-video-tutorial-adding-content-to-a-mural>

1. Moja perspektywa

2. Przyszła perspektywa

3. Perspektywa osoby starszej (wyobrażonej) żyjącej samodzielnie

Key messages included, among the others:

1. Assignment - My perspective:

- "Work"
- "Travel"
- "Education of my children"
- "Daily home tasks"
- "I want to be fit"
- "I want to work until my mind allows for"
- "meetings with friends"
- "good memory"
- "I dream of having motivation for daily physical and mental activities"
- "Keeping regular contacts with my beloved ones gives me the feeling of safety – currently, I have 'discovered' the on-line contacts"
- "At the moment I am fit and young, yet after a time, I may have problems with adaptation to the changing world. I am afraid of being dependent, not able to cope with the simplest things"
- "New technologies provide huge opportunities; I hope that I will be able to use them at the next phases of my life"
- "It is perfect that my parents may get support from my siblings, as I am living far away from them"
- "I am not prepared for aging. "
- "Adaptation to change processes is hard. While aging people should be taught how to cope with that"
- "Loneliness leading to depression"
- "As a senior I may be the only breadwinner home, which happens in families sometimes."
- "I am afraid that my housemates will not be willing to talk with me as an elderly"
- "Lack of communication with seniors is one of the main problems"

2. Assignment - Future perspective

- "independent older person can provide help in terms of caring for a pet"
- "Instead of adding years to life, life should be added to years (according to Alexis Carrel, from who I borrowed this)"
- "the older I am, the more important for me are technologies enabling distant communication"
- "work"
- "I would like to be professionally active as long as I can"
- "I would like to feel useful; I would love my children say 'you make the best dumplings'"
- "I want myself to be happy to go out"
- "What am I supposed to do? In the past, I always "had to", now I don't, and I do not want to spend my time in home like this"
- "I would like someone to tell me how the elderly life looks like, what are challenges of this age."
- "seniors should be taken care of by psychologists"
- "mood disorders and depression levels should be assessed by validated scales"

- "the patient willingness to cooperate with physician should be assessed before visiting the doctor"
- "seniors should be involved in family life"

3. Assignment - Perspective of an old person

- "I want someone to call me, to see me, to know who I am, and what I like"
- "independence and ability to keep cross-generation contacts"
- "why so many drugs, it seems to myself that I am taking too many of them"
- "I do not know which drugs and what way to take them"
- "somebody help me with these drugs"
- "I know best"
- "a lot of free time"
- "financial problems"
- "disability"
- "memory loss"
- "I need some help in caring for dog, it is more important to me than a man"
- "I am afraid not to face anything interesting in my life. What is a sense of such a living?"
- "Doctor: what sort of drugs you are taking? Patient: I do not know; my wife is taking care of that. Which drugs am I taking, my dear? Wife: so you are taking some drugs?"
- "I am alone in this town; my children are far away. I struggle with lack of information, having no access to the Internet"
- "We are all alone, our children are in the UK. I am deaf, my husband is blind"
- "I feel too ashamed to ask for help"
- "I want someone to talk to me"

4. breaking group discussion

- "building motivation in seniors"
- "getting ready for healthy ageing begins in young age"
- "multimorbidity seriously affects a patient"
- "intergenerational exchange of information and communication"
- "lack of support for multimorbid patients"
- "quality of life is perceived through the perspective of the number of tablets"
- "polypharmacy"
- "medicalisation of ageing"
- "lack of information as to the sources of support for elderly"
- "psychological support for elderly"
- "adaptation of elderly toward the changes"
- "depression assessment"
- "assessment of willingness to cooperate with a doctor"
- "poor communication between elderly and family members"
- "a role of elderly in the family: the only source of income"

Lessons learnt:

- 1. Active life is a value**
- 2. Being useful and/or professionally active is helpful for happy ageing**
- 3. Social contacts are very important for wellbeing, social deprivation is a pain**
- 4. Currently ageing automatically is expected to lead to (multi)morbidity**
- 5. One's health is assessed with the number of drugs taken**
- 6. New digital technologies are expected to increase quality of life and help active and healthy ageing**
- 7. New technologies are expected to break social isolation and enable contacts despite physical distance**

Breakout groups round 2:

Second round of breakout groups discussion was informed by the results of breakout groups round 1, and focused over opportunities for bettering aging conditions in Poland.

Key messages collected and discussed included, among the others:

- "education on how to deal with elderly should start in primary schools"
- "schools should provide education on prevention and healthy ageing"
- "youth should learn about elderly in nursing houses"
- "mass media should promote healthy lifestyle"
- "TV as a major media channel for the elderly"
- "instead, mass media promote 'take a pill'"
- "limitation of dietary supplements' marketing"
- "ageing should not be stigmatised – currently, it is a sort of tabu"
- "I would like to be surrounded by people who are happy to help each other"
- "monitoring should target selected groups"
- "cooperation of health professionals of various types"
- "those inactive should be activised, and not those already active"
- "there is a need for pharmaceutical care"
- "even basic social contacts are of value"
- "there are no e-solutions to run pharmaceutical care in Poland"
- "unification of digital systems is not the will of the IT companies"
- "e-solutions may generate myriads of alerts"
- "wearables are beneficial"
- "digital systems for activity and drug taking monitoring"
- "national Electronic Health Record is poorly known"
- "digitization of the healthcare area is inevitable"
- "e-activities reduce physical activity"
- "assuring continuation of good EU projects with local funds"
- "we will all be seniors"
- "volunteering of seniors in nurseries, kindergartens and schools"
- "being useful"
- "enablers for seniors to go for prevention"
- "long-term plans for ageing management"

Lessons learnt

- 1. Mass media should be involved in education for better ageing**
- 2. Healthy ageing is important skill that should be actively promoted and taught at schools**

3. **New digital technologies, such as ICT and wearables, are expected to increase quality of life and help active and healthy ageing**
4. **There is a need for further development of e-Health solutions in Poland**
5. **Medication management is an important question to ageing population**
6. **The future of senility should be prepared “for us”, as “we” are the ones who will be elderly in future**
7. **Seniors should not be excluded from familial and social life**

Plenary session: dialogue with all

1. Dialogue with all

Plenary session focused on the topics defined by its working title: *Needs and expectations of older people and major challenges of ageing in Poland*.

Below, there is a shortlist of major items discussed in the plenary session.

Needs, values, and user requirements:

- Basic need of ageing people is good health, yet this is not a stand-alone value, just the contrary, it is interlinked with other values
- Other important values of ageing population are: independence, activity, usefulness, and social contacts/immersion
- Social and familial affiliation is of high value for seniors, especially lonely ones

Key challenges

- Social isolation
- Poor intergenerational contacts
- Lack of supportive and motivational environment
- Multimorbidity and polypharmacy are real threats to elderly

Key opportunities

- New technologies are filling the gaps in social and technical areas
- Digital technologies are not a barrier for new generations of elderly (as "we are future elderly")
- Current development of eHealth solutions in Poland is expected to help active and healthy ageing through various channels
- Multimorbidity and polypharmacy management may benefit from e-solutions
- Utilization of remote communication may decrease social isolation of seniors

Wrap up: Final thoughts, ideas

- The time is high to include dedicated e-solutions helping active and healthy ageing in national and regional agendas in Poland
- For various social, health, and economic reasons, multimorbidity and polypharmacy management should be adopted toward these agendas
- E-solutions helping multimorbidity and polypharmacy management are well welcomed
- Well established coordination team in primary care for seniors health management is of great value

End of the workshop:

Participants were informed as to the value of their contribution for local activities of Medical University of Lodz, undertaken under framework of GATEKEEPER Project, and in particular, for designing and conducting pilot studies.

