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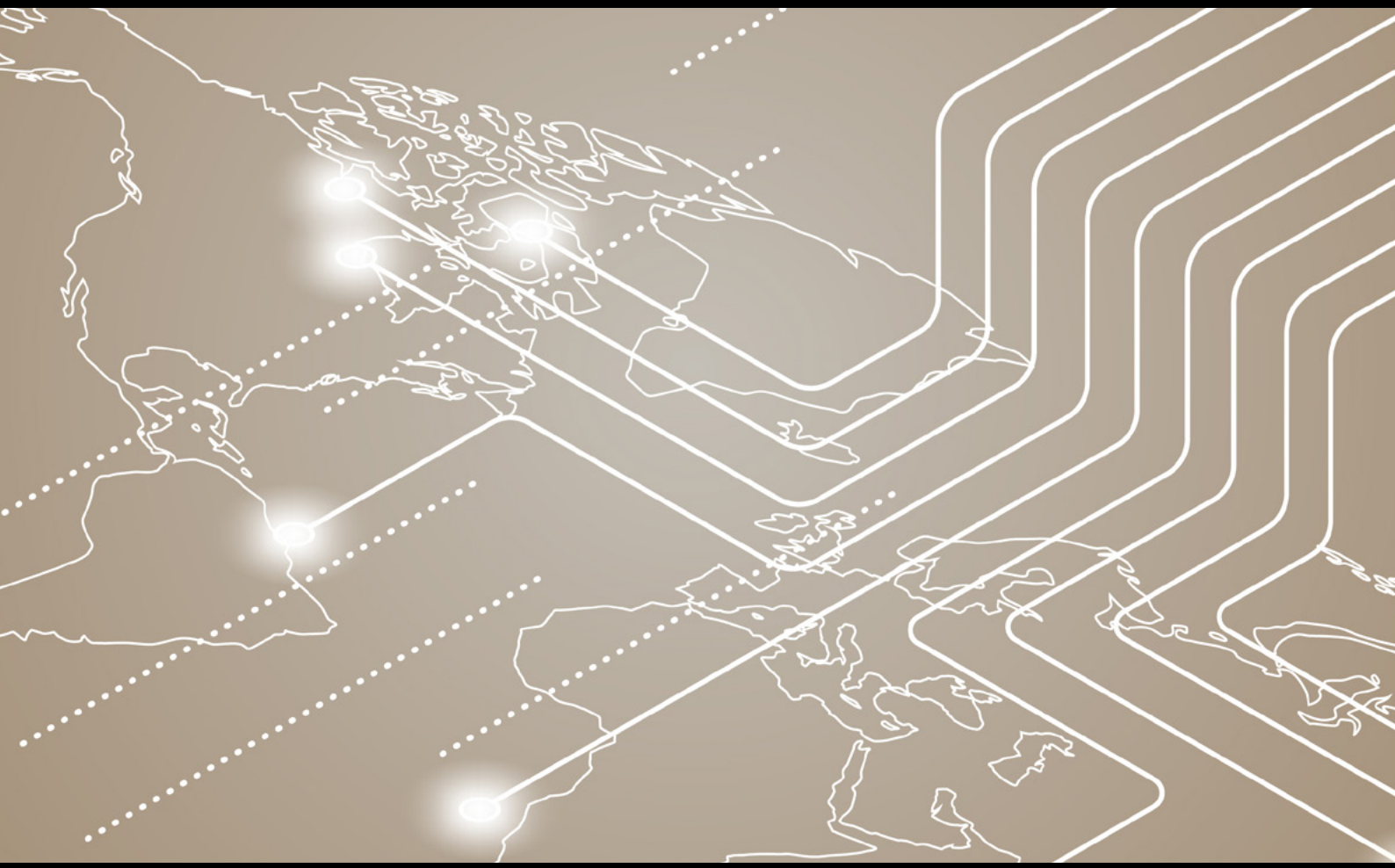
Development Considerations and Design Criteria for a Digital Age



