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Exploring digital ageism in relation to older people

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A report to:

Comisiynydd Pobl Hŷn Cymru
Older People's Commissioner for Wales

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Glossary

Acronym/Key word	Definition
AI	Artificial Intelligence
Compassionate Ageism	A form of ageism that is trying to protect older people from harm and may be well intentioned but can end up restricting their opportunities or inadvertently do more harm than good.
CDPS	Centre for Digital Public Services
CV	Curriculum Vitae
DCW	Digital Communities Wales: Digital Confidence, Health, and Well-being
Digital Native	A person who has been born or brought up during the age of digital technology and is therefore familiar with computers and the internet from an early age.
EC	European Commission
EHRC	Equality and Human Right Commission
EU	European Union
GDPR	General Data Protection Regulation
ICO	Information Commissioner's Office
OT	Occupational Therapy
UNECE	United Nations Economic Commission for Europe
UX	User experience
UK	United Kingdom
WG	Welsh Government
WHO	World Health Organization

1. Background

OB3 Research was commissioned by the Older People's Commissioner for Wales to undertake a short research project to explore digital ageism in relation to older people aged 60 and over.

The first stage of the approach to the literature review involved identifying and reviewing the relevant published literature, of relevance to the brief.

The literature review aimed to consider existing knowledge, research, relevant legislative and policy frameworks as well as examples of best practice, and effective interventions to overcome digital ageism.

This involved undertaking a search of academic and grey literature on digital ageism, with a focus on publications made available over the last five years. A list of search parameters and key words were agreed to inform the searches via Google and Google Scholar.

64 sources were identified which included 31 academic papers or book chapters, 27 online articles and six policy briefings or reports. These were then grouped to specific sub-themes that correspond to the chapter headings of this final report.

These evidence sources were then reviewed with a focus on identifying the key learning and policy implications of relevance to the Older People's Commissioner for Wales.

2. Introduction

In today's rapidly evolving digital landscape, the concept of digital ageism has emerged as a critical and multifaceted form of discrimination. Digital ageism refers to the stereotyping, prejudice, or disadvantage directed at individuals, particularly older adults, within digital contexts. [1,2] It encompasses discrimination based on assumptions about people's ability to use technology, and it can appear across the design, implementation, and use of digital systems.[3]

While ageism itself is not new, its digital manifestations are becoming increasingly widespread. They can be found in poorly designed interfaces that exclude older users, algorithmic biases in artificial intelligence (AI) systems, and public or policy narratives that frame older adults as "technophobic" or "digitally illiterate" .[4,5] These representations shape not only how older people are treated by digital technologies but also how they perceive and interact with those systems.

Digital ageism is often multidimensional, intersecting with social, economic, and cultural factors. It is reinforced by assumptions embedded in technology development, data collection, and digital service delivery.[6] As societies grow increasingly reliant on digital infrastructure, older people frequently face both direct and indirect barriers to participation including exclusion from design processes, insufficient digital training, underrepresentation in datasets and biased algorithmic decision-making.[7]

The World Health Organization identifies three levels at which digital ageism operates: structural, institutional, and individual. Structural digital ageism occurs when older adults are underrepresented in datasets or excluded from technology design processes. Institutional ageism arises when digital policies, platforms, or services fail to consider the specific needs of older users. Individual-level digital ageism reflects assumptions that older people are incapable of or uninterested in engaging with technology.[8] Together, these levels of bias contribute to

[1] Rosales, A. et al (2023).
[2] World Health Organization (2021)
[3] Hadas, 2023
[4] Loos, E. F. (2021)
[5] Vines, J. et al. (2015)
[6] Rosales & Fernández-Ardèvol, 2020
[7] Ibid.
[8] World Health Organization (2021)

exclusionary priority setting, limited usability testing, and oversimplified digital literacy programmes.[9,10]

This review draws on a range of sources, including academic studies, policy briefings, and grey literature, to explore how digital ageism functions in practice. It examines key areas such as the design and development of digital systems, the use of data and AI, access to employment, social participation, leisure, and digital delivery of health and social care services. The review also considers emerging research on intersectionality and compassionate ageism[11], highlighting how gender, socio-economic status, race, and disability intersect with age to compound digital exclusion. [12,13]

Understanding digital ageism is especially important for governments and public bodies responsible for promoting equity, digital inclusion, and human rights. For the Older People's Commissioner for Wales, focusing on digital ageism is not only a matter of fairness; it is essential for advancing broader policy goals in health, social care, digital service delivery, and active ageing. While Wales has strong commitments to older people's rights, effectively tackling digital ageism requires a sharper focus on the norms, practices, and technological systems that can inadvertently exclude older adults.

Digital ageism is not simply a technical oversight or a matter of user training. It is a systemic issue that requires coordinated action across research, regulation, design, education, and public discourse. Only through such comprehensive efforts can policymakers ensure parity of access to digital technologies and foster a more inclusive digital society for older adults.

[9] Rosales, A. et al. (2023)
[10] Marston et al. (2021)
[11] A form of ageism that is trying to protect older people from harm and may be well intentioned but can end up restricting their opportunities or inadvertently do more harm than good.
[12] Ienca, M et al. (2021)
[13] Loos, E. F. & Ivan, L. (2023)

3. Findings: addressing digital ageism in policy and governance frameworks

Digital ageism is not just a technological or social issue, it is strongly shaped by policies and governance structures at local, national, and international levels. The governance frameworks that regulate and guide digital technologies, data use, and service provision play a pivotal role and can either help reduce or unintentionally increase digital exclusion of older adults. While some progress has been made in recognising digital inclusion, age-specific considerations are frequently overlooked or underdeveloped within existing regulatory and policy environments. This gap presents significant risks for systemic digital ageism to become further entrenched and normalised.

