Ageing well with person-centred technology

Report of an International Think Tank

aaate 30th Anniversary 1995-2025
ASSOCIATION FOR THE ADVANCEMENT OF ASSISTIVE TECHNOLOGY IN EUROPE

GAATO

SEURO

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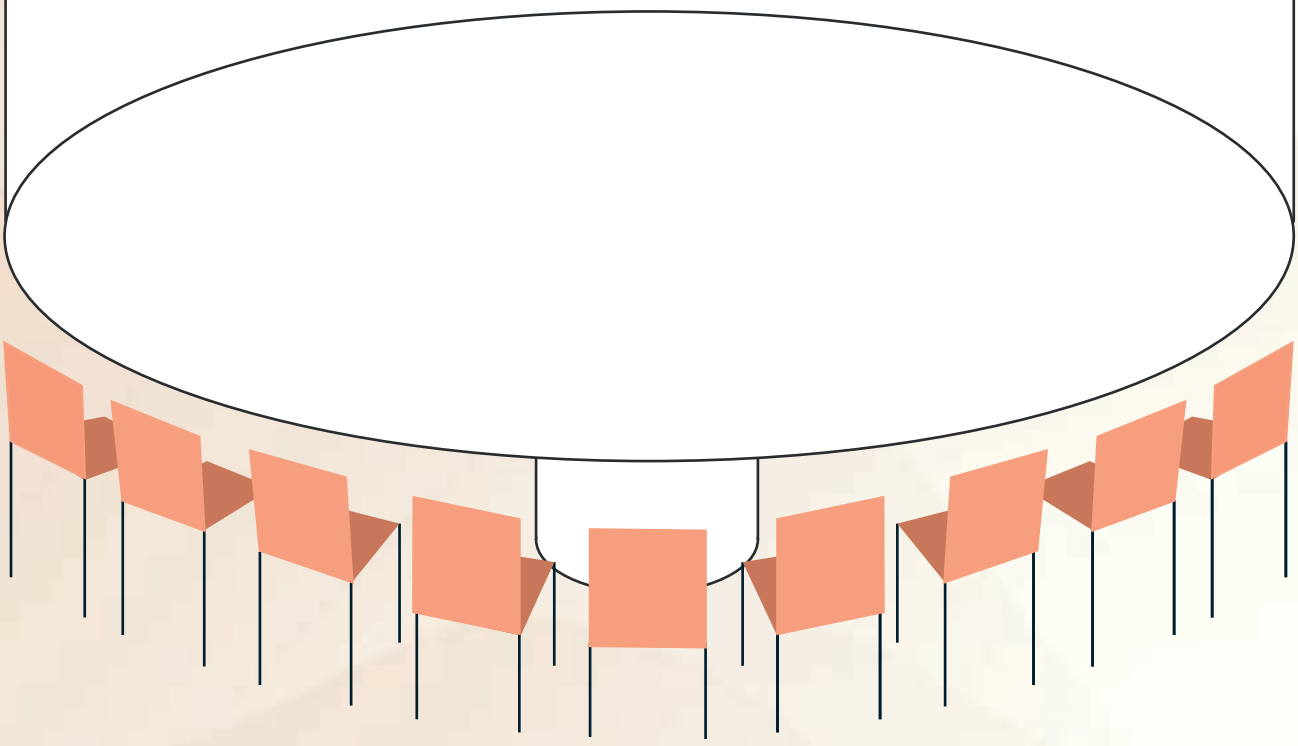
Abstract

A group of experts in ageing, technology and care joined forces in an International Think Tank. They discussed the factors that impact on the adoption or non-adoption of technology enabled person-centred solutions by older adults and their care and support providers. They further discussed a number of studies and good practices and summarised their findings in this report which is completed with recommendations for policymakers, health and social care service providers, researchers, technology developers, and organisations representing older adults. The Think Tank, promoted by AAATE with the support of GAATO, operated in the framework of the SEURO Project funded by the European Commission.



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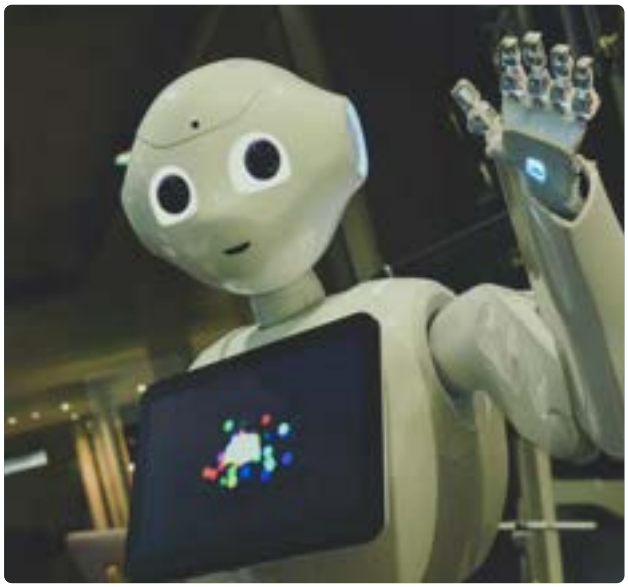
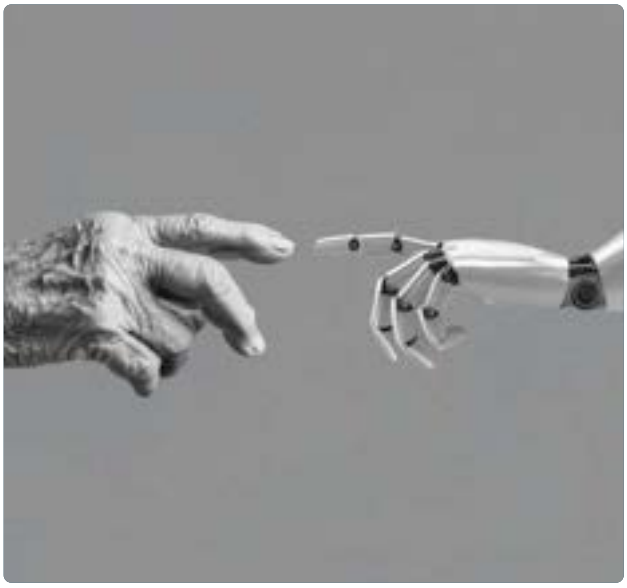




Introduction

This document is the result of the work of an International Think Tank on Ageing and Technology. The aim of the Think Tank was to discuss with experts from different countries in the world the challenges related to the uptake and use of "technology-enabled person-centred assistive solutions" by older adults (and their care networks), for different purposes, in particular for maintaining control over their lives, for dealing with care needs, for remaining productive and integrated members of the community, or just for personal interest.

