

D6 Final report on user-centred design of Age-Friendly Environments



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EXECUTIVE SUMMARY

The main goal objective of this document is to present a summary of the existing knowledge and a critical assessment of practices in inclusive design of innovative solutions for the implementation of Smart Healthy Age-Friendly Environments (SHAFE), as well as recommendations for the future, in line with the objectives defined for the Working Group 3 of NET4Age-Friendly:

- Synthesise and improve the state of the art of existing knowledge and practices regarding inclusive design of innovative solutions of Smart Healthy Age-Friendly Environments
- Report, discuss solutions and deliver the knowledge module *user-centred inclusive design* for the Reference Framework.

In this document, the process of creation, development and mapping of the *Matrix to synthesize existing knowledge and critically assess practices of inclusive design of innovative solutions for SHAFE* is detailed. This online document was designed to collect and critically assess existing knowledge and practices of inclusive design across various domains, such as architecture, urban planning, interior design, healthcare, and social care. The Matrix was open to all WG1 members and gathered information on methods, definitions, examples of use, and initiatives that align with user-centered design principles of inclusion, accessibility, usability, and engagement.



1. INTRODUCTION

1.1 Background

The main aim and objective of the COST Action NET4Age-Friendly is to develop an international ecosystem based on a network of researchers and stakeholders that enables the practice and deployment of Smart Healthy Age-Friendly Environments (SHAFE). The primary purpose is to reach a wide range of countries to spread awareness of and develop the SHAFE concept both in rural and urban areas.

Working Group 1 (WG1) of the Action, *User-centred inclusive design of age-friendly environments and communities,* has the objective of synthesizing existing knowledge and critically assessing the inclusive design practices of innovative solutions of SHAFE. Through international cooperation and multidisciplinary collaboration, NET4Age-Friendly is cementing the international participation in the field of age-friendly design, contributing thus towards more capacity building and multidisciplinary work in the fields of climate-neutral built and social environment, healthcare and wellbeing, and ICT.

1.2 Objective

The purpose of this report is to establish a benchmark for existing Age-Friendly Environments and Technologies, providing an overview of the State-of-The-Art (SoTA). This document stems from the evaluation of a document titled *Matrix to synthesize existing knowledge and critically assess practices of inclusive design of innovative solutions for SHAFE*, conducted by the Working Group 1 members during the last three years.

The matrix includes 112 innovative solutions promoting inclusive design in various domains of Smart Healthy Age-Friendly Environments (SHAFE), such as, architecture, urban planning, interior design, healthcare, and social care. All proposed initiatives must align with the key principles of user-centered design, namely, usability, engagement, inclusion, and accessibility. Consequently, each solution was evaluated based on specific criteria derived from these principles.

The evaluation criteria included UCD principles: inclusion, accessibility, usability, engagement, and new ones that are used on SHAFE Framework: impact, scale, sustainability, and affordability. Each criterion received a score on a Likert scale ranging from 1 to 5, where 1 signifies 'not inclusive/usable/engaging/accessible at all,' and 5 indicates 'completely inclusive/usable/engaging/accessible.' This approach facilitates the identification of strengths and weaknesses for each solution, offering an overview of the current landscape, successful implementations, and areas for improvement. We decided to include in the final analysis only the ones that score more than 25 points.



A part of the WG1 members actively participated in the evaluation process, which was carried out by completing data on Excel sheets. These sheets not only contain scores for each criterion but also personal comments on the proposed solutions. These comments aim to provide a comprehensive explanation of key points and a general evaluation, contributing to a thorough quality analysis.



2. User-centered design in Age-Friendly Environments

User-centered design represents a process in which the potential users are involved in the design of a product, tool, software, etc. from the beginning through to the final result (IxDF, 2016). The involvement can have various formats; however, the basic steps and requirements are the same. Four areas / properties are closely related to these processes, namely inclusion, accessibility, usability and engagement. There are various definitions and descriptions for these processes, however, in the next subsections we focus on those related to the topic of age-friendly environments.

2.1 Inclusion – definition and significance: ensuring inclusion for all ages

Inclusion is a universal human right which is based on the idea that every individual has the right to be fully incorporated into society (European Commission, 2021). It formulates the right of equal access and opportunities and the removal of discrimination and intolerance (removal of barriers). The understanding of inclusion may also be connected to some type of disability, covering a broad spectrum from learning disabilities, motoric disabilities, cognitive impairments and age-conditioned disabilities.

Inclusion means to transform communities based on social justice principles in which all community members are presumed competent; are welcome as valued members of their community; are able to fully participate with their peers; and experience reciprocal social relationships (Gentilini, 2021).

There are different levels of participation. Two basic examples are physical access and programmatic access. Physical access is related to the physical environment that is accessible to all people, in other words no supports for participation are necessary. The simplest example is an entrance door to a building that was designed to be accessible to all people (i.e., it is wide enough, without steps or with a ramp for people who use mobility aids): there is no need for a special door for people with disabilities because the common door is accessible to anyone.

Programmatic access requires potential support realized by people (e.g. volunteers) and/or technology to ensure that individuals with disabilities can participate. Eliminating programmatic barriers, such as communication and sensory barriers, creates programmatic accessibility. For example, a communication barrier may be using technical jargon rather than plain language, or having a website that is inaccessible to screen reading software. Developing accessible spaces by using universal design principles usually should tackle these types of barriers and enable full participation. (United Way of South Central Michigan, 2022)

Inclusion is frequently grouped together with diversity and equity. They are interconnected and only their combination leads to true impact. Diversity (Global Diversity Practice, n.d) refers mostly to the representation of various groups in the community, workplace, sports teams, etc. Examples of diversity include gender, race,



ethnicity, physical ability, sexual orientation, neurodiversity, age. The list is not exhaustive. Depending on the context, the range of diversity can be wider.

Nobel Prize winner Richard Thaler (Javetski & Koller, 2018) explains his view on diversity in an interview with McKinsey on debiasing the corporation: "There's lots of talk about diversity these days. We tend to think about that in terms of things like racial diversity and gender diversity and ethnic diversity. Those things are all important. But it's also important to have diversity in how people think."

Inclusive design reflects the properties of inclusion. Inclusive design aims at making places, products, tools, software, etc. in such a way that everyone can use them. The way environments and products are designed affect the ability to move, see, hear, understand and communicate effectively. It also aims at removing barriers that might lead to undue effort or separation.

Universal design (Centre for Excellence in Universal Design, n.d.) is a broader concept that can be characterized as the design of products and environments to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design.

Sidewalks with curb cuts and doors that automatically open when a person moves near them are examples of universally designed products. They benefit people with disabilities, parents with baby strollers, delivery workers, and others. Human characteristics considered in universal designs may include age, gender, stature, race/ethnicity, culture, native language and learning preference.

In the case of information technology, products that are universally designed are accessible to and usable by people with a wide variety of characteristics, including different types of disabilities. These products are often designed to eliminate or minimize the need for assistive technologies. At the same time, they are compatible with common assistive hardware and software devices.

Universal design has been in the focus of research for more than two decades, in particular, in the context of the concept of ageing successfully (Carr et al., 2013). The authors formulate the concept of ageing successfully in relation to design and propose basic principles of universal design, accompanied with examples of different product areas (buildings, furniture, software, etc.).

During this period, standards for construction (World Disability Union, n.d.), web pages and other areas were developed (or modified from previous norms that did not consider the requirement of inclusion). Additional sources are mentioned in the next subsections, in which the terms accessible design and usable design are explained.



2.2 Accessibility - definition and significance – ensuring accessibility for all ages

Accessibility is the design of products, devices, services, vehicles, or environments so as to be usable by people with disabilities (Wikipedia, 2016). The concept of accessible design and practice of accessible development ensures both "direct access" (i.e. unassisted) and "indirect access" meaning compatibility with a person's assistive technology.

Accessibility can be viewed as the "ability to access" and benefit from some system or entity. While the concept focuses on enabling access for people with disabilities, or enabling access through the use of assistive technology, research and development in accessibility brings benefits to everyone, irrespective of ability. Therefore, an accessible society should eliminate any digital divide or knowledge divide. In this context, accessibility also means the possibility to access various services that require the use of a necessary tool. For example, a web application is designed as accessible. However, the user needs a smart phone, laptop or a computer to be able to use the application. This is another facet of accessibility.

Accessibility is not to be confused with usability (Georgakas, 2023)., which is the extent to which a product (such as a device, service, or environment) can be used by specified users to achieve specified goals with effectiveness, efficiency, and satisfaction in a specified context of use.

Accessibility is strongly related to universal design (Wikipedia, 2021), the process of creating products that are usable by the widest possible range of people, operating within the widest possible range of situations. Universal design typically provides a single general solution that can accommodate people with disabilities as well as the rest of the population. By contrast, accessible design is focused on ensuring that there are no barriers to accessibility for all people, including those with disabilities.

Accessibility for older people

Accessibility is an important issue for older people, especially those with physical or cognitive limitations. The lack of accessibility can be a barrier to healthy and active aging, as well as to participation in society and the economy.

There are still many barriers to be overcome to ensure that older people can enjoy a full and autonomous life. Urban infrastructures that do not consider the mobility needs of older people, such as, inadequate public transportation, inaccessible health services, and a lack of adapted technologies are just a few examples of obstacles that need to be overcome. These problems are very well described in an article by I.K.Zola (2005). Although it was published almost 20 years ago, many of the described problems still persist today.

Furthermore, accessibility is also important when it comes to social inclusion and participation in the economy. Older people can have a lot to contribute to society, whether through work, volunteering, or



participation in cultural and sports activities. However, for this to happen, there must be opportunities and means for them to engage actively.

Some initiatives and projects are already being undertaken worldwide to promote accessibility for older people, such as adapted transport programs, the construction of accessible urban infrastructure, and the creation of technologies that meet the needs of older people. The use of technologies by older people is still less than that of other ages. For example, without proper access to devices such as smart phones and internet connection they are losing the ability to stay connected with family and friends. Another issue for older people is loss of the ability to drive. Ride-share services or autonomous vehicles could offer a solution, but the financial aspect must be considered.

However, there is still much work to be done to ensure that all older people can enjoy a full and autonomous life.

Accessible Design

Accessible design is a design process in which the needs of people with disabilities are specifically considered. *Accessibility* sometimes refers to the characteristic that products, services, and facilities can be independently used by people with a range of disabilities.

Several countries have already adopted legislation that specifies requirements and standards for construction of public facilities and services and develops accessibility standards for software, hardware, websites, videos, and other information technology. The European Union adopted the European Accessibility Act (EAA) in 2019 (Official Journal of the European Union, 2019). The Directive (EU) 2019/882 aims to improve the accessibility of a wide range of digital products and services to foster the participation and inclusion of individuals with disabilities in society. By establishing accessibility requirements and standards for products and services that are most relevant to people with disabilities, the EEA intends to reduce barriers created by divergent rules in Member States.

Legislation on accessibility has also been adopted outside the EU. Examples include the Americans with Disabilities Act (ADA), which mandated that public facilities and services be fully accessible to people with disabilities; an amendment to Section 508 of the Rehabilitation Act of 1973 (General Services Administration). The amendment mandated that the Access Board (U.S. Access Board, n.d.) develop accessibility standards for software, hardware, websites, videos, and other information technology. Although these standards apply directly to the development, procurement, modification, and use of information technology of U.S. federal agencies, many states, educational institutions, and other entities have adopted them as one way to meet their ADA obligations.



There are also international initiatives and standardization organizations that develop standards and guidelines with the most important being ISO, IEC, IEEE and W3C.

ISO (International Organization for Standardization) is an independent, non-governmental international organization. Its members are 165 national standards bodies. The standardization work is performed in more than 250 technical committees in which experts delegated by the national standards bodies develop consensus-based and market relevant International Standards. These standards are aimed at supporting innovation and providing solutions to global challenges.

IEC (The International Electrotechnical Commission) is an international standards organization that is constituted by national electrotechnical committees. Its activities build on international cooperation in the area of standardization in electrical and electronic technologies. Based on that, IEC publishes various documentation, prepared by IEC technical committees, such as, International Standards, Technical Specifications, Technical Reports and Publicly Available Specifications and Guides.

IEEE (The Institute of Electrical and Electronic Engineers) is a professional association for electronic engineering and electrical engineering (and associated disciplines). IEEE has many societies, committees and working groups. They are also active in developing standards, in particular, industry standards in a broad range of technologies. Currently [January 2024], there are nearly 1,300 standards and projects under development.

The World Wide Web Consortium (W3C) is the main international standards organization for the Internet. The Web Content Accessibility Guidelines (WCAG) is the best guidance for making technology useful to all users, including people with disabilities and the aging demographic. The WCAG guidelines were published in December 2008 by the Web Accessibility Initiative (WAI) of W3C. WCAG 2.0 is an internationally recognized and adopted standard and is approved as an ISO standard.

By designing WCAG 2.0 around principles, rather than technology, designers and developers are asked to meet all four of the following principles for users with disabilities:

- Perceivable: Information and user interface components must be presentable to users in ways they can perceive. This means that information should not be invisible to users' senses, as users must be able to perceive all relevant information in your content.
- Operable: User interface components and navigation must be operable. This means that users must be able to operate the interface successfully.
- Understandable: Information and the operation of the user interface must be understandable. This means that users must be able to understand the information as well as the operation of the user interface.



 Robust: Content must be robust enough that it can be interpreted reliably by a wide variety of user agents, including assistive technologies. Content must be accessible to all users, keeping up with advances in technology, such as mobile technology.

The W3C WAI offers an extensive literature review on how WCAG 2.0 addresses the accessibility needs of older web users in: *Developing Websites for Older People: How Web Content Accessibility Guidelines (WCAG)* 2.0 Applies (W. W. A. Initiative, 2024).

WCAG 2.1 guidelines are currently under development. There are three task force proposals under review to strengthen its coverage. All three proposals contain recommendations that will directly benefit the needs of the aging demographic: users with cognitive or learning disabilities; users with low vision; small- and touch-screen mobile devices.

Design of new technologies and software has demonstrated that it is nearly impossible to group and generalize older people for design as it is done with children and adults. For each individual, aeging is unique, gradual and personal. Everyone has their own level of ability as they age, and the techniques they use to adapt to ageing are as unique as the creases in their palms. Design heuristics and accessibility guidelines may not cover older people so simply. Several aspects must be considered: design must be approached from multiple perspectives; many older people are less comfortable with technology, and some are risk averse; many older people are uncomfortable trying new things or hesitant to explore.

Ultimately, each generation is at risk of facing similar barriers until technology can truly be personalized. We must move past the mass produced, one-size-fits-all user experiences. Personalization will enable designers to tailor the user experiences to accommodate specific individuals and align with their needs.

