



D2.2 GATEKEEPER Trust Framework

Deliverable No.	D2.2	Due Date	31/01/2021
Description	Overview of relevant stakeholders and bespoke RRI approach focusing on trust.		
Type	Report	Dissemination Level	PU
Work Package No.	WP2	Work Package Title	Eco-system value co-creation, Open Calls and scaling up twinning
Version	1.0	Status	Final

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History

Date	Version	Change
27/08/2020	0.1	First draft framework – input for European stakeholders in validation workshop organised by FUNKA (UU)
14/12/2020	0.2	Second draft UU for consultation round
18/01/2021	0.3	Updated with input consultation round. Send out for internal review.
02/02/2021	0.4	Revised, after feedback from internal reviewers.
15/02/2021	1.0	Release version

Key data

Keywords	SSH/RRI, values, valuation, framework, ageing, ageing-in-place
Lead Editor	UU
Internal Reviewer(s)	Eva Karaglani (HUA); Sara Kjellstrand (FUNKA)

Abstract

In this document a Valuation Framework is presented, a framework to map and explore stakeholders' different and continuously evolving positions towards values. The framework has been developed to facilitate a sustainable implementation and development of (digital) technologies and innovations in the GATEKEEPER (GK) project. The GK project focuses on the development of smarter living homes and living environments. For example, by introducing health monitoring apps or smart technologies in the home that help older citizens to age independently with if needed (remote) help available. Integration of care focusing on prevention, early detection, and if needed timely interventions is supposed to help create and develop a supporting environment for older citizens. The Valuation Framework specifically helps to achieve a more sustainable implementation of innovations by guiding stakeholders involved to reflect on different values at stake. Values like privacy, autonomy, quality of life etc. play an important role in the acceptance and use of innovations.

The Valuation Framework is developed to facilitate a meaningful and responsible implementation of health and ageing innovations in and beyond the GK project. To be concrete, in the GK project this was done by applying the Valuation Framework in so-called co-creation workshops. In these workshop that were organised for relevant stakeholders of eight GK pilot sites in October-November 2020. In these workshops values of different stakeholders were explored. Values related to GK solutions were mapped and discussed. The objective of these workshops was to raise awareness among stakeholders of (some) of the different values that exist as well as to how dynamic they are and how values also play a role in the future valuation of innovations (and thereby their potential success, scalability, and sustainability). Subsequently, stakeholders discussed challenges and opportunities for the implementation of their GK solutions. These will be used to inform the co-creation of a responsible implementation pathway.

Digital technologies and innovations that potentially contribute to a smarter living environment are often introduced as a solution or an answer to a specific need. However, besides such needs and related requirements, underlying values play an important role in the further implementation and deployment. In other words, such technologies will not simply be used on a largescale base by and for older citizens just because they fit their needs. It is important that technologies fit within the dynamic context they are implemented in and that do not interfere with what a large group of stakeholders, older citizens included, find important when it comes to implementation of (digital) technologies in the everyday life and practices.

The presented Valuation Framework is based on three core pillars: (1) Value Multiplicity (values have multiple meanings and interpretations); (2) Value Dynamism (values change over time, and in interaction with each other and their contexts) and lastly, this multiple and dynamic characters have so-called (3) Valuation implications.

Although the Valuation Framework is developed for the GK project, it can also be applied to other projects in relation to health and ageing innovations. In short, the framework provides an umbrella connecting different aspects of the relationship between Responsible Research and Innovation (RRI) and societal needs, requirements and values, as will be explained in-depth in this report. The framework presented herein can be considered a living framework, that will be further tested, finetuned and validated in the next phases of the GK project. This includes a second cycle of co-creation workshops in the third year of the project, but also interviews and observations to explore values and valuation more in-depth. Findings of these different approaches are used as input for an on-going discussion on values within the GK project.

In addition to the presentation of the Valuation Framework, this report provides insight in the stakeholder ecosystem mapping approach and gives an overview of stakeholders involved in this ecosystem. This overview is relevant to enable a discussion and reflection on values between relevant stakeholders in the implementation of innovations by the GK project.

Note that if you are interested in reading only specific parts of the report, an outline with the structure of the report is included in the first chapter, section 5 [1.5]. This outline can help you select the parts of the report that are of interest to you.

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.

A scientifically based and in-depth conceptualised version of this framework has been submitted as a scientific paper to an academic journal to be considered for publication (by Susan van Hees, Carla Greubel, Ellen Moors and Alexander Peine).

The framework has been presented during a GATEKEEPER project webinar on December 10th, 2020, some parts of the webinar are included in this deliverable report. The webinar can be watched via the official project website: <https://www.gatekeeper-project.eu/>.

Acknowledgments

The Valuation Framework presented in this deliverable underlies the design of the co-creation workshops that were executed as part of Deliverable 2.9 during October and November 2020 by Pilot Site partners in the GK project. We would like to express our appreciation to all pilot sites for organising the workshop and thereby applying the approach on values provided in the Valuation Framework. Outcomes from the workshops are used to further develop the framework within the GK project. This will result - at the end of the project - in recommendations about how to deal with values in the GK domain in innovation and further development.

Many thanks to all stakeholders who voluntarily participated in these different workshops. We also would like to thank all stakeholders from the Reference Sites to the European Innovation Partnership on Active and Healthy Ageing (EIPonAHA) who were involved in a validation workshop on September 9th, 2020, and in an e-consultation round in December 2020-January 2021. In the organisation of consultation of EIPonAHA stakeholders, we closely worked together with Anett Ruszanov and Sara Kjellstrand (Funka). Lastly, we thank all partners involved in the GK project for sharing feedback on our ideas in several phases of the project.

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Acronyms and abbreviations

AHA	Active and Healthy Ageing
EC	European Commission
EIPonAHA	Reference Sites to the European Innovation Partnership on Active and Healthy Ageing
GK	GATEKEEPER
PS	Pilot Site
RRI	Responsible Research and Innovation
SSH	Social Sciences and Humanities
VBHC	Value Based Healthcare
WP	Work package

Table 1: acronyms and abbreviations

1 Introduction

Values are often assumed to play an important role in the success of innovation projects, but in practice it appears difficult to take values meaningfully into account. This is related to their dynamic nature. Where for example technical requirements of an app, or a need for a specific medical intervention are more or less stable and thereby relatively easy to capture, values change when users implement a new technology in their everyday lives and explore how they can meaningfully relate to them. In this report we draw on the assumption that values are co-constituted in practice (Peine and Neven, 2020). This means that values come into being, and continuously change in everyday practices. Instead of defining one set of values that will be important throughout an innovation process, it is therefore more meaningful to continuously attend to values. Indeed, for the successful and responsible embedding of new and promising technologies in the everyday life and work contexts of patients, citizens and caregivers, it is critical to create space for all relevant stakeholders to articulate and explore their values and to carefully consider how these change once the innovation in question is taken up, tried and tested. The Valuation Framework presented in this report is developed to enable a better anticipation of the different and changing values of all relevant stakeholders in health and ageing innovations, like the GATEKEEPER (GK) pilots. Specific attention is provided for how values are co-constituted in practice. It is the *conceptual background* to the wide set of practical work on eco-system co-creation in the GK project, both within Work Package 2 (notably the co-creation workshops and the eco-system enlargement and collaboration in T2.4 and T2.1) and the technical and implementation work in the different GK clusters.

1.1 The GATEKEEPER project

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

1.2 Scope, Conceptual Background and Aims of the Valuation Framework

The Valuation Framework, developed within the GK project and presented in this report, aims to support the responsible implementation of GK innovations at the project's pilot sites, with the potential to be applied in other innovation projects. Most notably, GK technologies are prime examples for and at the vantage of the many innovations that are currently being discussed and funded at national and European levels to support health and ageing. The Valuation Framework presented here will thus both help GK to define implementation pathways that are closely related to relevant stakeholders' values at the pilot sites, while in parallel laying out a conceptual and practical basis for value co-creation that can be applied to the further deployment as well as introduction of other new technologies in the active and healthy ageing realm.

We have developed the conceptual basis of our Valuation Framework mostly in the first months of the GK project with the aim of defining a concise and understandable vocabulary that we can use (i) in the design of value co-creation workshops at the GK pilot sites, (ii) for an efficient and effective communication about values with other GK partners and activities, and (iii) in the gradual articulation of viable innovation pathways for GK technologies. Hence, the Valuation Framework should primarily be considered a conceptual framework. While we also present an overview of results from the co-creation workshops we held at the pilot sites, these results are more extensively covered in D2.4. And while we also present an initial overview of relevant stakeholders in the GATEKEEPER eco-system, the specific forms of engaging with these stakeholders is presented extensively in D2.1. In this report, the practical results from our work in GK serve mostly as *illustrations* of how our Valuation Framework, and the stakeholder and user centred language it provides, helps and informs the Large Scale Piloting. Hence, and to contextualize our Valuation Framework, we also discuss and describe directions through which our Valuation Framework will come to bear on the design and piloting activities of GK, although these are only included to provide insight in the future potential and development and are not part of the conceptual work that is presented in this report.

In the GK project, the Valuation Framework was first validated in a validation workshop with EIPonAHA stakeholders. After this workshop it was applied for the first time in a cycle of co-creation workshops organised by GK pilot sites (October-November 2020). The workshops were designed with the aim to guide relevant stakeholders involved in pilot sites in the development of implementation pathways. The co-creation workshops are not a part of this deliverable and will only be referred to when it specifically relates to the Valuation Framework. This report focusses on the conceptualisation of the Valuation Framework and additionally presents a stakeholder overview, providing an overview of the types of stakeholders involved in the GK project's ecosystem. For more information about the workshops we refer to Deliverables 2.4 (Open Innovation and Co-creation Workshops. Script and templates co-creation workshops) and D2.9 (Open Innovation and Co-creation Workshops. Report on co-creation workshops).

With the Valuation Framework we eventually aim to contribute to a more responsible development of smarter living environments. Insights from SSH and Responsible Research and Innovation (RRI) underly the approach that this framework presents. Three conceptual distinctions define its place in shaping and understanding the implementation, deployment and continued use of new technologies:

Valuation and Values

The idea that values are dynamic and co-constituted is an important recent insight and development in the Social Sciences and Humanities (SSH) – notably in the philosophy and ethics of technology and in Science and Technology Studies (STS) – but it has rarely been applied before in technology development and piloting, let alone in technology development and piloting in the domain of active and healthy ageing. Yet, taking on board the dynamic and co-constituted nature of values, as they are being articulated, re-negotiated and sometimes pitted against each other in the roll-out of new technologies, is critical to ensure the successful and responsible embedding of new and promising technologies in their business and societal contexts (Kudina and Verbeek, 2019; Lehoux et al., 2009; Peine and Neven, 2020). Only if all relevant stakeholders (including citizens, patients and caregivers) are carefully involved in innovation and given the opportunity to articulate and explore their values *as they consider what a new technology can mean to them*, we can create sufficient momentum among these stakeholders to carry the innovation further beyond the actual piloting phase. It is in this spirit, that we review and discuss the relevant *academic literature* on value and valuation dynamism to define a *framework* that is both practically applicable and conceptually sound. The different concepts underlying the framework are described in the next chapter.