This topic is considered relevant as both "ageing" and "digitalisation" are globally progressive processes with transformative power on societal structures and practices and thus on the effects that these changes produce. Technological development is impacting on what people can do and how they do it, it enhances capabilities and outcomes and it gives direction to future scenarios. To foster social cohesion and economic development that is inclusive and leaves no one behind, it is important that people of all ages have access to the same opportunities, including the benefits of appropriate technology adoption and use. However, there is a risk that the "digital revolution" enhances existing inequalities at local, regional, national and global levels, instead of reducing them, due to the law of economics, the way resources are distributed, and the way ownership, power and control are exercised. According to the Think Tank members this risk should be avoided, and having a better understanding of that challenge at the personal and community level is a first step.

Between June 2024 and March 2025, the Think Tank met four times in 2-hour sessions organised twice on the same day, to cope with time zone differences, and its activities were completed by an in-presence workshop during the CREATe Asia conference in Shanghai in August 2024, during which initial findings were discussed with a group of mainly East Asian care experts and their viewpoints were collected.

The members of the Think Tank responded to an open call disseminated through the networks of the Association for the Advancement of Assistive Technology in Europe (AAATE) and the Global Alliance of Assistive Technology Organizations (GAATO). They participated in the meetings on a voluntary basis. During the sessions, many were invited to present their work and learnings, others commented and participated in the discussion or the writing of this report. The overall coordination was in the hands of Evert-Jan Hoogerwerf, Secretary-General of AAATE and GAATO, and member of the SEURO research project consortium that initiated the Think Tank in the framework of the SEURO project funded by the European Commission (Horizon 2020 - GA 945449). The SEURO project developed and piloted in different European countries the ProACT platform which enables older adults with multimorbidity to better self-manage their health and well-being. Part of the project was the development of tools that foster the transferability of technologies from one context to another and understanding the mechanisms that determine technology adoption by older adults and their care networks from an intercultural perspective is considered a very relevant part of that process.

The Think Tank members do not have the pretension that this report fully covers all relevant factors that impact the relationship between older adults and technology, and neither that the topics discussed have been dealt with in the full depth. This is particularly true for factors at the macroeconomic or macro-policy level. Although the Think Tank members acknowledge the potential impact that technology adoption in care can have on the economy of a country, the choice was to focus the Think Tank on the implications of technological development on the lives of older adults and their care networks.

It is neither to be considered a scientific publication as such, as many of the statements reflect the experience of the Think Tank members as expressed during the discussions. Further, notwithstanding efforts to get a higher variety of viewpoints, clearly the voices of experts from high-income

countries were overrepresented since the initiative was taken by AAATE in the framework of a European project. The gender distribution among the group of participants was almost perfectly balanced, as well as the age distribution. The participants in the meeting in Shanghai were predominantly female and of different ages and levels of experience.

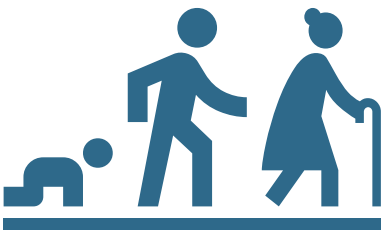
However, notwithstanding those limitations, the authors believe that the document provides an interesting overview of factors present in the immediate lifeworld[1] of older adults that determine their technology adoption and that of their health and social care ecosystems, and thus groundwork for the definition of strategies that enhance the effective use of technology for the wellbeing, independence, participation and inclusion of older adults in different societies and communities. As such, they believe that the document contains relevant information and recommendations for policymakers, organisations of older people, service providers, researchers and technology developers.

1. Lifeworld in this context "refers to the shared physical and social realm where experiences are constructed and consciousness revealed". Source: International Encyclopedia of Human Geography (Second Edition), 2020.

Setting the scene

1.1 Ageing

Ageing is a natural phenomenon that starts from the moment we are born which is the beginning of a complex and varied individual lifecourse. The word “ageing” is also used to refer to the demographic phenomenon that sees an increasing percentage of older adults in the total population. The ageing of the population is currently happening in many countries in the world, although some societies and regions in the world are ageing more rapidly than others. The process is characterised by a higher life expectancy and a lower birth rate due to better health care, economic development and cultural change. An ageing population is often considered by policymakers a problem for society and a cost. Focusing solely on the negative implications risks stigmatising older adults, underestimating their contribution to society and ignoring the potential of technology to foster the creation of inclusive, sustainable communities, rooted in intergenerational collaboration and social cohesion, that benefit people of all ages. For this reason, in designing programmes and policies for citizens wellbeing, a life-course perspective and approach is essential.



1.2 Wellbeing

As mentioned, at individual level ageing is a natural process that is characterised, statistically at least, after a certain age, by an increasing incidence of chronic conditions and functional difficulties and the reduction of social contacts. However, ageing has a highly variable impact on people. Ageing well is an aim of many and active and healthy lifestyles can help keep a good quality of life also in advanced age. For many people, the concepts of autonomy and independence are important. This includes being able to live without depending on others, the ability to make choices and decisions regarding all aspects of life, and living in settings that are familiar, healthy, economically sustainable, and without barriers. The concept of independence related to wellbeing, however, should not be restricted to "where one lives", but rather to "how one lives" and "with whom one lives" and to a certain sense of ownership of one's life in harmony with the social environment. Clearly "culture", understood as "the way of life, especially the general customs and beliefs, of a particular group of people at a particular time"[2], plays a significant role in how wellbeing is defined and experienced.