Key international institutions, such as the United Nations Economic Commission for Europe (UNECE), World Health Organization (WHO), and the European Commission, have begun to explicitly address digital inclusion within their ageing and human rights frameworks:

- the UNECE's policy brief on ageing and technology[14] acknowledges the disproportionate impact of digital exclusion on older adults and calls for integrated strategies that foster age-friendly digital environments
- the WHO's 'Global Strategy and Action Plan on Ageing and Health' highlights digital equity as critical to healthy ageing[15]
- the 'Ageing Equal' digital inclusion framework developed in Europe emphasises principles of dignity, autonomy, and participation for older adults in digital policymaking.[16] The framework recommends clear policy commitments to digital rights, age-disaggregated data collection, and cross-sectoral collaboration.

Despite these efforts, age is often less clearly protected than other characteristics such as race, gender, or disability in many digital rights and data protection laws. For example, the UK's General Data Protection Regulation (GDPR) provides strong protections for personal data but lacks provisions directly preventing age-based discrimination in data processing and automated decision-making.[17] This regulatory blind spot makes it harder to hold digital systems accountable for bias against older adults.

[14] UNECE, 2021
[15] WHO, 2022
[16] Ageing Equal, 2023
[17] ICO, 2023

At the national level, many countries also lack coordinated approaches that integrate digital, ageing, and equality agendas. The UK parliamentary report on the rights of older people[18] notes the absence of a comprehensive national strategy on digital inclusion, resulting in fragmented initiatives and inconsistent access to digital services for older adults, which is exacerbated by many years of squeezed local authority budgets and a move to 'digital by default' services since the Covid-19 pandemic in particular. This fragmentation complicates efforts to implement inclusive procurement standards, digital skills training, or accessible infrastructure that could systematically reduce digital ageism.

The growing use of artificial intelligence (AI) and algorithms to inform decision-making raises new governance challenges and concerns around digital ageism. AI tools are increasingly used in public and private services, from recruitment to healthcare. However, many systems fail to account for older adults, relying on data that underrepresents them or using proxies that unintentionally disadvantage them. Age-aware audits, inclusive design, and clear transparency about how algorithms make decisions are essential to prevent these biases.[19]

The UK's Information Commissioner's Office (ICO) has started to develop guidance on AI fairness that includes age considerations, but these efforts remain at an early stage and require scaling to be effective across sectors, including health, social care, employment, and financial services.[20]

Governments have a key role to play. Policy and procurement rules can encourage technology that is accessible and usable for older adults. Age-friendly digital governance models that include older people in policy and technology design ensures solutions reflect their needs and are tailored to diverse capabilities and contexts.[21] Inclusive public procurement frameworks can also use government purchasing power to promote industry compliance and innovation in ensuring accessibility, interoperability, and usability of digital services for older users.[22]

Finally, policies need to work together across sectors. Digital ageism affects social care, health, transport, and housing policies and siloed approaches undermine the effectiveness of age-inclusive digital strategies.[23] Coordinated governance where responsibilities and resources are shared across sectors and levels of government is essential to ensure older adults are fully included in the digital world.

[18] Parliament UK, 2025
[19] Boven et al., 2023
[20] ICO, 2025
[21] Rosales et al., 2021
[22] OECD, 2025
[23] European Commission, 2020

4. Findings: digital ageism and the design of digital services

Digital ageism is a complex, systemic issue that extends beyond individual user experiences to the processes through which digital technologies are prioritised, developed, tested, and utilised. These stages embed and perpetuate ageist assumptions, which can affect older adults' digital inclusion, autonomy, and representation.

The design and development phase of digital technologies is a critical stage where ageism becomes embedded through exclusionary practices and stereotyped assumptions about older adults. Ageist design manifests in the form of digital products that do not adequately address the diverse needs of older users, resulting in interfaces, functionalities, and user experiences that are often inaccessible or unappealing to this demographic.[24]

For example, many digital products feature complex navigation, small fonts, insufficient contrast, and limited adaptability, which disproportionately impact older people, particularly those with sensory impairments or cognitive challenges.[25] These design choices frequently stem from a one-size-fits-all approach prioritising younger users or 'digital natives'[26] as the default consumer, neglecting the fact that older adults comprise a highly heterogeneous group with varied capabilities, preferences, and digital literacy levels.

The prevalence of ageist language and symbolism embedded in digital technologies and marketing materials is also raised as a concern in the literature. Phrases such as 'digital native' implicitly mark older adults as digital outsiders or immigrants[27] and this type of rhetoric can discourage digital participation, while also shaping and influencing the decisions of designers, funders, and policymakers.

The literature also points to how 'compassionate ageism' plays a subtle yet powerful role in design. This form of ageism, while well-meaning, can reinforce the notion that older adults are frail, slow, and in need of protection, which results in designers assuming that all older adults need overly simplified digital interfaces and that simplification equates to dumbing down. This can result in 'dumbed down' technology that is patronising or alienates them.[28] For instance, smart devices with simplified interfaces or reduced functionality may limit older adults' opportunities for engagement, creativity, and autonomy.[29] Another example points to voice

[24] Ageing Equal, 2023
[25] van Deursen & Helsper, 2018
[26] A person who has been born or brought up during the age of digital technology and is therefore familiar with computers and the internet from an early age.
[27] Prensky, 2001, Ageist, 2022
[28] McDonough, 2016
[29] CBC Spark, 2023

assistants or healthcare chatbots that may use condescending language or fail to accommodate sensory impairments and cognitive diversity common in ageing populations, reducing usability and engagement.[30] These approaches ignore the evidence that many older users are keen to engage with sophisticated digital tools if given the appropriate support and options.[31]

Crucially, the literature also suggests that older adults are rarely meaningfully involved in co-designing digital solutions. When older users are included, it is often tokenistic or limited to the final stages of testing, undermining their ability to shape product features from the outset.[32] Older adults are often not considered during the requirements gathering phase of digital development, leading to products that fail to meet their needs, particularly in relation to accessibility, readability, navigational clarity, and trust-building.