Virtual-EngAge Translation Report Series No. 3

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Introduction

Given the dual transitions of digitalisation and demographic ageing facing many countries, there is a critical need to ensure that the design and development of digital technologies are inclusive of and relevant to older people, and how they want to take part in society. This is particularly evident in relation to participation in later life, where engagement in social, civic and political group activities have been found to have positive impacts on individual well-being (Serrat et al., 2020), and to have become increasingly digitised (Fischl et al., 2020). However, research has documented a number of barriers within innovation processes that can serve to compromise the effectiveness of resulting technologies, and their capacity to support older people and their engagement. First, studies have shown the failure to involve heterogenous groups of older people in the development of technologies, even when older people or a specific group of older people are the target users of the technology. This neglects the ways in which needs, preferences and attitudes related to digital technologies differ across and within groups – serving to homogenise whole populations of potential technology users. Second, studies have documented how digital technology innovation for older people has been dominated by a focus on individual-level health care monitoring. This reinforces a narrow view that the digital lives and engagement of older people is characterised by care needs and health concerns. It also means that there has been little consideration given to the everyday participation patterns of older population groups and their needs and preferences for technologies that might enable and support their engagement (Grates et al., 2019; Poli et al. 2019; Fischer et al. 2020). Furthermore, efforts to harness the existing ways in which technologies are already used, and to recognise the existing levels of digital literacy amongst older people, are rare (Neven and Peine, 2017). Third, and despite the proliferation of inclusive design strategies, research has noted that existing technology development approaches remain object-oriented and technology-led (Poli et al. 2019), with a continued absence of multi-stakeholder design and development approaches. This ignores the views of older people and the voices of cross-sectoral stakeholders which are fundamental for the development and adoption of any potential solutions. It also side-lines experiential, tacit and other forms of knowledge and expertise (Vines et al. 2013; Age Platform 2024). Together, these barriers and deficits mean that there has been a failure within existing development processes to translate real-life needs, preferences, and challenges into workable development and design criteria (Whittle, 2014).

Given Active Retirement Ireland's (ARI) commitment to empower the engagement of older people in an increasingly digitised Irish society, ensuring a focus on the inclusive design and development of digital technologies for participation in later life is closely aligned with the organisation's ethos.

Harnessing a research-informed multi-stakeholder participatory process, this Translation Report presents development considerations and design criteria for a digital application to enhance engagement in later life across areas such as social connection, information access and dissemination and advocacy. The report grounds these considerations and criteria in the preferences and challenges of a diverse group of ARI's older members in relation to their experience of engagement, and their use or non-use of technology. The analysis draws on findings from the Virtual-EngAge research project, and addresses five key objectives:

1. To identify key enabling factors within the existing social, political and legislative context required to support the development and adoption of digital technologies for engagement in later life;
2. To discern the key goal and desired functions of a digital application to support the collective engagement of older people;
3. To identify the factors that support, and the core features of, an inclusive design and development process for digital technologies relevant to older people;
4. To chart implementation mechanisms that can support the roll-out and adoption of digital technologies for supporting collective engagement in later life;
5. To co-produce development considerations and design criteria that encompass these factors, functions, features and mechanisms using a participatory multi-stakeholder process.

In the context of this report, a digital application refers to a digital internet-based application, which can include a web-site based platform, or a smart phone or a smart device enabled application.

ARI's Unique Context

There are two reasons why it is valuable to ground the production of design criteria for a digital engagement application in the needs, preferences and experiences of ARI's membership. First, because of the scale of this membership (21,500 people approximately), ARI is likely to represent older people with a diverse range of digital skills and literacy, and a diverse set of experiences regarding access and use. Second, as ARI adopts a multi-modal approach to communication and mobilisation, it serves as a valuable example from which to explore the potential of how an appropriately designed digital engagement application could support its communications and functions. The value of this organisational setting is enhanced, given that ARI involves voluntary committees at local (ARA local leadership), regional (nine regional teams, committee members and Regional Development Officers) and national levels (national steering board).

How the information for this analysis was collected?

The research evidence used to inform the co-production of the development and design criteria was derived from a multi-level mixed-method, interdisciplinary study. A summary of the main collection methods is presented below.

Expert stakeholder interviews

Four expert interviews were conducted with European policy stakeholders to examine policy and digital innovation trends in relation to older adult grassroots organisations and collective engagement. Interviewees comprised of senior policy personnel or chief executives from within European-level civil society, strategic innovation and policy organisations.