2. Cambridge English Dictionary, 2015.

1.3 Inclusion

Humans are social beings, meaning that positive identities and self-images are shaped by the networks and relationships that people have and the feedback that they receive from others, in particular those in their immediate environment. It is important that older adults are not isolated and lonely but that they are socially connected and retrieve energy from the groups they belong to. That sense of belonging to a community that represents values and traditions is important, as well as feeling included in the common destiny of that community and being able to meaningfully contribute to it. From a community perspective, the participation in community life of individual members and their wellbeing are relevant. However, most communities accept that ageing impacts the roles and expectations that members have and will try to preserve the participation, health and dignity of the older members, attributing importance to intergenerational dialogue and collaboration. Like for most people, also for older adults being a valued member of the community is important and ageing without being a burden only for others is an important life goal. Contributing to the development of the community and being economically independent is an important part of that. [1]

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1 E-Silver initiative

By Arletty Pinel

Panama

In Panama, the E-Silver initiative exemplifies how community-based approaches can promote inclusion, purpose, and autonomy in later life while activating the silver economy. Launched in the Betania district, E-Silver transforms neighborhoods into multigenerational, productive ecosystems where older adults are not only recipients of care but key contributors to local development. Through digital skills training, microenterprise support, and intergenerational mentorship, older adults are empowered to remain socially and economically engaged. The initiative is anchored in community values and mutual support, reinforcing the idea that ageing is not a decline but a stage of active participation and contribution. By connecting older people with purpose-driven roles and tools for financial independence, E-Silver offers a replicable model of how the silver economy can be locally rooted and socially inclusive.

For more information:
Click here to visit a webpage or scan the QR code.

Fig.1 Older adults in Panama learn to use mobile technology as part of the E-Silver initiative, promoting digital inclusion and intergenerational collaboration.

1.4 Technology

Technology, including Artificial Intelligence (AI), offers numerous benefits to older adults, enhancing their quality of life, promoting independence, and improving health outcomes. Key areas where these technologies make a significant impact include health monitoring and management, assistive technologies, cognitive support, social engagement, support to caregiving. However, the uptake of digital solutions for integrated approaches to empower and support older adults is slower than many researchers and policy makers expected. Although there are some concerns related to the use of these technologies (e.g. privacy, data treatment, dehumanisation of care, etc.), part of which can be controlled, the expected benefits for the individual and societies are considered so relevant that the question is not whether technology will impact on the lives of older adults, but how this will happen and to what extent the digitalisation process in society can be geared towards inclusive goals. Technology-enabled solutions for identified needs should match the requirements of the user and be compliant with the care ecosystem environment, and, to improve success in uptake, new solutions should be developed with the users and other significant stakeholders.

1.5 The vision

For an individual, as well as for a community, it is important to have goals that give meaning to actions. Goals could focus on preservation, especially in case of threats, or be preventive, but normally goals will relate to development, growth, advancement, to improving conditions, with the expected outcome being a higher quality of life for individuals, communities and societies.

Goals are determined by visions. In the Think Tank, that vision was defined as:

"Age-friendly societies assure that older adults, if needed supported by their care network, have access to digital assistive technology and digital person-centred solutions for their independence, wellbeing, health and care management, and can use these solutions as long as possible effectively in enabling contexts for their activities, participation and inclusion."

Having the vision helped the Think Tank to identify impacting factors that either enable or are barriers to the fulfillment of the vision.

Impacting factors: barriers and/or enablers

The **main goal of the Think Tank meetings** was to identify factors that impact the ideal situation as described in the vision, either positively or negatively, either as enablers or barriers. Very soon it was found that factors could either be enablers or barriers depending on how they are considered and addressed by decision makers in the planning of interventions.

It was further acknowledged that there are two important variables that influence the factors: ”time“ and “culture”. Impacting factors might change over time. For example, the next generation of older adults will very likely have much more digital skills than their predecessors, although new technologies might emerge that create additional gaps. Impacting factors might further be perceived differently in different cultural contexts, such as the expectation about who should decide about care. For example, in some cultures, such as in the Middle East or Asia, decisions would be taken collectively in the family. Also concepts such as “independence” might mean something different across different cultures.

What follows is a list of factors that were discussed by the Think Tank members, classified according to the 5P people-centred assistive technology (AT) model of the World Health Organization[3]. That model distinguishes between four components that impact people’s experience along the assistive technology access pathway: products, provision, personnel and policy. The fifth P refers to People who are at the centre of the model.

3. Global report on assistive technology. Geneva: World Health Organization (WHO) and the United Nations Children’s Fund (UNICEF), 2022. Licence: CC BY-NC-SA 3.0 IGO.

Fig.2 Graphic representation of the 5 P people-centred assistive technology model of the WHO.

Source: WHO, *op. cit.*, p.17.

2.1 People

People-related factors can be found at different levels:
At the **societal level**, collective factors play a role, such as culture and the cultural perceptions related to ageing[4]. In India, for example, the cultural norm of intergenerational caregiving results in older adults relying on family members rather than adopting independent assistive solutions.

Another important factor is how "aged" is defined and what the social and economic consequences of ageing are, as well as the impact of access to assistive technology or not.

Ageism, discrimination against older people because of negative and inaccurate stereotypes, has an impact on digital inclusion, particularly as it affects older adults' access to technology. Ageism can manifest as externalised ageism, where older adults are excluded from solution design, choice and decisions and data collection, and internalised ageism,

4. Löckenhoff CE et al. 2009. Perceptions of aging across 26 cultures and their culture-level associates. Psychol Aging. 2009 Dec;24(4):941-54. DOI: 10.1037/a0016901. PMID: 20025408; PMCID: PMC2933107.

where older adults perceive themselves as too old to learn or use technology. [2]

At the **community level**, the availability of community resources plays a role in technology adoption, both in terms of professional support services, and in terms of peer support and programmes incentivising the empowerment and emancipation of groups of people. Intergenerational and intercultural approaches based on values such as respect, dignity and recognition of cultural diversity in fostering access to (assistive) technology have proved to be very fruitful. [3]

At the **individual level** a wide variety of personal factors play a role, such as digital skills, curiosity and willingness to learn, confidence, acceptance of novelty [4], but also personal financial means, and individual needs related to health condition management or the need to continue employment for income generation and the perception of self-worth. The attitude of family members impacts significantly on the attitude of the older individual. Reluctance to use assistive technology due to fear of stigma is a global phenomenon that has been reported by many participants in the Think Tank, as well as the preferences for more traditional forms of human-based care instead of telecare solutions and more social forms of housing instead of living independently. An important factor for technology adoption is the perception that the technology is useful and responds to felt needs in real life. [5] Financial constraints at the personal level, however, are an important impacting factor with different real life and psychological implications, ranging from frustration and anger at missed opportunities to the denial of expected usefulness ("I can easily do without", "This is not so important for me").