2.3 Usability - definition and significance: ensuring usability for all ages

Similar to the preceding terms, usability has several definitions depending on the type of product. ISO defines usability as "The extent to which a product can be used by specified users to achieve specified goals with effectiveness, efficiency, and satisfaction in a specified context of use." (International Organization for Standardization, 2018) Usability can be described as the capacity of a system to provide a condition for its users to perform the tasks safely, effectively, and efficiently. Usability can also include the concept of prototypicality, which is how much a particular thing conforms to the expected shared norm, for instance, in website design, users prefer sites that conform to recognized design norms. Usability is often associated with the functionalities of the product.

Usability can be tested on a wide spectrum of products, from software applications, websites, tools, machines, vehicles to processes; simply anything a human interacts with. Usability study can be performed



by different professions, such as usability analyst, designer, engineer, marketing personnel, and/or potential users.

Usability includes methods of measuring usability that is part of the whole process of design, development and evaluation of the future product.

Any system or device designed for use by people should be easy to use, easy to learn, easy to remember (the instructions), easy to control, and helpful to users. These requirements are not new as John Gould and Clayton Lewis formulated the following three design principles in 1985:

- Early focus on end users and the tasks they need the system/device to do;
- Empirical measurement using quantitative or qualitative measures;
- Iterative design, in which the designers work in a series of stages, improving the design each time.

Each principle can be realized in several ways depending on the product, its functionalities and complexity, and potential users. An inevitable part of the process is evaluation, for which various methods are available.

Early focus on users and tasks

The design team should be user-driven and should be in direct contact with potential users. Several evaluation methods, including personas, cognitive modelling, inspection, inquiry, prototyping, and testing methods may contribute to understanding potential users and their perceptions of how well the product or process works. The designers must know who the users will be, whether they have experience with similar systems, or whether the developed system is completely novel. Analyses must be carried out regarding what tasks the users will perform, which are most important, and what decisions the users will make while using the system. Designers must understand how the cognitive and emotional characteristics of their users will engage with a proposed system.

Empirical measurement

The developed system must be tested throughout the whole design and development process. It should include tests with real users using behavioural measurements. This includes testing the system for both learnability and usability. It is important at this stage to use quantitative usability specifications, such as time and errors to complete tasks and number of users to test, as well as examine performance and attitudes of the users testing the system. There are many evaluation methods available.

Iterative design is a design methodology based on a cyclical process of prototyping, testing, analysing, and refining a product or process. Based on the results of testing the most recent iteration of a design, changes and refinements are made. This process is intended to ultimately improve the quality and functionality of a design. In iterative design, interaction with the designed system is used as a form of research for informing



and evolving a project, as successive versions, or iterations of a design are implemented. The key requirements for iterative design are, the identification of required changes, an ability to make changes, and a willingness to make changes. When a problem is encountered, there is no set method to determine the correct solution. Rather, there are empirical methods that can be used during system development or after the system is delivered, usually at a more opportune time. Ultimately, iterative design works towards meeting goals such as making the system user friendly, easy to use, easy to operate, simple, etc.

The importance of usability methods is also confirmed by the existence of standards. Here we present the most significant ones:

ISO/TR 16982:2002 ("Ergonomics of human-system interaction—Usability methods supporting humancentered design") is an International Standards Organization (ISO) standard that provides information on human-centered usability methods that can be used for design and evaluation. It details the advantages, disadvantages, and other factors relevant to using each usability method. It explains the implications of the stage of the life cycle and the individual project characteristics for the selection of usability methods and provides examples of usability methods in context.

ISO 9241 is a multi-part standard that covers a number of aspects of people working with computers. Although originally titled *Ergonomic requirements for office work with visual display terminals (VDTs)*, it has been retitled to the more generic *Ergonomics of Human System Interaction*. As part of this change, ISO is renumbering some parts of the standard so that it can cover more topics, e.g. tactile and haptic interaction. The first part to be renumbered was part 10 in 2006, now part 110.

IEC 62366-1:2015 + COR1:2016 & IEC/TR 62366-2 provide guidance on usability engineering specific to a medical device.

2.4 Engagement - definition and significance: ensuring engagement for all ages

For our context the closest dictionary definition of engagement is 'being involved with or taking an interest in something'. However, this does not fully capture and reflect what engagement really means to us. One of the interesting things about engagement is that we tend to feel or know when it is happening, even if we cannot exactly define it. Whether we are in an exhibition, a lecture hall, or any other space, we instinctively know that something positive is happening when people are alert, excited, talking about their experience and wanting to do or find out more.

de Vreede, et al, offers a comprehensive definition of engagement and a measurement scale that can be used across domains and contexts. This was derived by iteratively refining the items in this scale through a



series of five data samples to arrive at the final scale. The authors propose that engagement is a three-part phenomenon, which manifests in one or more of the following three forms:

1. Affective/Emotional engagement: the extent to which individuals experience a positive psychological reaction or attachment towards a specific activity or situation.

2. Behavioural engagement: the extent to which individuals can be observed to exert effort and show persistence to remain involved in an activity or situation.

3. Cognitive engagement: the extent to which individuals are cognitively absorbed in a task or activity resulting in a reduced awareness of their surroundings.

There is a specific understanding of engagement in the area of information technologies, where the term "engagement" refers to user interactions over an interface. It is commonly applied to social media, but engagement can be measured on any platform or website. Typical indicators of engagement include number of page views, bounce times, time spent on a site, user tracking and other metrics.

It is possible to specifically distinguish user/customer engagement and employee engagement.

User or customer engagement is basically assessing an individual's response to a digital offering: a service, a product or a website. It is important because highly engaged users are the people who are likely to try, buy, or share feedback about a product or service. It is measured by tracking the users' activities such as downloads, clicks, shares, and more.

Employee engagement is a human resources (HR) concept that describes the level of enthusiasm and dedication a worker feels toward their job. Engaged employees care about their work and about the performance of the company and feel that their efforts make a difference.



3. Benchmark of existing environments and technologies

3.1 Review of Age-Friendly Environments and best practices

The evaluation of the document titled *Matrix to Synthesize Existing Knowledge and Critically Assess Practices of Inclusive Design of Innovative Solutions for SHAFE*, conducted by Working Group 1 members, allowed to establish a benchmark, including best practices and innovative solutions promoting inclusive design in various domains of Smart Healthy Age-Friendly Environments.

Eight criteria related to UCD principles (i.e., inclusion, accessibility, usability, engagement) and SHAFE Framework (i.e., impact, scale, sustainability, affordability) were used.



UCD principles

Figure 1 – Evaluation of the practices according to UCD principles

Each criterion received a score on a Likert scale ranging from 1 ('not fulfilled') to 5 ('completely fulfilled'). Only practices and solutions that score more than 25 points were included in the final analysis. Out of the 112 solutions, 60 were selected (figure 1). Solutions were excluded when they didn't satisfy requirements in terms of evaluation criteria, and in several cases because they were theoretical articles, which did not allow to assess a concrete implementation of solutions in the real world.





In figure 2, the scores on the scales are shown for the 60 solutions selected.



Figure 3 – Scores on the scales

The 60 selected practices concern mainly physical and digital age-friendly environments (figure 3). In this document, we refer to 'environments' for physical environments and 'digital solutions' (such as serious games, online courses, various platforms, virtual reality implementation, and wearable devices - Chapter 3.2) for the digital environments.





Figure 4 - Type of environment

Environments include the organizations that promote social activities, dissemination projects for users, training on methods of improving the design of environments, and co-design methods.

Organisations

Some organizations like Covilhã Senior Academy, Age Friendly Ireland, and Dreamlike Neighbourhood satisfied different user needs. In particular, Covilhã Senior Academy is a non-profit organization in Covilhã, Portugal, that organizes a lot of activities with older people, giving them the opportunity to constantly learn something new, including language classes, physical activities, and social activities. This solution reflects an excellent example of inclusion, engagement, and accessibility, making older people more active, happier, and consequently healthier. Dreamlike Neighbourhood is another example of an inclusive and engaged organization that addresses the social needs of older adults by fostering supportive neighbourhood groups. Dreamlike Neighbourhood organizes groups of neighbours in which they meet each other and stay active, discussing and playing games in an Age-Friendly Environment. Finally, the Age Friendly Ireland Programme is an integral component of a global initiative inspired by the World Health Organization (WHO). This initiative acknowledges and addresses the challenges and opportunities posed by Ireland's aging population. It empowers local authorities to spearhead a shift in perspectives on aging and to rethink how services are both planned and delivered. Age Friendly Ireland has a website full of resources aimed not only at users but also at those who design environments and those who take care of older people, informing them about what matters most to them and the environment in which they live. The Age Friendly Ireland Programme creates a lot of projects in terms of age-friendly, and this is the reason why it is considered one of the best practices. The pros of these kinds of solutions concern especially the impact on people's social life, allowing them to reduce loneliness and, consequently, giving them a better quality of life.



Dissemination projects for users

Some initiatives, like Heryasta and Akdeniz University, focus their attention on users and their knowledge. Specifically, Heryasta exploits its platforms to disseminate knowledge about mental health, physical health, active ageing, and suggestions to improve their quality of life. Whereas Akdeniz University in the city of Antalya has inaugurated an education program called Renewal University, targeting people over the age of 60. The program, which offers courses in sociology, psychology, biology, technology, chemistry, agriculture, pharmacology, medicine, history, philosophy, maintenance, and cooking, targets the cognitive renewal of these students. The possibility to develop new knowledge allows people to not only to stay mentally active and meet other people but also to improve their quality of life.

Training methods and tools for improving the design of SHAFE environments

Different initiatives include training about techniques and methods that directly improve the age-friendly level of an environment or incorporate an age-friendly approach at the start of the design process. Some of these projects include Age-friendly Environments Activists, Making Healthy Places projects, Age-Friendly Built Environment Assessment Project. Also, a number of scientific papers that discuss these projects are included. On one side, Age-Friendly Environments Activists is a project designed to support and train older adults who want to promote and foster age-friendly environments in their cities and communities and to influence municipal agencies in their decision-making.

Making Healthy Places project looks at such convergences and divergences within a particularly instrumental environment, the barriers and opportunities that appear to built environment practitioners when making healthy places. This research is based on Australia in New South Wales and has a sample of approximately 350 responses; a final sample of 221 was used in the analysis. The aim was to find a path on how to go about creating places that help deliver positive health and wellbeing outcomes for all. There is a longstanding recognition that strategic policy and health promotions fall short in the implementation of healthy placemaking. As such, there is an ongoing question about how to bridge the gap between the rhetoric of current healthy planning principles and the reality of what is being delivered and managed by practitioners on the ground. The survey and method applied could be replicated to other regions and help build the strategies for future developments. This project is considered to be one of the best practices for the positive impact it could have on Design implementation.

Also, the Age-Friendly Built Environment Assessment Project involved a demographic and population-based spatial analysis providing a snapshot of aging in the Peel Region; the development of an Age-friendly Built Environment Audit Tool, tailored to the context of Peel Region; a current-state assessment of eight sample neighborhoods with regards to age-friendly built environments; consultation with older people, caregivers,



younger adults, and organizations serving older people; and recommendations to address gaps and opportunities discovered through neighborhood audits. It is an example of preparedness for the future and assessment of the needs for the benefit of other regions. The methods used should be considered to scale up in other regions and continents. These projects have a key role to play in the analysis and enhancing of age-friendly environments, and such advancements would be challenging without this specific process. Embracing user-centered approach implies involving users in the process, exactly as co-design does.

3.2 Current technologies - assessing accessibility and usability

Within the area of digital environments, 25 practices were selected, several with scores between 35 and 40, which means that they were considered as very relevant by the evaluator.

This was the case of The Ageing in Place Challenge program, a funding initiative that aims to improve the quality of life of older adults and their personal caregivers through innovation for safe and healthy aging, supporting a sustainable model for long-term care, by shifting focus toward preventive home and community based care. The program engages older adults and caregivers as experts to evaluate the applications, thus ensuring that their perspectives influence the research pillars and collaborative projects.

One other relevant example is mobiliSIG, which project aims to address significant challenges related to the social participation of people with disabilities, involving multidisciplinary expertise. By mapping accessibility information and ensuring real-time dissemination to mobile devices, the project holds promise in enhancing the mobility and social engagement of people with physical disabilities. The project's potential impact on improving social participation and the quality of life for those with disabilities is significant, offering a model that could be adapted in diverse geographical contexts.

Several of the other practices assessed very positively are in the area of training. This is the case of the MOOC on dementia care, which stands out for its inclusive approach, engaging multimedia content, and practical application through a serious game. It has the potential to make a significant impact on the daily practice of direct care workers. Moreover, the "Bridge the Gap!" project demonstrates a commendable initiative to bridge the digital gap and empower older citizens for active participation in age-friendly environments. The focus on training, accessibility, and engagement aligns with the objectives of creating a positive impact.

In a related area, Hands-on SHAFE aligns with the WHO concept of health and focuses on adaptation and selfmanagement in the face of various challenges. It aims to enhance the quality of age-friendly physical environments, focusing on health, ICT, housing, public spaces, buildings, and mobility. It promotes social inclusion through training and practical tools, emphasizing universal design and the removal of physical barriers. The focus on creating safe, comfortable, and smart environments could positively impact health of,



potentially reducing social and healthcare costs. The AFECO project also presents a well-rounded initiative. Although still ongoing, it holds a strong potential for positive impact, particularly in engaging and empowering older individuals. In this same line, but more strongly based on gamification, the Big Game is a highly inclusive serious game, accommodating players with diverse needs. It is still maintained by the developers for further use, even after its conclusion.

3.3 Gaps and challenges: identifying areas for improvement

While the above-mentioned solutions have received favorable scores, there are notable areas that require improvement. A critical issue lies in the overall lack of integration of the user-centered approach principles, with exclusive focus on any single aspect. Additionally, the training on methods to improve environmental design lacks specific considerations for the characteristics of environments, such as comfort, indoor and outdoor safety, and the necessary health and climate-proof features for the well-being of occupants. These nuanced topics are crucial for evaluating the quality of the training.

To achieve a more inclusive design, accommodating the diverse needs of building occupants requires adopting a data-informed approach. This involves conducting interviews and surveys with users, analyzing the collected data, and implementing solutions based on identified gaps between suboptimal design and user needs, thereby enhancing usability. Interviews, surveys, or usability tests are indispensable for gaining valuable insights and refining the design and development of various environmental contexts.

The term "accessibility" emphasizes the importance of ensuring solutions are accessible to as many people as possible. Some solutions exhibit shortcomings in accessibility, particularly for individuals with disabilities, where software and platforms are not designed to cater to the needs of blind users or people with communication challenges. Additionally, in-person training may not always be accessible to individuals with physical disabilities lacking caregiver support. Furthermore, older individuals may not possess digital skills, necessitating assistance from caregivers to harness the benefits of digital solutions. Consequently, the ongoing challenge is to advocate for online and at-home training options for individuals who lack the independence to attend in-person sessions.