Valuation and Trust

It is relevant to mention that the GK project initially focussed on trust as a core or even key value. However, when thinking about the everyday life of older citizens, who are the main target group of the GK project, many values (like privacy, security, safety, quality of care, quality of life, independence, etc.) potentially play a role in the successful implementation of the GK innovations. Importantly, it is this interplay of many different values that will ultimately determine in how far these innovations are considered trustworthy among relevant stakeholders. For this reason, the original focus on trust has been expanded to 'valuation' as this allows to remain open to the plurality and interplay of all relevant values. The concept of 'valuation' can best be understood as the process in which values come into being and are given meaning in relation to the situation at hand, and thus also in relation to other relevant values.

Valuation and User Needs

Experiences in past decades have shown that despite exploring user needs and requirements elaborately, in practice innovations often fail to reach scale and success (see for instance Loe, 2015). The actual use of often promising technologies remains limited in such situations. As values play an important role in how digital technologies and innovations are considered and eventually are used or not used, the framework we introduce in this report is based on a perspective on values that explicitly goes beyond 'user needs and requirements'. Which values and how they play a role continuously changes, and the application of the framework thus calls for an open-minded, bottom-up approach. Hence, while the elicitation of user needs is an essential part of the GK project as an initial design input (see D2.3), a focus on values provides for a more comprehensive and complementary perspective, which allows us to shape and understand how new technologies find meaningful spaces in everyday routines, organizational structures and business models in the relevant stakeholder eco-system.

The aim of the Valuation Framework is to facilitate a more responsible implementation of innovations, and thereby increase their potential success. With success we mean implementation of an innovation that is considered meaningful for and by all relevant

stakeholders, including older citizens. Such an innovation considers not only values of professionally involved stakeholders, but also values of older citizens. Success might also, but not solely, be defined by its scalability. Eventually sustainability of innovations could be reached (i.e. responsible innovation), if innovations outstay project terms and are deemed important in the everyday practices of both caregivers and others involved in care processes and practices, and older citizens. In short, successful innovations are meaningfully contributing to health and ageing practices that are related to the everyday lives of older citizens. This includes contributing to a better quality of life, the opportunity to age well in the own home while living independently, and finally by contributing to improve the citizen's health condition. A fitting health system and organisation is considered conditional for the aforementioned contributions.

Reflecting on different and shared values that are important to individuals when it comes to ageing thus provides an important base for community development as it creates a better and shared understanding. Co-creation workshops with relevant stakeholders of pilot sites helped to create insights into what is considered important by these stakeholders, and thereby also on their positions towards values. In addition, to reflect on values and how they possibly will change over time for different stakeholders and in different context, helps to raise awareness that is important to continuously attend to values of stakeholders. A further in-depth analysis of these values and an ongoing attention to values in the GK project will contribute to the responsible implementation and deployment of GK solutions. For successful implementation it is also important to have an engaged community of relevant stakeholders and potentially other interested people. When as many relevant stakeholders as possible are engaged, this facilitates a conjoint reflection on values and thereby enables to better anticipate what and how different values (will) play a role in the implementation and deployment of an innovation. Eventually this will feed into a set of recommendations for how to deal with values in health and ageing innovations, like the GK project.

In short, the Valuation Framework draws on an approach to encourage and facilitate participants to reflect on their own values and those of others by which this responsible innovation is encouraged. The application of the framework is not limited to the GK context. We imagine it could be useful for many other health, social care and ageing related innovation projects in which different stakeholders are involved. Hence, the Valuation Framework makes it possible to map and explore different and changing values in innovation practices. Values play a major role to the successful implementation and deployment of innovations.

1.3 Relation to other activities in the GATEKEEPER project

The Valuation Framework presented in this report is developed as part of Task 2.2, which is embedded in Work Package 2. It's main function is to inform the ongoing GK work on value co-creation, which is positioned in between the local work at the pilot sites and the overarching work on the technical, business and social aspects of the GK platform. By this we mean that the Valuation Framework informs our specific methods of understanding the value position of stakeholders at the pilot sites, while also allowing us to look for commonalities and possible tensions that arise from them so that these can inform the GK piloting at large. More specifically, the Valuation Framework constitutes the basis for a series of remote co-creation workshops, that were organised by pilot sites between October and November 2020. A more elaborate description of the rationale underlying the workshops is described in Deliverable 2.4, a report of the workshops can be found in

Deliverable 2.9. The aim of the workshops was to facilitate pilot sites to co-create with their relevant stakeholders an implementation pathway for the GK innovations they will introduce.

The focus of Work Package 2 is the creation of a viable innovation ecosystem, that focuses on the perspective of citizens as (potential) users of GK solutions, while including different stakeholders' perspectives that cut across the four project spaces of GK: health, consumer, business, and ecosystem transaction spaces. Different perspectives of multiple stakeholders that are part of a broader GK ecosystem are mapped and explored. Attention to and anticipation of dynamic positions towards values is part of this ongoing creation and understanding of the GK eco-system, which includes several dedicated tasks. T2.1 has identified the different relevant stakeholders (citizens included), T2.3 has elicited from these stakeholders an initial set of user needs to inform the GK platform design, and T2.4 maps and explores the underlying values through, among others, the co-creation workshops. The Valuation Framework presented in this deliverable provides the conceptual context for these activities, and it enables this anticipation and encourages the co-creation of a shared understanding and definition of opportunities and challenges at the different pilot sites. Crucial dynamic elements can be fed back in the broader GK project. In Chapter 3 we provide some further details on these prospects following a first analysis of workshop outcomes and reflections, where we focus on the input related to the Valuation Framework solely. How the framework is used and further developed in the GK project and the diverse clusters and Work Packages is described in the final section of Chapter 3.

To understand the place of valuation in GK, it is important to understand that it adds a third layer of analysing values, next to two other approaches that are more specifically tied to notions of *treatment value* and *business values*. With *treatment value* we refer here to the approach to define and measure Key Performance Indicators in pilot experiments, and thereby define an expected '*treatment value*' of the implementation of GK solutions (as interventions). The second approach focusses on the expected medical benefit or expected contribution to health prevention. This is defined as a '*business value*'.

Both values, the treatment and business value are values that are defined beforehand and that are assumed, expected values. In practice the meaning and actual value of these predefined values will become visible.

In addition to these two different approaches we add a third approach, the '*Valuation approach*' described in this report. This approach focuses on values that are considered important in the everyday lives and practices of all relevant stakeholders involved, in this case involved in GK innovations. These include, among others, perspectives of healthcare providers, technology developers, policymakers, older citizens, informal caregivers etc. We assume that while the former two approaches are necessary in order to understand the potential benefits of GK solutions *if they were to scale beyond the pilot phase*, they are not sufficient to identify actual implementation pathways – viable processes of organizational, cultural and practical changes that are necessary to actually scale. For this reason, WP2 introduces an overarching third approach, that includes the broader stakeholder context at the pilot sites and the everyday lives of older citizens.

This focus on valuation in the everyday lives and practices in which GK solutions are introduced should not only focus on the actual implementation process, but such values should also be part of the core frameworks and strategies within the GK project. One way to embed the valuation approach is by feeding input in the ecosystem development. Insights from the co-creation workshop and the rationale behind the Valuation Framework will contribute to deliverable 1.5, which focuses on the management of legal, ethics and privacy protection. The findings that results from the application of the Valuation

Framework will be further dissemination and communicated in various ways, including webinars, (academic) publications and engagement in discussions.

The flowchart diagram [figure 1] below was developed by UPM and illustrates the embedding of the framework in the GK project. LSP stands for Large Scale Pilot Cluster. The GK project distinguisher three larger, work packages overarching clusters: The GK Platform Cluster, The Business Cluster and the Large Scale Pilot Cluster. Where the figure states 'whole project' the entire GK project is meant. For more background information on the different tasks and deliverables we refer to the GK project's website and the project's proposal text.

WORK PACKAGE 2

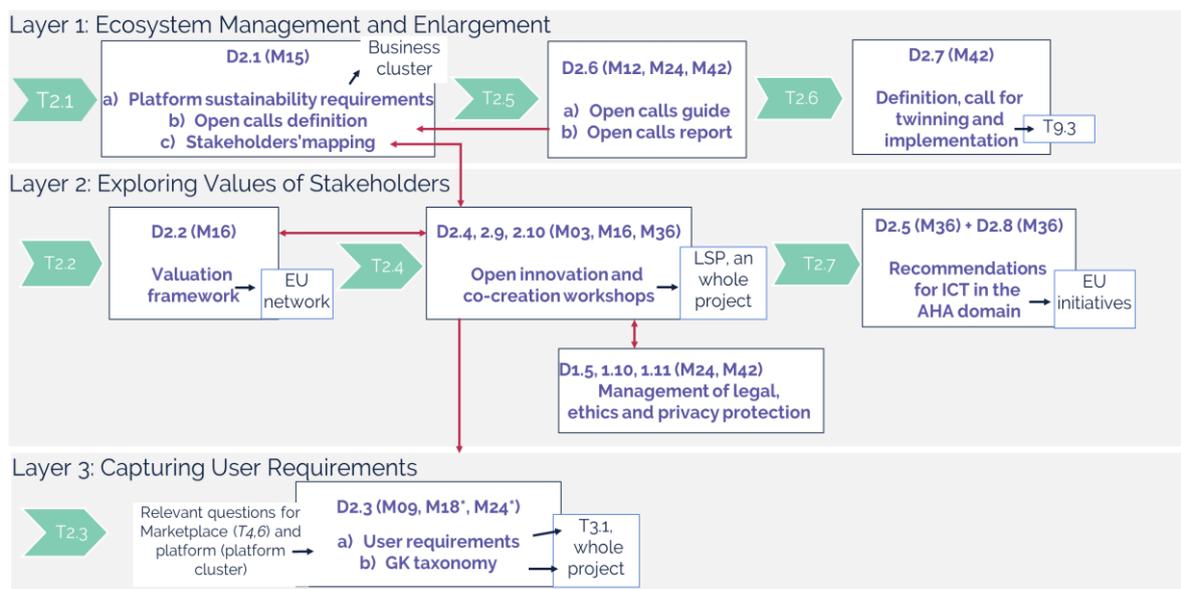


Figure 1 Overview of embedding of this deliverable within Work Package 2 and the GK project (this figure was created within the GK project by UPM, with input from UU and TECNALIA)

1.4 Contribution of GATEKEEPER partners

Utrecht University (UU) is the main contributor to this deliverable. Other GK partners have contributed in various ways. In September 2020 FUNKA organized a validation workshop, in which stakeholders from Reference Sites to the European Innovation Partnership on Active and Healthy Ageing (EIPonAHA) were consulted to reflect on a preliminary version of the valuation framework, discussing in three break out groups the core elements of the framework and the potential value of applying this Valuation Framework to their own practices. The outcomes of the workshop have been used as input to finetune the framework presented here. GK partners involved in the different GK pilot sites organized remote co-creation workshops for relevant stakeholders at their site. FUNKA and the pilot sites partners together contributed to the overview of stakeholders that is included in this report [CH4]. For the organization of the workshops, pilot sites used the design developed by UU, that draws on the approach that is part of the presented framework (see D2.4 and D2.9). Findings from the workshops helped to better describe and further develop the framework. In a final consultation round, feedback from the EIPonAHA partners and partners in the GK project was collected. In a short survey they were asked to give feedback on the framework and its potential applicability within and beyond the GK project. An overview of feedback is provided in chapter 4, section 1.4. Feedback will also be considered in the further development of the framework.