Moreover, participants were informed that the conclusions of the workshop will be further used by GATEKEEPER community for the development of its European activities.

Nobody from participants opposed toward the re-use of their contribution, ideas nor images.

Workshop Summary Saxony

GATEKEEPER project Co-creation workshop SAXONY summary

Date conducted: November 3rd 2020 online

Time: 13:00-16:00 CET

Workshop organizer: Julia Schellong (TUD), Lisa Stieler (TUD), Sophia Mittelstädt (CCS), Olaf Müller (CCS)

Workshop moderators: Julia Schellong (TUD), Olaf Müller (CCS)

Key Note speaker: Olaf Müller (CCS)

Stakeholders/participants:

Position	Organisation (descriptive)
Chief Digital Officer	City Administration
Social worker	in open elderly care
Citycouncil Dresden	Department of Residential Counseling
MSc, Molecular Bioengineering	Biotechnology Center of TU
Research group leader	Technical University (Business Informatics, esp. Systems Development)
Director, Professor	Research Institute Health, ageing and technology, Social Gerontology, Applied University
Diplom-psychologist, psychological psychotherapist Medical Psychology and Medical Sociology,	University Hospital
BSc. Psychology,	Regional Health Network Management

The initial Invitation was sent to more than 40 stakeholders and organizations. Among them were for example research institutions, city council of different regional cities, senior care centers, charity organizations and physicians. About one third of them did not respond to our invitation and another third rejected the invitation due to time overlapping and COVID-19 Issues. Five participants canceled their acceptance on the day of the workshop or did not attend the workshop.

Agenda

Remote Co-Creation Workshop	
1. Introduction	
13:00	Welcome and brief introduction by workshop moderators (Workshop, Gatekeeper, Saxony pilot) Julia Schellong, Olaf Müller
13:15	Key note / speech
13:20	Brief introduction from workshop participants/ Icebreaker (Mural)
2. Reflect (Input Assignment)	
13:30	Perspectives of ageing at home (Own perspective, Future perspective, Perspective of independent living older adult)
13:55	Summary of discussions
14:00-14:05	Short Break
3. Imagine	
14:05	Break-out group (round 1) (Ideal environment for aging at home, Part I)
14:30	Summary of discussions
14:35	Break-out group (round 2) (Ideal environment for ageing at home, Part II)
15:00	Summary of discussions
15:00-15:05	Short Break
4. Act	
15:05	Dialogue with all (Addressing needs, values, user requirements, Addressing key challenges and opportunities: co-creating agenda toward responsible implementation of solutions)
15:35	Summary of dialogue

5. Wrap-up	
15:40	Wrap up: Final thoughts, ideas, questions Next steps (Workshop summary, GATEKEEPER-Updates)

Table 1: Agenda of Gatekeeper Workshop

Introduction

The workshop was started with a welcome of Julia Schellong the head of Saxony pilot and main moderator of the workshop. She gave a short introduction about the Gatekeeper project in general and the Saxony pilot in specific. Therefore, she prepared some slides in a presentation to give a short overview. After this introduction, Olaf Müller (CCS) gave a short inspirational speech about health and challenges for older people and the needed collaboration of different stakeholders to deal with upcoming challenges. The motivation was taken over from the stakeholders who joined this spirit and started to introduce themselves. After the introduction of the other partner organizers (Lisa Stieler, Susan van Hees, Carla Greubel) the participants started with the Assignment task. One week before the workshop, we sent out the Assignment asking the participants to make some thoughts about different perspectives of ageing in place.

Assignment

Building three different scenarios of ageing in place

Add from three different perspectives a visual / image / photograph / keyword / key sentence that you associate with a better future of ageing at home. This means you will add three different visuals, deriving from the following three perspectives:

- 1) Your own current professional perspective and how it has changed due to the Covid-19 situation.*
- 2) Something that you consider can be important in the future, for yourself when you are an older person, ageing at home.*
- 3) Something that you think is currently important for an older person (neighbor, relative, for instance)*

P1: Isolation is a huge problem that needs to be solved, especially regarding upcoming digitalization. Demographic changes need to be involved such as family members and children moving away (big problem of rural areas).

P2: Self-determination and autonomy as active participation in life and society, remaining an active member of a community (interaction, giving and taking) in terms of dignity/sense (meaningful participation)

P3: repressed thinking of ageing (so far) as it is a very abstract topic. Autonomy and social interaction, life in the sense of being able to maintain a healthy lifestyle, smart support certainly can help to maintain self-determination with social integration.

P4: Security as a big factor, on one hand to live constantly and secure at the same place for a long time, on the other hand protection from dangers such as burglary and fraud. Just as important are social contacts and animals to prevent isolation. Another value in age is travelling: older people would like to experience something new despite possible restrictions or diseases/disabilities.

P5: A red cross symbolizes easy access to medical care and supply, smart devices can support this e.g. smart toilet that detects important measures in the morning urine of an older person. With this come along special requirements such as data protection and security. With access to all measurements and partners, (partners might involve everyone including the family

members, doctor or healthcare/care personal, emergency personal etc.) the smart toilet could forward information about drug or alcohol consumption to the health insurance what might have bad consequences. Besides medical care, supply with groceries and food as well with social support is crucial for older people.

How did it change during COVID-19 Pandemic?

P1: Isolation has increased due to caution: social distancing because no one wants to infect older people (high risk) by getting close to them. This seems to have a huge impact on basic relationships e.g. between neighbours (danger of anonymization).

P6: increased danger of age discrimination: e.g. younger people should change their habits to protect older people, older people are told to go only for groceries during special times and not to use public transport anymore...

P7: The concept of solidarity among generations can have a revival. Either we come more together (helping each other) due to COVID-19 or it tears us more apart than ever (discrimination). Another interesting fact are the reverse teacher-student-relationships regarding Digitalization (Young people teach them to the older ones).

P8: Experience from a project bringing Digitalization to rural areas: Before COVID-19, only few of the older people were interested in smart devices. Ever since they depend on it they start appreciating it (e.g. for video chatting with family, having doctors' appointments via web) and do not want to miss it anymore.

Moderator: smart solutions save older people's time (they do not have to drive to the appointment) and they are better protected of infection.