Regarding engagement, solutions that facilitate in-person interaction are preferred to foster general interaction and communication among individuals. It is also imperative to advocate for active involvement in the application of solutions, akin to the principles of co-design, which involves including individuals as active participants in the design process.



In summary, the current challenge involves fostering the integration of all principles within a user-centered design, ensuring its sustainability, scalability, and, most importantly, its profound impact on the lives and health of individuals across all age groups.



4. Evaluating Impact, Scale, and Affordability

4.1 Impact – Examining the Influence of Practices

The efficacy of practices is most pronounced when they adeptly address the unique needs of older adults, instigating positive outcomes that would be otherwise unattainable. The evaluation of impact necessitates a comprehensive consideration of the tangible and measurable benefits that these practices yield for the target demographic. These benefits encompass enhancements in both mental and physical well-being, elevated social connectivity, and an overall enhancement in the quality of life for older individuals. An in-depth analysis of the impact of each practice allows us to discern which initiatives prompt meaningful and enduring changes in the lives of the beneficiaries.

Furthermore, engaging people, namely older adults or those more vulnerable, in activities that involve them in social interactions, as well as physical and mental pursuits, can significantly contribute to the improvement of their health. While training programs aimed at disseminating age-friendly environment concepts are undoubtedly beneficial, their impact could be further optimized if the training is tailored for architects and other stakeholders involved in the creation of these environments. This targeted approach is crucial as architects and related professionals play a pivotal role in modifying and shaping the physical spaces that directly impact the well-being of individuals. Therefore, investing in training programs that cater specifically to these professionals can enhance the overall effectiveness and sustainability of age-friendly practices. This targeted training would be further enriched if it embraced the expertise of stakeholders in its development, for example, included the voice of older people, people with disabilities, children, pregnant women and many other people with specific needs. Also relevant is to include the inputs of health and social care professionals who provide support and care in their daily lives, such as Occupational Therapists (maximize independence), Speech and Language Therapists (communication accessibility), Psychologists (psychological well-being), and social workers, to name a few.

4.2 Scale and diversification - strategies for expanding applications

The pivotal nature of scaling and diversifying the applications of successful practices cannot be overstated when aiming for widespread impact. These strategic endeavors involve meticulous planning to identify avenues for replicating successful models in diverse regions and contexts. This process goes beyond mere replication; it necessitates adapting practices to suit the unique cultural, geographical, and demographic factors of each locale.



The pursuit of scaling and diversification also involves the cultivation of partnerships and collaborations with various stakeholders. This collaborative approach facilitates the seamless integration of successful practices into existing frameworks, ensuring their organic assimilation within diverse societal structures. By establishing robust partnerships, we create the basis for the exchange of knowledge and expertise, enriching the adaptability and applicability of successful practices.

Furthermore, the goal is to formulate a scalable and adaptable model that transcends geographical and cultural boundaries, enabling easy replication across disparate communities and environments. A nuanced consideration of different cultures becomes a key aspect in the planning process, ensuring that adaptations are culturally sensitive and resonate with the values of the communities involved.

The diversification of basic principles emerges as an essential aspect of this strategy. By embracing diversity in foundational principles, we enhance inclusivity, which, in turn, amplifies the potential impact of these practices. This deliberate focus on diversification not only accommodates unique regional requirements but also contributes to the overall scalability of successful practices, ensuring they resonate with a broader spectrum of communities. In essence, scaling and diversification serve as dynamic strategies that not only amplify the reach of successful practices but also enhance their relevance and effectiveness across varied landscapes.

4.3 Affordability - cost considerations for wider adoption

A preference naturally exists for solutions that are financially accessible to a broad spectrum of individuals. The assessment of affordability extends beyond the initial implementation cost, encompassing considerations of long-term financial sustainability. Practices demonstrating economic viability, coupled with the potential for widespread adoption, stand poised to generate substantial and enduring impacts on communities.

In examining the domain of affordability, it is important to explore various facets, including the funding mechanisms, grants, or collaborative initiatives that can strengthen the accessibility of successful practices. Striking a harmonious balance between effectiveness and economic feasibility ensures that these solutions not only remain inclusive but also stand within reach for a broader demographic. An equitable distribution of the economic burden associated with the implementation of these practices enhances their appeal and paves the way for wider adoption.

Moreover, the exploration of sustainable funding mechanisms becomes instrumental in ensuring the longevity and widespread availability of impactful practices. This involves strategic planning to identify sources of financial support that can transcend the initial phases of implementation, thereby sustaining the



accessibility of these solutions. Collaborative initiatives with governmental bodies, private enterprises, and philanthropic organizations can play a key role in sustaining the economic foundations of these practices.

In conclusion, the critical evaluation of impact, scale, and affordability allows us to pinpoint practices that not only showcase effectiveness but also hold the potential for pervasive adoption. By ensuring that these practices are economically sustainable and financially accessible, we lay the groundwork for the creation of Smart Healthy Age-Friendly Environments that transcend boundaries and positively impact diverse communities. The convergence of impactful practices with economic feasibility emerges as a cornerstone in the realization of overarching goals in fostering well-being across varied landscapes.



5. Conclusion

5.1 Summary of main findings

Matrix to synthesise existing knowledge and critically assess practices of inclusive design of innovative solutions for SHAFE.

User-centred design (UCD) focuses on the needs, wants, and limitations of end-users to create products or services that are useful, usable, and enjoyable. Inclusive design takes this approach further, ensuring that products or services are accessible to all users, including those with disabilities or other limitations.

The design of age-friendly environments and communities should incorporate both UCD and inclusive design principles to create spaces that are welcoming and accessible for people of all ages. In the context of agefriendly environments and communities, user-centered design focuses on ensuring that the physical environment, infrastructure, and technology are designed with the needs and preferences of older adults in mind.

Inclusive design of age-friendly environments and communities involves four key principles: **inclusion**, **accessibility**, **usability**, **and engagement**. Inclusion means designing spaces that are welcoming and accommodating for people of all ages and abilities, regardless of physical or cognitive limitations. Accessibility involves creating environments that are physically accessible and accommodating to people with disabilities. Usability refers to the ease with which people can use and interact with a space or product. Engagement is the process of involving users in the design process, ensuring that their needs and preferences are into account.

Environmental design thinking involves the use of design principles to create spaces that are aesthetically pleasing, functional, and sustainable. This includes everything from building materials to landscaping and lighting. Age-friendly environmental design should incorporate features that are easy to navigate, accessible, and safe for people of all ages.

Technology and infrastructure design thinking involves using technology and infrastructure to create spaces that are efficient, safe, and accessible. Examples include public transportation systems, accessible public restrooms, and digital wayfinding systems that help people navigate complex spaces.

Examples of user-centered inclusive design in age-friendly environments and communities can be found in various industries, including architecture, urban planning, and healthcare. For instance, architects can design buildings that are accessible and welcoming to people of all ages and abilities, incorporating features such as wide doorways, ramps, and clear signage. Urban planners can design communities that are walkable and



accessible, incorporating features such as sidewalks, crosswalks, and public transportation systems. Healthcare providers can design facilities that are welcoming and accommodating to patients of all ages and abilities, incorporating features such as accessible exam rooms, clear signage, and wayfinding systems.

There are several existing knowledge and practices in user-centered inclusive design of age-friendly environments and communities. For example, the World Health Organization's Age-Friendly Cities and Communities initiative provides a framework for designing and implementing age-friendly environments and communities that prioritize the needs of people at all ages. The initiative includes a set of eight domains, including outdoor spaces and buildings, transportation, and social participation, that are designed to help communities identify areas where they can improve the accessibility, usability, and engagement of their environments.

5.2 Key findings

The analysis of the WG1 Knowledge Base highlights several crucial insights regarding the user-centered design of age-friendly environments. These conclusions are drawn from a comprehensive examination of best practices, experiences, and implementations across Europe and beyond:

1. Holistic integration of physical, digital, and social dimensions

The research developed so far underscores the environment-centric nature of Smart Healthy Age-Friendly Environments (SHAFE) design. While human-space interaction remains a central point, there is a recognised need to broaden the perspective. This involves embracing the interconnected dimensions of digital and social aspects alongside the physical environment. This integration is key for creating a comprehensive and effective age-friendly environment that serves the diverse needs of its users.

2. Deepening understanding through individual dimension exploration:

Despite comprehensive studies and practices exploring SHAFE dimensions collectively, there is an identified need to examine deeper into each individual dimension of age-friendly environments. To achieve this, a broader engagement of citizens and end-users in the co-design and participatory phases is recommended. By involving the target demographic in the creation process, designers gain valuable insights into specific needs and preferences, ensuring a more nuanced and tailored SHAFE solution.

3. Data-driven design challenges and opportunities:

The analysis recognizes a lag in using big data and comprehensive data gathering methods for designing SHAFE solutions. To fully leverage the potential of technology, there is the need for advancements in data



analysis, particularly in understanding user behaviors within their daily life contexts. Addressing this gap is crucial for developing more informed and responsive solutions that respond to the evolving needs of the ageing population.

4. Affordability as a key success factor:

Affordability emerges as a critical success factor in ensuring the widespread adoption of SHAFE solutions. The analysis emphasizes the importance of creating technologies that are not only effective but also cost-effective. Additionally, these solutions should operate in a transcultural manner, considering diverse societal contexts. This approach facilitates scalability of adoption and ensures sustainability from both organizational and managerial perspectives. By making SHAFE solutions financially accessible and culturally adaptable, their benefits can reach a broader demographic, enhancing the overall impact on the aging population's quality of life.

5.3 Recommendations for the Module on user-centred and inclusive design

The main suggestions for the Module on inclusive design of NET4Age-Friendly derived from the work done so far within WG1 are the following ones:

1. Holistic integration

<u>Digital inclusion</u>: ensure that digital elements within SHAFE are designed with inclusivity in mind. Consider factors such as user-friendly interfaces, large font sizes, and simple navigation to accommodate varying levels of digital literacy among different individuals.

Social connectivity: integrate features that promote social interaction, such as virtual communities, social networking, or communication tools, to address potential isolation issues. Design interfaces that facilitate easy and intuitive social engagement.

2. Individual dimension exploration:

<u>User-centric co-design</u>: actively involve users in the co-design process, allowing them to contribute with insights into the specific needs and preferences related to each dimension of the SHAFE. Conduct participatory workshops, focus groups, and usability testing involving the target groups to ensure inclusivity.

Diverse representation: ensure diversity within the group engaged in co-design, representing a wide range of ages, abilities, and cultural backgrounds. This ensures that the insights gathered are reflective of the diverse experiences within the population.



3. Data-driven design:

Ethical data practices: prioritize ethical considerations in data collection, ensuring privacy and consent. Implement transparent communication about the purpose of data collection and how it will be used to build trust among older users.

<u>User behaviour insights</u>: use data analytics to gain a deeper understanding of the daily routines, preferences, and challenges faced by older individuals. This insight can inform design decisions to create more personalized and adaptive SHAFE solutions.

4. Affordability:

<u>Cost-effective technology</u>: focus on developing SHAFE solutions that are not only technologically advanced but also cost-effective. This could involve leveraging open-source technologies, promoting the use of existing affordable devices, and exploring scalable solutions that minimize economic barriers.

<u>Cultural adaptability</u>: consider cultural nuances in the design process, ensuring that SHAFE solutions are adaptable to diverse societal contexts. This involves understanding cultural preferences and norms related to technology use and incorporating them into the design to enhance user acceptance.

By incorporating these suggestions, experts can create more inclusive and effective SHAFE environments that address the multifaceted needs of people of all ages, fostering a sense of belonging, connectivity, and improved quality of life.

In conclusion, user-centered inclusive design of SHAFE involves designing spaces that are inclusive, accessible, usable, and engaging. This requires a multi-disciplinary approach that incorporates design thinking across various industries, including architecture, urban planning, and healthcare. By incorporating these principles, designers can create spaces that are welcoming and accessible for people of all ages and abilities, promoting social inclusion and enhancing quality of life.



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ChatGPT, as an AI tool, was used to improve the recommendation framework based on identified stakeholders, which is further developed, and to identify additional well-being challenges, besides socioeconomic previously identified.