The role of this framework for and within WP2 and the GK project (the three GK clusters: business, platform and largescale pilot clusters) is defined in interaction with UPM, also making use of reflection sessions with co-creation workshop organisers. For the stakeholders overview presented in this reports [CH4.2] we make use of the eco-system overview created as part of T2.1 [MDT with MYS], an overview of stakeholders who participated in the validation workshop [FUNKA] and an overview of stakeholders who participated in the eight co-creation workshops.

1.5 Report structure - outline

In this report first the GK project in general, as well as the specific scope, conceptual background and aims of this report are described. Chapter 1 also includes information on how the Valuation Framework is embedded in the GK project, how it relates to other activities and which partners contributed to the activities on which this report is based. Where the introduction specifically focuses on the need to look at values and valuation in the GK project, Chapter 2 provides a broader conceptual embedding. Background on RRI, SSH and values is provided, as these are at the base of the Valuation Framework. Furthermore, it is explained why in general a focus on values is important and a conceptual literature review on values and valuation is presented. The Valuation Framework is described in Chapter 3. The Valuation Framework is based on the assumption that values are co-constituted in practice and is based on three core elements: Value multiplicity, Value Dynamism and Valuation Implications. Next to a description of these core elements attention is paid to the further development and prospects of the framework. The Valuation Framework was applied in a cycle of co-creation workshops. Lessons from these workshops about the application are included in Chapter 4. In addition to these lessons feedback on the framework was collected in a consultation of EIPonAHA partners. In order to organise reflection with relevant stakeholders of the GK project GK stakeholders had to be mapped. The GK ecosystem mapping approach is presented in section 4.2. this section also includes a preliminary overview of stakeholders (types) involved in the GK ecosystem until now. Finally, in Chapter 5 some concluding remarks are shared and an outlook on future application and opportunities within and beyond the GK project.

2 Conceptual Background and Literature Review

This chapter provides a more in-depth background of the concepts on which the Valuation Framework draws, which is an important step towards the creation of the framework presented in this report. In the first section we explain some of the RRI and SSH principles underlying the Valuation Framework presented in this document. The second section delves deeper into our choice to focus on values and provides a short overview of the existing literature about values and valuation.

2.1 RRI & SSH

Horizon 2020 was designed with as one of its specific aims to include SSH perspectives. Interdisciplinarity and an integrated scientific approach are considered relevant for meaningful research and innovation in Horizon 2020. In the *Vilnius declaration (2013)* - which was the result of a discussion on how to integrate socio-economic sciences and humanities into Horizon 2020 - it is stated that a 'resilient partnership with all relevant actors is required'. By including a wide variety of perspectives, SSH provides help to achieve the benefits of innovation, the authors claim. Their argument that an effective integration of SSH requires that SSH is valued, is confirmed in publications on the potential value of RRI (e.g. Balmer et al. 2015).

Including the expertise and experience of SSH can help increase potential success of innovations, as it helps innovations to find their way into society. This is done by the definition of a plausible and more responsible implementation of innovation. The Vilnius declaration states (p.1): *"Innovation is a matter of change in organisations and institutions as well as technologies. It is driven not only by technological advances, but also by societal expectations, values and demands."* SSH can contribute in mapping and exploring these diverse expectations, values and demands. It thereby contributes with innovative participatory approaches to vital democratic innovation processes.

To enable that new technologies to become meaningful, sustainable, and can achieve scaling eventually, RRI was also introduced as an important approach in Horizon 2020. RRI is presented as key action of a 'Science with and for Society' objective and described as the on-going process of aligning research and innovation to the values, needs and expectations of society. An RRI approach includes the perspectives of multiple stakeholders and enables public engagement in research and innovation processes, containing five key elements: gender, ethics, open science, education to science, and engagement of citizens and civil society in research and innovation activities (public engagement) (Rip 2016). These key elements can be considered as the key values central to RRI projects. RRI projects often use Von Schomberg's definition of RRI, which he formulated for the European Commission in 2011 as follows (p.9): *"A transparent, interactive process by which societal actors and innovators become mutually responsive to each other with a view to the (ethical) acceptability, sustainability and societal desirability of the innovation process and its marketable products (in order to allow a proper embedding of scientific and technological advances in our society)."*

Stilgoe et al. (2013) translated this definition in their presentation of a 'framework for understanding and supporting efforts aimed at 'responsible innovation' as: *"Responsible innovation means taking care of the future through collective stewardship of science and innovation in the present"* (p.1570). This implies that in innovation processes a careful deliberation of societal concerns of multiple stakeholders and their interests should be

included. Within RRI literature a macro, meso and micro level are distinguished. At these levels, innovations are explored, at different and interrelated scales (multi-level dynamics). At a microlevel, niches can be found, small-scale innovations (such as the pilot sites innovations), while at the higher levels there are more interactions in groups and between stakeholders, that for example can enable upscaling.

Within research and innovation policies and practices related to active and healthy ageing (AHA) in Europe, an increased attention is given to include an SSH inspired approach. Horizon 2020 has funded large-scale innovation projects such as ActivAge¹ and GK² to develop and deploy sustainable innovations to enable older people to remain living independently at home (i.e. ageing in place). The assumption within these projects is that integrating SSH perspectives increases potential success and scalability, or more precisely: to the successful implementation and use of health and ageing technologies and innovations in the daily lives of older people. These innovations can be defined as successful when they are considered meaningful innovations that contribute to the everyday lives of older citizens. Meaningful contributions contribute to a better quality of life for older people, the opportunity to age in the own home, while living independently, and finally to an improved health.

The Rome Declaration on Responsible Research and Innovation (2014) claims that RRI is supposed to support the achievement of inclusive and sustainable solutions for societal challenges: *“it ensures that research and innovation deliver on the promise of smart, inclusive and sustainable solutions to our societal challenges; it engages new perspectives, new innovators and new talent from across our diverse European society, allowing to identify solutions which would otherwise go unnoticed; it builds trust between citizens, and public and private institutions in supporting research and innovation; and it reassures society about embracing innovative products and services; it assesses the risks and the way these risks should be managed”* (p.1).

Careful considerations of core principles of the European Union underlie the RRI approach, including the respect of human dignity, freedom, democracy, equality, the rule of law and the respect of human rights (also for persons belonging to minorities). The idea is that the achievement of more responsible and sustainable innovations can be facilitated by exploring different perspectives from stakeholders early on in a project. By identifying the different views of different stakeholders and subsequently sharing and discussing these, a shared understanding can be created, as well as a shared view on challenges and opportunities of innovations when introducing them to a particular context (different contexts, such as urban/peripheral or cultural differences). To enable responsible innovations RRI aims to include all different perspectives from the beginning of an innovation process, meaning that it does not only include perspectives of innovators but also of relevant societal actors that will normally get involved at later stages. Interactively these stakeholders reflect on specific issues and together define the need for innovation.

An increasing attention for SSH perspectives within innovation projects can especially be observed when it comes to aligning innovations with values of stakeholders, such as privacy, trust, or autonomy. The approach underlying the Valuation Framework presented

¹ <http://activageproject.eu/>

² <https://www.gatekeeper-project.eu>

in this document resonates with a set of five 'rules of thumb' for more responsible innovations. These are summarised by Balmer and colleagues (2015) in a paper on interdisciplinary collaborations (in RRI) as follows: 1) Collaborative experimentation, 2) Taking risks, 3) Collaborative reflexivity, 4) Opening-up discussions of unshared goals, and, 5) Neighbourliness (recognise differences and respect them). In the next chapter we will describe our Valuation Framework more in-depth, but it is important to mention that it builds on SSH and RRI principles as it specifically stimulates integrating different and changing positions of different stakeholders from the beginning of each innovation (implementation) process.

Stilgoe et al. (2013) describe four key process-oriented dimensions that are introduced to enable such deliberations between stakeholders: (1) Anticipation (2) Reflexivity (3) Inclusion, and (4) Responsiveness. Within health innovations an increasing emphasis is put on more sustainable, responsible innovations. In developing a model for the future of medical innovation Demers-Payette et al. (2016) translated the four dimensions of Stilgoe et al. (2013) to a health innovation context as follows: *"(1) Understand the various contexts of use in order to identify opportunities for innovation as well as the social, ethical and political risks that are likely to arise (anticipation); (2) harmonize the value systems and practices that govern the context in which innovations are produced (the business sector) and used (the health sector) (reflexivity); (3) integrate the views of professional and lay users and diversified publics into innovation development processes (inclusion); and (4) learn how to adapt innovative trajectories by responding to emerging views, norms, knowledge and regulatory frameworks (responsiveness)"* (p.189).

In the past decade ideas about the benefits of RRI also gradually entered research on health technologies and innovations (Lehoux et al 2008, 2018, Pacifico Silva et al. 2018). Pacifico Silva et al. (2018) introduced a framework for responsible innovations in healthcare, to facilitate policymakers, regulatory authorities, insurers, health professionals and citizens to face current complex policy challenges. They explain a need to introduce RRI to the field as follows (p1): *"Since the current ways in which new health technologies are being financed, developed and brought to market render health systems increasingly inequitable and unsustainable, it is imperative to develop an integrated policy framework that reconciles the distinct goals of health and innovation policies in order to better articulate the supply of innovation to the demand of health systems"*.