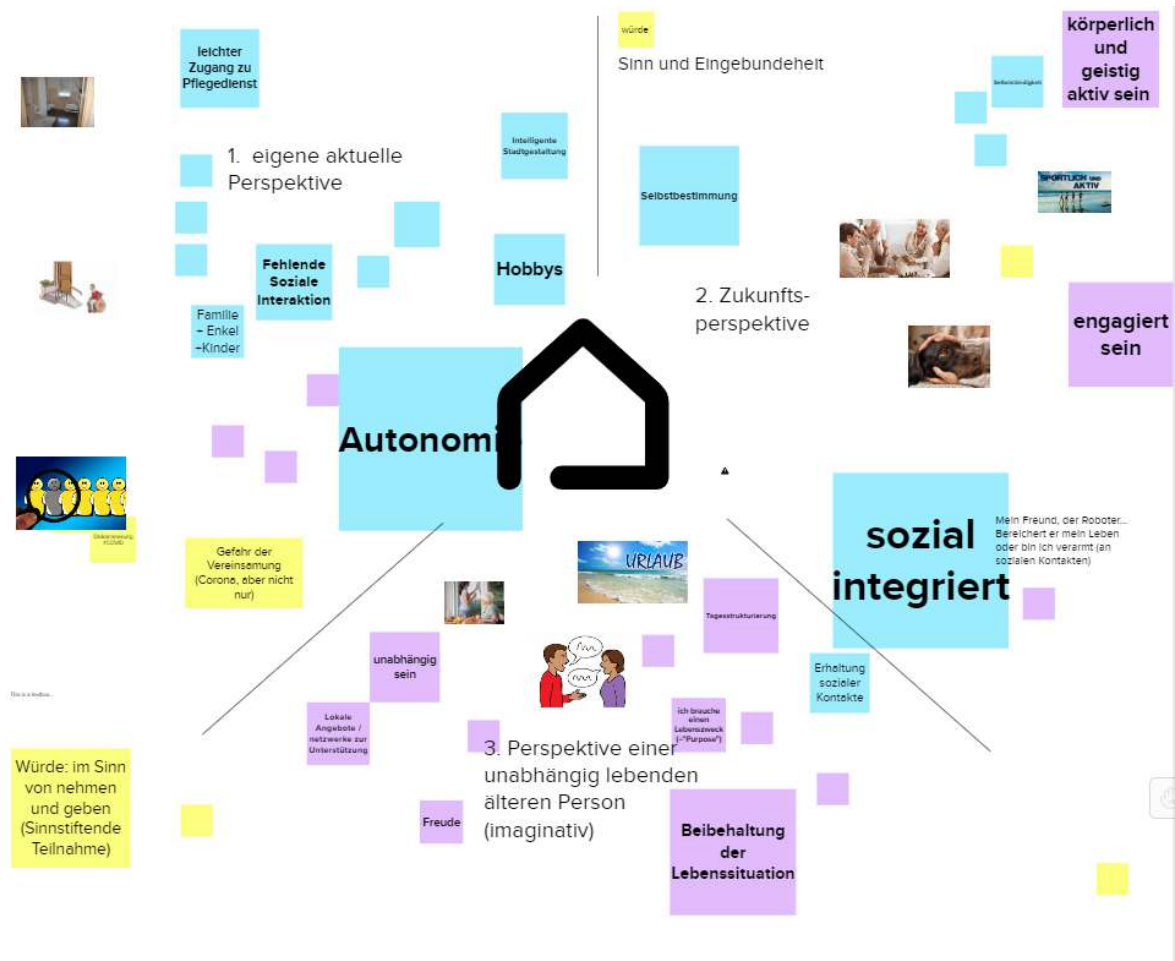


Figure 1: Mural of Assignment task

Break-Out Session 1

Building scenario

Participants were asked to build a future scenario of ageing, to add technology and eventually the items they collected in the prior task.

How do you ideally imagine life in older age? Use the values/keywords you have already worked out. (symbolic: house and the values/technologies)

Group 1

The ideal scenario for ageing is a green nature based place where the people feel at home. Mobility is an important aspect that helps older people to be active in life and take part in the community. They can stay independent and have access to everything they need e.g. through car sharing/car pool. There needs to be Access to basic health care and supply at all time and short distance (Red Cross). Living shall be without any borders of generations. Old and Young people live together and benefit from each other. There will be no borders between generations (cross-generational). Therefore, spaces need to be created such as community rooms and cafes. Living needs to be managed to stay independent as well, so everybody has the chance for a personal retreat. While planning and constructing the building, everything needs to be adapted for older people (audibility, vision, organizing) and accessible. There will be activities for the community, such as exercising, learning and living in general that will be cross-generational (families, cities and villages). Certainly, the environment will be safe and older people would be smart protected against fraud and physical danger as well. Openness for new technologies is necessary but can also be learnt (regarding the current older generation). Technical possibilities change tremendously, so requirements can change within a small amount of time. Smart technologies as robots can ease the care and social interaction but have the danger of increasing isolation, too. There will be more technical possibilities to connect people. For instance playing together even if they are apart (via app) but also to do other activities together such as singing via app. Daily experience of older people and friends reaching retirement showed a lot of people feel lost after retiring and do not know what to do with their time, they can work in some co-working-spaces together, if they want. As some kind of home office, they can profit from each other and learn new things. All in all there will be a good balance between technical and physical interaction.

Key messages (all agreed):

- Integration is important (cross-generational)
- Balance of physiological and digital solutions



Group 2

In the breakout session of Group 2, for a future scenario of ideal aging, participants focused especially on active, sportive and "engaged" aging. This means that digital solutions or platforms that provide sport and physical activities would be required and desired at the first place for an active and healthy aging. Moreover, an ideal life in older ages cannot be thought of without preserving social contacts. In the group discussion, ideas for different housing types for elderly people came up about whether they should live in their own homes or apartments, or there should be common retirement homes (care homes) in which they can build more concrete social interactions with their comrades. Considering fast digitalization in our technology age, new digital solutions for socialization of elderly people at home could be easily integrated. To name few examples only, virtual coffee drinking hours and providing physical and mental supporting through digital applications/assistants can be developed. Nevertheless, we should not forget the fact that digital world is not a replacement of reality, and it is important to keep the balance between virtual and real contacts for a healthy aging. There is a challenge in bringing digital solutions to elderly, which should be considered: How likely will the elderly people be *willing to* and/or *able to* use these new digital technologies? In most countries, elderly people concern about their privacy and data security, hence they avoid the use of online services. Therefore, it is crucial to communicate with elderly to explain that the use of new technologies is safe, when used correctly and properly of course. Also, easy access of elderly to these new digital services should be enabled, which will encourage them to use these services independently, without an immediate help of any relative or acquaintances. If possible, there should be single service/ application instead of hundreds, which may overstrain the elderly.

Key messages:

- Keeping social connections, friendships and family bonds are important
- Easy and simple access to digital world
- Balance between digital & real world



Figure 3: Mural of building scenario group 2

Break-Out –Session 2**Reflecting scenario**

Participants are asked to think about their opinion towards the scenario of the other group and improvements as well as possible disruption and subsequently of a solution.

Use the already existing ideal scenario (house) of the other group and adapt it further to your wishes/concepts. Are there any suggestions for improvement? Are there problems in your opinion?