ANNEX 1. – Knowledge Base

															LEGEND Solution Evolution		
															Peer Evaluation Needer	d	
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100		Educational game - Building Inclusive environments for all generations	User experience	inclusion	Description In this game the player meets 5 characters who face daily issues in life while they are pregnant, having mobility problems, suffering from dementia, suffering from addescent identity issues and being a single parent. The aim of the game term that is the suffering the suffering the time of the game	https://www.big-game.eu/	N (1-5)	5	3	4	3	5	5)	5)	35	BP = Best Practice	The Big Game is a highly inclusive serious game, accommodating players with diverse needs. However, being an Erasmus Project, it is set to conclude in 2022, and further developments are not explicitly mentioned.
100	D	Learning modules Hands-on SHAFE BUILT	User experience	inclusion	To learn to build inclusive environments we developed 7 online motilese, including (among dhens) app-friendly house, dementia-friendly house, mobility outdoors.	https://hands-on-shafe.eu/en/built	4	5	5	4	4	5	5	5	37		The BUILT module of HANDS ON SHAFE project aims to enhance the quality of age-friendly physical environments, focusing on housing, public spaces, buildings, and mobility. It promotes social inclusion through training and practical tools, emphasizing universal design and the removal of physical barriers. The focus on creating safe, comfortable, and smart environments could positively impact the health of older individuals, potentially reducing social and healthcare costs. Sustainability is encouraged through easy maintenance. Further developments are not explicitly mentioned
100	2	Learning modules Hands-on SHAFE BUILT	User experience	accessibility	To learn to build inclusive environments we developed 7 online modules, including (among others) age-friendly house,	https://hands-on-shafe.eu/en/built	0	0	<u>0</u>	0	0	0	0	0	0		The same as above
100	D	Learning modules Hands-on SHAFE SMART	User experience	usability	demarkation is a four robes, modelly doubles,	https://hands-on-shafe.eu/en/smart	4	5	5	4	4	5	5	5	37		The SMART training package demonstrates a focus on delivering ICT training for facilitators engaging in the SHAFE economy, with an emphasis on smart healthy aging. While there are areas for improvement, such as providing more details on inclusivity, usability, and sustainability, the initiative shows promise in contributing to the use of IoT and mobile technology in supporting healthy aging. Future developments could benefit from additional strategies to enhance inclusivity, engagement, and long-term sustainability.
100	D	Learning modules Hands-on SHAFE HEALTHY	User experience	Inclusion	To learn a healthy lifestyle, dealing with therapies, dementia, chronic diseases or impairments	https://hands-on-shate.eu/en/healthy	4	5	5	4	4	5	5	5	37		Hands-on SHAFE aligns with the WHO concept of health and focuses on adaptation and self- management in the face of various challenges. While the initiative covers a broad range of health- related aspects and emphasizes preventive measures, there are opportunities for improvement in providing more details on inclusivity, accessibility, scalability, and affordability.
100	5	Age-friendly Cities and Communities Questionnaire (AECCO)	User experience	inclusion	23 questions to measure how older adults perceive the age- friendliness of their city	https://extranet.who.int/agefriendlyworld/af p/the-age-friendly-cities-and-communities- questionnaire.afrcg/	2	2	2	2	2	2	2	2	16		While the Age-Friendly Cities and Communities Questionnaire could be valuable for evaluation, it is an article and not a specific solution. Therefore, it should not be considered in WG1.
100	D	Affordable age- and eco- friendly solutions to age in place	User experience	inclusion	Erasmus+ project to co-create with older adults the best solutions	www.afeco.eu	4	5	5	5	5	5	5	5	39		The AFECO project presents a well-rounded initiative with a strong potential for positive impact, particularly in engaging and empowering older individuals. The focus on a sustainable and affordable approach adds to its mentis.
100	D	Bridge the Gap!	User experience	engagemen t	Older adults learn digital skills by applying age-friendly environments and usability	https://bridgethegap-project.eu/	4	5	5	5	5	5	5	5	39		The "Bridge the Gap!" project demonstrates a commendable initiative to bridge the digital gap and empower older citizens for active participation in age-friendly environments. The focus on training, accessibility, and engagement aligns with the objectives of creating a positive impact.
100	P Organization	Dreamlike Neighbourhood	User experience	inclusion	Older adults group in neighbourhoods to exchange, learn and support each other	https://www.dreamlike-neighbourhood.eu/	4	5	5	5	5	3	5	4	36		The "Dreamlike Neighbourhood" project demonstrates a strong initiative to address the social needs of older adults by fostering supportive neighborhood groups.
100	D	Educational game on Dementia care	User experience	inclusion	In the scope of IDO, an innovative game was designed to work around the standard ineffectiveness of traditional training methodologies for direct care workers. The game runtime, complexity and intrusiveness have been modelled and designed from the grund-tya partout the requirements and needs indicated by direct care workers, people with dementia, family cares: dementia exonets.	<u>https://idoproject.eu/game/</u>	4	5	4	4	4	3	5	5	34		The iDO Care Serious Game is an engaging solution for caregivers, and it can teach them how to better assist people.
101	D	Educational game on Handling lower back pain	User experience	inclusion	An innovative game was designed to work around the standard ineffectiveness of traditional learning approaches for mature workers. The required data was modelled and designed from the ground-up around the requirements and needs indicated by mature workers with low back pain and experts in the field.	https://myrelief.eu/o3-mobile-serious- game/	4	5	3	4	3	4	4	4	31		The MyRelief Serious Game is an accessible solution that enables learning in a gamified manner. However, further developments are not discussed.
101	D	Educational game on post stroke care	User experience	inclusion	An innovative game was designed to work around the standard ineffectiveness of traditional learning approaches for mature workers. The required data was modelled and designed from the ground-up around the requirements and needs indicated by mature workers with low back pain and experts in the field.	<u>04 – Serious Game – iTRAIN Project</u>	3	4	4	4	3	3	4	5	30		The 'ITRAIN' Serious Game is an innovative solution for post-stroke care. It could be useful for caregivers to learn about the needs of a post-stroke person and how they can assist them. This solution, specifically, has a positive impact on learning, thanks to gamification that enhances engagement. However, further developments are not explicitly mentioned.
101	D	MOOC on Dementia care	User experience	Inclusion	This MOCC includes multimedia training contents for direct care workers, based on internationally recognized good practices in dementia care. The design and development of the MOCC contents involved direct care workers, people with dementia and family carers to include their perspective.therefore stimulating direct care workers to reflect on their daily practice and how to best meet their patients' peards.	https://www.udemy.com/course/traning- on-dementia-for-direct-care-workers/	5	5	5	4	5	5	5	5	39		This MOOC on dementia care stands out for its inclusive approach, engaging multimedia content, and practical application through a serious game. It has the potential to make a significant impact on the daily practice of direct care workers.
101	D	MOUC on Handling lower back	User experience		The education of chronic pain patients and ther relatives on elef-management increases this relation-confidence and improves their possibility to monitor, control and cope with the disease. The main goal of balantin's quality of life and reduces the physical and psychological symptoms. The main goal of this MOOC is to improve knowledge and skills of working adults regarding evidence based strategies that can help individuals manage their to be back pain in all personal spheres (work, family, leisure etc.). But this course will show all the people that live with live-back pain and have a sedentary lifestyle or have archicus jobs how to self-manage their pain by adopting healthy behavior strategies. Learners will become more aware of their health and welf-being, both at ander, and in the generation strategies.	Titlps/www.udemy.com/costseate- management-stantigelies-for-poople-with- low-back-pein/	2	5	5	3	4	4	5	5	33		This MOOC addresses a significant health issue, low back pain, with a focus on working adults. The emphasis on evidence-based strategies and healthy behavior adds credibility to the course. To enhance future developments, providing clearer details on inclusivity, engagement strategies, and scatability would be beneficial. Regular updates based on emerging research could further improve the sustainability and relevance of the course.
101	D	MOOC on post stroke care	User experience	inclusion	The daily working environments in which informal cares and direct care workers assist strice survives are highly demanding. Carers carry out most essential tasks, usually with high physical and environal most and with little specific training. The most commonly experienced challenge among cares is finding solitionni information on caring for a stroke survivor. This cores will provide limely, reliable, and sound information and training to informat cares and direct care workers that will help enhance service provision and improve the stroke survivor; and nearer environmence and will being the stroke survivor; and nearer environmence and will being the stroke survivor; and nearer environmence and will being the survivor.	https://www.udemy.com/courselfraining- direct-care-workers-dealing-with-stroke- survivors/	2	5	5	4	4	4	5	5	34		This MOOC addresses a critical aspect of stroke rehabilitation by targeting both informal carers and direct care workers. The emphasis on timely and reliable information aligns with the needs of the target audience. To enhance future developments, incorporating interactive elements, providing details on scalability, and ensuring regular updates based on evolving practices could further improve the course's effectiveness and relevance over time.
101	D	Inclusive Design Carrvas	User experience	inclusion	The inclusive Design Carvos is a strategic disign template that heps teams to ask the right questions and to embrace inclusion, diversity, equity and accessibility in the design process. With the inclusive Design Carvos, teams can brainstom more inclusive loss and run co-design sessions by discovering peoples journeys, their capabilities, their needs and run challenges into opportunities with bespoke design actions. The black gage syndrome, download the inclusive Design Demark and table their formation dates and device	https://idea.inclusivedesigntoolidi.com/deg	5	4	4	3	4	5	5	5	35		The Inclusive Design Canvas serves as a valuable strategic design template, encouraging teams to embrace inclusion and diversity in the design process. It provides a practical approach for brainstorming inclusive ideas, making it useful for understanding and generating solutions with a User Experience approach
101	D	IDEA Audit	User experience	inclusion	The IDEA audit is a mixed-method data collection and analysis tool that helps professionals and organizations to guther people's perception of inclusion, diversity, equity and accessibility. The IDEA audit helps teams to deeply understand the perception people have about inclusion, diversity, equity and accessibility in an organization or a specific environment and informs with Jack and inicipits future stateoir checking actions.	https://idea.inclusivedesigntoolkit.com/und erstand/	5	4	4	5	4	5	5	5	37		The IDEA audit is a valuable tool for organizations seeking to understand and improve their inclusivity. It provides a structured approach to gathering data, allowing for comprehensive insights. To enhance future developments, providing more guidance on interactive use, scalability, and regular updates based on evolving practices could further improve the IDEA audit's effectiveness and relevance over time.

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https://www																Solution Included		
<u>.tf.jcu.cz/cz/ veda-a-</u>																		
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<u>ne-</u> vyzkumne-	AL ENVIRO				PRINCIPLE			INCLUSIO	ACCESSIB	USABILITY	ENGAGEM	IMPACT (1-	SCALE (1-	SUSTAINA BILITY (1-	AFFORDA BILITY (1-			
projekty 1017	NMENT (CATEGORY	TITLE MobiliSIG	TYPE User experience	S OF UCD accessibility	DESCRIPTION applications that use GIS data to help people plan their travel	SOURCES http://mobilisig.scg.ulaval.ca/	N (1-5)	ILITY (1-5)	(1-5)	ENT (1-5)	5)	5)	5)	5)	TOTAL (8-40)	BP = Best Practice	COMMENT (Further development included) The project aims to address significant challenges related to the social participation of people with
1011	D				doccombinity	routes or to optimize transportation networks in a more sustainable way.		5	5	5	5	5	5	5	1	36	BEST	The project and to address significant characterise is address to the social practicipation to people with disabilities, involving multidisciplinary expertise. By mapping accessibility information and ensuring real-time dissemination to mobile devices, the project holds promise in enhancing the mobility and social engagement of people with physical disabilities. The project's potential impact on improving social participation and the quality of life for those with disabilities is significant, offering a model that could be addret in diverse encorrabilizat contexts.
1018			Aging in Place Challenge	User experience	engagemen	Enable nursing homes to concentrate on older adults with the highest people while reducing costs to the Canadian health	https://nrc.canada.ca/en/research-											The Aging in Place Challenge program embodies a comprehensive and inclusive approach to
1019	D		Livsalede for Eldre	User experience	engagemen	nigness needs while reducing costs to the Canadian nearn care systeE	gaveopment/research_ collaboration/programs/aging-place- challenge-program.	5	5	5	5	5	5	5	5	40		honor the preference of older Canadians to age in place. Actively engaging older adults and caregivers as experts with valuable lived experiences ensures that their prespectives influence the research pillars and collaborative projects. By championing a sustainable model for long-term care, pivoting towards preventive, home-based, and community-centered care.
	D		Ĵ		t	older adults in nursing homes and assisted living facilities, by providing social activities, entertainment, and companionship		5	3	2	5	4	3	3	3	28		The Livsglede for Elderly project provides a comprehensive and engaging approach to support seniors at home. The goal of developing a digital tool that enables seniors to identify and address challenges independently is commendable. To further enhance the project, it is advisable to focus on designing a digitally accessible tool, ensuring its effectiveness and scalability in various contexts, and providing clarity on long-term sustainability and economic accessibility for users.
1020			Value Sensitive Design (VSD)	User experience	accessibility	This is a set of principles for grounded approach to the design of technology that accounts for human values	https://en.wikipedia.org/wiki/Value sensitiv e_design	3	2	2	2	3	3	3	3	21		Value Sensitive Design (VSD) serves as a robust framework, prioritizing human values in technology design. It excets in adaptability, offering a structured, iterative process. While its variations like Privacy by Design and CCVSD showcase flexibility, VSD could benefit from a more explicit focus on accessibility, sustainability, and affordability. Overall, it stands as a
1021			Global point of connection and	User experience	accessibility	provides resources and initiatives for creating age-friendly	https://www.ifa-fiv.org/what-we-do/age-											commendable approach with the potential for further refinement.
4000			a network of experts and expertise to influence and shape age-related policy	Liter experiese	inclucion	environments in healthcare, social care, and urban planning	friendly-environments/	2	2	2	2	2	2	2	2	16		The International Federation on Ageing is highly commendable for its global impact, inclusivity, and sustained efforts in advocating for the rights of older individuals.
1022			Age-friendly environments in higher education institutions	User experience	inclusion	Age-Friendly University (AFU) Global Network promotes age- friendly environments in higher education institutions	https://www.agefriendiyuniversity.org/									0		The link is not working
1023			Technologies	oser experience	accessionity	evaluated in practice, and the impact that they have on the people using them	journal/jet	1	1	1	1	1	1	1	1	8		The proposal is about a journal, so it is not a specific solution and therefore should not be considered in WG1
1024			Aging Adults and Livable Communities	User experience	accessibility	Communities can be designed for productive aging by prioritizing opportunity, engagement, contribution, and choice to support and enhance the lives of people who want to age in	MSSING LINK									0		
1025			Serious game to prevent frailty in older adults	User experience	engagemen t	blace over time A new hub of games was designed to both monitor and prevent frailty (cognitive, physical and social) in elderly people.	https://fraaqile.eu/es/	5	4	4	5	5	3	5	3	34	20	The link is missing The Frangle proposal is quite interesting; it aims to prevent cognitive and physical fraity from a usability, inclusive, and accessible perspective. However, there is no information mentioned
1026	D		Technological Solution to	User experience	engagemen	Technologial Solution based on multisource data to detect	https://bakartek.evidagroup.es/	_									DP	Bakartek demonstrates a positive initiative in addressing loneliness in older adults. To improve the
	D		detect ioneliness in adults 55+		t	ioneiiness in aduits 55+		5	5	4	3	5	3	4	3	32		evaluation, providing details on accessibility features, user-friendly interfaces, and scalability strategies would contribute to a more comprehensive assessment. Additionally, information on sustainability and affordability would further enhance the overall evaluation.
1027	D		Smart textiles and wearables for keeping independent longer the ageing population	User experience	accessibility	collecting health data for early diagnostic, treatment from distance, send help for emergency	<u>https://maturolife.eu/</u>	4	5	4	5	5	3	3	5	34		The 'MATUROLIFE' project discusses some interesting Assistive Technologies; however, there is a lack of specific information about them. Therefore, more information is necessary to evaluate the project
1028			Smart textiles and wearables for assistive technology	User experience	usability	discreet technology integration like heating textiles, furnitures helping aged person to stand up, fall alert or prevention,	https://maturolife.eu/index.php/2020/06/15 /practical-maturolife-tips-on-co-creation-									0		come availant de alterra
1029			Portable, efficient, low pain,	User experience	accessibility	Clothing decrease hurt risk from falling down Treatment of actinic keratosis (early skin cancer) with light	with-older-adults-and-informal-carers/ https://www.oncothai.fr/clinical-trial/344-	2	2	2	2	2	2	2	2	16		Same project as above.
1030			A participatory user-centred	User experience	engagemen	emitting smart textiles instead of raid big light panels. the approach was taken by a group of five procurers to set	https://www.mdpi.com/1377044			-								while this treatment is interesting, it is not relevant to the goals of NET+Age.
			design process for II-enabled health service for the integrated management of hypertension		t	specifications for a joint procurement or value-based research and development services for IT-supported integrated hypertension management. The approach considered the unmet needs of patients and health systems of the involved procurers.		2	2	2	2	2	2	2	2	16		A very relevant initiative involving a co-creation process for disease management. However, it doesn't align with the aim of finding specific solutions in WG1; it could be more appropriate for WG5.
1031	D		Digital Health Service for Identification of Frailty Risk Factors in Community- Dwelling Older Adults	User experience	usability	study protocol of a nationwide multicentric study in seven Italian regions aimed at assessing the effectiveness of a digitally supported approach for the early screening of frailty risk factors in community-dwelling older adults.	https://www.mdpi.com/2152350	5	5	5	5	5	3	5	4	37		The SUNFRAL+ initiative demonstrates a strong emphasis on assessing frailty risk factors in community-dwelling older adults through a digitally supported approach. This questionnaire could be implemented as a solution
1032	P Or	aanization	Covilhă Senior Academy	User experience	inclusion	It promotes and guides research, practice, study, dissemination and recreation actions in the interest of retired people	https://www.facebook.com/AcademiaSeni orDaCovilha/?locale=pt_PT	5	5	5	5	5	1	4	3	33		The Covhila Senior Academy is a great solution for engaging older adults and addressing loneliness. However, it is not easy to obtain a complete overview of all the initiatives and services provided by the Covhila Senior Academy from the attached link.
1033	D	5	Online Senior Academy	User experience	inclusion	They intend to be a quality alternative to face-to-face classes for people who, for some reason, have to stay at home, or prefer to stay at home	https://www.academiasenioronline.pt/	3	3	4	4	4	5	3	3	29		The Online Senior Academy is a fantastic opportunity for older adults to learn and meet people online, engaging them to stay mentally active. However, the online platform is not free, reducing its affordability.
1034	5		Portuguese Red Cross Senior Academy	User experience	inclusion	It intends to contribute to the improvement of the quality of life of the most senior citizens, through the enrichment of their free time, namely in the academic, cultural, social and sporting	https://www.cruzvermelha.pl/apoio- social/seniores-e-dependentes/academias- senior.html	1	1	1	1	1	1	1	1	8		The Portuguese Red Cross Senior Academy initiative lacks information on the website, making it unclear bow it operates and therefore challenging to evaluate
1035			participation of older people in design phases	User experience	inclusion	It explores various ways older people can participate in the development of new housing initiatives	https://www.ncbi.nlm.nih.gov/pmc/articles /PMC7999831/	1	1	1	1	1	1	1	1	8		A theoretical overview does not align with the objectives of WG1
1036			different methods of participation	User experience	inclusion	While it is necessary to identify goals and objectives in planning for participation, it is also necessary to analyze the	https://www.researchgate.net/publication/2 54072812 Participatory Design in Focus	1	1	1	1	1	1	1	1	8		
1037			Nostalgia Bits	User experience	inclusion	techniques that are avail- able and the resources they require. Nostalgia Bits aims to be one of the first examples of what we call an "augmented community" service. Augmented communities combine the benofite of interest bound	http://www.aai- europe.eu/projects/nostalgia-bits/ http://www.pobils.eu/	·		÷		·			·			A theoretical article doesn't reflect the objective of WG1.
1030	D		Are-Friendly Environments	Liser experience	engagemen	communities (typically supported by on-line services) with the benefits of geographically-bound communities (which lead to rich face-to-face interactions).	https://afe.activists.ou/	3	2	3	5	4	4	5	4	30		The project permit to create an engagement between old and young people, in order to transmit memories. However, often elderly people are not able to use internet, PC (etchconolgy tools) so they need someone who help them to upload documents of their life, and the source of the project is and the source of th
1038	P Tra	aining	Activists	Coer expensive	t	Activitis project is to support and train older adults who want to: — promote and foster age-friendly environments in their cities and communities and	Integration CHUT Chall Visible, The	3	3	4	5	4	3	3	3	28		Interprotect is a good opportunity declause relip elderly people to express their needs, therefore it's an inclusive and engangmetin solution. The initiatives created are summede up in a document (Compendium of Good Practices of Advocacy in Age-Friendly Environments) accessible to everyone in different languages and could inspire others.
1039	D		Agile Ageing Alliance	User experience	usability	The Agile Ageing Alliance (AAA) aims to demonstrate that through innovations in technology, business and service models, cur homes and Neighbourhoods of the Future can be reimagined to boost health and wellbeing, and promote independent living, leading to a reduction in the financial luviden on Cattern State.	https://www.agileageing.org/	4	4	5	4	5	4	3	3	32		The initiative of this project would be an innovative solutions fo elderly people, and not only, who live alone in order to permit them to stay in their home as long as possible. The sustainability depends on monitoring of the technologies, that must be constantly update and supervised. In the site there are no information about the costs, so it'difficult value the affordability.
1040			The State of Housing in Europe 2021	User experience	inclusion	Challenges and responses from the public, cooperative and social housing sector	http://www.stateofhousing.eu/	1	1	1	1	1	1	1	1	8		A report doesn't reflect the objective of WG1.
1041			HUBBI: eHealth UsaBility Benchmarking instrument	User experience	usability	Usability benchmarking tool for eHealth developed in the context of eHealth solutions for older adults	https://journals.plos.org/plosone/article?id= 10.1371/journal.pone.0262036	2	2	2	2	2	2	2	2	16		The HUBBI instrument has potential, it could be implemented in WG5. It is also usable for testing of applications in social area.
1042			GOT-IT toolkit	User experience	inclusion	Online toolkit to assist the design of inclusive eHealth solutions targeting the promotion of healthy lifestyles among older adults with low eHealth literacy, promoting citizen empowerment and	https://www.got-it-toolkit.eu/the-toolkit/									32		The toolkit is a good solution to help people having acces to health information. However nowadays a lot of people are not able to use cellphone or other similar instrument. It's not explained the connection with this tool and the reduction of the disparities in Europe Request only.
40.40	D			Licor oversions	inclucion	contributing to the fight against health disparities in Europe	https://boreity.uphabitat.avg/	4	5	5	3	3	5	4	3			on SW development. HW design not mentioned.
1043			Block by Block	User experience	engagemen	Free online tookit for people inclusion in the design of public	https://www.blockbyblock.org/about	2	2	2	2	2	2	2	2	16		I his initiative is inclusive only for women, but not for all ages. The description is rather general.
					t	spaces		5	5	4	5	5	5	5	3	37		the solution is very useful for codesigning urban spaces, even for elderly people, but a project