Social media analysis of national attitudes and ARI presence

A social media analysis was completed to investigate the prevalence, the level of interaction and the perceptions of ageing organisations within major digital spheres of public expression and engagement. Concentrating on X (twitter.com) as a major digital sphere, the analysis also examined the inclusionary and exclusionary views and discourses related to ageing and older people, and older adult technology-use, evident within social media.

Interviews on ARI and ARA contexts and perceptions

Eleven semi-structured telephone/virtual interviews were conducted with ARI staff and volunteers across its three levels to examine the existing and potential role of digital technologies in communication and mobilisation for collective engagement. Interviewees comprised of three national level participants, four regional participants, and four local-level ARA Chairs.

Survey and interviews on individual experiences of engagement and technology use

A self-completion questionnaire was distributed to ARA members across 150 local groups. In total, 464 questionnaires were returned, providing a response rate of 52%. Respondents included 369 women and 83 men (missing information on gender was registered for 12 respondents). The sample ranged in age from 55-95 years (mean age: 75 years; standard deviation: 7.1 years), with 19 percent living in cities, 26 percent in towns, 53 percent living in a village or rural countryside, and 2 percent indicated 'other' location.

In-depth follow-up interviews were conducted with a purposive sample of 40 survey respondents. The final sample comprised of 24 women and 16 men, ranging in age from 63 years to 88 years (mean age: 75 years; standard deviation: 6.1 years). Interviews explored in-depth those patterns observed within the survey results, but with a stronger emphasis placed on routines of collective engagement, and technology use, and barriers and facilitators over the life course.

How the development and design criteria in this report were developed?

The development considerations and design criteria presented in this report were based on outline considerations and criteria discussed and agreed at a multi-stakeholder Translation Forum. The Forum, which followed a deliberative-democracy workshop approach, comprised of 16 members drawn from participants of previous study strands, and from the digital technology research and development community. This included representatives from ARI's professional secretariat and its national board[1] (n=3), regional development officers (n=2), and 6 individuals drawn from the older adult interviews. The external research and development members of the Forum (n=5), included those specialising in data science and application development, interface design, inclusive information system design, and digital market development. The Forum was the last in a series of three, with the previous two focused on presenting findings and deriving recommendations on: ARI's communication and mobilisation practices for collective engagement (described in Translation Report 1); challenges experienced by ARA members using digital technology for everyday engagement (described in Translation Report 2). In the main, ARI and ARA members attended all three Forums (with the exception of three people), but the research and development members only attended the third Forum.

The Forum lasted 5 hours in total and comprised of three parts. First, an overview of the digital profile of ARA members was presented, followed by a description of any explicit digital technology preferences reported by participants during the course of the research study. Second, in small mixed participant groups, a discussion of the purpose and goal of a digital application to support engagement in later life was held for 30 minutes, with key messages from each of these groups noted and discussed in a plenary feedback session. The remainder of the Forum was dedicated to identifying development considerations and design criteria in response to challenges that had been identified as impeding people in using technology for engagement. For each challenge: (1) three key research findings were first summarised for the overall challenge; (2) a composite scenario was then presented that was empirically grounded in the real-life experiences of those who encountered the challenge (data from more than one participant was used to create a single composite 'story'); (3) the challenge was then discussed in small groups for 20 minutes to identify key development considerations and design criteria; and (4) a plenary feedback session was held to discuss differences and similarities across the groups.

Participatory Learning and Action (PLA) techniques were used within the forums to help ensure representation of voice amongst the various participant groups. Each small group discussion included ARI members from different levels of the organisation, and a digital technologist.