Group1

The other group has focused only on digital aspects „too much“. This brings some risks with it: low threshold digital support must be integrated before it is needed. Consulting will be necessary and should be done as often as needed without focusing on cost-efficiency. Technical/digital support in health care is needed most after events (e.g. operation, accident), but it must have been already implemented to support users and benefit all. An All-in-one-tool that can be used on all purposes would be ideal. Users are already comfortable with the surface and it would only be extended with new features. Citizen empowerment/user empowerment could help to increase usability (e.g. in open source projects)

What happens if there are technical problems (e.g. internet connection) or people get tired of digital tools and want to return to physical alternatives? There needs to be a balance of both options.

Another disturber could be a scenario where catastrophes such as climate change or war have such a huge impact that topics as improving ageing are not important anymore. This can strengthen community and solidarity but it makes surviving important in the first place. Sometimes these scenarios have only a weak impact on elderly only during a certain period of time e.g. COVID-19. Minor changes in politics can also change the focus towards something else then healthy ageing. The more you work close with the target group (old citizen) together (e.g. empowerment), the better you can decrease those effects.

Key messages:

- Time for implementation has to be considered, training and usability are very important to increase the benefit of a new technology for users and carers
- User empowerment can help to increase usability and acceptability of a digital solution

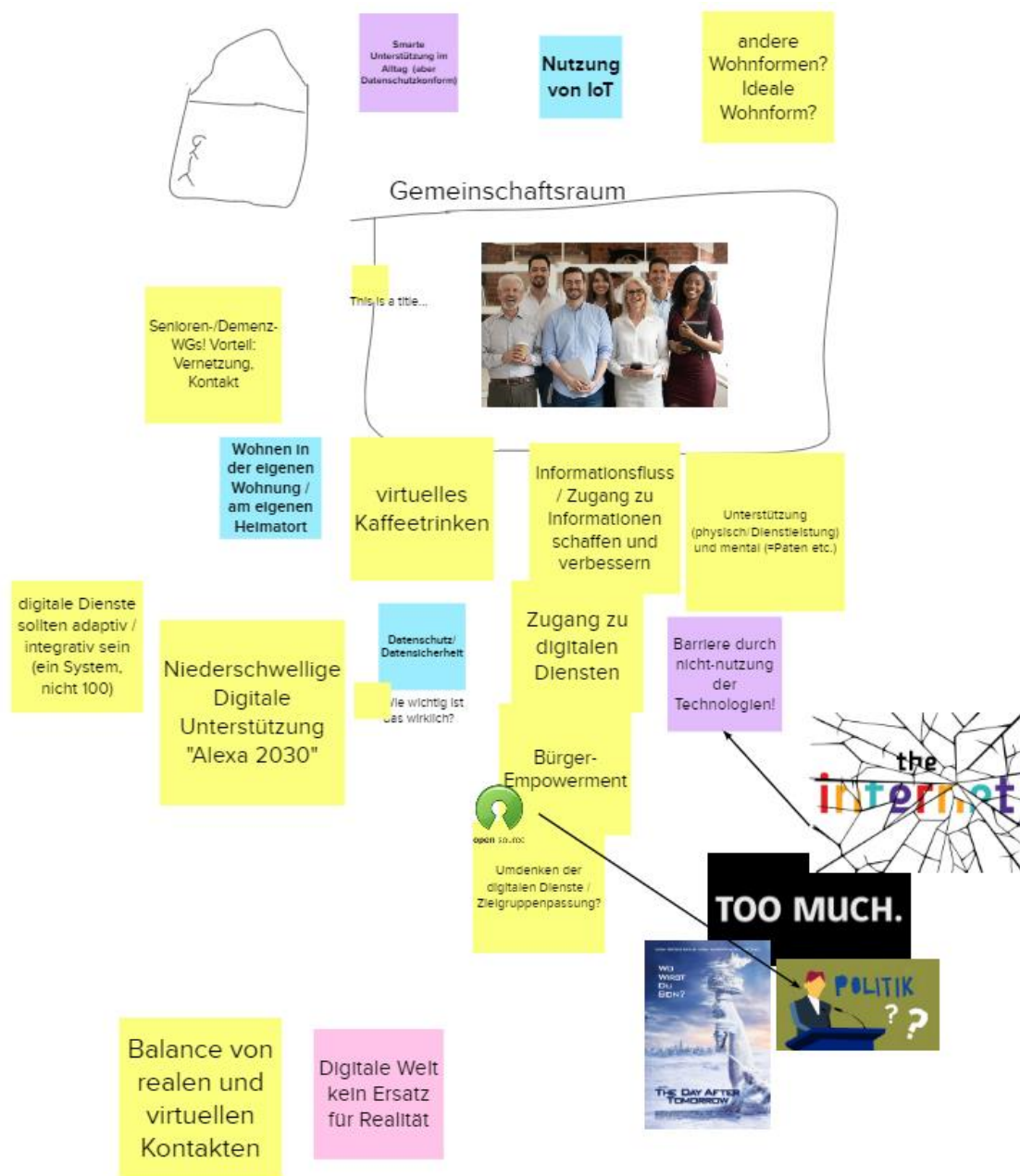


Figure 4: Mural of reflecting scenario group 1

Group 2

The other group focused on green environments, co-working spaces, cross-generational socialization environments, and mobility. Social bounds with children and animals play an important role for maintaining a healthy mental state. From this aspect, community rooms and cafes where different generations can spend time together could be a creative solution. In addition, considering the implementation of platforms for playing virtual/distant games, elderly people may build new connections with more people through a virtual network. In this respect, elderly people who are living alone would be involved in the community room as well. However, all these may lead to a necessity for an adjustment of societal norms which have been adapted for years and elderly may encounter some difficulties to change or arrange their habits accordingly. Information flow has now been infiltrated and access to valuable information is getting more and more plausible, which suggests that the challenges can be overcome more easily than it was a few decades ago. Nevertheless, it proves important again to have the balance between virtual living and having real social connections.

How should the transition from independent living at home to living at safekeeping senior houses (or vice versa) should be perceived? What is the correct living form? These are open questions and not an exact answer or a consensus may be reached upon. Either have its advantages and disadvantages and there is not a single ideal fulfilling every requirement. Consensus of the group was, elderly people should feel safe, happy, not alone; and they should keep their close contact not only with their peers but also with younger generations.