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https://wwv .tf.jcu.cz/cz															Solution Included		
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	/PHYSIC AL												SUSTAINA	AFFORDA			
vyzkumne- projekty	ENVIRO NMENT CATEGORY	TITLE	TYPE	PRINCIPLE S OF UCD	DESCRIPTION	SOURCES	INCLUSIO N (1-5)	ACCESSIB ILITY (1-5)	USABILITY (1-5)	ENGAGEM ENT (1-5)	IMPACT (1- 5)	SCALE (1- 5)	BILITY (1- 5)	BILITY (1- 5)	TOTAL (8-40)	BP = Best Practice	COMMENT (Further development included)
104	5	The Wheels for Life (WFL)	User experience	accessibility	The Wheels for Life (WFL) initiative targets pregnant mothers to expand access to transportation in an effort to reduce maternal and neonatal mortality. Through a centralized system, trained physicians necesive and traige calls. Based on clinical assessment a taxi or ambulance is sent. Ambulances are dispatched using the Filter technology which maps ambulance partners and hospitals throughout the country, alowing the dispatch team to sent the closest ambulance.	<u>https://khf.co.ke/w4//</u>	1	1	1	1	1	1	1	1	8		The WFL Initiative is a good solution for pregnant mothers to reduce maternal and neonatal
104	5	The free & open source data collection standard	User experience	usability	matching national care needs to the closest anorconiate Kobo hosts and maintains Kobo Toolbox, a data collection, management, and visualization platform used globally for research and social good. Our mission is to support open source data systems and technology for humanifarian action,	https://www.kobotoolbox.org/#home	2	2	2	2	2	2	2	2	16		mortality, but it isn't relevant to NE T4Age.
104	-	Consul Democracy: open software platform all its code	User experience	inclusion	development, environmental protection, peacebuilding, and human rights CONSUL DEMOCRACY is the most complete citizen participation tool for an open, transparent and democratic	https://consulproject.org/en/	F	-	Ē		2	F	E	F	25		to the goals of NET4Age is not evident. It is a general tool.
104	D	can be used by any person or entity Block-chain based property	User experience	inclusion	government. The use case aims to solve South Africa's titling problem by	https://seso.global/aboutus/index.php/2020	5	5	2	3	2	5	5	5	33	BP	The CONSUL DEMOCRACY platform is a good tool for cluzen participation, capable of enhancing citizen involvement in the decision-making process to solve city problems.
		registry			developing a blockchain solution that allows data to be stored in a decentralised, secure database which can be updated without any loss of historic data. The vision is to integrate this record into the Deeds Registry and unicck access to mortgages and other benefits for beneficiaries of the South African government's Reconstruction and Development Programme (RDP)	<u>[U// IU/Diocxcnain-based-property-register/</u>	2	2	2	2	2	2	2	2	16		The initiative addresses a critical problem in South Africa's titling system, aiming to provide tangible benefits to beneficiaries. anyway it isn't relevant to NET4Age
104	D	Mappler	User experience	inclusion	Mappler is a family of interactive mapping web-based mapping products (Mappler, Mappler Mobile and Mappler X) that use technology-forward tools to visually display information to a broad audione.	http://www.mappler.net/home/	3	3	3	5	3	3	3	5	28		Mappler is a versatile web-based mapping tool with the potential for widespread use across various sectors, including Age-Friendly environments. It is developed by the company Vertices, the web page bitro/www.vertices.com is not accessible (Dec 11 2023).
105		Getting online for people with aphasia	User experience	accessibility	Stroke Association UK - Online co-designed materials for people with aphasia	https://www.stroke.org.uk/what-is- aphasia/communication-tools/getting- online-people-aphasia	3	3	3	3	2	2	2	2	20		The guide for people with aphasia demonstrates a strong commitment to inclusivity, usability, and affordability. However, this is not specific for Age Friendly environments. Some of the documents and ideas are applicable and/or can serve for inspiration.
105		Healthy and Positive Ageing Programme	User experience	inclusion	This strategy is a high level document outlining Ireland's vision for ageing and older people and the national goals and objectives required to promote positive ageing. It is an over- arching cross-departmental policy that will be the blueprint for age related policy and service delivery across Government in the wars aband	https://www.hse.ie/eng/about/who/healthw elibeing/our-priority-programmes/positive- ageing/	1	1	1	1	1	1	1	1	8		The strategy it is not a solution. It is a stragey for open calls at nationla level. It has not been renew since 2019.
105	P Organization	Age Friendly Ireland	User experience	engagemen t	Age Friendly Ireland is the organisation responsible for the national Age Friendly Programme, affiliated to the World Health Organization's (WHO) Clobal Network Af Age Friendly Health Organization's (WHO) Clobal Network Af Age Friendly Intillagency, multi-actorial approach to age-railated planning and service provision. Age Friendly Ireland supports cities and courises to be more inclusive of date people by addressing their expressed concerns and interests under the eight plans of the World Network Organization's global programme.	<u>https://agefriendlyireland.ie/</u>	5	5	5	5	5	5	5	5	40	BP	age friendly initiatives around Ireland. Engage with stakeholders and create opportunities for funding and new projects. They are also goining funding for projects the the following areas: AGE FRIENDLY TRANSPORT AWARD (Transportation), AGE FRIENDLY ACTIVE AND HEALTHY AGEING AWARD (Community Support and Health Services), A, GE FRIENDLY SAFETY AND INNOVATION AWARD (Colvic Participation and Employment), AGE FRIENDLY SAFETY AND SECURITY AWARD (Housing), AGE FRIENDLY COMMUNICATIONS AWARD (Communication and Information), AGE FRIENDLY EXIMINATE OLAMON (Dutdoor Spaces and Buildings), AGE FRIENDLY COMMUNITY INNOVATION AWARD (Social Participation, Respect and Social Inclusion), AGE FRIENDLY HOUSING AWARD (Housing).
105	5	Age Friendly Homes	User experience	accessibility	Age Friendly lieland is the organisation responsible for the indical Age Friendly Programme, alliadia to the World Health Organization's (WHO) Clobal Network Age Friendly Uses and Communities. The programme involves a Clobal and Communities. The programme involves a clobal and anti-operative and the clobal and the clobal and service provision. Age Friendly Ineland supports cities and counties to be more inclusive of diverse propile by addressing their expressed concerns and interests under the eight plans of the World Health Organization's object programme.	<u>https://agefriendlyhomes.ie/</u>	5	5	<u>5</u>	5	5	5	5	5	40		same as above and here is the Homes initiative presnetation
105		Age Friendly Communication & Information	User experience	accessibility	Age remony reasons is the organisation responsesion of the national Age Freinard Programme, all illiaded to the World Health Organization's [WHO] Clobal Network A Age Friendy Clobs and Communities. The programme involves a multiagency, multi-sectoral approach to age-related planning and market op provide a Age Friendy Illiane and a Byodia Statistica and the company of the Age Friendy Illiane and a Byodia Statistica and the company of the Age Friendy Illiane and a Byodia Statistica their expressed concerns and Interests under the eight plans of the World Health Chronization's oblidad roomannys.	https://aqufriendty/reland.ie/categon/com munication-information/why-its-important- communication-information/	5	5	5	5	5	5	5	5	40		same as 58 point
105	3	Age Friendly Outdoor Spaces & Buildings	User experience	inclusion	Age renowny resears is the organisation reispónsatole for the national Age Friendly Programme, allitiliade to the World Health Organization's [WHO] Global Network A Age Friedly Clies and Communities. The programme involves a multilagency, multi-sectoral approach to age-related planning and service provision. Age Friedly Intel and supports cities and contain the antional control of the sectoral planting and service provision. Age Friedly the set approach be a sector provision. Age Friedly the set approach to the sector the antional control of the set approach and the set approximation of the set approach and the world Meet Demandation's which and provide the other world Meet Demandation's which an organization.	https://agefriendlvireland.ia/category/outdo cc-spaces-buildings/why-its-important- outdoor-spaces-buildings/	5	5	5	5	5	5	5	5	40		same as 58 point
105	5	Age-Friendly Respect & Social Inclusion	User experience	inclusion	Age renardly treated is the organisation responsible for the indicinal Age Friendly Programme, allialized to the World Health Organization's [WHO] Clickal Network of Age Friendly Clicks and Communities. The programme involves a multilagency, multi-sectoral approach to age-ratiated planning and service provision. Age Friendly Ireland supports cities and commission to more inclusive of doter people by addressing their expressed concerns and interests under the eight plans of the World Health Organization's global programme.	https://agafriend/wreitant/ai/catagon/inspg ct-social-inclusion/why-its-important- respect-social-inclusion/	5	5	5	5	5	5	5	5	40		same as 58 point.
105		Age-Friendly Transportation	User experience	accessibility	Age in Handy Tristend is the organisation responsibilities for the indexinity of the second	https://apdfiend/tyte/and.ie/category/trans portation/why-its-important-transportation/	5	5	5	5	5	5	5	5	40		same as 58 point.
105	3	a range of initiatives to improve accessibility and inclusion for older adults in the city.Create an age-friendly city that caters to the needs of older adults.	User experience	inclusion	developed an age-friendly cities program and have implemented a range of initiatives to improve accessibility and inclusion for older adults in the city. Create an age-friendly city that caters to the needs of older adults. The program aims to ensure that citier adults have access to affordable housing.	Istanbul Metropolitan Municipality Age- Friendly City: https://yasesyasehir.istanbul/	LINK NOT WORKING								0		
105		improve the quality of life of older adults through multidisciplinary approaches, including medical, psychological, social, and cultural perspectives.	User experience	Inclusion	The Turkish Association of Genotodoy and Social Activities The Turkish Association of Genotodoy and Genitarios is a scientific organization that focuses on research, education, and advoccey related to the aging population in Turky. They aim to improve the quality of life of older adults through multidisciplinary approaches, including medical, psychological, scial, and cultural perspectives.	Turkish Association of Gerontology and Geriatrics: http://www.gerontologi.org.tr/	LINK NOT WORKING								0		
106	י 	Public awareness of Aizheimer disease and its treatment and to provide education and training both to professional carers and patient relatives and to elevate the quality of life for both patients and their	User experience	Engagemen t	The top priority of our Organization is to escalate the public awareness of Athemier disease and its treatment and to provide education and training both to professional carers and patient relatives and to elevate the quality of life for both patients and their relatives.	Turkish Alzheimer Society: https://alzheimer.org.tr/	2	2	2	5	3	2	3	2	21		It is the official web page of the Turkish Alzheimer Society. It brings infromation about Alzheimer disease, support of clients, families and carers. There is information about various events. However, there are no links to noriects or documents such as stratenies etc.