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2 Ageism

By Cora van Leeuwen | Belgium

In Belgium an investigation into the role of ageism in the digital ageing experience of older adults was conducted in the research project Digital Ageing. It was found that ageism affected technology adoption in two ways. External ageism caused the underrepresentation of older adults in the design phase of technology, in exclusion of heterogeneous data of old age, and in a lack of consideration of older adults as potential users. Internal ageism was visible in a rejection of stigmatising age-tech, the determination by older adults that it was inappropriate for them to use certain technologies, and additionally the focus on young users as the "ideal" users. In order to explore these concepts further, media was scrutinized to determine how older adults are discussed in relation to digital inequality, how older adults themselves discussed digital technology in relation to their ageing and, finally, the emerging age bias in AI and how this can be countered via participatory research.

Reference:
van Leeuwen, C., Jacobs, A., Marien, I., & Vercruyssen, A. (2024). What do the papers say?: The role of older adults in 20 years of digital inclusion debate in Dutch and Flemish newspapers. International Journal of Ageing and Later Life, 17(2), 1–24. DOI: 10.3384/ijal.1652-8670.4883.

Fig.3 Credit: Photo by Helena Lopes (Pexels).

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3 LiveUp

*By **Vanessa Langenberg** and **Eleanor Kennett-Smith***

Australia

In Australia, the not-for-profit organisation Independent Living Assessment has developed LiveUp, a digital information and advisory solution for age-related decline. LiveUp is designed to promote engagement in early-intervention Wellness and Reablement strategies, including uptake of low-risk and some under-advice assistive technology. LiveUp research with Australia's Indigenous population, Aboriginal and Torres Strait Islander peoples, highlighted the need for Australia to proactively design a way out of a colonised approach to AT provision. Western culture's failure to uplift Indigenous knowledge systems in the development of digital assistive solutions, marginalises Indigenous population segments from the benefits, and they miss out on integrating AT uptake with important protective factors, like connection to ancestral Country or Island Home; community support, and traditional healing practices. This weakens the overall effectiveness of the solution in achieving holistic health outcomes.

For more information:
Click here to learn more about LiveUp, or here to visit the Independent Living Assessment website. You can also scan the following QR codes.

LiveUp

Independent Living Assessment

Fig.4 This image features Aboriginal community Elders on Bidjigal Country, in La Perouse, Australia. Aboriginal and Torres Strait Islander knowledge must be fully recognised and integrated into assistive solutions, to ensure elders can age healthily and well, safely within a cultural domain.

Credit: Campfire x for iLA on Bidjigal Country.

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4 Digital sofas and Silver Club

By Valentina Fiordelmondo | Italy

In Italy, AIAS Bologna, an NGO providing services to persons with disabilities and older adults, has developed a format of community based informal learning about technology. “Digital sofas” are places in community settings (libraries, social hubs, etc.) where small groups of senior citizens meet, learn by doing and exchange experiences with smartphones and apps, tablet pc’s, health parameter monitoring devices, activity trackers, GPS navigation apps, etc. Those with the highest interest join the “Silver Club” where they participate in co-design projects and peer learning events.

For more information:
Click here to visit a webpage or scan the QR code.

Fig.5 A participant exploring virtual reality during a Silver Club workshop.

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5 Questionnaire study

By Naonori Kodate | **Finland, Ireland and Japan**

A questionnaire study was conducted with older adults, family carers and care professionals in Finland, Ireland and Japan. The majority of respondents in the three countries agreed that the guiding principles regarding the decision to use a home-care robot would be "safety", "high performance and capability", "guarantee of entitlement to receiving human care, irrespective of the use of home-care robots" and "capacity to increase mental and physical wellbeing and comfort".

Reference:
Suwa S et al. 2020. Exploring perceptions toward home-care robots for older people in Finland, Ireland, and Japan: A comparative questionnaire study. Archives of Gerontology and Geriatrics, 91.

2.2 Products

Different types of technologies, such as health monitoring systems, smart home devices, and AI-driven solutions from the mainstream consumer market, or products and services specifically designed for the purpose of supporting older people or those with disabilities, offer an opportunity for enhancing their autonomy and independence, participation and quality of life.

The availability of these technologies is an important factor that impacts their adoption. At the basis of availability is the maturity of a technology and the demand for it, which is linked to the availability of information and awareness.

Very often expert advice is needed to be able to choose from available assistive solutions or to merge components in a system that responds to the needs of an individual.

AI is expanding the potential usefulness and effectiveness

of those technologies, for example in sensor-based monitoring systems, AI algorithms can detect deviations from standard behaviour patterns and provide timely alerts. AI can also predict user needs by analysing data from various sources, enabling personalized assistance (e.g. anticipation of medication schedules, early signs of health issues detection, and lifestyle adjustment suggestions to maintain well-being). Furthermore, new Generative AI solutions are providing opportunities to personalize solutions and improve access by allowing conversational interfaces via text or speech. In this context, mood tracking tools and daily emotion analysis can play a fundamental role in detecting shifts toward depressive conditions. When identified early, emerging depressive states can be managed through interventions addressing both physical and relational well-being. In this process, the support network and interpersonal relationships play a crucial role, although more information targeting potential user groups is needed. 6

While these technologies offer numerous benefits, issues related to reliability and control, as well as ethical concerns, particularly regarding surveillance and privacy, must be addressed. It is important to prevent algorithm related interpretation errors and to ensure that technologies are used responsibly and controlled, balancing safety and privacy.