Key messages:

- Various living forms and socialization opportunities can be implemented. Important is not to miss the connection between old and young generations
- Consider the wills of elderly and respect their social preferences. Give them the freedom to choose the place where and with whom to live in



Final discussion

Please share and collect ideas towards needs, requirements and values. Think about key challenges and key opportunities. Think about an agenda towards responsible implementation of solutions

- Needs and requirements belong together and cannot be considered separately
- The implementation of technical innovations should be based on social, political and financial framework of the society
- The focus of key challenges should be on responsibility, reusability and scalability
- Encouragement of elderly to participate in technical and social innovations, but at the same giving priority to their data protection and security is crucial
- Avoiding digital overload should always be favoured, as it may lead to a feeling of isolation from the real world
- Being embedded in the community and social life and maintaining close contact with young generations can also be preventive regarding mental illnesses

4

Gruppendiskussion (1)

Bedürfnisse, Werte, Anforderungen

Tauschen Sie Ideen aus und sammeln Sie sie hier



15-20 mins

Akzeptanz /
Usability

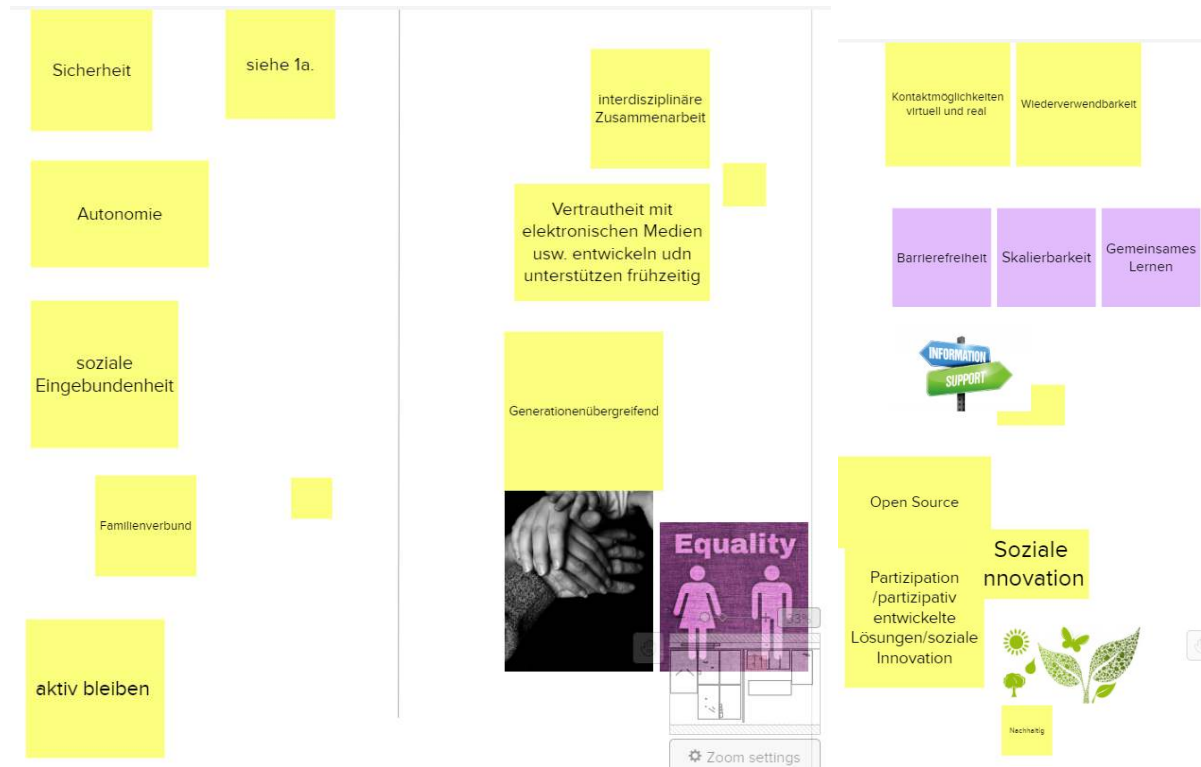


Figure 5: Mural of group discussion needs, values, requirements

Gruppendiskussion (2)

zentrale Herausforderungen und Chancen

Tauschen Sie Ideen aus und sammeln Sie sie hier zur Mitgestaltung der verantwortungsvollen Umsetzung von Lösungen

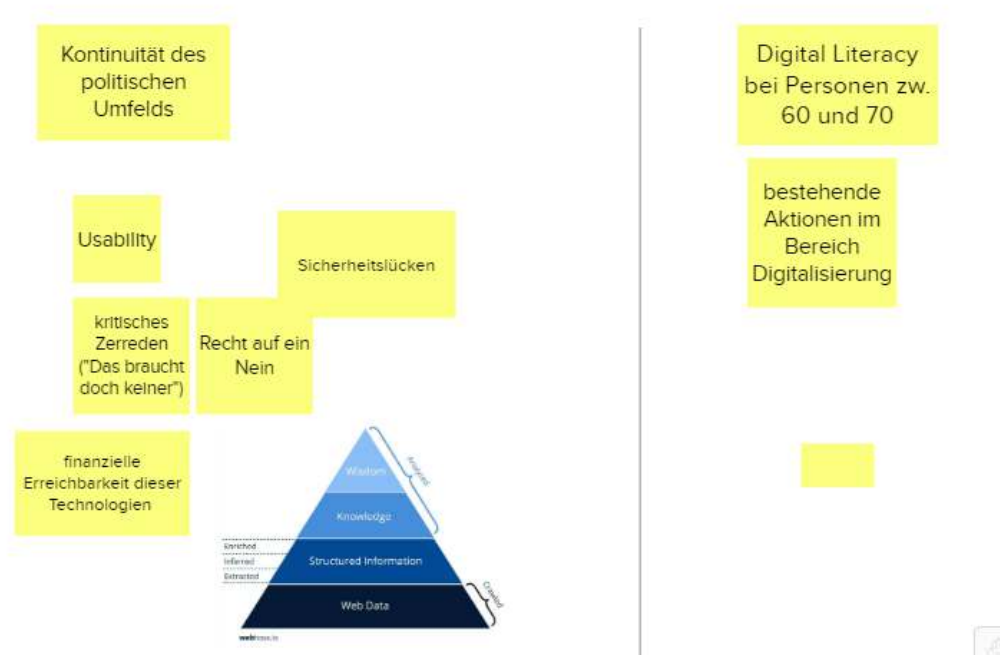


Figure 6: Mural of group discussion challenges and chances

Wrap-Up

Final thoughts, ideas, questions, anything you would like to add

- Despite some technical problems (unstable internet connection) participants enjoyed the workshop
- The experience of an online workshop with creative tasks was a little challenge for some participants: they found it difficult to work in mural and talk about their thoughts and opinions to the others in zoom at the same time: Multi-tasking was a problem.
- Therefore, discussions were sometimes more visual (mural) and less verbal
- Participants liked mural; they thought that it was easy to use. Nevertheless, integration of a Mural-like tool to the conferencing tool would work better
- Mural made even minor thoughts/opinions possible (e.g. quick adding of an image), that would be forgotten/lost in a verbal discussion because of the bigger inhibition threshold

- Some participants thought it was a long time for a workshop and doubted the benefit of it (in the original co-creation concept during spring 2020 it would have given input for setting the use cases but now it is more or less talking about already made decisions)
- Since ageing is an abstract topic especially for younger people, some participants suggested it might be better to discuss on the basis of (imagined) persons who are involved (e.g. senior, clinician, caregiver) and their special cases to find a better connection to the topic of ageing

Workshop summary Milton Keynes

UK Pilot

Report of the co-creation workshop - 10-11-2020

Preliminary work

Agenda

09.30	Remote co-creation workshop
	Pre-event preparation – 30 minutes <i>Access Mural via your browser to prepare for your participation</i>
10.00	Remote co-creation workshop
<i>1 introduction - Digital care in the UK</i>	
10.00	Welcome and introduction <i>Agenda and brief presentation on digital innovation for ageing.</i>
<i>2 group discussion</i>	
10.15	Changing scenarios of ageing in MK <i>Group discussion on changes and on the role of technologies in the past months.</i>
11.30	Short coffee and tea break
<i>3 collective discussion</i>	
11.40	Dialogue with all <i>An open discussion about challenges and opportunities for a responsible innovation.</i>
<i>4 conclusions – Digital care in the rest of the world</i>	
12.30	Emerging solutions and best practices of digital care <i>A report from the pan-European pilot of GATEKEEPER</i>
13:00	End

List of attendants and breakout groups

The list of attendants includes a wide variety of stakeholders, representing healthcare social care, patients and carers, the industry and also profiles related to health innovation.