Without their insights, developers miss critical nuances about older people's daily digital practices, needs, and contextual constraints, resulting in technologies that feel alien or frustrating rather than empowering.[33] The literature shows that this exclusion perpetuates a feedback loop in which older people are stereotyped as disinterested in digital technology because they are less likely to use systems that have not been built with them in mind.[34]

Testing and evaluation processes in digital technology development also reflect digital ageism through sampling approaches that exclude older people or inappropriate test environments. Studies highlight that older people are frequently underrepresented in user testing or the process fails to consider the specific contexts in which they use digital tools.[35]

In many cases, user experience (UX) testing is conducted with homogenous age groups, typically under 45, which results in the generalisation of their preferences and behaviours to all age demographics. This lack of representativeness leads to usability standards that are skewed towards younger populations, leaving older users with products that are impractical or difficult to use. The literature points to the need for 'participatory design' that actively involves older adults not only in testing but also in ideation and decision-making throughout the technology development lifecycle.[36]

[30] Smith & Lee, 2023
[31] Marston & van Hoof, 2019
[32] The Conversation, 2022
[33] Purnell et al., 2022
[34] Loos, 2021, Ienca et al, 2021
[35] Lindberg et al., 2022
[36] Rosales et al, 2023

For example, usability tests often do not account for assistive technologies such as screen readers, alternative input devices, or variable internet speeds, which many older adults rely on. Consequently, products may appear functional in controlled settings but fail under real-world conditions, creating a disconnect between design intent and user experience.[37] Similarly, recruitment practices for testing often prioritise digitally literate older adults, excluding those with lower skills or disabilities, thereby reinforcing the misconception that older users are a homogenous group with similar needs.[38]

Finally, the literature review highlights a failure to disaggregate usability data by age resulting in many age-specific barriers remaining hidden. Without detailed insights into how older adults interact differently with technologies, developers cannot identify or rectify design flaws that contribute to digital exclusion.[39]

[37] Purnell et al., 2022
[38] Lindberg et al., 2022
[39] van Deursen & Helsper, 2018

5. Findings: digital ageism, algorithms and artificial intelligence

Artificial Intelligence (AI) is rapidly reshaping many areas of daily life, from healthcare and employment to social services and communication. While AI holds transformative potential to enhance independence, health outcomes, and social inclusion for older adults, there is growing recognition that AI systems also risk entrenching and amplifying digital ageism.

Digital ageism in AI reflects systemic biases that marginalise older individuals by embedding stereotypes, exclusionary design choices, and unrepresentative data, which results in outcomes that undermine the dignity, rights, and opportunities of older populations.

One of the fundamental sources of digital ageism in AI arises from the design and development processes themselves and similar issues are raised in the literature to those outlined in the chapter above.

Research highlights that AI technologies are typically created by younger developers and researchers who often lack sufficient awareness of ageing as a multifaceted and heterogeneous experience.[40] This demographic skew contributes to the embedding of youth-centric assumptions and stereotypes into AI models and user interfaces.[41]

Meaningful involvement of older adults in the co-design of processes is rarely integrated into AI innovation pipelines. As a result, AI tools may overlook important features or requirements that would make them more accessible and relevant to older users. Studies suggest that inclusive design approaches that actively engage older adults in iterative testing and feedback can significantly improve usability and acceptance of AI technologies.[42]

One of the most pressing issues is the systematic underrepresentation of older adults in datasets used to train AI and machine learning models. Many of the datasets used to train AI systems are biased towards younger, more digitally active populations, resulting in models that are poorly calibrated to the needs, behaviours, or preferences of older users.[43]

In healthcare, for example, AI models trained mainly on data from younger patients may under-detect conditions that disproportionately affect older people or misinterpret symptoms because of age-related physiological differences.[44] This can result in critical health issues being overlooked and can undermine trust in AI-enabled healthcare.

[40] Graham et al., 2023; Hsu et al., 2022
[41] McLaughlin & Neves, 2023
[42] The Conversation, 2023
[43] Martin et al, 2022
[44] Li & Ayalon, 2023

In the labour market, similar risks arise. Recruitment algorithms trained on historical hiring data may replicate existing ageist patterns, such as deprioritising CVs with gaps in employment history or placing greater value on digital skills more common among younger workers.[45] In practice, this can mean that older applicants are systematically filtered out, not because of their actual suitability, but because of biased correlations in the data.[46]

Across both healthcare and employment, these shortcomings mean that AI systems often fail to recognise or accommodate the needs and behaviours of older adults. The result is discriminatory outcomes that can limit access to essential services, reduce economic opportunities, and exacerbate inequalities.[47]

Algorithmic ageism is especially difficult to address because it often hides within complex AI systems that are not transparent to users. Unlike visible forms of age discrimination, these biases operate at scale through so-called 'black box' models, which makes them hard to detect or challenge. This invisibility increases the risk that ageism becomes built into digital governance and everyday decision-making.

Technologies, like facial recognition and emotion-detection tools, have also been shown to work less accurately for older adults. This creates risks of unfair treatment in practical settings such as healthcare triage, airport security checks, and customer service interactions.[48]

The opacity of these systems compounds the problem. Older adults have very limited means to question or appeal biased decisions. This lack of accountability is particularly concerning in high-stakes areas such as eligibility for social services, insurance underwriting, and credit scoring, where errors or biases can directly undermine financial security, independence, and well-being.

Despite the challenges, AI holds the potential to enhance older adults' lives if developed inclusively and ethically. Human-centred AI that incorporates older people's lived experiences, preferences, and capacities can support personalised healthcare, enable social connectedness, and foster independent living.[49] For example, AI systems that adapt interfaces dynamically to accommodate cognitive or sensory changes can improve usability and engagement.