To summarise, both RRI and SSH are considered as important approaches that contribute to the inclusion of multiple, diverse perspectives. The idea about this inclusion is that this help increase the democratic level of innovations and encourage reflectivity. Where RRI specifically includes a multi-actor approach following a broader public engagement in research and innovation, simultaneously opening up public accessibility to scientific results, and paying attention to gender and ethics issues for instance, SSH offers a broad array of innovative participatory approaches to encourage critical reflexivity among multiple stakeholders. This should include the broader field of science and society, for example by involving stakeholder representing policy, industry, academic, citizens. In the next section we will elaborate on better understanding 'values' as a concept.

2.2 Values

Values are everywhere around us, and when we think about it we can probably all come up with values that we found important now, but that have changed during our own life. Values are not the same as needs or requirements, but rather they underly these needs and requirements. What we find important can change, for example when someone we care about deeply is being threatened by a disease. Also, other life events, like becoming

a parent, can have a huge impact on the values that play a major role in our own life. For example, becoming a parent may mean that the happiness, safety, and quality of life of one's children becomes more important than anything else, sometimes even resulting in the side-lining of previously considered important individual values like autonomy. But such values are also under pressure. For example, because values need to be balanced with other values, in this case values related to work ambitions that impact quality of life of the parent can conflict with values that underly a pedagogical ideal pursued by the same parent. We renegotiate our own ideals and values all the time, even when we make practical choices like spending time to finish some work business while having the children watch a Television show instead of activities that are considered to better fit and contribute to the child's development.

The Covid-19 pandemic had and still has a major impact on values and valuation practices. In our daily lives we are asked to balance our own individual ideals and ideas about a good life with the health condition and risks of others. Wearing a mask is not just an obligation but also a way to show 'good citizenship', as it helps to visibly demonstrate that you care for the health of others around us. However, it can also become a tokenistic action quickly, when the mask is never washed or refreshed.

Although health or remaining healthy - or as healthy as possible - has become a core value and for some even a condition for the success of many of the ageing innovations and ideals, research has shown that health is not always necessarily the top priority or issue for older adults as users when talking about comfort in old age (Loe, 2015). Individual and public values change. It is important to reflect on how a value like autonomy or privacy change when people are constantly being monitored, and to consider deficiencies, like bias in AI technologies to recognise faces. Apps that can be used to scan for skin cancer are better in detecting cancer on lighter skins as in the development more lighter skins were used and the AI is better 'trained' to recognising abnormalities in lighter skins. In short, it is crucial to attend to values in addition to a more conventional needs and requirements approach, to reach success with innovations. In the next sections we will further explore the meanings of values and their value.

2.2.1 Why a focus on values is needed in health and ageing innovations

While the more technical, organisational and practical needs and requirements are often captured early in innovation and design processes, everyday values (including human and societal values) underlying such needs and requirements are more challenging to grasp and translate into technology implementation and deployment. Needs and requirements already presuppose a technology as the solution, while a focus on values opens a space in which we can consider "solutions" first and then discuss the potential role of technologies in it. Values often do not receive explicit attention, while eventually they do play a pivotal role in the development of technologies and innovations in practice. If technologies do not align with the values that are important in the everyday lives of older citizens, they will not use the technologies or at least not in a way that contributes to their ideal of ageing at home. Rather than starting with technological solutions for specific needs of citizens, professionals, organisations and societies, it is important to pay attention to what values can be found at the core of these need. After having found these values it can be explored how the different values relate to each other.

In order to become embedded in society, innovations need to align with values that play a role in society. Rather than just being users of innovations, stakeholders -citizens included- should become partners of innovation development and deployment. In line

with the RRI principles described in the previous section, this increases the potential success as it contributes to more meaningful, responsible implementations of innovations. Within RRI values are mostly treated as being static, ontological stable entities (Boenink and Kudina 2020). This would imply that once values are captured, they can be defined and that they will not change and remain important. However, as already appears from the introduction above, values are not static, nor do they have one singular meaning. This multiplicity and dynamism are crucial to take into account when values are attended to in pursuing the achievement of sustainable innovations.

From previous experiences in studying health and ageing innovations we learn that despite an emerging interest in values, values are often reduced with a strong focus on “users” and their alleged “needs”, “preferences” and “requirements”. The idea communicated in that way is that technological innovations are functional, neutral tools that intervene in the lives of older people to facilitate (healthy/ier) ageing at home. Seeing values just in terms of user needs and requirements neglects the fact that perspectives on values are diverse and relations between values in diverse settings can be complicated. Moreover, values are subjective and therefore more difficult to grasp than needs or (technical) requirements. Finally, we would like to emphasise once more that what values are prioritised (and how) continuously changes.

A more explicit attention is needed to what values stakeholders consider important, how they do this and how the meaning and priority of (these) values changes over time. Instead of assuming values to be (more or less) stable targets for technological interventions (Boenink and Kudina, 2020; Peine and Neven 2011), the Valuation Framework presented in this report helps to focus on how values themselves are mutually shaped with the (health and non-health related) technologies that increasingly permeate later life. Applying the Valuation Framework will help stakeholders to distinguish their own values, how these are multiple and presumably change over time as well as how they relate to the values of other stakeholders. A crisis, like the Covid-19 pandemic, illuminates value changes quite explicitly. Take for example privacy, a value that is often discussed in the development and implementation of health monitoring and intervening technologies, for example when such technologies include track and trace opportunities, but also other data that is shared. Different stakeholders have different perspectives on the role of privacy and what privacy means in relation to such technologies, which makes it a complicated debate. The Covid-19 pandemic created a different context thereby changing which values are prioritised in relation to the use of technologies and how different values are weighed against each other. Part of the strategy of many governments to control the Covid-19 outbreak among their population, was to introduce health monitoring apps and citizens who have been infected are added to system. The value of privacy in these cases is renegotiated by public stakeholders involved in the health management aspects, against a value of ‘health’. The acceptance by citizens of measures that invade the personal life, seems higher than before, in non-crisis occasions, but is most probably also timely.

Below, in section 2.2.2, we will describe some of the core literature and thereby also provide a more in-depth conceptualisation of values and valuation practices, which adds to our understanding of values and valuation as introduced in chapter 1. Valuation can best be understood as the process in which values come into being and are given meaning.

2.2.2 Literature overview on values and valuation

Defining values and valuation for the purpose of this report comes with narrowing down to the specific fields that played a role in the development of our framework. Values and valuation are used in different ways in a variety of fields, including the economic act of valuing a good or service for an individual or society, and ethical values, focusing rather on the morality of 'things' and 'actions' (valuation cultures) (Zuiderent-Jerak and Van Egmond 2015).

Within studies on valuation we distinguish two main perspectives. On the one hand **(e)valuation** is positioned as **the basis for creating, maintaining, rearranging and changing social order**, assuming a possibility to **capture values** at one point (See Lamont 2012; Stark 2011, 2017), as in Value Based Healthcare (VBHC) approaches (e.g. Porter and Teisberg 2006). VBHC is based on the principle that, rather than aiming for cost-efficiency, the central focus should be on increasing value for patients. The value in this approach is defined by looking at the outcomes of a treatment, intervention or healthcare service. The underlying assumption is that good health, achieved and maintained by providing healthcare based on its proven or potential value for patients, eventually will be less costly, if having to deal with poor health can be prevented or delayed in this way. In a VBHC system innovations will be introduced based on their expected potential value.

In the literature on valuations studies value is understood as a certain **type of worth** that is **given to something**. Valuation and evaluation processes in this view come with social and cultural processes. Generally, either agreement or disagreement about criteria is needed about the definition of a value. Criteria and such a definition enable among others the comparison, monitoring and negotiation about values. In addition, it is decided who can legitimately judge on decisions about such values (Bourdieu 1993). On the other hand, **values** are understood **as being made or given to 'things' in practice**, while these **valuation practices simultaneously shape (and reshape) these and other values** (Zuiderent-Jerak and Van Egmond 2015). Valuation studies focus on how values are made in valuation practices, for instance in the development of new technologies and introduction of innovations. How different meanings are given, invokes the question how valuation practices are being made, or in other words, how they come into being. While the first perspective understands values as more or less stable entities (as described in section 2.2.1.) that are pre-given and can be captured at specific moments in time to be weighed against others, the second perspective understands values as dynamic constructions, continuously being reshaped and reshaping others. Where a value is considered to be important by one individual at a specific time, this might change in interaction with others and over time. Rather than to focus on specific values at specific moments in time, this perspective asks to be attentive to what eventually affects what values are at stake and how these values are interpreted by different stakeholders. Attention is asked for underlying societal dynamics, societal developments and crisis events like the Covid-19 pandemic. A valuation perspective offers a way to study these developments and their implications (Fourcade 2011).

Our framework draws on this second perspective. Where values in the first perspective can be captured at the beginning, we follow the argumentation that we need to anticipate future changes. In our work we follow the line in emerging literature, that moves away from studying health innovations as "interventions" and instead aims to explore how innovations, and underlying valuation practices, do co-constitute concepts of health and ageing itself (Peine and Moors 2015; Peine and Neven 2020; Peine 2019).

2.2.3 Values and valuation in health and ageing innovations

Innovations in health and ageing demand a specific attention to values, as innovations in these fields cannot be based on rational decision-making processes solely. How and where older citizens want to live differs per person. While one citizen might prefer to be monitored by his General Practitioner continuously with the help of smart devices and apps, another citizen might prefer not to be traced, thereby choosing privacy over direct access to medical services. Different values underly these preferences.

To embed values and valuation in health and ageing innovation processes, it is important to start considering everyday life values already when defining implementation pathways for innovations. Such a valuation approach is broader than the definition of a business model with which a business value is assumed and also broader than the exploration and anticipation of specific needs and requirements captured at the beginning or before an innovation project. While needs and requirements focus on the idea that technology will eventually solve these needs, a valuation approach aims for a broader perspective. By paying attention to different values that are deemed important by stakeholders and how these values might change and interact in the future, future changes can be anticipated and a more sustainable implementation that takes these underlying values into account can be developed.

Such an approach adds to the VBHC approach that is defined in the previous section [2.2.2]. Innovations within the VBHC approach are or will be introduced based on their potential value, where value is understood as the potential outcomes for the patient / citizen. In the valuation approach we suggest in this report, we argue that not only direct potential (health-related) outcomes should be considered in the introduction of innovation, but that innovations should also take into account the context and contextual changes of everyday life, including the potential impact on the everyday life values that individuals deem important.