																LEGEND Solution Excluded		
																Peer Evaluation Needed		
https://www																Solution included		
veda-a-																		
ekty/ukonce	/PHYSIC													SUSTAINA	AFFORDA			
vyzkumne-	ENVIRO	CATECORY		TYDE		DESCRIPTION	20110052	INCLUSIO	ACCESSIB	USABILITY		IMPACT (1-	SCALE (1-	BILITY (1-	BILITY (1-	TOTAL (8.40)	DD - Deat Drastian	CONNENT (Evalues development included)
1061	NMENT	CATEGORT	Age Friendly Informative Project Support	User experience	Inclusion	Age Friendly Informative Project Support	www.heryasta.org	4	4	4	5 ENT (1-5)	5	4	5	4	35	BF - Best Flactice	Brief description of several proejcts, e.g. "At All Ages" project, AgeSAProject Corporate Social Responsibility at All Ages (AgeSA - insurance company). Recommendations, tips, examples.
1062	Р	Dissemination	Elderly University	Liser experience	Inclusion	encourage senior citizens to be more active in working and	https://tazelenme.com											Motto: "living life to the fullest at any age".
1002			Eldeny oniversity		nciusion	social life, Akdeniz University in the Mediterranean of and social life, Akdeniz University in the Mediterranean ofly of Antalya has inaugurated an education program called Renewal University, targeting people over the age of 60. The program, which offers courses in sociology, psychology, biology, technology, chemistry, agriculture, pharmacology, medicine,		3	4	4	5	5	4	5	4	34		A project of Turkish universities called "University of Refreshment" (in Europe the same concept is called University of Third Age U3A) supporting activities and education of older people. Established in cooperation with gerontology depts. A social responsibility project was structured
1063	Р	Dissemination	Resiktas Municipality Senior	Liser experience	engagemen	nistory, philosophy, maintenance and cooking, takes aim at the coonitive renewal of these students. Besitize Municipality Senior Citizen office that provides	http://en.besiktes.bel.tr/entru/65-living-				_							based on the data obtained from the Turkish Gerontology Atlas (GeroAtlas) research,
			Citizen office that provides information and consultancy services to every individual over the age of 65 on issues such as healthy and active aging, preventing dementia, elder rights, institutional care, and municipal services, as well as coordinating and producing projects or individuals over the		t	Information and consultancy services to every individual over the age of 65 on sixues such as healthy and active aging, preventing dementia, elder rights, institutional care, and municipal services, as well as coordinating and producing projects for individuals over the age of 65.	offices-ture-ture-ture-opened-side-out-tweet https://basilas. merkezier/e6-yasam-ofisi	2	2	3	3	3	2	3	3	21		
1064			over the age of 65 on issues such as healthy and active aging, preventing dementia, elder rights, institutional care, and municipal services, as well as coordinating and producing projects for individuals over the	User experience	Social Care	over the age of 65 on issues such as healthy and active aging, preventing dementia, elder rights, institutional care, and municipal services, as well as accontraking and producing projects for individuals over the age of 65.	<u>https://yaslihaklaridemegi.org</u>	4	3	4	3	3	4	4	3	28		
1065	D		age of 65. Intergenerational Activities	User experience	Inclusion	Intergenerational Activities	https://yarenlikyolu.org									0		l ink not working
1066	D		Age Friendly Communication & Information	User experience	Inclusion	Intergenerational Digital Training Activities for Elderly	https://e-adaptasyon.com	5	5	4	4	4	4	4	5	35		Online training on various apps looks great, wonder about sustainability as these update so
1067	D		Age Friendly Games and	User experience	Inclusion	Games & Activities	http://hayatboyuhayatdolu.com	2	3	2	3	3	2	3	3	21		regularly?
1068			Age Friendly Project and	User experience	accessibility	Age Friendly Training for Businesses and Individuals who	www.b4afc.com	2	1	1	1	1	1	1	1	9		Only 'About us' page seemed to open so very little information accessible on initiatives etc. hence
1069			Ten questions concerning age-	User experience	engagemen	Journal paper: Abstract: The development of 'age-friendly	https://www.sciencedirect.com/science/art			-								lower scores
	Ρ	Training	friendly cities and communities and the built environment		t	clies' has become a major area of work in the field of ageing and the built environment. This movement is driven by the observation that clies are home to an ever-increasing ageing population. Over the past docade, a multitude of age-friendly initiatives have been developed with the aim of making populars. Over the past docade, and the aim of making populars well-being, heath and ability to live in the community. This article explores ten key questions associated with the age friendly cities and communities' movement, with a particular focus on the built environment. It provides an overview of the shorty of the age-fiendly clief movement and the underlying models, the aspects of the built environment that are relevant frage-fiendly clief movement and the underlying models, the aspects of the built environment that are relevant initiatives and other strategic agentes such as smart clies. The paper concludes by discussing future perspectives and possible directions for future bretegoriement of the age-findingly socials future brategic agentes of the such as smart clies.	<u>Celejur 503/013232100328774ek 3Dhub</u>	5	4	4	4	5	5	3	4	34		
1070	P	Training	A Commentary on Blue Conese: A Citical Review of Age-Friendly Environments in the 21st Century and Beyond	User experience	inclusion	Journal paper: Abstract: This paper explores the intersection of the Virol4 Health Ciganization's (VHO) concepts of age- friendly communities and The Blue Zone®C heaklists and how the potential of integrating the two frameworks for the development of a contemporary framework can address the development of a contemporary framework can address the presented here associate the inclusion of technology and environmental press. The commentary presented here associate sociaties and explorations that have the potential to impact sociates on a global scale and provides recommundations for a randoma to consider new ways to think about the impact of health and withering of older headliss and ther finales. Additionally, this paper highlights both the strengths and the weaknesses of the adromentioned checkliss and thering the display and the environments in yearing the literature developing. The present of the transmitter and take a critical approach as a way to be inclusive of theohodys and the environments in which older adults live. This commentary contributes to the fields of gerontology, protechinology, and headlings exist to the adverted for theohody contributes to the fields of gerontology.	https://www.mdpi.com/1680- 4601/18/2/637	4	3	2	4	5	4	5	4	32		
1071	Ρ		How does a (smaft) age- friendly ecosystem look in a post-pandemic society?	User experience	engegemen t	Journal paper: Abstract: COVID-16 has impacted not only the health of citizens, but also the various factors that make up our society, king environments, and ecosystems. This pandemic has shown that future living will need to be agile and featble to adapt to the various changes in needs of sociatal populations. Digital technology has played an integral role during COVID- 19, assisting various sectors of the community, and demonstrating that mart citiss care provide opportunities to edimensitizing that mart citiss care provide opportunities to adapt to the rise in aging populations will be cnn of these challenges, and core in which the needs and requirements between demographic cohorts will vary greatly, Atthough we edit domains of an age-finedly city. This paper estands, upon Marston and van Hoof's. Smart Age-Finerly Ecosystem (SAE) framework, and explores how cliquit facthology, design having, and head cit alogs of cliquit exploring, design having, and head city colleging framework. We provide an insight the a myriad of contemporary multi-disciplinary various actors together with a positive impact on future planning and development of age/finedly sconstrams. The strengths and limitators of this framework we cultured, with and an inflations of this framework we cultured, approxide and limitators of this framework we cultured, approxide and limitators of this framework we cultured, approxed and work together in adopting and limiters to take an agile approach and work together in adopting and implement improvements for greater barrents of residents and citizens.	https://www.mdpi.com/1690_ 4601/17/21/9276	3	4	4	3	4	4	3	3	28		

															LEGEND Solution Excluded		
															Peer Evaluation Needed Solution Included		
	/PHYSIC AL												SUSTAINA	AFFORDA			
	ENVIRO NMENT CATEGORY	TITLE	ТҮРЕ	PRINCIPLE S OF UCD	DESCRIPTION	SOURCES	INCLUSIO N (1-5)	ACCESSIB ILITY (1-5)	USABILITY (1-5)	ENGAGEM ENT (1-5)	IMPACT (1- 5)	SCALE (1- 5)	BILITY (1- 5)	BILITY (1- 5)	TOTAL (8-40)	BP = Best Practice	COMMENT (Further development included)
1072		Learning from COVID-19: Design, Age-friendly Technology, Hacking and Mental Models	User experience	engagemen t	Journal paper: Abstract: In March 2020 the United Nations published an open time for the creative community to propose interventions to the unifolding COVID-19 pardemic. However, when faced with unproceeding the viceof problems such as these, the rigour of design and creative processes can tested. COVID-19 has demonstrated how important human centred design responses are in understanding the work/www.sand accosystems of users. Ad hoc design nesponses or design hasks have demonstrated hut they have a role to play in how we create our future individual, community and societal accosystems.	//emenidopenresearch.com/articles/											
					Invision finite should say, furthering the flow view cound cleare againg communities (Socioaning and other posal restriction measures have exposed technological deficiences for the measures have exposed and open use questions of our future preparedness for a growing againg society. Now more than wer, designers need to understand the behavioural mind-set of older people in their own acceystem and understand existing metal models. In this opinion piece we posit what acts of design hacking can lead us to greater understanding of users mental models and therefore better understanding of users mental models and		5	3	3	4	3	4	4	4	30		
	P				older and younger adults. While presenting various examples of how design hacking is conducted by citizens and participants alike it shows that it offers designers differing												
1073		Who Desen't Think shout Technology Whan Designing Urban Environments for Older Peopler'A Caee Shudy Approach to a Proposed Extension of the WHO's Age- Friendly Cities Model	User experience	engagemen t	The state of the second	https://www.mdpi.com/1600_ 4601146180525	3	3	3	3	2	3	2	2	21		A little old (5 years ago) given how much things have changed since, and due to, Covid-19
1074		Age-Friendly Planning Built	User experience	engagemen	The project scope involved: • a demographic and population- based spatial analysis providing a spaceful of aging in Real	https://www.peelregion.ca/officialplan/revie											A little old (3 years ago) given now much things have changed since, and due to, covid=19
	P Training	project, 2022		L	classic space of large providing a singlation of reging in real Region; development of an Age-finedly Built Environment Audit Tool, tailored to the context of Peel Region; * a current- state assessment of eights ample neighbourhoods with regards to age-finendly built environments; - consultation with services; caregivers, younger adults, and organizations serving services; and • recommendations to address gaps and	ADDA.pdf	5	5	5	5	5	3	4	5	37		The project and report is based on the Peel Region in Canada that is home to 176,800 adults over the age of 65, 14% of the total population. Seniors also represent one of the fastest growing age groups in the Region, projected to grow to 20% percent of the total population by 2051. It is an example of prepareness for the future and assessment of the needs for other regions. The methods used should be considered to scalew in other regions and confinents.
1075		Age-Friendly Cities and Communities A global perspective	User experience	inclusion	Bookin this book, part of the Ageing in a Global Context series, leading international researchers critically assess the problems and the potential of designing age-frendly environments. The book considers the different vage interlegies for developing age-finding communities, and the extent to which dider people temmselves can be involved in the construction of the biological temperatures and creations.	https://policy.bristoluniversitypress.co.uk/a ge-friendly-cities-and-communities	3	3	3	3	2	2	2	3	21		The book is by pay and as I do not have access to the full book I cannot assess more then the short description. Maybe it should ge back to the person that added in the database as they might have the copy.
1076		Hearing aids for elderly people	User experience	inclusion	The preset losis at such convergences and divergences	MISSING LINK									0		no link to assess. It should be disregarded from the evaluation
1077	P Training	Making Healiny Places		accessionity	within a particularly instrumental generonment – the tools and opportunities that present to built windownent built practitioners when making healthy places.	Indes in dealed of an electronic weeks to you new day. In a second s	5	5	5	5	5	5	5	5	40	ВР	The researched is based on Australia in New South Wales and has a sample of the approximately 350 responses, a final sample of 221 were used in the analysis. The aim was to find a path on how do we go about creating places that help deliver positive health and wellbeing outcomes for all? There is a longstanding recognition that strategic policy and health promotions fall short in the implementation of healthy placemaking. As such there is an ongoing question about how to bridge the gap between the rhetoric of current healthy planning principles and the reality of what is being delivered and managed by practitioners on the ground. The survey and method applied could be replicated to other regions and help build the strategies for the future developments.
1078	D	Co-designing an Embodied e-Coach With Older Adults: The Tangible Coach Journey Covid 19 Pandemic and Its	User experience	usability	Guidelines for the design of an embodied virtual coach for seniors from the NESTORE H2020 project	https://www.tandtonline.com/doi/full/10.10 80/10447318.2023.2171332	5	5	5	5	5	5	4	4	38	BP	The solution shows a good use of the technology empiled and how to develop, test, validate and evaluate with the users. However in the line with the new technologies, this technologi is not old and new technologies could be consider, but the methods could still be used as good practices.
1078		Effects on Social Life and Reflections on Spatial Preferences	User experience	accessionity											0		no link to assess. It should be disregarded from the evaluation
1080		Three Assistive Technology prototypes as clothing, furniture and footwear using F-	User experience	usability	To make urban living for older adults easier, more independent, fashionable and comfortable	https://maturolife.eu/index.php/deliverables /									0		
1081		textiles and wearable Co-desing/Co-creation with older adults and informal	User experience	inclusion	Interviews and co-creation workshops were conducted with older persons (+65 years) and their carers in Belgium, France,	https://maturolife.eu/index.php/2020/06/15 /practical-maturolife-tips-on-co-creation-	5	5	5	5	5	5	5	5	40		same project as below. Maybe it should be consider just one line? The project is a good example of multicultural and interdisciolinary aspects that should be
1082	D Training	CA19104 Advancing Social Inclusion through Technology and Empowerment (a-STEP)	User experience	inclusion	United Kinadom. COST Action to enhance social inclusion and empowerment of individuals with ASD and/or ID and their families	https://www.cost.eu/actions/CA19104/	2	2	2	3	2	3	3	3	20	BP	considered in the development and validation of the solutions. The project website has no updates from 2021 and no deliverables to asses. This item should go back to the person adding it to fill in the information and maybe link documents to the assessment
1083		The deployment of the Pharaon Large Scale pilots, assess, among other parameters, the usability level of the devices by the main	User experience	usability											0		no link to assess It should be discentered from the survivolities
1084		users: Older Adults ESSENSE - Higher education programme on building information modelling towards the development of smart. environments for seniors, http://essense-project.eu/	User experience	accessibility											0		no link to assess. It should be disregarded from the evaluation