4.1.1 Participants

Name	Organisation
CEO	HealthWatch Milton Keynes
Team Lead Physiotherapist	Connect Health
Council Manager	Woughton Community Council
Researcher in AI for Healthcare	Samsung UK
Project Manager	The Open University
Care Co-ordinator	Age UK Milton Keynes
Social Prescribing Co-ordinator	Age UK Milton Keynes
Professor of AI	The Open University
Adult Carers Service Manager	Carers Milton Keynes
Older Carers Support Worker	Carers Milton Keynes
Older Carers Team Leader	Carers Bucks / Carers Milton Keynes
Researcher in AI	The Open University
Researcher in AI for Healthcare	Samsung UK
Researcher in Robotics	The Open University
Representative	Senior Voice UK
Representative	Senior Voice UK
Representative	Patients Participation Group

It is worthwhile highlighting that we had three participants that were unable to join due to accessibility issues related to Zoom and Mural. For the next events, we will ask participants if they request personal support for input in Zoom or Mural.

4.1.2 Support and coordination

Name	Role	Organisation
Jane Whild	Project Manager	Open University
Alessio Antonini	Research Associate	Open University
Charlotte Hamilton	Project Officer	Open University
Kiran Parmar	Comms	Open University
Susan van Hees	Researcher	Utrecht University
Carla Greubel	Research Assistant	Utrecht University

Workshop content

Overall, we adopted the workshop format as provided by the task leader, specifically in terms of activities and timing. On the other hand, we introduced some changes in the narrative of the co-creation workshop and a minor amendment to the organization of participants' tasks.

To avoid a misunderstanding on the nature of the activities, we reframed the event as a public discussion. In this context, our participants were not under the impression of being requested to participate for the sake of GATEKEEPER project, but being involved in an open forum they could benefit from. This change of scope was implemented by providing a coordinated introduction and

closing talks on: 1) the state of the art of remote care in the UK and 2) the emerging challenges and visions emerging from the EU. In this regard, we rewrote the invitation letter as follows:

We wish to invite you to a public discussion on digital technologies for healthcare and wellbeing and future models for community-based care. The Open University and Utrecht University invite you to join a virtual "meeting of minds" on 'futures of better ageing in place' and the role of 'community and informal care'.

In the context of the European Large-Scale Innovation Pilot GATEKEEPER, we will take a fresh look at how new and smarter health technologies can support independent, meaningful and healthy lives at home and in the local communities with a focus on the current transition to digital care in the UK. By sharing your perspectives, you contribute to the building an informed discussion on the key values, practices and aims of a correct adoption of digital technology in self-management, community intervention and remote care. The meeting will conclude with a presentation of the new solutions and best-practices emerging from the 13 countries involved in the pan-European pilot project GATEKEEPER.

This event is remote, no physical presence is required. For registration or enquiry, contact gatekeeper-project@open.ac.uk or Jane Whild, jane.whild@open.ac.uk, +44 (0)1908 652907. More about the project <https://www.gatekeeper-project.eu/>, news and updates on MK events at <https://gatekeeper.kmi.open.ac.uk/>.

Concerning the tasks, we asked participants to contribute to Mural immediately before the event. We adapted the schedule dedicating 30 minutes before the introduction to get them in the right frame of mind by focusing on the topics to be discussed during the event by providing their initial ideas.

4.2 Welcome and presentation

The presentation addressed the practicalities of the workshop, such as protocol for interventions and the agenda of the day. In addition, an introduction about the rationale of the topics and talks was given, connecting the topic of remote care with the current Covid pandemic and the talks of the day.

"I'm Alessio Antonini, a research associate at the OU and I'm here today with Jane that you all know, Prof. Enrico Motta and Dr. Gianluca Bardaro of our team.

Thanks for finding the time to join us today, these are hard and stressing months in particular for whom works in the care sector. As this pandemic is keeping everyone apart, it made clear how crucial is building a common vision on the role of technology in healthcare. This is not because we what, in a sense

we all wish for more human contact, but because we must rely on technology for make the most of the few moments together, we are allowed to have.

In this regard, today's is the last of a series events co-occurring in other countries. As responsible for this important initiative, Susan and Carla from the University of Utrecht will guide today discussion and, at the end of the morning, they will share with us the key challenges and visions emerging from other countries.

This initiative is part of a broader innovation project, the GATEKEEPER, a global project involving 11 countries in Europe and Asia aiming to provide innovative technologies for early detection of conditions, remote care and active ageing. In this view, we invited Rohit, Smriti and Carlo from Samsung UK to give us an overview of the state of the art of technology for elderly and their pioneering collaboration with communities in Leeds.

Without further delay, I'll give the floor to Carlo."

The introductory talk was given by Dr. Carlo Allocca from Samsung UK about Samsung's ActiveAge app developed in a pilot in Leeds UK. The presentation gave an outline of the key challenges of the ActiveAge project and followed with a focus on monitoring, early detection and sharing health data through ActivAge with carers. Lastly, the presentation ended with a demo of the ActivAge app and questions from the participants.

Preliminary task. Inputs. What you consider as important when you think about better future of ageing at home

The preliminary task was carried out immediately before the beginning of the workshop.



Your own current professional perspective

Asked about their professional perspective on ageing well, participants focused on social interactions, isolation and community life. An important issue that was highlighted was a focus on socialization to overcome isolation, which is connected to both the contingency of the COVID-19 pandemic, but also to the nature of the issues of the communities in which the participants operate. Indeed, social isolation is one of the key challenges for community workers and the main aim of a wide range of community events.

Something that you think can be important in the future

About future perspectives, participants focused on financial and housing stability as well as access to the internet as factors which are necessary for good health and a happy retirement. There was specific reference made to the financial stress experienced by several families and elders and to a housing crisis affecting the pilot site in Milton Keynes, both in terms of costs and quality of houses, for the frailest living in social houses and/or thanks to social benefits.