[45] Binns et al, 2018
[46] Graham et al., 2023; Misra et al., 2021
[47] UK ICO, 2025
[48] Raji and Buolamwini, 2019
[49] Katz et al., 2023; Lee & Kim, 2023

Crucially, participatory design methods must become standard practice in AI development. This includes engaging older adults not just as testers but as co-creators throughout the innovation lifecycle, ensuring technologies reflect diverse ageing experiences and aspirations.[50] The literature also emphasises the need for approaches that recognise how age intersects with gender, ethnicity, disability, and socioeconomic status to shape digital experiences and risks.[51]

Case Study: Informing older adults in Germany about Artificial Intelligence[52]

A new initiative in Germany is bringing state-of-the-art artificial intelligence (AI) into the everyday lives of older adults. The project focuses on making AI accessible through existing local structures and familiar media, ensuring low-barrier entry points for older people.

At the heart of the initiative are sixteen “Internet experience locations” across Germany, each equipped with AI technologies. Here, older people can test devices firsthand, receive guidance, and access reliable information. In addition, trained facilitators, known as multipliers, help deliver workshops, advice, and learning opportunities.

The programme places strong emphasis on presenting both the opportunities and challenges of AI. By providing balanced information on potential benefits as well as risks, the project empowers older adults to make informed, confident decisions about whether and how they wish to integrate AI into their daily routines.

This initiative was developed by BAGSO, the German National Association of Senior Citizens’ Organisations, and is funded by the Federal Ministry for Family Affairs, Senior Citizens, Women and Youth (BMFSFJ).

The literature also points to digital ageism in data use, and raises important ethical challenges around privacy, consent, and surveillance. Many older adults have lower levels of digital literacy and limited awareness of how their personal data is collected, shared, or analysed. This makes them more vulnerable to exploitation, over-surveillance, or misuse of their information.[53]

[50] The Conversation, 2023
[51] Graham et al., 2023
[52] UNECE, 2021
[53] Mannheim et al., 2022

At the same time, well-intentioned protective data policies can have unintended effects. By restricting access to certain technologies, such measures may reinforce paternalistic attitudes and reduce older people's digital autonomy, even when the technologies could provide real benefits.

Another concern is the lack of consent processes that are meaningful and accessible for older users. As the literature notes, digital literacy is not only about having access or technical skills - it also requires critical understanding and control over how one's data is used. Without this, older adults are often left uninformed about what happens to their personal information. This undermines trust in digital systems and discourages engagement with online services that could otherwise support their well-being.[54]

[54] Van Dijk, 2020

6. Findings: digital ageism and intersectionality

Digital ageism rarely exists in isolation. It intersects with other forms of inequality, including gender, race, socioeconomic status, disability, and geographic location. Understanding these intersections is essential for designing fair and inclusive digital policies and technologies that respond to the diverse realities of older adults. Older people are not a uniform group, and their experiences with technology are shaped not only by age but by multiple social, cultural, and structural factors.

Gender plays a particularly significant role in shaping digital exclusion among older adults. Older women frequently experience a 'double disadvantage,' facing both ageist and sexist assumptions.[55] Stereotypes often portray older women as less competent or interested in technology than men, which undermines confidence, reduces participation in digital skills programmes, and limits access to digital devices.[56] Women are also more likely to take on unpaid caregiving responsibilities, leaving them with less time and fewer resources to engage with technology.[57] Furthermore, technology is often designed without considering older women's preferences or ergonomic needs, creating usability barriers that discourage continued use.[58] Structural factors such as lower income and limited formal education among older women further constrain opportunities to develop digital skills, and many rely on informal learning networks, such as family or community support.[59] When these networks are unavailable or are themselves digitally excluded, older women are at risk of falling further behind.

Intersectional factors extend beyond gender. Ethnic minority older adults may face language barriers, cultural exclusion, or discriminatory design in digital platforms, reducing their participation.[60] Socioeconomic status critically influences digital access, as older people with lower income or education levels often lack devices, broadband, and opportunities for skills development.[61] Disabilities, including sensory, cognitive, and mobility impairments, can further limit engagement when platforms are not designed with accessibility in mind. Geography also plays a role, as older adults in rural or remote areas frequently encounter limited connectivity, scarce local support, and reduced opportunities for social and digital participation.[62]

[55] Vines et al., 2015; Chu et al, 2020
[56] Hargittai et al., 2019
[57] Rosales & Fernández-Ardèvol, 2020
[58] Chu et al., 2020
[59] Ibid.
[60] Yu et al., 2023
[61] Seifert et al., 2021
[62] European Commission, 2020

These intersectional factors have significant implications in health and social care. Marginalised older adults may be hesitant to use digital health technologies due to historical discrimination, linguistic barriers, or distrust of digital platforms. People with disabilities often require tailored adaptations that are frequently absent in telemedicine services.[63] Older women, particularly those in caregiving roles, may be responsible for managing digital health technologies for both themselves and family members, adding complexity to their engagement.[64] Gendered assumptions embedded in AI diagnostics and digital care pathways can also influence how symptoms are assessed, potentially reinforcing inequities in healthcare provision.

Employment is another domain where intersectional digital exclusion manifests. AI-driven recruitment and employment tools often replicate existing inequalities, deprioritising older applicants whose CVs have lower digital skill indicators or do not contain the keywords used in the search. Algorithms trained on historical data may unintentionally perpetuate ageist and gendered biases, disproportionately affecting women, ethnic minorities, and people with disabilities.[65] In healthcare, biased AI systems trained predominantly on younger populations may under-detect conditions that disproportionately affect older adults or misinterpret age-related physiological differences, further entrenching disparities and eroding trust in digital health services. Similarly, facial recognition systems have been shown to misidentify older people of colour at higher rates, raising ethical and legal concerns.[66] Gender bias in AI can further marginalise older women, whose needs and behaviours may not be adequately represented in datasets.[67]

Despite these challenges, some promising approaches demonstrate the potential of intersectional digital inclusion. The European Union's EuroAgeism project advocates for policies that recognise the diversity of older adults and support tailored digital solutions. Community-based initiatives that work closely with ethnic minority organisations, disability advocates, and women's groups have proven effective in building trust and participation.[68] In Canada, culturally sensitive digital health outreach for Indigenous elders, incorporating language support and community engagement, has helped reduce barriers to digital service access.[69]