															LEGEND	1	
															Peer Evaluation Needer	1	
https://www .tf.jcu.cz/cz/ veda-a- vyzkum/pro ekty/ukonce	DIGITAL /PHYSIC												SUSTAINA	AFFORDA	Solution Included		
vyzkumne-	ENVIRO		TYPE		DESCRIPTION	SOURCES	INCLUSIO	ACCESSIB	USABILITY	ENGAGEM	IMPACT (1-	SCALE (1-	BILITY (1-	BILITY (1-	TOTAL (8-40)	BP = Best Practice	COMMENT (Further development included)
1085	S CATEGOR	Use of sensors for monitoring biological signals and monitoring the health status of	User experience	usability		MISSING LINK	N (1-5)	IETTY (1-5)	(1-5)	ENT (1-3)	5)	5)	5)	5)	0	DF - Dest Fractice	Commerk T (Partitier development included)
1096		fails indoors and outdoors.	Lines opposiones	un ob ilitur	The names discusses the shellanges freed by backberry and	https://automod.achi.alm.aik.cov/2275190											no link to assess. It should be disregarded from the evaluation
1080	D	Exploring Opportunities for Future Design of Technology to Support Social Connections in Age-Friendly Communities	User experience	usability	The paper discusses the channeliges lacked by hearing and a welfare systems due to the increasing number of older adults. It aims to explore how knowledge can contribute to the development of age-friendly cities and communities.	8 8	3	5	5	5	4	5	3	5	35	BP	This article describes a doution-up approach to expire opportunities for radinizing social connectedness for older adults in a local community context -> citizen-engagement method composed of two phases (interview + workshop). The method described in this article could be replicated in other local communities.
1087	P Training	How Can the Lived Environment Support Healthy Ageing? A Spatial Indicators Framework for the Assessment of Age-Friendly Communities	User experience	usability	This paper presents a framework of spatial indicators to assess local environments based on the domains of Age-Friendly Cities and Communities (AFC). The framework can be applied within local neighbourhoods, census tracts, suburbs, municipalities, or cities with minimal resource requirements other than anolied spatial analysis.	https://pubmed.ncbi.nlm.nih.gov/3309677 3	5	5	5	3	3	5	3	3	32		The major aim of this research was to propose a foundational set of objective AFC spatial indicators that can be applied in any location with minimal resources and are directly aligned for policy intervention. This is particularly relevant to planning and policymakers working in government and was neither previously available nor consistently applied within AFC locations.
1086	D	What makes a community age friendly. A roview of international literature	User experience	inclusion	The paper reviews the international literature on age-firendly communities and identifies key attributes associated with creating a sustainable environment for seniors. It critically evaluates emerging policy trends and models and suggests directions for future research attention.	https://pubmed.ncbi.nlm.nlh.gov/3154720 4	5	5	5	3	3	5	3	3	32		In this position paper, we aim to discuss the extent to which the model of age-friendly cities is suitable for application across Western smart and age-friendly ecosystems. We do so by examining existing models, taking a case study approach and exploration of technology through different scenarios. This paper will propose a contemporary up-to-date framework, whilst offering solutions, and recommendations, based on the individual (age-in-place) and secondly. from the societal perspective (age-friendly city). Furthermore, we provide an insight into a myriad of contemporary multi-disciplinary research which has the potential to initiate discussions and bring planners, scholars, health practitioners, educators, residents, developers, local, national and international governments together. This will in turn marate future planning and development of age-friendly environments and housing in the coming decades.
1089	9	Sensor for fall detection and prevention	User experience	accessibility		MISSING LINK									0		missing link
1090	0	algorithms for behavior analysis	User experience	accessibility		MISSING LINK									0		missing link
109		URELS, UTUAR Keening Oldere Adults active	User expenserue	Inclusion	A set of whiter dependent with the SN (116 SA) has been developed based on several tests and studies among care hower existents. The Set variants three white dependence to the several test and studies among care three. The instructions design control for the several and SRO "pictures. The Set is designed to positively influence defe adults staff corporation design control for the several term and stimulate their currently. The Set allows ofcer users, sepocially three care homes, to see places they cannot visit in the real world and brings them new stimuli they can share which others. The Set allows defer users, the conceptual manual Vitual Read with and its lose in Care Homes and Beyond focus both on the technical matters of Vitual reality user and aspects of the vitual experience,	Thus writes an end annear gran	4	5	5	4	5	5	5	4	37		The VIREAS project is powerful as it enables people of all ages including those with disabilities
	D				together with the procedures that will make it possible to fully											BEST PRACTICES	to enjoy the benefits of being in nature and walking.
1092		<u>Guided Meditation in Older</u> <u>Adults: The Protocol of a Pilot</u> <u>Randomized Controlled Trial</u>	User experience	usabiiity	Virtual Reality (VR) based meditation has been shown to help increase relaxation and decrease anxiety and depression in younger adults. However, this has not been studied in Randomized Controlled Trials (RCT) in the older adult populatio	https://www.irontiersin.org/anticles/10.338 9/fpsyg.2023.1083219/abstract	4	3	3	1	1	2	1	1	16		study protocol article about VR used for meditation in older adults. it seems the project is still in developmente phase and so there are no informations about impact, scalability, ecc
1093	D	Isolating together during COVID-19: Results from the Telehealth Intervention Program for older adults	User experience	accessibility	A pressing challenge during the COVID-19 pandemic and beyond is to provide accessible and scalable mental health support to isolated dider adults in the community. The Telehealth Intervention Program for Older Adults (TIP-OA) is a large-scale, volunteer-based, friendly telephone support rearram derivand to address the upmet aced	https://pubmed.ncbi.nlm.nih.gov/3630418 4/	5	5	5	5	5	4	3	5	37		Cannot access this one - paid version
1094	5	Game not over: Explaining older adults' use and intention. to continue using a gamified eHealth service	User experience	engagemen t	Thorough investigation of the reasons to use (or not) a gamified eHealth service by 55+ adults	https://journals.sagepub.com/doi/pdf/10.11 77/14604582221106008	3	2	2	3	3	3	1	1	18		
1095	D	Designing eHealth that Matters via a Multidisciplinary Requirements Development. Approach	User experience	usability	Specifying requirements in a way that truthuly translate the user needs is not a trivial task. In order to facilitate the creation of elevaith that matters, this article presents a practical, multidisciplinary requirements development approach which is embedded in a holisid cesign approach for effeath that incorporates both human-centered design and business modeling.	https://www.researchprotocols.org/2013/1/ e21/	3	3	5	5	5	3	3	3	30		The requirements development approach presented in this article enables eHealth developers to apply a systematic and multi-disciplinary approach towards the creation of requirements.
1096	5	Smart, Age-feindiy Cities and Communities: the Emergence of Socio-technological Solutions in the Central and Eastern Europe	User experience	engagemen t	The chapter aims to introduce an integrated approach to concepts of (1) smart clies and (2) applicinary clies and communities. Although these ideas are widely promoted by the European Union and the World Health Organisation, they are perceived as separate. Meanwhile, these concepts are closely interminging in theory and practice concerning the promotion of healthy and active ageing, a universid design, reducing of the digital divide and robotic divide, and reducing older adults social isolation. The conclusion underlines the need for participatory creation of ambient assisted living (AAL) technologies and applications with older adults and the need for advocacy to promote AAL in the context of the silver	https://www.academia.edu/282746003m art.App.findu/Lise_and_Communities the Emergence of Socio technological Solutions in the Central and Eastern E urope	2	2	2	4	2	2	4	1	19		
1097		One Health 'Approach for Health Invoices and Active Asing in Campania (Italy)	User experience	Inclusion	Leanpanis stategy for digitalization of health and care and 60 healthy aging is based on a person-centered, life-course, "One Health" approach, where demographic change is considered capable of simulating a growth Aproxima linked to the opportunities of combining the "Silver Economy" with local assets and the specific health needs of the population. The table of the second second second second second second the co-creation of products and services, being molved in the isolification of unred needs and text-bid activity. The Campania Reference Site of the European Innovation Partnership on Active and Healthy April is a flexible regional accessitem to address the challenge of an aging population with all life-course approach. The good practices, developed in the context of research and innovation projects and innovative provuleme solutions, innovedge, and collaborations with international networks, have been allowing the transfer of innovative solutions, innovedge.	ntips/www.frentersin.org/articles/10.338	2	2	2	2	2	2	3	3	18		

															LEGEND Solution Excluded		
															Peer Evaluation Needer Solution Included		
	DIGITAL PHYSIC AL ENVIRO			PRINCIPLE			INCLUSIO	ACCESSIB	USABILITY	ENGAGEM	IMPACT (1-	SCALE (1-	SUSTAINA BILITY (1-	AFFORDA BILITY (1-			
10ktv 109	MMENT CATEGORY	TTLE State of the art on ethical, legal, and social issues linked to audio- and video-based AAL solutions	TYPE User experience	S OF UCD Inclusion	DESCRPTION Ambient assisted living (AAL) technologies are increasingly presented and sold are essential smart additions to daily life and home environments that will raid-ally transform the healthcare and wellness markets of the future. An ethical approach and a theorogh understanding of all ethics in surveillance/monitoring architectures are therefores pressing, and their potential source allow approximation of the solution function of the solution of the solution of the solution function of the solution of the solution of the solution function of the solution of the solution of the solution function of the solution of the solution of the solution function of the solution of the solution of the solution over issues related to product safety (data protection, copersocintly, intellectual property, and access to data by public, privide, growthment bodies. Successful privacy- fitterial of the head herenoe to existing legal frameworks and cover issues related to product safety. Successful privacy- fitterial of the solution of the solution of the solution solution of the solution of the solution of the solution solution of the solution of the solution of the solution that the environments in which AAL will operate are mostly private (e.g., the home). The social solutions and and void increasing localisms and social aliasventages and avoid increasing localisms and social aliasventages and avoid increasing localisms and and motivations of the tareget group and those developing and depolying AAL systems. Whish AAL technologies provide provide sprivate the solution and access and and woid increasing localisms and and motivations of the tareget group and those developing and depolying AAL systems. Whish AAL technologies provide provide provides provide provide provides provide provides provide provide provides from ethical, laget and social issues	SOURCES tito://www.academia.edu/66112268/Stat e_of the art on ethical leads and social issues linked to autio and video base d_AAL solutions	N (1-5)	2 2	(1-5)	ENT (1-5)	5)	4	3	3	TOTAL (8-40) 21	BP = Best Practice	COMMENT (Further development included)
109	D	State of the Art of Audio- and Video-Based Solutions for AAL	User experience	Inclusion	(ELS). An et of ELS guidelines is needed to integrate these crucial challenges regarding health and social care due to the demographic change and the current economic context. The recent COVID-19 pandemic has stressed this situation even there, trus highlighting the need for taking action. Active and Assisted Living (AAL) technologies come as a valuel approach to help lacing these challenges, thanks to the high potential they have in enabling remote care and support. Broady spaking, AAL can be reflered to as the use of innovative and assisted Living (AAL) technologies come as a valuel approach pacing, and Line proving personsenses and effectiveness of sensing and computing facilities to supply the persons in need with mark assistance, by responding to their necessities of automount. Despite aiming at diverse goals, AAL second ingeinations, and the site of users and safety. The applications came active function of the independence context sets and the proving care and state of the independence of the and the set of the modulation, the indi- application sciences, and the physical conditions or impairment. Despite aiming at diverse goals, AAL systems should shave some aching the insert Moreover, they are conceived to be indileging to be able to issen and adapt to the independence, control, security and adapt to the protocols subport in daily life in an invisible, unoblusive and a set-finding marmer. Moreover, they are conceived to be indileging to be able to issen and adapt to the independence, control, security and adapt and conceived to be indileging to be advectations. In ensers of unoblusiveness and information richness. Infeed, cameras and microphones are for less obstrave the intern of unot advites. In additions have severed based is the more marked advites to the advites in modernic advectations of the hindrance other warable sensors. Currently, video- based applications have severed based in the more, thus replacing mark of the nervisual sensors. Currently, video- based applications are effective in nec	<u>https://www.academia.edu/74624974/Stat</u> a.of_the_Art_of_Audio_and_Video_Based <u>Solutions for AAL</u>	5	3	4	З	3	3	3	3	27		This publication is based upon work from COST Action GoodBrother – Network on Privacy-Aware Audioand Video-Based Applications for Active and Assisted Living, supported by COST (European Cooperation in Science and Technology). This report provides the reader with a review of the most recent advances in audio- and video-base monitoring technologies for AAL. Future AAL technologies need to consider all aspects of equality such as gender, race, age and social disadvantages and avoid increasing loneliness and isolation among, e.g. older and frail people. Finally, the current power asymmetries between the target and general populations should not be underestimated nor should the discrepant needs and motivations of the target group and those developing and deploying AAL systems. These differences could lead to governance challenges, serious ethical questions, and potential misuse of the technology. Whitst AAL technologies provide promising solutions for the health and social care challenges, they are not exempt from ethical, legal and social issues (ELSI). A set of ELSI guidelines is needed to integrate these factors at the research and development stage.
110	0	Implementation of Assistive Technologies and Robotos in Long-Term Care Facilities: A Three-Stage Assessment Based on Acceptance, Ethics, and Emotions	User experience	accessibility	Assistive technologies including assistive robids (ATIAR) appear to be promising response to the increasing prevalence of date adults in need of care. An increasing prevalence of date adults in need of care. An increasing mumber of incgl-term care facilities (LTCR) by to implement ATIAR in order to create a stimulating environment for aging and to increase outloard charges in terms of social and the index outloard charges in terms of social of the integration of the setting. Thus, systematic consideration in leadership management of emotions and entical aspects in a corganization may leader and the setting. Thus, systematic consideration in leadership management of emotions and emicial aspects essential for stateholders involved in the implementation process. In this article, we explicitly focus and calture, which eas a vitan-management of emotions and efficial aspects is essential for stateholders involved in the implementation process. In this article, we explicitly focus and calture, which eas of the charge vice and which a direct environment of discussed in cacelenci iterature, the topic of emotion-management and encidents and charge which acts and vinearchip allexiting patients and charge which are advected by allexiting patients and stretch which aspects of the organization with being affective values, ethical accessite bill charge are institutions affective values, ethical accessite bill (a locader on the importance of transformational leadership during implementation process. To this purpose, we developed at thre-adaped assessment tool for implementation of ATAR in long-term care institutional consequences (E) and compatibility (N) and emotional consequences (E) and compatibility (E) and emotional consequences (E) and compatibility (E) and end	https://www.frontiersin.org/articles/10.338	2	3	S	2	2	3	3	3	21		The article findings should be interpreted while considering certain limitations. The authors are aware that our AAE-model is initially a working hypothesis that deserves further development. Thus, a fourth or fifth essential perspective could be added to AAE as other acceptance logics could be applied. The ethical acceptability model could be given a different semantics than ours (humanistic-Christian-Kantian). i.e., utiliarian, anthroposophical, etc. In addition, the specific organizational context (funding principles, ethical codex, number and skills of employees and clients, number of residents with cognitive decline) plays an important role for the debate around the priority of robots vs. human care providers. In addition, leadership styles like transformational leadership can be taught to leaders by individual coaching or peer counseling, but it needs to be practiced and internalized, which first of all means an additional effort (time, costs, intensity) for the management.