Something that you think is currently important for an older person

Asked about their perceived perspective of elders, participants pointed out the importance of being valued and being part of the society both as active members and retaining agency and control over their choices in life. It emerged that, retaining control and being active members of their community are two key values that strongly characterise UK communities. On the one hand, local communities have the habit of holding public discussions, giving anyone the possibility to manifest their opinions and to discuss in depth the mechanics and consequences of the changes about or potentially affecting the local population. As such, they value discussion and the opportunity to express their point of view and being given the opportunity to hold service providers/decision makers to account. On the other hand, the variety of practices of local self-organized communities have a central role in people's life, in particular after retirement. In this regard, innovation initiatives in the UK Pilot must be built around these two pillars: technologies that allow different choices around data, adoption, sharing, and technologies that do not replace but support participation in local communities.

Breakout session

The two groups for the breakout sessions were composed so that each group would have a balanced representation of different local stakeholders.

GROUP 1		GROUP 2	
Moderators: Jane Whild (OU) & Carla Greubel (UU)		Moderators: Susan van Hees (UU) & Alessio Antonini (OU)	
CEO	HealthWatch Milton Keynes	Team Lead Physiotherapist	Connect Health
Adult Carers Service Manager	Carers Milton Keynes	Professor in AI	The Open University
Council Manager	Woughton Community Council	Older Carers Support Worker	Carers Milton Keynes
Researcher in AI for Healthcare	Samsung UK	Older Carers Team Leader	Carers Bucks / Carers MK
Project Manager	The Open University	Researcher in AI	The Open University
Social Prescribing Co-ordinator	Age UK Milton Keynes	Researcher in AI for Healthcare	Samsung UK
		Researcher in Robotics	The Open University

Breakout group 1

The topic emerging from the group discussion was accessibility to technology and the potential barriers that may prevent its adoption by the most vulnerable.

Finance and security as debt has an enormous impact on mental health. This is related to either lack of income source but also to a lack of education about how manage finance. A key support is providing finance advice also considering rights and funds available to the fragile families.

Duplication and lack of communication of services were cited as issues that create cracks in which a portion of the population is not supported. Missing out a part of the population is the consequence of a non-orchestrated support network both in terms of extension and at different scales.

COVID-19 pandemic re-organization is providing new opportunities in terms of remote-accessible support. On the other hand, the closing of libraries and community centres exposed how many people were relying on free Wi-Fi as their main access point to internet and remote services.

Longer life and longer life in deprivation results in poorer life and an increased risk of mental and physical conditions. How can we support them in taking care of their mental and physical health? Can technology help them in terms of establishing a sustainable approach as the number of people in need increases?

Confidence in being able to access healthcare is also an issue for many people [when you need to book online, or consult your doctor online]. The lack of confidence is the result of low digital literacy but also to the use of social media as source of information about, for instance, communicating to users what local service changes have been made. Indeed, the outdated, fragmented and partial information that can be found on non-official groups can cause more harm than good and consequentially people are missing opportunities or not seeking the guidance and support available from the community services and local healthcare centre. Furthermore, according to some participants, social media are causing a lower level of tolerance in the community on, for instance, "bad behaviours". This low tolerance is caused by a prevalence of personal views and values rather than a collective understanding of right and wrong that should be built on a common understanding of the context and rules, supported by having access to the right, correct and complete information, i.e. a balkanisation of communities cause by reading different things on social media rather having a common understanding of the current condition, e.g. the pandemic rules.

Current technology in MK can be a good starting point for building solutions such as the existing robot delivery service. However, some cannot even afford a TV licence, internet connection or the cab to go to the hospital (as bus are expensive as well as scarce). Some people must choose between eating and health. An important opportunity that was highlighted is to make an investment in a internet infrastructure but this is yet to be converted into an reality and, furthermore, this could be a new source of inequality.

Concerning technology, what do people need to address this barrier of internet access and financial support? Why can't we have a free broadband service available to everybody to guarantee access to basic services? The Mural post-it "who is this aimed at?" expressed the concern of several participants that highly sophisticated technologies such as the ActiveAge app are very useful in theory but in practice, there are many people that even if they wanted to use it, would not be able to (due to no internet access, or not being able to afford the technology, etc.) In this regard, it was pointed out that a monitoring- based solution could be alienating and a source of concerns about privacy, while a good solution should focus on connecting people: a call asking 'how do you feel?' and 'what do you need?' is most effective.

The concluding point was that of course some people don't want to use technologies and that is fine and is, and should be, their right. Everyone should have that choice. But the big issue is that many people don't even have this choice. According to the participants, access to technology is the key issue that needs to be addressed when thinking about ageing well and innovation.

Furthermore, too advanced technology is also a barrier as people struggle on finding 'tech support' in their network of support. Terminology is also an issue for elders and nullifies the effect of communication. There is an opportunity concerning the vast array of groups in MK and initiatives, and a population that is keen on innovation. On the other hand, siloes and the fragmentation resulting from siloes is been exposed more during COVID-19 pandemic. The solutions should be built under the hypothesis of breaking siloes.



- The GATEKEEPER is a very good idea, but it is crucial that interventions are designed with the community workers engaged in day-to-day support with elders
- The need to enable everyone regardless their conditions to access to services maybe a two-tier system of premium services for whom can afford and a basic

- granted level for anyone
- Technology is moving quicker than society and therefore we need to think how to support people in catching up and deal with the transitions in their life.

Breakout group 2

This group focused on the topics of socialization, learning and motivation for the use of new technologies for self and remote care. These three main topics were intertwined together outlining three main narratives.

Firstly, for participants it is of utmost relevance that these technologies should focus on active life rather than supporting passivity and further isolation. Indeed, in case of cognitive decline, technologies should be able to compensate memory loss and other mild effects enabling confidence and ability to carry on a normal life. In this view, as second important point was raised about the practical effects of these technologies for a person, beyond their clinical value as monitoring systems. It was highlighted as, for instance, in the presentation on ActiveAge the monitoring mechanism was central and of great relevance for carers but of little value for elders. This point gave the opportunity to reflect on the need of framing the introduction of new technologies under the light of their practical implications for elders.

On this line, the discussion moved more generally on the relation between motivation and learning. According to participants, learning and motivation are somewhat entangled as the effort of introducing a new technology in elders' life could be a barrier if not strongly and clearly ground in a personal motivation and on an equally strong motivation by a person's carers. During the discussion, several interesting comments highlighted how learning can be also an opportunity for social learning and social use of new technologies. Indeed, by discarding the notion of an individual isolated user, a technology can be experienced together with the family as something that can facilitate everyone (elder and carers in a different way) and with other elders by teaching each other.



Lastly, the group identified three main messages to report:

1. Learning new technologies as a group is more effective and fun
2. Motivation for people in using technologies comes from being enabled to support themselves
3. New technologies must be for supporting an active life.