Maintaining personal control and satisfaction is essential for the uptake of independent living solutions. Technologies should be designed to empower older adults, allowing them to make informed decisions and feel confident in their ability to manage their health and environment. 7

However, educational or psychological support might be needed to help users interpret the data without unnecessary alarm.

Transitioning to camera-based Ambient Assisted Living (AAL) technologies among older adults presents several challenges, including privacy concerns and resistance to change. Addressing these challenges requires thoughtful implementation, clear communication about benefits, and respect for individual preferences.

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6 AI4H focus groups

By Evert-Jan Hoogerwerf | **Poland, Spain and Greece**

In the AI4H (Artificial Intelligence for Home Carers) focus groups were held in Poland, Spain and Greece with 43 informal caregivers of mainly older adults living independently. Although the majority had a vague understanding of the potential benefits of AI enabled solutions, a significant number of participants were diffident and sceptical for several reasons. The most mentioned objections were its complexity, costs, impoverishment of human relationships, potential errors in data analytics, privacy concerns. The project team concluded that more correct and accessible information is needed in order for caregivers to make informed choices.

For more information:
Click here to visit a webpage or scan the QR code.

7 SEURO project

By Evert-Jan Hoogerwerf | **EU Member states**

In the SEURO project the focus was on piloting on a large scale a digital platform based on the integration of new and existing technologies to improve and advance home-based self-management and integrated care for older adults (over 65 years) with multimorbidity. For many participants using the system resulted in increasing their level of confidence with technology and with the monitoring of their health parameters. The system proved useful for connecting older people living in remote areas with the local health centre. Outcomes show the role of digital triage services (enabled by the platform) as important to supporting participants self-management journey.

For more information:
Click here to visit a webpage or scan the QR code.

Fig.6 Configuration of the SEURO project ProACT platform: a technician supports an older adult in using wellness monitoring devices, including a smartwatch, a blood pressure monitor, and a smart scale.

Video-based AI technologies offer a trade-off between privacy and safety. Privacy attitudes are often conditional and can be negotiated, depending on how the technology is implemented and the level of control users have over it. User studies are essential to understand these dynamics and develop solutions that respect privacy while enhancing safety.

The main barriers to the uptake of these technologies include as a matter of fact privacy concerns, feelings of surveillance, interference with regular routines, cyber dependency, and decreased human contact. [8]
Addressing these barriers requires user-centred design, clear communication, and support systems to facilitate adoption.

The concept of future self-continuity can influence the acceptance of technology among older adults. Studies have shown that interventions focusing on future self-continuity can increase acceptance of technology among older adults aged below 65 years. [9]

Privacy concerns can be alleviated using filters and other

privacy-preserving technologies. Older adults often appreciate systems that enhance safety and autonomy, provided their privacy is respected. Interestingly, healthcare professionals may also express apprehension about privacy risks, especially regarding the handling of sensitive data.

The purpose and setting of technology significantly impact its acceptance. Technologies designed with the specific needs and preferences of older adults in mind, and implemented in familiar and comfortable settings, are more likely to be embraced. It was reported that in Japan engineers work until an older age and that they drive the development of technology informed by their personal experience. One of the Think Tank members called it the "older-people-way-of-thinking"-approach as a factor for success.

Access to affordable devices and to broadband internet, in some less resourced settings represents a significant financial burden. In a country like India, most assistive technologies are imported and expensive, making them inaccessible to a large segment of the elderly population. Technologies often lack Indian language support, voice commands, or simplified interfaces, making them difficult for older adults to use.

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8 Vision-based technologies

By Tamara Mujirishvili

Vision-based technologies, such as RGB cameras, depth sensors, and thermal cameras, provide valuable health and safety monitoring but face significant barriers to adoption. Research shows that privacy concerns are the most prominent barrier, arising from fears of surveillance, data misuse, and intrusion into personal spaces. Users often feel discomfort in intimate settings, such as bedrooms or bathrooms, where monitoring feels especially invasive. Other barriers include interference with daily routines, as users may need to adapt their behavior to accommodate the technology. Cyber dependency is another concern; reliance on these systems can erode users' sense of autonomy and self-confidence over time. Additionally, decreased human contact is a significant drawback, as users fear that technology may replace personal caregiving interactions, reducing emotional support. There is a need for privacy-preserving designs that balance user concerns with the benefits of safety and independence, as well as for more context-specific research to address methodological gaps in understanding user acceptance. Addressing these barriers through transparent communication and user-centred design is essential to promote wider adoption of AAL technologies.

Reference:
Mujirishvili et al. Acceptance and Privacy Perceptions Toward Video-based Active and Assisted Living Technologies: Scoping Review. J Med Internet Res. 2023 May 1;25:e45297 DOI: 10.2196/45297.

Fig.7 Different visualisation modes of the Video Monitoring System: (i) original image, with applied privacy filters: (ii) Pixelating; (iii) Avatar; and (iv) Elimination.

Reference picture:
Mujirishvili et al. "I Don't Want to Become a Number": Examining Different Stakeholder Perspectives on a Video-Based Monitoring System for Senior Care with Inherent Privacy Protection (by Design). In CHI 2024 conference proceedings. DOI: 10.1145/3613904.3642164.

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9 Future self-continuity

By Natalie Tham

Future self-continuity can be understood as the degree of psychological connectedness between one's current self and future self. Research has demonstrated that individuals feel more connected to their future selves when these selves are experienced as similar to their current selves, vividly imagined, and positively appraised. Future self-continuity has been shown to have important implications for behaviours that involve immediate costs and delayed benefits - i.e., intertemporal choice. The decision to accept assistive technologies can be construed as an intertemporal choice as it involves immediate costs (e.g., financial costs, stigma) and delayed benefits (e.g., improved future wellbeing and longevity). Correspondingly, future self-continuity may provide an important explanation for older adults' acceptance (or lack thereof) of assistive technologies. For example, research has demonstrated that future self-continuity is positively associated with older adults' acceptance of camera-based active and assisted living (AAL) technologies. Furthermore, an intervention designed to increase future self-continuity has proven efficacious in increasing the acceptance of camera-based AAL technologies among older adults aged 65 and below.