We will further outline our valuation approach in the next chapter. From the literature described in this chapter, we draw on the idea that values are no stable entities, as is often assumed in RRI approaches. Instead, we assume that values are dynamic and multiple, and that these dynamics and this multiplicity have implications that should be taken into account when implementing innovations. We extend the established RRI frameworks based on the idea to capture values, by focusing on valuation (how values come into being) rather than only on values.

3 Relevance of values: the GATEKEEPER Valuation Framework

Building on the insights from scientific literature on RRI and SSH perspectives and the recognised value of looking at values that we described in Chapter 2, this chapter introduces our Valuation Framework. We developed this framework to be applied as an approach for co-creation in innovation projects and practices, in particular innovations in the AHA domain.

In this chapter we describe the core elements of the Valuation Framework as well as some details about its application. We propose to reflect with multiple stakeholders, for example in workshop settings, on imaginaries [e.g. future scenarios]. In this way the dynamic and multiple character, that is inherently related to values and valuation, can be explored and subsequently steps can be defined to anticipate these values and value changes.

3.1 Valuation Framework

The Valuation Framework articulates specific values not to build a value proposition on, but to facilitate and increase reflexivity among stakeholders, including citizens and project members in innovation projects. By reflecting on what is important in the everyday lives of older citizens and subsequently on how these values and their dynamics can be anticipated on, we can contribute to better futures for ageing in place. Thereby values of a broad stakeholder network should also be taken into account, as these often differ from the great variety of values considered important by (older) citizens.

One way to facilitate a more responsible innovation and implementation process is to make stakeholders reflect on differences and comparisons between the perspectives of everyone involved. It is important that this kind of reflection is not limited to values like privacy or autonomy, but also explores other relevant values, for example meanings of 'good care', 'active and healthy ageing', and 'quality of life'. Concepts that can be considered as values and are important when it comes to smart living environments for older citizens and ideals of ageing independently at home (ageing-in-place).

Mapping and exploring underlying values and valuation practices facilitate a more resilient, future-proof implementation pathway. Anticipating future contexts is facilitated by helping stakeholders reflect on what they consider important, what they consider important for older citizens and what others consider important in daily practices (based on individual experiences and everyday contexts). Stakeholders will be facilitated with the framework to identify potential implications of changes in life and the everyday context.

3.1.1 Aims and objectives of the Valuation Framework

In short, the purpose of the Valuation Framework presented here and developed within the GK project is to give guidance in identifying different stakeholders' perspectives, their positions towards values, and, to guide an in-depth discussion of different values at stake in health and ageing innovations.

3.1.2 Valuation Framework: Core elements

The proposed framework provides an approach to map and explore different, both current and potential future values, and how these values relate to and interact with (and affect) each other.

The Valuation Framework draws on the following core elements.

1. *Co-constitutional logic:*

Technology does not intervene into ageing and health practices, but it becomes co-constitutive of it (Peine and Neven 2020). In other words, technology is not so much a solution for a specific predefined need, but its eventual use and meaningfulness will be defined only after its introduction in daily practices. To anticipate this actual use and facilitate a successful implementation, what and how (digital) technologies will be used in practice and what factors enable or constrain such use, can be reflected on beforehand in co-creation events. Crucial for the success rate of such an event is the active engagement of relevant stakeholders, and the active and particular attention to perspectives of older citizens, as they are the potential users of health and ageing innovations.

2. *Value Multiplicity + Value Dynamism → Valuation Implications:*

Values are multiple and dynamic; valuation thereby creates implications for these values and the role and meaning of technologies.

a. *Value multiplicity:* Values are plural, there is not one single definition for any value. Think for example about a value such as privacy. What privacy means differs per person. It can be about being in control of your own personal data, controlling who has access to it [data sharing], but also about whether it is possible to remain anonymous when in need of care or other help. Some might define privacy as not being monitored, others by a careful use or processing of data. Multiplicity also refers to another dimension. In this case it implies that values (but also other objects, subjects, concepts) differ in different contexts. Their specific context, also called their 'situatedness', defines the value that is deemed important, and how it is considered important specifically in that moment and at that particular place (also see Mol's work on values and multiplicity, 2002).

b. *Value dynamism:* Values are dynamic. What values are prioritized most probably changes during the lifetime. Also, how values are interpreted changes continuously. Life events, contextual changes, crises -like the Covid-19 pandemic- affect current and future valuation practices. They have for example an impact on ideas about independence, good care and quality of life. Values are weighed against each other. Privacy is in the current pandemic weighed against a risk of getting infected, leading to governmental decisions on abilities to track and trace people who might have been infected or have been in contact with people who are infected. Values also interact with each other. This relates to the third element of this framework: Valuation implications.

a + b = Valuation implications: How individuals give meaning to specific values and attach to innovations (the valuation practices) also affects their own and other people's future positions towards values. These values can define, interact and sometimes even conflict with other values. Tensions and conflicts can occur when values oppose each other or are difficult to combine. For

example, a strong desire for independence and privacy might interfere with values attached to health, when assistance is needed at home.

3.1.3 Application of the Valuation Framework

The Valuation Framework helps to detect and anticipate values and valuation practices in innovations. They thereby especially contribute to how the co-creation of implementation pathways for these innovations in the field of health and ageing is fulfilled by stakeholders (and other relevant actors if preferred, like citizens). The Valuation Framework facilitates relevant stakeholders to reflect on their own values but also on 1) the development of these values, 2) interaction(s) between their own values and those of others, and 3) how these values subsequently affect and possibly even change each other. Attending to values will improve the potential success of innovations. Within GK UU contributes to an ongoing dialogue on values and their dynamics. We started with designing and coordinating co-creation workshops, which play important role in our strategy to achieve an on-going attention to values as explained below. These workshops were organised by the different European pilot sites and can be considered a first step to attend carefully to values and valuation.

The workshops are designed firstly to facilitate the creation of the GK eco-system, mainly as they help map the relevant stakeholders for the different pilots (T2.1). The idea was that workshops also contribute to build momentum among these relevant stakeholders, which is important as they are needed to support the implementation, upscaling and assessment of the specific pilot site innovations, and of the GK platform. Stakeholders who participated in the workshops were asked to discuss future scenarios (imaginaries) of ageing and place, and the potential impact of GK technologies. More in particular, they discussed which values they deemed important now and how this might change in the future and once GK solutions become part of the everyday life. In this way we learned about stakeholders positions towards different values, and how both these values and their interactions play a role in the implementation and success of GK solutions.

With imaginaries we mean the, by stakeholders, imagined future scenarios of ageing in or at home, with a reflection on important values and in relation to (new) technologies that support ageing (well) at home. Thereby we aim to include perspectives of different stakeholders involved, but also of other stakeholders, including often non-present older citizens. Older citizens are the potential consumers / users of AHA innovations and technologies. In the workshop design stakeholders were asked to also specifically consider perspectives of older citizens. We chose for this approach rather than inviting 'expert' citizens, to avoid an often seen rather symbolic representation. In the next phase of the project older citizens perspectives are explicitly explored in interviews and observations. Prior to this it was important stakeholders became fully aware of differences in perspectives, by making them think about these perspectives themselves. We encourage to think about how values are multiple and fluid. In the workshops we therefore included different assignments and exercises that helped stakeholders to think out of their own box.

In the workshops values of different stakeholders were explored. Values related to GK solutions were mapped and discussed. The objective of these workshops was awareness raising among stakeholders of (some) of the different values that exist as well as how dynamic they are and how values also play a role in the future valuation of innovations (and thereby their potential success, scalability, and sustainability). Subsequently, stakeholders discussed challenges and opportunities for the implementation of their GK solutions. These will be used to inform the co-creation of a responsible implementation

pathway. The idea is that engaging stakeholders early on and making them part of creating an implementation pathway increases the potential success of this implementation.

The workshop design can be summarised as follows:

At 8 pilot sites, workshop organisers organised co-creation workshops for relevant stakeholders in their pilot. UU provided a design and script to guide them through the organisation of these workshops. In short this included the discussion of values and valuation in relation to ageing at home and the (smarter) living environment while reflecting on:

- The own perspective (both professional and personal)
- The Covid-19 crisis and its impact on ideals of ageing independently now and in the future
- A future scenario (ideal scenario of ageing in place)
- The role and meaning of GK / technological solutions in these scenarios

In a second cycle of co-creation workshops, that will most probably be organised in year 3 of the project, findings of these first workshops will be revisited by reflecting on actual practices in which GK solutions are used. This will help to explore and contribute in solving possible gaps and open issues in relation to the implementation and scaling of the pilots. These outcomes will also inform the Valuation Framework presented in this report. This is especially important as we aim to anticipate multiple and dynamic perspectives towards values on ageing, place and technologies. The second cycle will further validate this framework.

While co-creation workshops enable interactive creation of a shared understanding and key learning points (among others), the application is not intended to be limited to a workshop setting. Reflection on values ideally becomes part of multiple interactions between GK partners and stakeholders.

The Valuation Framework thus facilitates: To study how multiplicity and dynamism of values relate to each other and to reflect on their implications. Reflecting on values and valuation helps to create a better insight and shared understanding of what is considered important in specific innovation practices. This shared understanding and sensitivity for the unstableness of values contributes to the GK project, as it helps to innovate in a more sustainable way.

Application of the Valuation Framework helps to illuminate what is considered important in society. In particular by stakeholders that are already or will be involved or affected by AHA technologies and other innovations, introduced in the home environment of older citizens (Smarter Living Environments). Values cannot only be detected but also better understood when they are explored in a more conscious and in-depth way. Together with other stakeholders, a reflection is possible on how values have implications and how these implications affect the further development of the innovation at stake in practice. Subsequently relevant stakeholders co-create an implementation strategy or pathway to anticipate these implications. Furthermore, an ongoing attention to values and how they change and interact is needed, not only during but also after and between workshops as part of an embedded reflection routine.

3.2 Illustration of framework using examples from co-creation workshops

The Valuation Framework presented in this report was first tested in a validation workshop organised on September 9th, 2020. This validation workshop's aim was to discuss the Valuation Framework with European stakeholders to validate it. Input of the discussion with the EIPonAHA stakeholders that participated in the validation workshop was used to finetune the design of co-creation workshops, to be organised with relevant stakeholders at European GK pilot cycles. During these workshops the Valuation Framework was applied to understand GK stakeholders perspectives on values. In total eight remote co-creation workshops took place in October and November 2020. The eventual aim of the co-creation workshop was to facilitate pilot sites to co-create -together with their relevant stakeholders- an implementation pathway for the GK solution they aim to introduce to their region.