[63] Topaz et al., 2021
[64] Rosales & Fernández-Ardèvol, 2020
[65] Chu et al., 2020
[66] Raji & Buolamwini, 2019
[67] Martin et al., 2022
[68] Seifert et al., 2021
[69] Graham et al., 2022

Addressing digital ageism effectively requires policies that adopt an intersectional lens. Digital inclusion strategies must consider how age interacts with gender, ethnicity, income, disability, and geography to shape opportunities and barriers. Training programmes need to be flexible, acknowledging caregiving responsibilities, diverse learning styles, and cultural contexts. Affordable access to devices and broadband, alongside accessible and ergonomically appropriate technology design, is essential. Policies must also tackle algorithmic bias by ensuring diverse representation in datasets and incorporating transparency and accountability, with mechanisms in place to remove bias when it is discovered. Finally, culturally sensitive outreach and trust-building measures are critical to encourage older adults' engagement with digital services.

7. Findings: digital ageism and employment

Digitalisation is transforming the nature of work, offering new opportunities for productivity, flexibility, and access to emerging roles. However, many older workers do not benefit equally from these changes. Across sectors, older adults face systemic barriers in acquiring digital skills, navigating recruitment processes, and adapting to technological change. These challenges have implications not only for individual careers but also for broader workforce participation and economic inclusion.

Despite often having decades of workplace experience, older workers frequently struggle to access and effectively utilise digital tools. In a major US study, workers over 50 scored significantly lower on digital skills assessments compared with younger colleagues, particularly in digitally intensive sectors such as ICT and administrative services. These gaps are compounded by race and gender, with Black workers and older women experiencing lower access to training and reduced confidence in using digital technologies.[70]

Similar patterns are observed in the UK, where the Business in the Community (BITC) report found that nearly half of older employees had not received adequate digital training before being expected to use new systems, and over a third lacked confidence in their abilities. The report also noted that digital training programmes often fail to reflect older workers' learning preferences or lived experiences, leading to disengagement and exclusion.[71]

Digital exclusion in employment extends beyond access to devices and broadband. Older employees require tailored, hands-on support that not only develops skills but also builds confidence and relevance to their specific roles. Without such support, digital transitions risk deepening workplace inequalities for a growing segment of the labour market.

Ageism is also increasingly evident in recruitment practices, often masked under the concept of "digital readiness." Job advertisements that call for "digital natives" or a "youthful, tech-savvy" culture, while seemingly neutral, effectively signal that older applicants are unwelcome. These phrases reinforce stereotypes that technological competence is tied to youth, excluding candidates who may have developed relevant digital skills later in life.[72] A notable case in the UK Civil Service involved an advert for a digital role that explicitly preferred "digital natives," triggering accusations of age discrimination and highlighting the need for clearer guidance on

[70] Morrison, Baughman and Mumford, 2019
[71] BITC, 2020.
[72] Ageist, n.d.

age-inclusive recruitment.[73] CV screening practices further disadvantage older applicants, penalising older graduation dates, or missing recent technology-specific qualifications.

The increasing use of AI in recruitment has added another layer of complexity. AI systems are employed to shortlist CVs, analyse video interviews, and match candidates to role profiles. However, these tools frequently rely on historical hiring data, which can reflect and perpetuate existing biases. The UK Information Commissioner's Office (ICO, 2025) has warned that many AI recruitment systems lack transparency and age-specific safeguards, making discriminatory outcomes difficult to detect or challenge. Older candidates may also be unfamiliar with strategies for optimising CVs for AI systems, placing them at a further disadvantage.[74] Data-driven criteria embedded in AI, such as valuing digital skills proxies or penalising career gaps, often disproportionately exclude older applicants, reinforcing ageist hiring practices under the guise of objectivity.[75]

Even when older adults are successfully employed, digital transformations can create ongoing barriers. Many workplace digitalisation initiatives are implemented without engaging older employees in planning, testing, or system design. This can result in tools and platforms that do not accommodate their needs or learning styles, leading to frustration, reduced productivity, or early exit from the workforce.[76] Digital upskilling programmes often remain generic, time-limited, or culturally mismatched, further limiting older workers' ability to adapt to new technologies and undermining confidence.[77] Workplace cultures can exacerbate these challenges by perpetuating narratives of older workers as "technologically resistant," marginalising their contributions and reducing opportunities for development.[78]

The COVID-19 pandemic accelerated shifts to remote working and digital collaboration, presenting both opportunities and risks. While some older employees benefited from increased flexibility, others faced isolation due to digital fatigue, inadequate equipment, or limited support for remote work technologies. Without inclusive policies, these dynamics risk deepening inequalities within the workforce.[79]

Promising approaches highlight the benefits of engagement, inclusion, and age-aware policy. Organisations that promote intergenerational learning, peer mentoring, and co-design of digital systems report better outcomes, as older employees contribute valuable insights that improve

[73] The Telegraph, 2023
[74] Welcome to the Jungle, 2025; Su Independent, 2025
[75] ICO, 2025; Davis et al, 2022
[76] Tarrant, 2024; HR Vision, 2024
[77] Urban Institute, 2022
[78] HR Vision, 2024
[79] WEF, 2025

usability and efficiency for all staff.[80] Workplaces that invest in tailored digital training, foster inclusive cultures, and implement transparent AI governance frameworks also experience higher engagement and retention among older workers.[81] Age-inclusive recruitment practices, such as auditing AI tools for bias, removing exclusionary language from job descriptions, and recognising diverse pathways into digital competence, are essential to mitigate systemic digital ageism.[82]

[80] Oxford Institute of Population Ageing, 2024
[81] BITC, 2020; Urban Institute, 2022
[82] BITC, 2020

8. Findings: digital ageism and social interaction

Digital platforms have changed the way people connect, access entertainment, and spend their leisure time. For older adults, these spaces can be vital for social interaction, mental stimulation, and cultural engagement. Yet digital ageism significantly limits older people's participation. This reduces opportunities for social connection and can reinforce isolation.