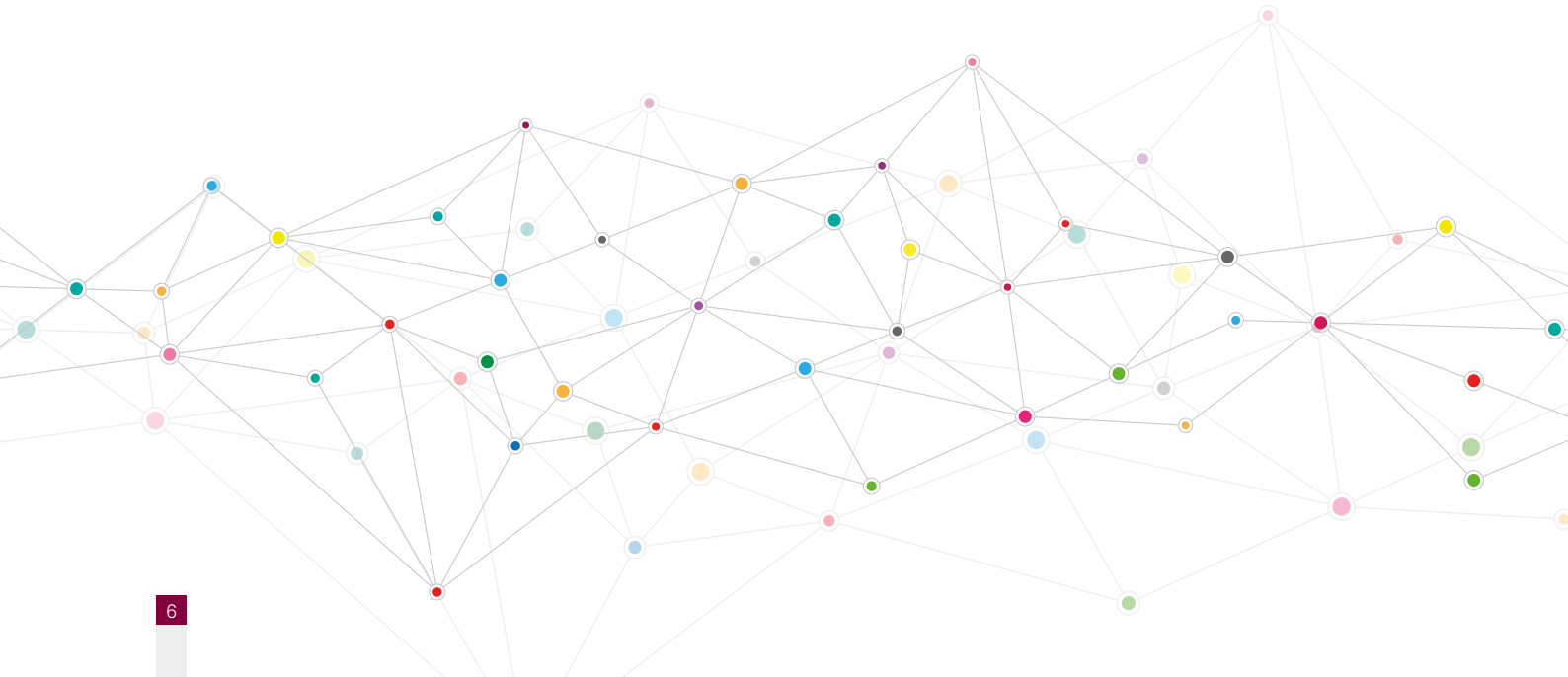
1. This included two individuals who had not taken part in the research, replacing previous participants who had since left the ARI organisation.

Concluding Remarks

The main findings of the Virtual-EngAge research study are presented in Translation Reports 1 and 2, and in the Virtual-EngAge Policy Brief No. 3. This Translation report and the development and design criteria presented below should therefore be understood in the context of the broader findings of the Virtual-EngAge study. In Translation Report 1, the importance of accessible communications for all, and the need to build communications capacity for engagement (digital or otherwise) is emphasised. In Translation Report 2, a balanced and fair digital transition is called for, where choice and autonomy with respect to engagement should be facilitated (regardless of use or non-use of digital technologies) as a matter of a social right. In addition, the requirement to foster a supportive and constructive culture, and the State's public duty in relation to digital engagement in later life were also asserted. Ultimately, while many of the proposed measures arising from the Virtual-EngAge study address how to support older people in utilising digital technologies to enhance their engagement, the right to full participation in societal services and engagement channels should be prioritised above all else, and should be enshrined in legislation that enforces choice, and the continued facilitation of in-person engagement. On that basis, a digital application is not proposed as a panacea for all challenges associated with the digitalisation of our societies. However, to counter the neglect of older adult engagement evident within digital technology development, and to provide equal opportunities with respect to the availability of effective technologies for those who want them, an appropriately designed application could provide a useful tool for many older people.