To better explain how the three core elements of the Valuation Framework (Value Dynamism, Value Multiplicity and Valuation Implications) work together, we will give some examples we found in the workshops.

3.2.1 Value dynamism

Instead of collecting values as static entities, stakeholders were challenged in the workshops to think about how values change over the life-course but also due to their context. The Covid-19 pandemic and periods of (semi-)lockdown in all pilot regions were helpful in better understanding how contexts change, sometimes very sudden, and impact the daily life of people. Stakeholders mentioned for example how the lockdown had made them become better aware of what the daily life of an older adult can be like, since we all had to live like many older adults already do. Especially when thinking about people who suffer from a specific health condition that makes their lifeworld even smaller. During the periods of lockdown, the value of social and real-life human connections and interactions became more obvious for these stakeholders. But stakeholders also mentioned how some of the older people they work with, and who before the lockdown were rather sceptical of digital technologies, now started using and enjoying opportunities brought by technologies.

Another change observed during the co-creation workshops relates to the discussion of privacy and data sharing. In some workshops privacy appeared to be considered a bigger issue than in others. It was mentioned how a shift is needed in older adults' position towards privacy and data sharing as a willingness to share personal data is crucial when implementing most of the GK solutions. Therefore, according to some stakeholders, trust in core institutions and in how data is handled is pivotal for a successful implementation.

3.2.2 Value multiplicity

During the different workshops stakeholders talked about what is important when it comes to growing older while living independently at home. An ideal scenario includes many different values. Feeling safe and secure was one of such values. Where some mentioned an importance of 'feeling safe and secure' in a rather broad way, implying that it also means feeling comfortable, others more specifically mentioned monitoring mechanisms, or a safe environment are important to mitigate health risks. In one of the workshop exercises, stakeholders created an ideal ageing scenario, consisting of a one-

level apartment with face recognition to open doors and smart technologies monitoring health and activities. The difference between feeling secure and being secured is a good example of how values are multiple, but also how one interpretation can be conditional for or part of the other value.

3.2.3 Valuation implications

The third element of our framework is called valuation implications. These are the implications of the valuation practices that are underlying the two elements above: value dynamism and multiplicity. Values change, are being interpreted or prioritised in different ways by different stakeholders. This might create tensions in practice, effect implementation processes, or even lead to conflicts. Different stakeholders prioritise different values as do older adults. Values are weighed against each other. For instance, because people prefer to feel safe and secure at home and are willing to give away some of their highly valued privacy or autonomy, security as such has grown more important. An increased insight in valuation implications also helps to better understand the challenges and opportunities for implementation of digital technologies and innovations. Anticipating possible implications helps to think of better, more resilient solutions.

3.3 Further development and future prospect in the GATEKEEPER project

The Valuation Framework can play a meaningful role within the GK project and beyond. We will reflect on its broader potential in Chapter 5. In this section we will focus on how the Valuation Framework can play a role within the GK project.

This further development depends on some preconditions.

- Further development requires a dynamic approach – to not only attend to valuation practices at specific moments of time, but to build in some mechanism that creates an awareness throughout the process;
- Bring in different everyday life values back into the other GK clusters, thereby increasing a meaningful responsible innovation, implementation and deployment. A meaningful embedding of the valuation approach in the DNA of the GK project is needed for a sustainable future. One of the ways to do this is by sharing and discussing results of co-creation workshops with GK project partners and to reflect on what we learn from this as a project. Based on an in-depth qualitative analysis of workshop summary that takes place early 2021 a communication and dissemination plan is created.
- 'Only' organising two cycles of workshops is not enough for a responsible implementation and follow-up. It is an important and crucial starting point. The valuation approach in a largescale project like GK demands continuous attention and recurring dialogues on values and valuation between different layers, work packages and clusters in the project. Input from all GK partners is required. Without dialogue no meaningful development can be achieved.
- In addition to the coordination of two cycles of co-creation workshops, ethnographic methods, including interviews and observations, will be a part of our approach to further explore and reflect on values and valuation in the GK project and pilot sites.

- Pilot sites must find a way to monitor how their implementation is proceeding and how values and valuation play a role there. They need to feed this back into the GK project to enable mutual learning processes. One way to do this is by sharing good practices in accessible articles, to be shared within the network and with the wider community of interest.

The potential value and embedding of the valuation approach in the project can be described as follows:

The co-creation workshops can be considered as a starting point. In the workshop awareness of the importance to include multiple perspectives was raised. Thereby it was encouraged to reflect on values and valuation practices as stakeholders together. Subsequently, participants in the workshops reflected on ageing, technologies and the home environments and co-created implementation pathways for their GK solutions. This first step towards a reflective approach on underlying values is important as it adds to merely paying attention to needs and requirements. The workshops proved it is important to look at the broader European picture. There appeared many commonalities when talking about ageing independently in the own (smarter) living environment, but each pilot is also situated within a specific context, embedded in its own organisational and cultural structures and therefore space to tailor innovations and their implementation towards these individual contexts is important. The social and societal context do play a role in all regions.

To further embed the approach within the GK project, a reflection on underlying and dynamic values is a starting point that helps to become aware of these situated and dynamic, multiple values in the everyday lives of older citizens. The valuation approach that helps to consider what is important in the everyday life could be added as an additional, overarching approach, to the already existing approaches in the project, as already explained in chapter 1.

4 Workshop insights and stakeholder overview

This chapter provides an overview of important, though still preliminary, findings and lessons from the first cycle of GK co-creation workshops. Lessons that relate to the applicability of the framework are presented. In the second part of this chapter a stakeholder overview is provided, including the stakeholder ecosystem mapping approach developed in Task 2.1 of the GK project, an overview of the EIPonAHA stakeholders who participated in a validation workshop, which was also a first stakeholder consultation, and lastly an overview of the type of stakeholders that participated in the various co-creation workshops.

4.1 Findings and lessons from workshops

Below we report some overarching findings of the different workshops from which we can learn about the application of the Valuation Framework. For more information on the workshops, including practical lessons about the organisation of the co-creation workshops, we refer to Deliverable 2.9.

4.1.1 Framework applicability

A first application of the framework in workshops provides us with some first impressions on the applicability of the framework.:

- A focus on values and the social or human aspect of ageing and smarter living environments was highly valued in the different workshops, both in the validation workshop as in the co-creation workshops. Participants appreciated the approach to first have an open discussion about what matters for different stakeholders and older adults, instead of directly looking for solutions for specific needs.
- For many stakeholders, or perhaps even all, such a focus during a workshop is new. They are not used to discuss values or valuation. We created assignments that guided them to do this, which went quite well. Reflecting on the input for the first assignment, that was created as a homework exercise to come prepared to the workshop, we notice that the assignment helped many stakeholders to distinguish important values. Reflection on values and valuation practices demands ongoing practice. Meaningful first steps were taken in this round that can be further developed in the upcoming period.
- The Valuation Framework is more difficult to detangle for participants / stakeholders in practice than it appears in theory. The distinction between the different core elements that function as the pillars of the Valuation Framework makes sense for the theoretical understanding and reflection, but proved challenging in practice as value multiplicity, value dynamism, and valuation implications closely hang together. This results in these elements getting intermingled in discussions. In the validation workshop with EIPonAHA stakeholders we tried to focus on the three different elements in separate break out rooms. In discussing values, it seemed less easy to stick to one of the elements solely, as the multiplicity, dynamism and their implications are interrelated. Further insights in how to best apply the framework will become clear from in-depth analysis of all workshops. This will result in an improved guidance for workshop organisers and others interested in applying the framework. Nevertheless, the framework did achieve its aim already to help reflect on values and define implementation pathways.

- As is demonstrated in chapter 3, section 3.2, the workshops did prove the applicability of the framework. The framework highlights different elements of valuation. The third element is pivotal when creating an RRI and SSH-based implementation pathway.
- Relevance of including different perspectives:
 - o Importance / relevance of including a multidisciplinary / interdisciplinary group of stakeholders in a workshop or discussion setting. Having a discussion with a multidisciplinary group was new for most stakeholders who participated, and it was considered very valuable. Overall stakeholders agreed this should be done more often.
 - o Importance of including perspectives of older citizens when talking about ageing & technology / smarter living environments.
 - o Users' positions are considered important. The challenge is how to include their positions or perspectives in a meaningful way from the beginning (and prevent a merely tokenistic representation, ticking the 'public engagement' box formally only).
- First attempts thus help to become aware of different values, somewhat about how these changes, but how to responsibly respond to these insights demands further exercise.

4.1.2 Challenges

Stakeholders involved in the workshops mentioned various challenges, including:

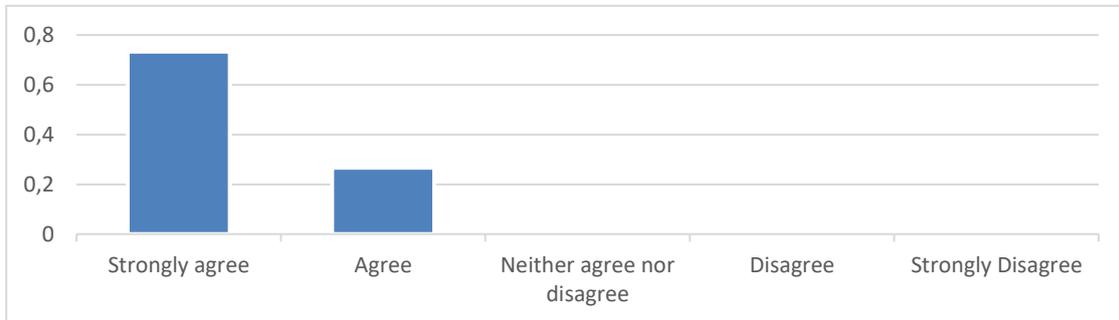
- How to distinguish values from needs / requirements (for instance, autonomy was distinguished at one place as a need, but how is that different from autonomy as a value? What are the underlying values?)
- To help stakeholders and project members become attentive to the multiplicity, dynamism and implications of values and valuation is challenging. How to anticipate the unknown future, and to truly become aware that a Valuation Approach demands continuous attention is paid to occurring and changing values in practice (and to how the project / policy responds to these)
- Differences between contexts of workshops resonate in outcomes of workshops, like financial limitations of citizens in specific regions. Ideals and reality differ and have an impact on how values are considered important. Interpretations of what good health or healthy ageing mean differ for example, as do ideals of ageing (in the own home not necessarily everyone's ideal scenario), digital education / digital capabilities.
- In addition, there are also potential risks for a meaningful application of the framework. When not all stakeholder groups are represented it is challenging to achieve a representative reflection.