															Solution Excluded Peer Evaluation Needed	
<u>s://wwv</u>															Solution Included	
u.cz/cz a-a- tum/pro /ukonce tumne- akty	DIGITAL /PHYSIC AL ENVIRO NMENT CATEGORY	ТІТLE	ТҮРЕ	PRINCIPLE S OF UCD	DESCRIPTION	SOURCES	INCLUSIO N (1-5)	ACCESSIB ILITY (1-5)	USABILITY (1-5)	ENGAGEM ENT (1-5)	IMPACT (1- 5)	SCALE (1- 5)	SUSTAINA BILITY (1- 5)	AFFORDA BILITY (1- 5)	TOTAL (8-40)	BP = Best Practice COMMENT (Further development included)
110		Oreation Process of the Digital Pattern to Foreira Healthy and Active Aging: enbuenaediad	User experience	accessibility	Training	https://www.itertieniin.org/articles/10.338 9fbu6h.2015.00022/Ma	4	4	3	4	4	4	5	5	33	Community case study article on a sociology journal: the article focuses on the co-design model to implement the digital platform "enbuenaedad" in Andalusia to foster healthy and active ageing. The co-design process is well detailed and strengths and weaknesses are considered and presented. In 2019 (year of the article) the platform was still in development (the project was not yet concluded): it could be interesting monitoring the rusults and impact of it and to have a look on the platform. The authors reccommend that is important to transmit stakeholders and sectors a clear understanding of their responsibilities. All the stakeholders indertified earlier need to be trained to provide an integrated activity across different institutions. They can play an essential role in implementing healthy and active aging. Ideally, all stakeholders is should participate in planning to take advantage of the unique skills and experiences of each sector. Focusing on WHO four pillars on active and healthy aging Enbuenadad is based on, preliminary results show effectiveness regarding participation and social interaction. Furthermore, achieving high participation coverage is a necessary but not sufficient input to the provision of adequate approach to older people. More comprehensive evaluation of the four pillars must be taken to ensure a holistic approach. A challenge is a cooperation between three traditionally independent sectors, cooperative work between health, social services, and education is crucial for the future sustainability of this intervention.
110	P	Making a Cuele for Creating Unio Luke for Apring-Prilace: Enabling Socially Imposite and Complementary Economies	User expensive	engagemen. t	Aging is continuously depicted as a trace majeure event, despite clear and toxis premotinose of its comine, however, subscription serves to justify the unpreparetiests and unprecision serves. The constraint of the unpreparetiest instancian models, such as time-banks and circular economies. These initialities represent collective response to homages and challenges such as aignify up identifying and innovatively capturing and exchanging locally- and freely- andiale assets with the intent to tail economic needs (more afforable goods and services, social ambitions (kills inclusion; and collesion) environmental septiations (up-cycle) and psychological needs (ense of purpose, identify, bedrorigh, recognition). Whils it is chen assumed that ad hoc massures are appropriate to resolve the challenges posed by understood, and the while societ is hereader in the proposed that tudy transformative social innovation for the aging pointer relevant policy and interventions, but considering the users is that aging is a systemic issue and ought to be understood, and the while societ is hereaderth it is proposed that tudy transformative social innovation for the aging pointer interventions, but considering the social vanit our consider and movies calcel the challenges, a framework with four correctomes has emerged. This includes, a framework with four correctomes has emerged, this induces, a framework with four correctomes has emerged and fourth, temoder of value creation, co-creation mechanisms, and farsity, technology, seepolicy digital social curreny. The concurrent presence of the four factors in the framework in cal always a unprevention framework in the social cages to discust to changing the social involution to the social and farsity. However, the presented any single stoget at all four themes meeting thand to balance and the social cages to discial meeting thas t	Diportave Industrial Crystices 10.338	4	4	5	5	5	3	3	3	32	enables the social and economic participation of those who are traditionally excluded due to lack of traditional currency and perceived sociatel irrelevance, for example aging and disabled individuals perceived by society at large as a financial drain and as unable to contribute. The development of the Living Lab for Aging-in-Place is underpinned by a digital infrastructure which serves the ability to track exchanges and collect and query data in real time. The functional modules of the framework are highlighted below: a. An open source digital infrastructure that is available to each Living Lab and that can be adapted to local needs. b. Digital community currency that must be secure enough to enable trust in the transactions without overwhelming the users. c. Community observatory function to inform the design and delivery of more inclusive products and services. d. Co-design and co-delivery methodology to create consensus around the strategic priorities of the place-based community and co-produce joined-up, inter-departmental and inter-organizational responses. e. The role of a community intermediary capable of professional coordination of grassroots local projects delivered against the codesigned community strategy and delivering added value to participants (givers and recipients). T f. The participation of local businesses and organizations with spare capacities in providing opportunities to spend earned community currency locally, thereby encouraging active citizenship. g. Continuous interface with local and central policymakers to provide the evidence base for understanding and modeling impacts of social policy interventions and innovations. h. A new language in social innovation research where real communities are involved in capturing and communicating an emerging semantic spectrum. This may enable the emerging relationships between the community and active citizenship to be
110		Open to AL Dementia, Creativity, and Open Ecosystem Innovation	User opprinne	accessibility	In the health arena, open innovation approaches strike to address real-work complexity through driving multi- stakeholder collaborative activities that can better identify and tegond to complexits through driving multi- stakeholder collaborative innovation approach, one that explores the full implications of what it means to be "open" in a health innovation context. To these ends, the paper will author the origins of open innovation the health arenna, suggesting that it has become an important site for pushing the limits of tegrads of health innovation. They author that the tegrads of the tegrads of health innovation. They author that the tegrads of the tegrads of health innovation. They author that the Creative Ecoromy funded by the UK's Arts and Humanities Research Curruli. These principles point to a configuration of open activities that are maximally sensitive to (1) knowledge diversity in innovation activity. (4) the tote of motidation in origoraming; (5) the value of deepending and broadening the tangets of health the value of deepending and broadening the tangets of nonvation activity. (4) the tote of motidation in origoraming; (5) the value of deepending and broadening the tangets of nonvation activity. (4) the tote of motidation in of opencing in an adigive and substandelle manner in the long term. A follow-on project from the AHRC Hube-Dementia Connect., the applicability of open accepted and the origo and indivirus in protection that dementia dargons. A detailed bubgetint thinking was assessed, reversing the conditions under which it might deliver innovation-del improvements to the quality of lite AFCOre improvements and the origo activity and bubgeting the hose lineary with a dementia dargons. A detailed bubgeting to these lineary with a dementia dargons. A detailed bubgeting the hose lineary with a dementia dargons. A detailed bubgeting the hose lineary with a dementia dargons. A detailed bubgeting to the complex multiple servers to the complex.	https://www.inonternin.org/articles/10.338 9/foo:2019.00010/hil	3	3	3	3	2	2	2	3	21	This paper has addressed the development of five guiding principles for open ecosystem innovation and their application to the dementia and creativity arena through the research project Dementia Connect. These guiding principles point to a configuration of open activities that are maximally sensitive to (1) knowledge diversity in innovation work; (2) the consequences of adopting an open-orientation across all stages of innovation activity. (4) the role of Metalator in supporting cross-sector partnerships; and, (5) the importance of operating in an adaptive and sustainable manner in the long-term. In exploring the application of these ideas to the dementia and creativity field. Dementia Connect undertook a wide-reaching scoping exercise grounded in an engagement with individuals, organisations, and communities active in this arena. As such, it's overall result—the Hub-led open ecosystem innovation blueprint described in section 5—is idel to insight from knowledgeable partners with an interest in seleng a more collaborative and meaningful approach to cross-sector work. This is a blueprint that now needs to be tested in practice.
110	D	VK2Care: Immersive multiple users for remote physical therapy and fitness training	User experience	usability	VrcLare: immersive multiple users system of dystems for remote physical therapy and fitness training, project includes 4 pilots to test, co-creation with therapists and patients to co- create and test. The Ministre/e watering are independent of the termination of termination of the termination of terminat	www.vt2care.eu	5	3	3	5	3	3	3	3	28	the project involves the creation of a platform to use virtual reality (an avatar) for remote physical activity or rehabilitation in elderly people. From the website, the project is still in the development phase: at the moment there are no informations about platform development/tests and therefore the effects, level of usability, sustainability and impact are not yet known, not even its scalability or affordability
110	6	Services ByMaker - Game to teach	User experience	engagemen	services related to social inclusion and welfare for older adults. ByMaker is a web-based game developed at NTNLL to raise	https://www.by-maker.com/									0	missing link - no informations
110		children and youth about the sustainability in the cities and facilitate the engagement in the city planning.	Coor experience	t	Symmetries a wear-based yearies developed at NTRO (or Table awareness among children and youth about the importance of balancing all three sustainability pillars, social, economic, and environmental in urban transformations. In the same time the game is showing the children how the city of tomorrow could be and how they can make sustainable changes and decisions.	The second way with the second s	<u>2</u>	2	2	3	3	3	3	2	20	the possibility of creating awareness in children/young people about the sustainable/future city and to collect the player's input on future or ongoing urban projects is interesting but it is not clear in which way the game could be used also by adult/elderly people

															LEGEND		
															Solution Excluded		
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https://www															Solution Included		
.tf.icu.cz/cz/																	
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vyzkumne-	NMENT CATEGORY	TITLE	TYPE	S OF LICD	DESCRIPTION	SOURCES	N (1.5)	ACCESSIB	USABILITY (1.5)	ENGAGEM	IMPACI (1-	SCALE (1-	BILITY (1-	BILITY (1-	TOTAL (8.40)	RD - Rost Practico	COMMENT (Eurther development included)
1107	MILLINI CATEGORI	ByMaker - Game to teach	Liser experience	engagemen	ByMaker is a web-based game developed at NTNI I to raise	https://www.by-maker.com/	N (1-5)	IEITT (1-5)	(1-3)	ERT (1-3)	3)	5)	3)	5)	101AL (0-40)	Dr - Dest Flactice	
1107		children and youth about the		t	awareness among children and youth about the importance of	The second secon	THE SAME										
		sustainability in the cities and			balancing all three sustainability pillars, social, economic, and		AS 108										
		facilitate the engagement in			environmental in urban transformations. In the same time the		(ALREADY								0		
		the city planning.			game is showing the children how the city of tomorrow could		EVALUAT										
					be and how they can make sustainable changes and		EDI										it is the same as above
1108		ByMaker - Game to teach	User experience	inclusion	ByMaker is a web-based game developed at NTNU to raise	https://www.by-maker.com/											
		children and youth about the			awareness among children and youth about the importance of		THE SAME										
		sustainability in the cities and			balancing all three sustainability pillars, social, economic, and		AS 108										
		facilitate the engagement in			environmental in urban transformations. In the same time the										U		
		the city planning.			be and how they can make sustainable changes and		EVALUAT FD)										
					decisions												it is the same as above
1109		ByMaker - Game to teach	User experience	engagemen	ByMaker is a web-based game developed at NTNU to raise	https://www.by-maker.com/											
		children and youth about the		t	awareness among children and youth about the importance of		THE SAME										
		sustainability in the cities and			balancing all three sustainability pillars, social, economic, and		(ALREADY								0		
		the city planning			name is showing the children how the city of tomorrow could		EVALUAT								Ť		
					be and how they can make sustainable changes and		ED)										
		-			decisions												it is the same as above
1110		Strong and steady are training	User experience	engagemen	Strong and steady are training groups adapted for seniors who	https://www.aldringoghelse.no/fysisk-											
1		groups adapted for seniors who experience unsteadings		t.	experience unsteadiness with incipient functional impairment	neise/iaer-mer-om-iysisk-helse/sterk-og- stodia/											
		who appendice unacedulliess			recommendations for physical activity specify that elderly	Second .								1			
					people with impaired balance, in addition to being physically		1	1	1	1	1	1	1	1	8		
					active for 30 minutes at least 5 days a week, should do												
					balance exercises and strength training to improve strength												
					and balance and thus reduce the risk of falling. 60+												courses to improve balance in order to reduce falls: not relevant
1111		Sense Garden solution and	User experience	inclusion	SENSE-GARDENs are used in dementia care and combine	https://sense-garden.eu/association											
		products			virtual places, digital media and multi-sensory stimuli to create												
					immersive environments adapted to the life story of the person												Useful solution in community environments such as retirement homes, day centers or other
					with dementia. The SENSE-GARDEN Association facilitates		5	4	3	3	5	2	4	1	27		entities that deal with people with dementia; also a sense garden home edition is envisaged. The
					cooperation between developers of technological solutions,												solution is well centered on the person also using images, films or memories of the person itself. It
					facilitates discussions with users and user organizations	·											seems that caregiver support is always needed to use the solution (usability) and there is a lack of
	D				organizes voluntary activity around the SENSE-GARDEN idea												information on affordability. No future developments are mentioned



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