Development Considerations and Design Criteria

In response to the findings of the research, 38 development considerations and design criteria were identified and agreed as a part of the Virtual-EngAge Translation Forum to support digital participation and digital application development. These considerations and criteria are presented in two parts. The first set focuses on those criteria that help define the function and scope of a digital internet-based application that supports the multifaceted engagement of older people. It is intended that these criteria can apply to a web-based platform, or a smart phone or a smart device enabled application. The second set of criteria respond directly to the challenges concerning the role of digital technologies in engagement. In overall terms the considerations and criteria are targeted at addressing: (1) those factors that need to be in place to support the development of an enabling digital engagement environment (including the social, political and legislative context); (2) specific design features within a digital application that can address these challenges; (3) what is required to ensure an inclusive and impactful digital application development process; and (4) the implementation mechanisms that support the successful roll-out of a digital application. The development considerations and design criteria are presented in the matrix below and are categorised across these different dimensions.



Application central function(s)	Enabling digital context	Application design features	Design process	Roll out
To be supportive of and enable individual engagement preferences, offering older people opportunities to connect with other individuals and groups, key information systems, and issues and matters important to older people.		X		
With respect to social connectivity the application is required to:				
1. Assist in streamlining communication between ARI and all ARA members, enhancing communication with and between individual local groups, and between members of those groups in order to support the experience of participation in online activities, and in in-person engagement.		X		
2. Support different kinds of social connections, including: personal informal interactions and 'banter'; close interpersonal relationships; virtual group contact and social activities; and the development of online communities based on different interests.		X		
3. Function as a social information brokerage that builds awareness of social participation, provides information and guidance on available social activities and events of interest, and facilitates the organisation of people for the establishment of new social opportunities.		X		
With respect to information access, the application is required to:				
4. Serve as a single information resource and a means to simplify complex administrative processes for accessing services and entitlements to enable greater participation, including in the areas of banking and finance, health, and travel and mobility.		X		

Application central function(s)	Enabling digital context	Application design features	Design process	Roll out
5. Ensure information content is provided in both audio and visually accessible formats, using understandable language with no jargon or specialist terminology.		X		
6. Simplify the complexity of finding your way on online information sources across all devices that enhances intuitive navigation and reduces the need for digital experience or digital skills.		X		
With respect to advocacy the application is required to:				
7. Serve to amplify the voices of older people regarding on-the-ground issues that they experience in their everyday lives, through the facilitation of shared problem identification, the development of awareness campaigns, and the targeting of advocacy activities.		X		
8. Support the mobilisation of individuals and groups regarding common concerns and interests, leveraging an enhanced capacity for strategic group lobbying.		X		
9. Act as a gateway and sounding board for non-governmental organisations, representative bodies and elected representatives to engage with and hear from older people with respect to key topics and concerns.		X		
Challenges	**Enabling digital context**	**Application design features**	**Design process**	**Roll out**
Structural aspects and ageism challenge				
Economic accessibility				
10. Digital participation, including digital technologies and internet access, must be financially accessible to all older people	X		X	
11. Specifically designed digital applications must be able to function on basic and low-cost devices.		X		

Challenges	Enabling digital context	Application design features	Design process	Roll out
12. Digital technologies and participation should be considered as an essential service (like transport), with any cost burden removed or reduced with the aid of a digital allowance, and free device upgrades.				X
13. State supported central hubs with free-to-access devices on-site, tech-support and repair, and longer-term rental arrangements should be available to support diverse digital needs.	X			
14. Negotiate a group-discounted scheme for accessing specific technology devices that have appropriate functionality and applications, to support engagement (e.g. WhatsApp; Facebook).	X			
Regulation reinforcing equity and rights				
15. An assessment of all and any relevant Irish guidelines on digital accessibility must be conducted to ensure their adequacy, and must be informed by the lived experience of older adults.	X		X	
16. Accountability must be reinforced regarding the design and implementation of systems, services and pathways that directly or indirectly discriminate against older cohorts with lower levels of digital proficiency.			X	
Design for inclusion and age equality				
17. The innovation and development of a digital application design must be led by recognition of the diversity of digital needs, preferences and proficiencies amongst heterogenous older populations			X	
18. Device and application design processes must be inclusive and not discriminatory of older adult voices, with a statutory requirement for developers to include meaningful input from a diverse group of older people that ensures final products are needs-led, useable and appropriate.	X		X	