4.1.3 Consultation round

Between December 15th, 2020 and January 18th, 2021 EIPonAHA stakeholders and GK project partners could provide feedback on a draft version (0.2) of this document via an online survey, available via EUsurvey. Both stakeholders and project partners provided feedback, resulting in a total of fifteen completed surveys. Below an overview is provided with answers per question.

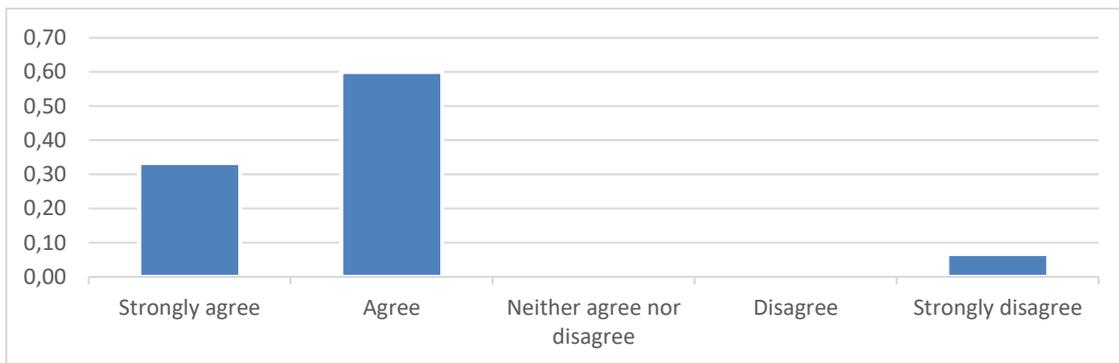
1. Do you agree that it is important to more explicitly consider values in addition to needs and requirements in innovations for the AHA domain?

4 agree, 11 strongly agree



2. In addition to the first question, do you agree that more attention is needed for a wider variety of values, in particular values related to the everyday life of older citizens?

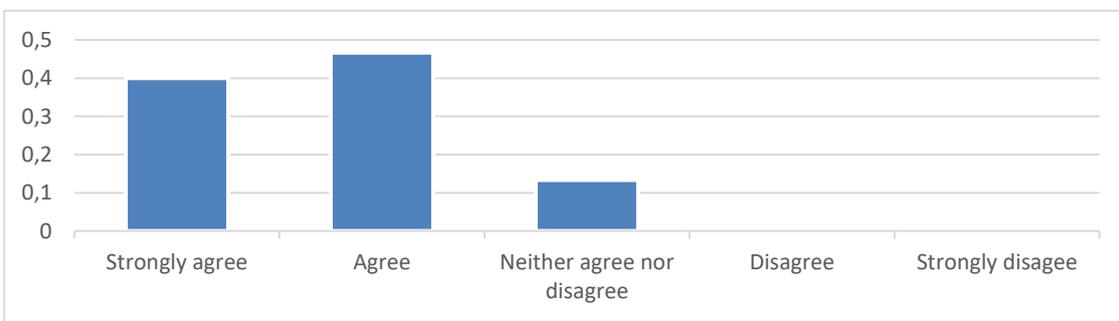
5 strongly agree, 9 agree, 1 strongly disagree



*Note that it is not clear why one person strongly disagrees, as from the open questions it becomes clear that a valuation approach is supported.

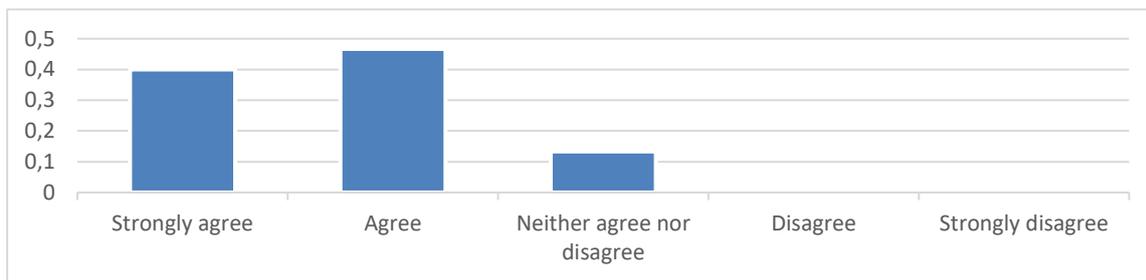
3. After reading the report introducing the Valuation Framework, is it clear to you that it aims to facilitate reflection on values in everyday practices?

6 strongly agree, 7 agree, 2 neither agree nor disagree



4. Do you see a potential applicability of the framework?

6 strongly agree, 7 agree, 2 neither agree nor disagree



5. If you see opportunities to apply the Valuation Framework, where do you see them? And if not, what is missing in your view?

- *Many opportunities are considered, and broadening the scope to other fields and including a broader group of people is mentioned*

(e.g.: The focus here is mainly on healthy older people to age well and remain independent. I guess it should be enlarged to also older people who have disabilities and maybe their view on "values" are somewhat different and have changed given maybe their perceived "loss" of independence and possible need to depend on others more (or technology). It would be interesting to include their views to see how their value dynamics may be different from the more "healthy" group of stakeholders.

Local Health Authorities should involve volunteers and try to apply the framework in local environments

In principle the framework seems to be applicable to other fields were values of large groups of citizens are at stake (e.g. healthcare in general, public policy making, etc.).

As the Valuation Framework has been conceived in a health and social context, any other opportunity related to these domains will be a good candidate to apply the framework.

In my opinion is possible to apply to Silver surfer contest <https://www.eurasante.com/appele-a-projet/> as is important to move to the market.

yes, in the preliminary stages of any technologies, before getting strongly focused on the technology details)

- *The (expected) value of the approach is mentioned*

(e.g.: I think it is relevant to gather stakeholders insights in terms of social or human aspects, regarding their perspective in different areas of their environment.

I see a great potential for using the Valuation Framework in all the pilots and in the 3 project main domains (technology, healthcare, business), what is missing is now a first draft of these values so that partners are able to understand them and contribute to their definition but they need further proof about how they are going to use them and benefit from them and from the resulting framework, within and after the project.)

- *Limitations*

(Not practical enough, too abstract terms, missing key deep values of autonomy vs. dependence, welfare vs. wellbeing, etc...)

6. Are there any major topics not addressed in this report that you think are relevant in introducing a Valuation Framework to better facilitate the implementation and deployment of digital technologies and innovations in the AHA domain?

Among the entrances some topics were mentioned that are not yet addressed according to the participants:

- *Scope of framework – missing content*

(e.g.: "I think the only gap might be that the starting point for the Valuation Framework is that being independent is above all what we as society seem to value the "most." I would not want solutions to make societies more "uncaring"; That is my only doubt with digital - it is supposed to connect people but it only does so superficially and makes people feel even lonelier (cf social media and mental health of many)")

- *Whom to include in value reflections*

(e.g.: "The most important is to introduce the patient and caregiver in the design of the Valuation Framework.")

"As I said before I would try to verify if the values are relevant for health technology suppliers, healthcare providers and receivers and business/prescribers. Maybe some liaison with Value Based Healthcare conceptualizations would help, as they provide already some framework and stakeholder analysis about values.")

- *Regional / cultural differences*

(e.g.: "As far as I'm concerned, I see the need of having something like a <https://www.interregeurope.eu/policylearning/good-practices/item/3129/digital-innovation-hub-dih-healthday-si/or> <https://www.interregeurope.eu/policylearning/good-practices/item/2514/research-based-approach-to-increased-innovation-in-management-of-assistive-device-operations/>"

"Valuation Framework is embedded in socio-economic, institutional and cultural fabric of country and region with variations across countries and regions.)

- *Clashes between values*

(e.g.: "Value clash between e.g. generations, stakeholders, sectors and how to solve them.")

"agency trade of with other values")

- *Guide for framework*

"An 'implementation guide' clarifying the operational steps to be conducted to apply the framework, written in terms understandable by non-domain experts, would be useful."

7. Do you have any other remarks?

Except for congratulations with the report, also some minor remarks were made, including the suggestions. Based on these we included in this report some further notes that we will also consider in the future development if possible:

- A first reflection on risks of low engagement of stakeholders or minor interest in technologies.
- One person mentioned it would be interesting to find a way 'to measure and assess values'. The question is whether this is possible at all, considering the dynamic and multiple nature of values. It requires further investigation and careful consideration to see if and how this can be achieved.
- In addition to the 'outside-in approach' it now needs to be complemented with 'inside-out approach' of lived values and practices. This implies an exploration of values in the everyday lives of older citizens themselves – something which is already planned as part of future work of UU.
- Lastly, one person wrote: 'Get these guidelines out there as fast as possible and maybe make them a requirement for any EU funding technology schemes', thereby referring to implementation guidelines suggested in reply to question 6.

4.1.4 Final lessons

The feedback and experiences with the application of the framework in a series of workshops shows how important it is to 1) carefully guide workshop organisers as coordinators, and 2) to guide workshop participants as a workshop organiser.

- Engagement and enthusiasm of moderators / workshops organisers resonated in workshops.
- Some workshop organisers explained it was challenging and enriching to organise a workshop designed from a social science background, especially as these organisers have different (not social science related) backgrounds.
- All workshop organisers were able to organise an event in which values were defined and discussed that are relevant for the implementation of their technologies and innovations. The usefulness of this exercise depends on how outcomes are integrated and acted upon by the pilot site and the GK project.
- Community building and integrating a valuation perspective is important to prevent momentum being lost. For the workshops with a smaller number of participants it is advised to first found a broader common ground for their outcomes and involve people by having them reflect on the report for example.
- As expected, a greater variety of participants resulted in a greater variety of perspectives. It is important to think about what stakeholders were missed in this workshop and how to involve them now, before the next cycle which is only scheduled to take place over a year.
- Workshop organisers and other stakeholders who were interested in the framework mentioned it would be helpful to have an overview of key values. Although further analysis should help to distinguish a better understanding of some core values and valuation, it is important to note that an open approach is important within the Valuation approach.
- Application also demands a bit of courage by moderators / organisers and participants as they have to step out of their comfort zone and think out of the box. While these reflection enabling activities are very common within the SSH

domain, they are not necessarily common for professionals and citizens. Exercises in workshops were meant to help participants to make this step, moments of silence / for contemplation are relevant, becoming aware there is not a necessarily right or wrong answer but that all perspectives matter. Organisers expressed they learned from each other and now better understand each other which seems crucial for constructive multidisciplinary cooperation.