Dialogue with all

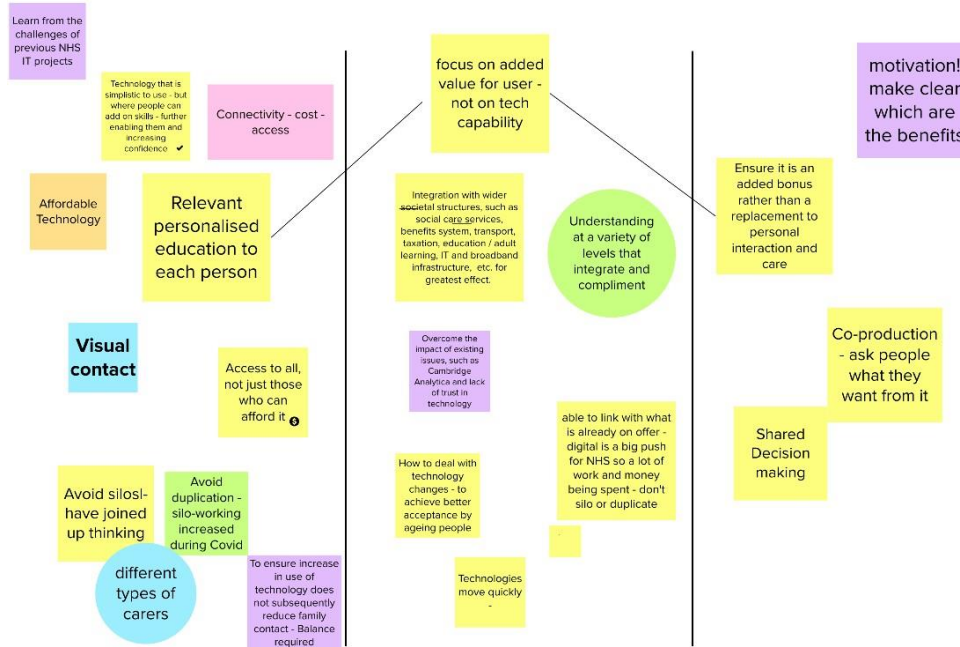
Dialogue with all 1. Needs, requirements and values

In this first discussion session participants focused on the accessibility of technology, motivation, breaking siloes and personalised support for people and carers.

The topic of technology accessibility was addressed in its several facets, such the need for financial support, learning opportunities, the transitioning to digital services and the access to an internet connection.

Following participants identified the need to focus on personalised education and intervention with a clear take on practical positive effects on people's life. Furthermore, technology interventions should be fun and built on their active life.

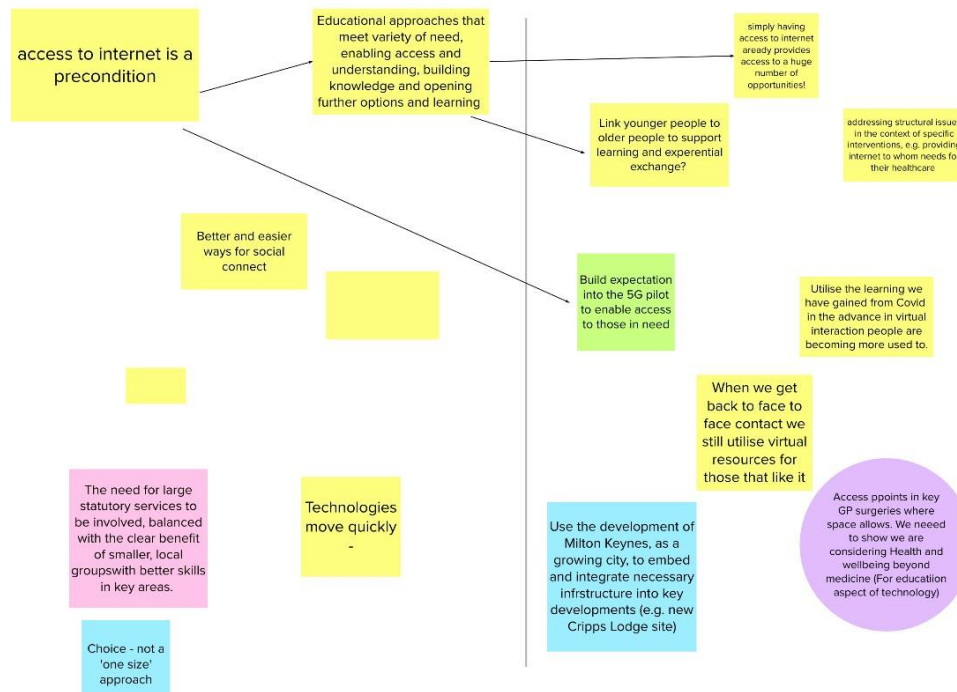
Needs, requirements and values



Dialogue with all 2. Key challenges and opportunities

Participants highlighted how crucial is having in place an infrastructure and support for everyone, considering their different situation. An accent was placed on the issue of having different systems at different scales in the UK and the resulting "leopard spots" heterogeneous disconnected criteria for eligibility for support. It is participants' opinion that central agencies, and a centralised policy would be an impending factor to the adoption of new technologies. Thus, they stressed the importance of building new solutions on the existing network of local organisations operating at street level.

Key challenges & Key opportunities



Wrap-up

During the wrap-up session participants manifested their appreciation for this initiative and being given the opportunity to share their views and give input to the project. Overall, participants remarked the importance of building innovation on an active collaboration between the different stakeholders.



Closing and conclusions

The concluding session was a presentation given by Susan van Hees of the University of Utrecht about the emerging issues and challenges from the rest of the GATEKEEPER pilots. This presentation provided the opportunity to frame the topics and challenges addressed in the event in a wider context, identifying the similarities and key differences with other countries and healthcare systems.

The aim of this presentation was to create a connection with the GATEKEEPER project and the other pilot sites, fostering the participation of the UK stakeholders in the GATEKEEPER community of interest. In this regard, the final brief remarks aimed to provide links to the available resources and the upcoming webinar about the findings on the series of co-creation workshops.

Lesson learnt

The results of this first workshop can be summarized as follows.

The first home take is that all local stakeholders are facing a common set of barriers, such as access to internet for deprived population and digital literacy. Solving these barriers are beyond the scope of the GATEKEEPER pilot but, on the other hand, their existence is a threat to the UK Pilot and the project vision of technologies for all. In this regard, the best course of action is building and strengthen the ecosystem of the UK pilot on a) the awareness of these common issues and b) on the convergence of the different initiatives toward the same goal of finding a viable solution. While addressing these barriers is a long-term commitment, in the context of GATEKEEPER, we identified a key functional requirement for technologies that are resilient to the lack of internet connection and that can operate offline for days.

The extensive discussion on collaborative learning is consistent with the strategy outlined in the UK Pilot protocol concerning the mutual support and training between batches. On the other hand, the discussion highlighted how crucial is socializing the introduction and use of new technologies, beyond the practicalities of the UK pilot. In this regard, we should consider this as a key non-functional requirement about a collective use of solutions and a clear pointer in the direction of revising and strengthen the socialization factor in the pilot.

In this regard, pilot participants and communities in general should be included in the implementation of the interventions. This approach could be effective in creating a community of practice around the new technologies and, more in general, around community-care. In this view, the creation of common understanding of issues in the local elder population and shared caring responsibility should be the framework for the introduction of enabling technologies with a highly practical value for both carers and elders.