Challenges	Enabling digital context	Application design features	Design process	Roll out
Enabling digital literacy and learning				
19. Task-based training programmes that build digital confidence should be developed to combat internalised blame and ageism amongst older people who feel unable to engage digitally.	X			
20. The establishment of peer-led digital literacy training should be prioritised to enhance the appeal and accessibility of digital training for older cohorts, and to embed a train-the-trainer style process that recognises and promotes the digital agency of older people.	X			
21. Build in a tailored training and instructional programme incorporating manuals in plain-language text, and audio and visual formats within the design of the digital application, and provide direct access to more in-depth digital training that extends beyond the specifics of the application.		X		
Geographies of engagement challenge				
Under served communities and ensuring opportunities				
22. A reassessment of resource allocation and service models in digitally under-served communities must be conducted and used as a basis for rebalancing State and private provider business delivery models, with a fairer distribution of access to digital services and infrastructure.	X			
23. The provision of in-person, analogue and digital modes of communication and engagement must be facilitated in digitally under-served communities to address current infrastructural exclusions.	X			

Challenges	Enabling digital context	Application design features	Design process	Roll out
Infrastructure and Investment in place				
24. A cohesive and holistic transparent planning process must be put in place to address spatial differences in telecommunications and broadband infrastructure and the longer-term digital investment needs in under-served communities.	X			
25. Examine the feasibility of designing and rolling out digital applications with core functionality, based on lower-internet bandwidth connections.		X		X
26. Prioritise the urgent need to scale up digital access, with a focus on expediating the process of broadband implementation and tackling spatial inequalities in access.	X			
Ensuring ancillary infrastructures				
27. The quality and viability of community amenities and infrastructures – such as transport and social outlets - must be assessed and improved as a basis of supporting all forms of engagement, complementing digital infrastructure, or compensating for its absence during the roll-out of digital infrastructure.	X			
28. Support the mobilisation of resources in building local amenity capacity for digital training and engagement, including through the provision of incentives (e.g. resources; grants), and engaging in partnerships with schools, local community centres and amenities.	X			
Social relationships challenge				
Design embedded social supports				
29. Embed a person-led support function within the digital application that incorporates a peer-support community, and where appropriate, professional technical support that connects users with one-to-one assistance.		X		

Challenges	Enabling digital context	Application design features	Design process	Roll out
Design for agency				
30. The digital application should be designed to empower the agency of older people, supporting independent digital learning and skills acquisition, and progressively building digital confidence.		X		
Diversifying and embedding social supports				
31. Diversify and deepen the sources of community-based digital support available to older people with limited existing supports, including establishing peer-to-peer virtual and in-person support communities, credit-based third-level and second-level student volunteer programmes and other intergenerational digital learning initiatives.	X			
32. Foster greater grassroots innovation with respect to digital engagement and roll-out of digital applications, integrating digital supports with existing initiatives – such as Repair Cafés, and Men's and Women's Sheds – and/or nurturing social enterprises to leverage greater socio-economic impact arising from inclusive digital communities.	X			
33. Actively promote virtual communities of interest to motivate online participation through interests and hobbies, and provide opportunities for task-based learning and learning while doing.	X			
Attitudes to virtual engagement challenge				
Responsible content and risk management				
34. A multifaceted strategy to address safety and privacy concerns around digital engagement must be developed, and must include education on misinformation and on how to identify reputable sources and forums that build trust.	X			

Challenges	Enabling digital context	Application design features	Design process	Roll out
35. Technology companies, developers and web-based platforms must take responsibility to ensure safety and veracity of digital application content and communication, including ensuring transparency around data use, measures to control disinformation, and offering assurance regarding privacy.	X		X	
36. Design and embed security and privacy features to include only external links to verifiable and reputable sources, services and supports, reducing the potential for individuals to experience hostile and predatory virtual environments.		X		
37. Reduce anxiety around digital risk and safety through the provision of training on safe internet navigation, in using digital technologies, and the need for critical analysis of information and content.	X			
38. The digital application should feature age-related accessibility measures – such as those that can account for visual, auditory and cognitive impairment – and age-relevant content.		X		X

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