Reference:
Tham et al., unpublished.

Fig.8 Future self-continuity is the degree of psychological connectedness between one's current self and future self.

Credit: Photo by Andrea Piacquadio (Pexels).

2.3 Provision/services

Seeing the lack of information among the general audience and the multitude of factors that have to be considered in advising technology to older people, or implementing solutions at scale, the existence of professional teams to support people and organisations to make the right choices is fundamental. [10]
It is good practice that assessment teams in Assistive Technology, whether they support children or adults, are multiprofessional, reflecting a multidisciplinary approach. Offering people the possibility to try out the technology in real life before it is provided or purchased is an important factor for success.

However, matching the person and technology is often not enough. The deployment of solutions most of the time involves different stakeholders and institutions, such as care providers and their staff, companies, trainers and educators, clinicians and community centres. While adopting technology at a large scale, it is important that all those stakeholders are involved and talking to each other. Making technology-based care ecosystems work requires coordination and mediation between the needs and interests of all, without losing the interest of the person at the centre of the care ecosystem out of sight. Clear communication is fundamental, as well as openness to review processes and procedures. The participants in the Think Tank meeting in Shanghai added “health system closeness” to the list of negatively impacting factors, but this is definitely not only a Chinese phenomenon.

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10 Adoption of technology-based person-centred care

By Lukesh Bhuyar

India

In the Indian context, the adoption of technology-based person-centred care for ageing populations is influenced by various socioeconomic, cultural, infrastructural, and policy-related factors. Given the rapid increase in India's older adults population, expected to reach 319 million by 2050, there is an urgent need to integrate assistive technologies, digital health solutions, and smart caregiving models. As a matter of fact, Assistive technology is not yet fully integrated into India's primary healthcare system, reducing its accessibility through government hospitals and community health programs. Further, most assistive devices (e.g., hearing aids, mobility aids, smart monitoring systems) are not covered under insurance or government reimbursement schemes and many healthcare providers and caregivers lack the training to effectively prescribe or integrate assistive technology into elder care. The ageing population in India thus faces significant challenges in accessing assistive technology, but government initiatives, emerging tech solutions, and increased policy focus can bridge the gap. A multi-sector approach involving healthcare providers, policymakers, private industry, and communities is crucial to fostering inclusive, affordable, and scalable solutions for elderly care in India.

Fig.9 Access to assistive technologies in India is primarily through the healthcare system.

Credit: Lukesh Bhuyar.

2.4 Professionals

Many technologies under consideration are delivered in the framework of professional services, whether these are solutions for individual use (e.g. digital assistive technology, including accessible mainstream technology), or technology provided to larger groups of users as part of person-centred care and support services. Service providers have an important role to play in the adoption and use of technology and policymakers should make that possible.

A significant impacting factor is the level of technology-related competences of professionals in Health and Social Care, as well as in adult education. Older adults with functional difficulties sooner or later will likely get in contact with services that may respond to their needs and support them in defining solutions for care and support needs. It is important that these professionals have basic information and training on the role that technology can play in enhancing independence, care and support plans. In addition, specialised services are needed that can actually identify, together with the persons, the technology that might be effective. Not every professional supporting older people needs to be a qualified Assistive Technology and Care technology assessor, but they should have a basic level of knowledge and understanding of the field and be able to refer for expert advice when their knowledge base is insufficient.

Seeing the transformative nature of technological progress in the care sector it is important that the workforce is reskilled and upskilled continuously. The availability of initial education and in service training opportunities for care professionals is an important enabler for the uptake of technology-based person-centred assistive solutions. [11] [12]

In particular, the training sector should develop multidisciplinary professionals, with a combination of technological and social-health skills. These individuals must be capable of understanding the technology and intervening when necessary for technical and personalization support, while also possessing the social-health competencies that currently define traditional caregiving roles.

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11 WHO's online Training in assistive products (TAP)

WHO's online Training in assistive products (TAP) is designed to prepare primary health and other personnel to fulfill an assistive technology role. This may include identifying people who may benefit from assistive technology; providing simple assistive products such as magnifiers and dressing aids; or referral for more complex products and other services. Appropriate to a broad range of contexts, TAP is targeted at primary health care and community workforce, as well as those providing services to people who need assistive products within other sectors.

For more information:
Click here to visit a webpage or scan the QR code.

12 Care4skills

By Evert-Jan Hoogerwerf

The Care4skills project recognises the significant impact of the digital transformation within the long term care sector and the increasing demand for person-centred approaches. The project is designed to prepare and equip long term care professionals with the necessary skills to navigate and excel in the evolving landscape of the sector. A rapid response training programme for upskilling the workforce on topics as person centred care, assistive technology and digital care is available in the form of an open online course, delivered free of charge in 10 languages through the knowledge hub of the European Association of service providers to Persons with Disabilities.

For more information:
Click here to visit a webpage or scan the QR code.

2.5 Policy

Appropriate public sector policy is an important impacting factor. Policy can strengthen enabling factors and eliminate or reduce the impact of barriers.

Enabling activities are public investment in research and development, in initial and lifelong education, in fostering integrated approaches in care, in developing standards and enhancing interoperability, in making resources available for the provision of technology and the training in its use in a lifelong perspective.

In countries such as Japan, many care facilities install monitoring devices, incentivised and supported by the government. However, the focus is on making care more efficient and reducing costs, but person-centredness and objectives such as inclusion and participation should not be overlooked.

Public intervention programmes can further impact the culture of ageing, fight ageism, promote intergenerational learning considering the continuum of needs, and empower and enable older adults as valuable resources in society.

However, the model should not be that of the state taking care of everything, but a collaboration model of governments working with non-governmental organisations at grassroots level and service providers in the community. Specific attention should be given to bridging the gap between urban and rural areas. 13

Fig.10 A long-term care professional uses a digital blood pressure monitor to assist an older adult in a home setting, illustrating person-centred care and the practical application of digital tools—key components of the Care4skills training programme.

Credit: Photo by Greta Hoffman (Pexels).