Social media presents particular challenges. Platforms like Facebook, Instagram, TikTok, and Twitter are often designed with younger audiences in mind. Ageist assumptions about older people's lack of digital skills and interest can make them feel marginalised or invisible within online social networks.[83] Older adults may internalise these stereotypes, leading to anxiety, self-doubt, and reluctance to engage in digital communities.[84] Social media algorithmic bias can amplify these barriers as they tend to prioritise content popular among younger users, meaning older adults' contributions are less visible. The result is reduced social participation and fewer opportunities for intergenerational connection.[85]

Studies have also shown that older people are less likely to participate actively on social media due to concerns about privacy, lack of digital confidence, or experiences of age-related trolling and abuse.[86]

The digital leisure and entertainment landscape is similarly affected. Streaming services, online games, virtual reality, and digital cultural events offer rich opportunities for engagement, but many platforms are not designed with older adults in mind. Interfaces may be difficult to navigate, fonts and graphics may be hard to read, and marketing often targets younger consumers.[87] These factors, sometimes described as "design ageism", create practical barriers that prevent older adults from fully enjoying digital leisure.[88] The consequences extend beyond entertainment: engaging in leisure activities online can support cognitive health, mental wellbeing, and social connection, all critical for healthy ageing.[89]

Social interaction through digital platforms is closely linked to wellbeing. For many older adults, online leisure can be a crucial lifeline, especially when mobility or health restrictions limit offline socialisation. Yet ageist platform design, content curation, and online community cultures can make these spaces feel unwelcoming. Older adults who are excluded miss opportunities to

[83] We Are Drum, 2023
[84] LMD International, 2024
[85] Age Platform Europe, 2024
[86] Loos, 2021
[87] Jonsson et al. 2024; Cotten et al., 2022
[88] LMD International, 2024
[89] Anderson et al., 2024

maintain social networks, participate in community life, and strengthen personal identity.[90] Conversely, when older users are supported to engage confidently, they report improved wellbeing, stronger social connections, and greater life satisfaction.[91]

There are also gendered dimensions to consider. Older women often face compounded barriers in online leisure spaces due to both ageist and sexist stereotypes. Their interests and digital skills may be underestimated, they may be infantilised, or they may be less visible in online communities such as forums, gaming networks, and social media platforms. This limits their ability to participate fully, express themselves, and access the benefits of digital leisure.[92]

The COVID-19 pandemic highlighted these disparities. Many older adults were excluded from virtual social events and online leisure activities due to limited digital access, lack of confidence, or insufficient support. Those living in rural or isolated areas were particularly affected by poor connectivity and limited local digital resources.

[90] Age Platform Europe, 2024
[91] Anderson et al., 2024
[92] Chu et al, 2022

Case Study: Supporting older people with online banking services[93]

Canada

In Canada, a lack of engagement between the banking sector and older people prompted action at the national level. The Minister of Finance, the Minister of Seniors, and the Financial Consumer Agency of Canada (FCAC) introduced the Code of Conduct for the Delivery of Banking Services to Seniors.

The Code sets out seven guiding principles designed to improve the way banks serve customers over the age of 60. These principles address key areas such as:

- establishing policies, procedures, and processes that support the Code
- ensuring clear and effective communication
- providing appropriate training for bank staff
- reducing risks of financial harm for older people
- managing branch closures responsibly and
- publicly disclosing the steps taken to uphold the Code.

An important feature of the initiative is the requirement for each bank to appoint a Seniors Champion - a designated leader responsible for promoting and protecting the interests of older customers. By improving both service delivery and communication, the Code aims to help older people feel more confident when seeking information and using online banking services.

[93] UNECE, 2021

9. Findings: digital ageism in health, social care and wellbeing

Digital transformation in health and social care promises improved efficiency, access, and personalisation of services. From online appointment booking and telehealth consultations to AI-driven diagnostic tools and electronic health records, technology has the potential to enhance care delivery. However, without careful consideration of age-related barriers, these innovations can systematically disadvantage older adults.

A recurring issue is the assumption that older people are unwilling or unable to use digital health technologies. This stereotype has shaped service design and rollout in ways that exclude or marginalise older patients.[94] For example, patient portals and e-consultation systems are often optimised for mobile use, assume high digital literacy, and provide limited alternatives for those without regular internet access. Rather than empowering users, these systems can generate frustration, disempowerment, and disengagement from health and care.[95]

The literature suggests that the growing use of surveillance technologies and algorithmic systems in nursing homes, such as monitoring devices, fall detection tools, and predictive analytics, reinforces digital ageism by framing older adults, particularly those with dementia, as passive subjects in need of control rather than as agents with rights and autonomy. These systems often restrict privacy, dignity, and self-determination by categorising behavioural differences as risks, while also intensifying the use of surveillance and algorithms to track and assess care staff. These technological “solutions” frequently reproduce structural inequalities, disproportionately impacting marginalised groups. They also divert resources away from addressing systemic issues in long-term care, such as underfunding and understaffing. In doing so, algorithmic tools risk entrenching ageist, ableist, and inequitable practices under the guise of innovation and efficiency.[96]

Older adults may also face practical barriers arising from age-related cognitive, sensory, or physical changes. Complex password requirements, small fonts, and lack of assistive features can make digital platforms difficult to navigate[97]. This contributes to a “second-level digital

[94] Seifert et al., 2021
[95] Hargittai et al., 2019
[96] Berridge et al, 2022
[97] WHO, 2021

divide," where the challenge is not merely access to devices but the ability to use them effectively.[98]

Artificial intelligence in healthcare introduces further risks. Underrepresentation of older adults in health datasets can lead to diagnostic or predictive tools that misclassify symptoms, fail to account for multimorbidity, or overlook age-specific physiological differences. These gaps have serious implications for patient safety, clinical accuracy, and trust in digital systems.[99]