4.2 GATEKEEPER Stakeholder Overview

In the GK consortium 43 partners work together. The GK ecosystem is broader than this consortium. Directly involved in the project are among others entities that are participating in pilot sites. But there is also a wider ecosystem, including stakeholders at different regions already involved in pilot sites, or who will get involved in future twinning projects and other initiatives. Entities that are not directly affected now but who can benefit from the GK solutions and results can also be identified as stakeholders in the project. Below we provide an overview of currently involved stakeholders, whereby we focus on stakeholder types, rather than on individuals. First, we present a table that is also part of Deliverable 2.1, that introduces an approach to mapping the GK ecosystem.

At the beginning of October 2020, the GK Community of Interest was launched, to which individuals interested to become part of the GK community can subscribe. This community is open to all who are interested. More information can be found via this link: <https://www.gatekeeper-project.eu/community-of-interest>.

Task 2.1 of work package 2 of the GK project focusses on the development and management of the GK ecosystem. The ecosystem mapping approach, and a table and figure developed as part of this approach for Deliverable 2.1, was used to guide the co-creation workshop organisers to define who their relevant stakeholders are. Table 2 provides an overview of the stakeholders (type) that participated in the Valuation Framework validation workshop, table 3 of stakeholders who participated in the co-creation workshops.

4.2.1 Stakeholder Validation Workshop

Table 2: Overview of stakeholders who participated in a validation workshop (September 9th, 2020)

Organisation	Country	Type of stakeholders (representing)
AAL Association	Belgium	Research, SMEs, older people
AGE platform Europe	Belgium	Older persons
Asturian Observatory of Social Services/REGIONAL MINISTRY OF SOCIAL RIGHTS AND WELFARE	Spain	HC provider/public
Cooperativa Margherita	Italy	Carer
Crete Reference Site/Medical doctor	Greece	Doctor/practitioner
Empirica Technology Research	Germany	Private company, research, twinning expert
E-seniors	France	Older persons
Eurocarers	Belgium	Carer
European Society of Preventive Medicine	UK	Practitioner, prevention
Giovanni Lorenzini Medical Foundation	Italy	Research, translational work
Glantt	Portugal	Developing Global Intelligent Technologies
Kronikgune Institute for Health Service Research	Spain	Research but public admin
NCSR	Greece	Research
NHS National Services Scotland	UK	HC provider supporting public & care
PLACE-EE project, Bamford Centre, Ulster University (Platforms for Ageing Community Engagement)	United Kingdom	Research, community engagement project Transnational partnership of public health agencies, local authorities, academics and ICT experts dedicated to improving the quality of life for older people
Provincial Government of Teruel	Spain	Public authority, Silver SME project
Senior Group	France/Latvia	HC provider/private, innovative elderly care
Sl4Life	Italy	Non-profit, innovation hub: Research Institutes, Industries in information, communication, electronics and engineering; Quality certificate Institutions and associations active in the assistance and rehabilitation of the sensory, motor or cognitive disabled.

SIS EGIZ Slovenian Innovation Hub / RS Slovenia	Slovenia	Private cluster, reference site
ZonMw/Secretariat for the More Years Better Lives Joint Programming Initiative	The Netherlands	Research

4.2.2 Stakeholders Remote Co-creation Workshops

Table 3: Stakeholders of GK Pilot Sites
(based on participation in co-creation workshops, positions included)*

Organisation (descriptive)	Position / role	number
Enterprise (including for example engineering company, IT, consultancy)	CEO	6
	Co-founder	1
	(Technical) Manager	2
	Sales and Marketing Director	2
	Director	2
	Management / advisory	1
Health care provider / centre (not defined as public or private)	Nurse	6
	Division manager (e.g. nursing, primary care)	2
	Manager (sometimes called head of office)	2
	General Practitioner	5
	Dentist	2
	Doctor	2
	Public health	5
	Pharmacist	2
	Social worker	1
	Director of communication and business development	1
Local Health Authority / Regional health services	Public health director	1
	Unit Control Manager / Manager	2
	Sector Director	2
	Medical specialist / Doctor	1
	Social worker	1
	Unit Supervisor Material Resources and Bed Management	1
	Representative	1

NGOs	President / CEO	2
	Vice President	1
	(Managing) director	2
	Innovation technician / Advanced Technician in Organization	2
	Social Health Analyst	1
	Technical director (of innovation)	2
	Chairman	1
Patient /citizens (support or representing) organisations / Platforms / associations	CEO	2
	Director	1
	Project manager / service manager	2
	Older carers Support worker	1
	Representative	3
	Coordinator	3
	Professional caregiver	1
Professional associations	Director / (vice-)president	3
	Representative	3
Primary care units	Medical practitioner	1
Private Hospital or doctors' offices	Manager	1
	Representative	1
Public Hospital	Medical manager	1
	Section head / head of service	2
	Medical practitioner	2
	Nurse	1
	Psychologist	1
Private/public hospital (not-defined as public/not public)	Occupational therapist	1
	Representative	1
Public Administration	(Project) manager	3
	Representative ministry of Health	1
	Director	1
	Council manager	1
	Representative	1
Research Authorities or Universities	Consultant	1
	Officer	1

	PhD student	2
	Professor	10
	Associate professor	1
	Researcher / research associate	7
	Scientific director / Head of research unit or group	5
	Student	4
	Representative	3
	Project manager	1
SME	CEO	1
Undefined / not clear	Humanities	1
	Representative of an eHealth Center	1

*disclaimer:

Note that this is a first categorisation using input from the different workshop organisers and using the Ecosystem Management Mapping table and figure presented in this chapter. Some workshop participants represented different categories simultaneously.

Stakeholders were promised that the reports about the co-creation workshops would anonymise their personal details. The information in the stakeholders overview is therefore limited to a description of their position and the sort of organization they are affiliated to. This information is also the relevant information for understanding what kind of organisations and stakeholders would be interested in and relevant for the GATEKEEPER project.

In the table above an overview is presented of the type of stakeholders that participated in the co-creation workshops of pilot sites. A first categorisation is made, drawing on the ecosystem management table presented in Deliverable 2.1. In some cases, details appeared insufficient to put participants in a specific category. The information here does provide a first overview of the kind of stakeholders that could be involved in the GK ecosystem. For future occasions it is important to prepare the way information about stakeholders is provided. This is already considered in the creation of a subscription possibility to the GK Community of interest (T2.1). In addition, the overview presented here can be used to further finetune the ecosystem mapping approach developed in T2.1, described in Deliverable 2.1. An overview of type of stakeholders specified per co-creation workshop can be found in the workshop summary reports attached to Deliverable 2.9.

5 Conclusions

In this chapter we shortly summarise the Valuation Framework presented in this report and reflect on a first application in a series of co-creation workshops throughout Europe. We thereby reflect on the applicability in these workshops but also do a very first attempt to reflect on a potential applicability beyond the GK project. The Valuation Framework described in this document should be considered a living framework, which means that this report provides a solid base to work with within the GK project. The GK project experiences will help improve the use of the framework in practice. These lessons will be used in the development of a set of recommendations to deal with values in innovation projects (see next steps below). We will conclude this chapter with a short overview of next steps.

5.1 Concluding remarks

This report introduces a conceptual Valuation Framework. The framework is developed to facilitate reflection on values among stakeholders in innovation projects, especially in relation to smarter living environments. When we mention values, we specifically mean values that play a role in the everyday life of citizens. Like privacy, agency, autonomy. Values that underly the daily practices and that play an important role in if and how a citizen uses or relates to (digital) technologies and innovations.

In the framework we distinguish three key pillars: 1) value multiplicity, 2) value dynamism, and 3) valuation implications. 1) Each single value can and will be interpreted in different ways, not only by different people, but also for one individual a value can have multiple meanings. 2) Meanings that might also change, over the life course, due to life events (e.g. birth, disease, death), context (including crisis like the Covid-19 pandemic) and in interaction with other values. How and what role values play in the everyday life of an individual and of the broader public changes continuously. What value is prioritised over others for instance. 3) The multiplicity and dynamism and the process of how these values come into being also have implications, valuation implications. They can create tensions, for example if two different values are deemed important but these do not go well together or because the valuation process creates problems. When values influencing the public policy do restrict individuals in some of their considered core values for example, such as freedom or independence.

The framework facilitates a reflection and dialogue on these different values. By facilitating stakeholders to reflect on future scenario's and possible changes, they can also try to anticipate some of the valuation implications in co-creation. In a series of eight remote co-creation workshops GK pilot sites did this to define key challenges and opportunities. For a more in-depth overview of the co-creation workshops and their findings we refer to deliverable 2.g.

5.2 Reflections

The framework and underlying valuation approach have proved to be valuable in discussing implementation of (digital) technologies and innovation in GK practices and it seems logical this application will also be possible and fruitful in other innovation projects that share some similarities with the GK project. When innovations affect the everyday life of individual citizens and their success also depends on the actual use by citizens, it is relevant to think about and reflect on what is deemed important by individuals in these

everyday life contexts. The co-creation workshops organised in the GK project and a validation workshop of the framework presented in this report, showed that stakeholders experienced it to be highly relevant to include multiple perspectives in discussing innovations. Reflecting on what is considered important in the everyday lives of different stakeholders and citizens involved was seen valuable and helpful in better understanding the everyday contexts for which technologies are developed or chosen to be implemented.

5.3 Next steps

With the framework we do not only contribute to better reflections and implementation of innovations in practice, but we also contribute to a better understanding of values and valuation practices and at the intersection of technology development and SSH. We thereby add a valuation approach to the field of RRI, which might prove to be crucial in creating more sustainable and better scalable solutions, in particular in the field of AHA, but potentially also to other fields.

Within the GK project a second cycle of co-creation workshops following the valuation approach are scheduled to take place in year 3. However, the valuation approach demands continuous attention and an ongoing dialogue within the GK project, and with relevant stakeholders beyond the GK consortium. This requires a mutual process. In 2021 attention to values and valuation is priority and a further embedding of the approach and framework within the project is currently part of a discussion with various partners in the project.

Simultaneously a dissemination of the approach and framework will be started, by sharing key insights in accessible publications and talks for a broader audience, and in academic papers to contribute to and engage in academic debates. Lessons about the further development of the Valuation Framework will be used in defining recommendations on how to deal with values in future developments and innovations. These recommendations will be published by the end of the project.

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GATEKEEPER Project Deliverables:

Deliverable 2.1. Initial Ecosystem Management Plan.

Deliverable 2.4. Open Innovation and Co-creation Workshops. (Script and Templates) available via:

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

Deliverable 2.9 Open Innovation and Co-creation Workshops. (Reports)