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13 Critical barriers

Argentina

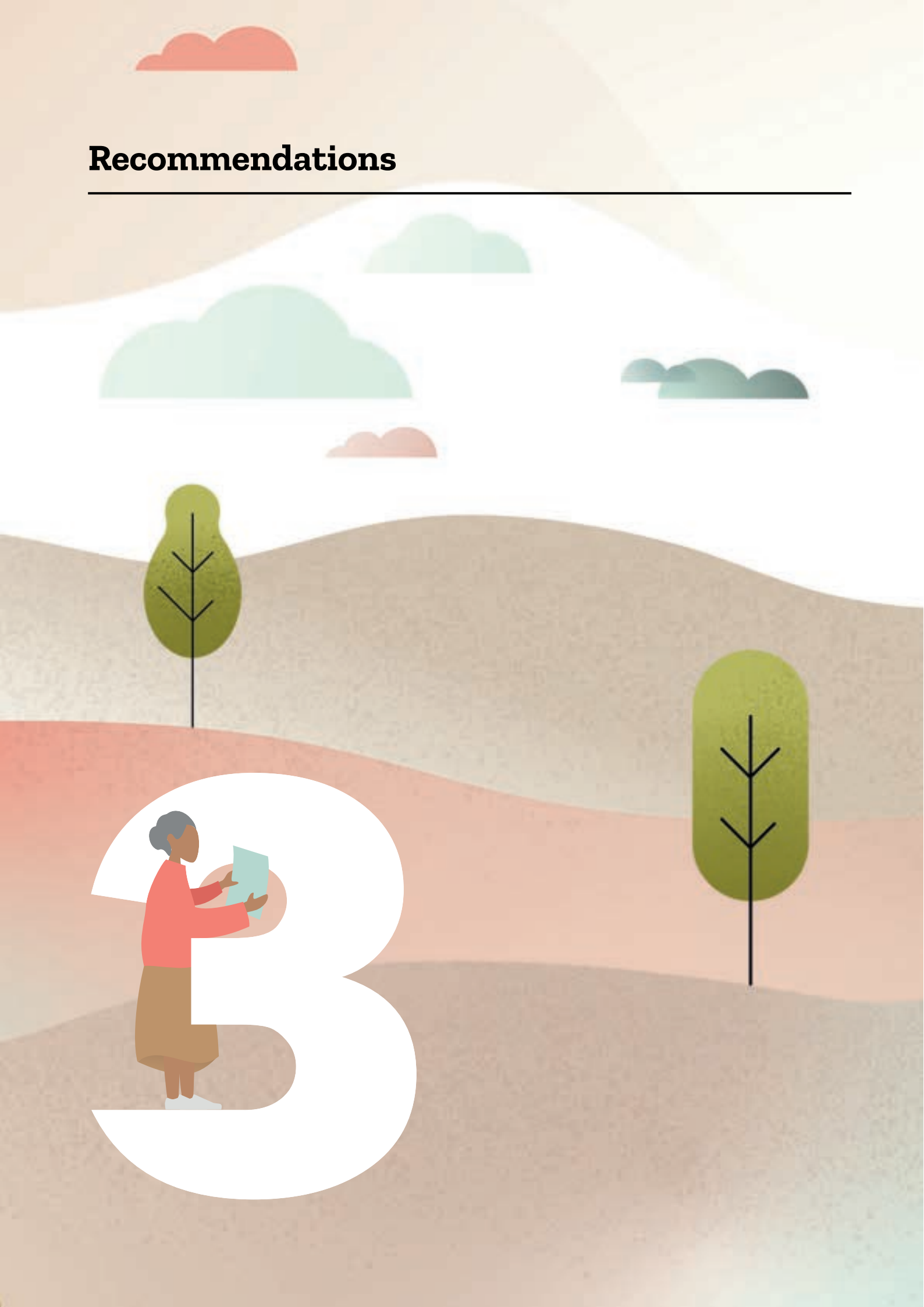
*By **Silvana Contepomi** and **Maria Guillermina Dowhuszko***

Older adults in Argentina face two critical barriers that limit their activities and restrict participation in modern society: the digital divide and the economic gap. Marginalization in the Digital Age: The absence of an effective digital education plan has left many older adults on the sidelines of the technological revolution. This exclusion prevents them from accessing essential digital tools for daily life, from communicating with loved ones to managing administrative procedures and services. The Cost of Connectivity: Acquiring technological devices and accessing the internet represent a significant financial burden for many older adults, especially those with limited incomes. Rapid evolution of technology requires continuous investments. The combination of these gaps leads to increasing vulnerability, social exclusion, and a sense of "functional illiteracy" in the digital world. The lack of role models and learning spaces tailored to their specific needs further worsens this situation.

Fig.11 Older adults in Buenos Aires.

Credit: Photo by Alex Dos Santos (Pexels).

Recommendations



Several issues discussed in the Think Tank meetings have been translated into concrete recommendations. They are presented here, divided in three areas: Policy, Service development, Research and Innovation.

3.1 Policy

- There's a need for **a cultural shift** that embraces older adults (older adults are not a burden to society) and embraces a "**social model of ageing**" (older adults are disabled by the environment). Older adults' needs and inclusion should therefore be a cross-cutting priority across all sectors, rather than a separate policy area.

- Fostering the adoption of technology by people at risk of exclusion is not an aim in itself, but **a logical way to align needs with opportunities** in a rapidly developing society.

- Policy should ensure that all have **equal access to assistive technologies**. Whether provision is entrusted to the public or private sector, or a mixture of the two, depends on the implementation of the policy that will be particular to each political environment. However, the policy of equal access should be universal.

- Targeted policies alone are not sufficient. There is a need for **collaborative environments** where actionable strategies to boost technology-enabled participation and inclusion for all are designed and developed.

- Policies that aim at the adoption of technology-based solutions for higher outcomes at personal and health and social sector levels, should consider the **collective and individual dimensions** of technology adoption and try to **measure impact** at both levels.

• To address the digital divide it is imperative to implement a comprehensive plan that effectively addresses the gap by ensuring programs that facilitate the **acquisition of affordable devices and access to broadband internet**, digital education programs and the creation of learning environments adapted to the needs of older adults. It is essential that technological education plans for older adults take into account both economic and cultural factors.