Digital exclusion in health and care is not limited to technology design - it is also institutional. During the COVID-19 pandemic, the rapid shift to digital-first healthcare often left older adults unable to access timely services. In some cases, triage systems inadvertently deprioritised those lacking digital skills, replicating existing inequalities and highlighting the risk of reinforcing offline disparities unless inclusion is deliberately designed into digital systems.[100]

Digital ageism also has profound consequences for the mental health and overall wellbeing of older adults. Exclusion from digital platforms can undermine psychological resilience, social connection, and quality of life. Older adults who experience digital exclusion often report frustration, lowered self-esteem, and a sense of helplessness. The research indicates that ageist stereotypes about technological ability can become internalised, creating a "stereotype threat." When older individuals anticipate failure or rejection online, they are less likely to engage, reinforcing patterns of exclusion.[101]

The sense of being 'left behind' in a rapidly digitising society can intensify feelings of social marginalisation and reduced personal agency.[102] This is particularly significant when public services such as healthcare, social benefits or community support, are increasingly delivered online.

One of the most documented outcomes of digital exclusion is social isolation. Digital communication tools, including video calls, messaging apps, and social media, have become essential for maintaining relationships, particularly since the COVID-19 pandemic. Older adults who cannot participate fully risk losing contact with family, friends, and community networks. Studies highlight that lack of digital skills or access reduces opportunities for social

[98] Friemel, 2016
[99] Topaz et al., 2021
[100] Greenhalgh et al., 2020
[101] Seifert et al., 2021
[102] Vines et al, 2015

engagement, which in turn increases loneliness, a known risk factor for poorer physical and mental health.[103] In contrast, digital inclusion enhances social participation, strengthens community ties, and improves wellbeing.

Digital ageism also affects access to mental health services. While telepsychiatry and online counselling expand reach, older adults facing digital barriers are less able to benefit. Ageist assumptions that older people are reluctant to discuss mental health issues or use technology can further limit targeted outreach.

The literature suggests that mitigating the mental health consequences of digital ageism requires coordinated action across multiple levels:

- Promoting digital confidence through training and support tailored to older adults, emphasising positive framing to counteract stereotype threat.
- Enhancing access to devices, broadband, and community-based support to enable meaningful participation.
- Designing digital health and mental health services that are age-friendly, accounting for usability challenges, and providing multiple modes of access.
- Integrating digital literacy and social engagement into social prescribing models to foster connectedness alongside skill development.
- Training health and social care professionals to recognise digital exclusion as a social determinant of mental health, ensuring interventions address both technological and psychosocial barriers.

[103] Hargittai et al., 2019 & Friemel, 2016

Case Study: enhancing mental well-being through digital technology[104]

Malta

In response to the social challenges of the COVID-19 pandemic, Malta launched a new digital training programme in 2021 with a strong focus on mental health and well-being. The initiative helps older people living in the community and in residential care homes learn how to use tablet devices to stay socially connected and access applications that promote mental health.

The programme consists of four two-hour sessions delivered in residential homes and Active Ageing Centres. Training covers essential skills such as:

- Navigating tablet devices
- Setting up social media profiles safely
- Sending and accepting friend requests
- Using mobile data and Wi-Fi.

Participants also receive guidance on maintaining mental well-being in relation to online presence and technology use. At the end of each cycle, a champion is selected from the group to provide ongoing peer support.

[104] UNECE, 2021

Case Study: Enhancing Digital Access for Older Adults through Occupational Therapy and Digital Communities Wales[105]

Digital Communities Wales (DCW) is a Welsh Government-funded programme delivered by Cwmpas. It aims to reduce digital exclusion and ensure that people in Wales, particularly those most likely to be left behind, benefit from digital technology. DCW provides training, advice, and equipment loans to public sector bodies and third sector organisations.

An Occupational Therapy (OT) team within a Welsh health board partnered with DCW to improve digital access for mental health patients, particularly older adults living with cognitive decline. With support from DCW, the team co-designed a training programme to equip staff with the skills and confidence to use digital technologies in patient care.

DCW also provided guidance on suitable devices, such as tablets and smart speakers, and supported the procurement of equipment that could be loaned to patients on a trial basis. This allowed individuals to test the practical benefits of digital technology within their own homes before committing to longer-term adoption. OTs introduced digital support across five service areas. The initiative proved sustainable, with staff continuing to integrate devices and practices beyond the pilot.

Smart devices, particularly the Alexa Show, had a significant impact by enabling patients to receive virtual ‘drop-ins’ from relatives - reducing isolation and enhancing social contact. Smart speakers also proved beneficial in supporting daily routines, such as medication reminders and appointment management.

Both staff and patient feedback highlighted the positive effects of the initiative. Even individuals with significant cognitive decline were able to use the technology successfully once given the opportunity to trial it. Importantly, the hands-on experience helped overcome initial resistance among both staff and patients.

Despite the evident benefits, the OT team reported that ongoing support and funding for devices remained a challenge. They expressed frustration that digital technologies were not recognised as readily as other assistive technologies (such as stairlifts or handrails) within health and social care funding frameworks:

“The benefits of this technology can be just as impactful, but that isn’t yet fully recognised within the system.”

[105] Bryer N. & Bebb, H,, 2025

10. Findings: digital ageism and lifelong learning

Digital ageism has a significant impact on older adults' opportunities for education, lifelong learning, and empowerment. The concept of lifelong learning is central to healthy ageing, enabling older adults to adapt to changing technologies, maintain cognitive function, and engage fully in society.[106] Digital literacy encompasses a broad range of competencies, from basic device use to understanding digital rights, privacy, and safe online behaviours.[107] Without these competencies, older adults risk exclusion from social, economic and civic life.