• The **collective impact model**[5], a structured approach to tackling complex social problems through cross-sector collaboration and shared goals, seems adequate to advance technology adoption at scale, without overlooking the individual needs. Committed organizations must establish a shared vision and a unified understanding of the desired outcomes to achieve meaningful progress. This common agenda ensures all stakeholders are aligned and working towards the same goal through mutually reinforcing activities and continuous communication.

• Public and private **providers of care and support services** have an important role to play in the correct adoption and effective use of person-centred technology, and governments and authorities should create favourable conditions to make that possible. 14

5. To learn more about the Collective Impact model, visit: https://www.sopact.com/perspectives/collective-impact-model

14 AT competencies

Argentina

By Silvana Contepomi

In Argentina, like in many other countries, the lack of competent workforce in the providers is a significant barrier for the wider uptake of technology in care and support services. The public and private providers of care need to be trained to develop AT competencies in order to develop person-centred services that support their clients in making the best use of assistive technologies.

• Generally speaking, there is a need for **specialised knowledge centres or Assistive Technology centres** that can support people with functional difficulties to identify the best possible assistive solution for their needs or their ambitions. Ideally such centres are easy to reach and within community settings. Recommendations should be followed up by support in the provision and, if needed, by user training, while long-term support in reviewing personalised solutions and accommodations should be provided, as conditions might change. The development of a national network of AT centres is not a one-night journey. However, ensuring an effective AT service delivery ecosystem is a governmental responsibility, and as the principles are known and the implementation scalable, the journey can start or continue.

• In many countries, policies are in place that aim to keep people as long as possible in their own homes (ageing in place), also due to staff shortages in the care sector. As a consequence, people stay at home longer with conditions of frailty, and it is important that what they can manage to cope with, in terms of **technology, remains available and adapts** to their changing needs over time.

3.2 Service development

• **Community services should be open, user-friendly and easy to access**, also with digital means. The use of digital solutions to establish relationships and collaborations and to provide access to services should help to lower the doorstep, instead of creating distance, alienation and barriers. **Building digital trust** is important, and confidence in technology of service users should be enhanced.

- Digital tools can play a crucial role in establishing mechanisms of **mutual reassurance**. Mutual reassurance refers to a form of support that involves the proximity network and/or the relationship with personal support services. Through digital communication systems directly controlled by the individual or implicitly generated by AI engines, this service enhances quality of life and personal well-being by increasing the sense of security in autonomy, thanks to the feeling of belonging and support provided by the proximity network.

- **Tailored and accessible training programs** are needed: continuous and personalized support, including digital education programs specifically designed for the needs and learning pace of older adults, technical assistance and one-on-one tutoring to resolve doubts and overcome obstacles in technology use.

- To address **ethical concerns** it is crucial to implement a "consent-based design" approach. This means developing systems where older adults have a clear understanding of what data is being collected when sensors are activated and how data is gathered through continuous monitoring, and how it will be used, and they can provide explicit consent for such data practices.

- The uptake of technology in care and support services is a rather complex process that challenges established processes, procedures and professional roles. It is important that organisations assess their **readiness level for technology adoption** and take measures for a smooth transition towards the new organisational model. Existing tools such as the ProTransfer and ProBCF-C (ProACT Behaviour Change Framework-Checklist) assessment tools prepared and validated by the SEURO project can help organisations to prepare (https://seuro2020.eu/).

3.3 Research and innovation

- More **social-anthropological research is needed** to uncover culturally determined factors that impact technology adoption and use by older adults in different cultures, languages and environments. 15

Such research should include different empirical research methodologies, including intercultural dialogue workshops to foster collective learning and exchange.

- In the design, development and implementation of new solutions, **all stakeholders should participate**, with a **central role for the envisaged end-users**. Working in multidisciplinary teams offers the best guarantee that a broad range of aspects of the new solution are considered. Researchers from different fields, not necessarily related to the care sector, can bring original viewpoints and disruptive innovations, or discover hidden effects of the innovations.

15 Deployment and use of technology

By Naonori Kodate | **Ireland and Japan**

The importance of culturally sensitive deployment and use of technology was highlighted by an ethnographic study conducted in residential care homes in Ireland and Japan. The study also shows differences in human-robot interactions and the perceptions of AI/robotics-aided care systems in different cultural contexts.

Reference:
Kodate et al., 2025. Assembling Sociality in Caring Spaces: Culturally Sensitive Robot Deployment During the Pandemic in Residential Care Homes in Ireland and Japan." Engaging Science, Technology, and Society 10(3): 181–206.
DOI: 10.17351/ests2023.2435.

• What might seem a good solution for a specific cultural context might not work in another. Cultural elements and policy frameworks will differ from country to country. Even within countries, there are differences between groups in terms of expectations, preferences and interests. Challenges of **intercultural learning, knowledge transfer and scaling** across cultures should be recognized, and a global community of practice should be nurtured.

• More targeted research and development that is led by and directly benefits **indigenous population segments**. Generally, indigenous peoples around the world suffer from poorer health than their non-indigenous counterparts. Indigenous communities also hold thousands of years of health wisdom and knowledge, which can offer critical insights that challenge and enrich dominant ways of thinking around technology and assistive solutions.

• More attention should be dedicated to the specific needs of **persons ageing with a lifelong disability**.

4. Final remarks

The analysis conducted using the 5Ps model to investigate the factors that impact on the fulfillment of our vision, emphasises the need for a more comprehensive global framework for describing older adults' access to assistive solutions of different kinds and for different functions (e.g. communication, self care, mobility, memory, visual and hearing). Such a framework should address the different factors that impact the uptake of technology from a holistic, multicultural and multidisciplinary perspective. This Think Tank report is just a small first step.

Please provide your feedback on the report!

The Think Tank members would be happy to receive your feedback on the report.

Please **use this link** or **scan the QR code** to access the feedback form.
You can leave suggestions for improvements and additional recommendations, or be invited to further meetings of the Think Tank.

Thanks in advance.

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