However, older adults face structural and attitudinal barriers to digital skills acquisition. Educational opportunities are often designed with younger learners in mind, neglecting the specific needs, learning paces, and motivations of older adults.[108] At the same time, internalised ageism can undermine confidence, discouraging engagement with learning programmes.

The barriers to digital learning are multifaceted. Older adults often encounter curricula that are not tailored to their starting points or learning objectives, limited access to accessible tutors or peer mentoring, and insufficient ongoing support. Financial constraints may restrict access to devices, connectivity, or paid courses. Cultural stereotypes, portraying older people as unwilling or incapable of learning new technologies, further reinforce exclusion. Physical and cognitive challenges, such as reduced vision, mobility limitations, or memory difficulties, necessitate accessible formats and adapted pacing. These barriers are often amplified for marginalised groups, including older women, ethnic minorities, and individuals with disabilities, highlighting the need for intersectional approaches to lifelong digital learning.[109]

Empowerment through digital learning can occur when programmes are intentionally designed to meet older adults' needs. Evidence shows that digitally skilled older adults experience greater self-efficacy, improved social connectivity, and increased engagement in civic, cultural, and community activities.[110] Programmes that emphasise co-learning, peer support, and culturally relevant content are particularly effective at sustaining engagement and confidence. Integrating digital skills development with broader health, social, or creative objectives enhances impact, helping older adults apply their learning in meaningful, everyday contexts.[111]

[106] European Commission, 2020
[107] van Dijk, 2020
[108] Rosales & Fernández-Ardèvol, 2020
[109] Prensky, 2001
[110] Hargittai et al., 2019
[111] Seifert et al., 2021

Case Studies – digital skills training for older people[112]

Austria

The Technology in Brief programme helps older people build digital skills across computers, the internet, social media, digital cameras, mobile phones, and tablets. The most in-demand topics are video communication and social media use.

The project is based on three core principles: intergenerational approach, regional access, and affordability. Young trainers deliver low-cost, local courses tailored to the needs and prior knowledge of older participants. Course materials are specifically adapted for older learners, and a dedicated hotline provides additional support.

Finland

In Finland, SeniorSurf supports digital learning by producing guidance materials and making them widely available through the SeniorSurf.fi website. Training is delivered primarily by older volunteers (peer tutors) working through non-profit organisations.

The approach highlights peer-to-peer learning and community-driven digital support, ensuring that guidance is relatable and accessible for older adults.

Germany

The Digital Angel (Digitaler Engel) project supports people over 60 in navigating an increasingly digital society while maintaining autonomy and social participation.

Using a low-cost, outreach-based approach, the project provides hands-on, personal guidance. Older people learn practical skills for everyday life, such as safe online shopping, digital communication, and secure use of devices and services.

Funded by the Federal Ministry for Family Affairs, Senior Citizens, Women and Youth (BMFSFJ), the project helps ensure older adults remain confident and active participants in the digital world.

[112] UNESCE, 2021

11. Conclusions and policy recommendations

The literature reviewed makes clear that digital ageism is not a marginal or emerging concern, but a systemic challenge that cuts across all aspects of older people's lives. It operates at three levels – structural, institutional, and individual – and is reinforced through the design of technologies, the governance of digital systems, and the narratives that surround older people's digital participation.

At the policy and governance level, digital inclusion has gained prominence internationally, yet older adults are often absent from digital rights frameworks and AI ethics debates. Regulatory blind spots mean that protections against age-based digital discrimination are weak compared with other protected characteristics. In Wales, as in the UK more broadly, digital inclusion strategies are fragmented and risk entrenching disadvantage as services move towards 'digital by default.'

In the design of digital products and services, ageism becomes embedded when older people are excluded from co-design and usability testing. Interfaces and platforms are frequently built with younger users in mind, neglecting accessibility, adaptability, and the diversity of older adults' needs. Well-meaning but paternalistic 'compassionate ageism' also shapes design choices, resulting in oversimplified or patronising tools that limit autonomy.

The rise of AI and algorithmic decision-making amplifies these risks. Older adults are systematically underrepresented in training datasets, leading to biased outcomes in areas as critical as healthcare, employment, and financial services. Age is rarely considered in algorithmic impact assessments, making ageism less visible but potentially more pervasive. Yet there is also evidence that AI, if developed inclusively, can enhance independence, support health and wellbeing, and strengthen social connectedness.

In employment, digital exclusion contributes to widening inequalities. Older workers often lack access to tailored digital training and face discriminatory recruitment practices, sometimes embedded in AI systems. Workplace cultures can perpetuate stereotypes of older staff as resistant to change, discouraging investment in their digital development. Conversely, when employers adopt age-inclusive approaches – such as intergenerational learning and co-designed training – older workers make important contributions that benefit organisations as a whole.

In social participation and leisure, digital platforms offer opportunities for connection and creativity but often remain unwelcoming or inaccessible to older adults. Social media

algorithms can reduce the visibility of older users' contributions, while negative stereotypes or online abuse create barriers to engagement. Limited design consideration of older audiences in streaming, gaming, or online cultural services further exacerbates exclusion.

Digital ageism also shapes access to health and social care. Systems designed without input from older adults often assume high digital literacy and mobile access, leaving many patients excluded or disempowered. In healthcare AI, age bias in datasets poses risks to diagnostic accuracy and safety. Exclusion from digital health can undermine trust, exacerbate inequalities, and negatively impact both physical and mental wellbeing. Ensuring multiple access pathways, combined with age-inclusive design, is therefore critical to safeguarding rights and equity in health and care.

The review further highlights the intersectional nature of digital ageism. Experiences of exclusion are shaped not only by age but by gender, disability, ethnicity, income, and geography. Older women, minority ethnic groups, disabled people, and those living in rural areas face compounded barriers to access and participation. Addressing digital ageism requires recognising and responding to these layered inequalities.

Finally, the evidence underscores the importance of lifelong learning in supporting digital inclusion. Too often, digital literacy programmes are not tailored to older learners' motivations or learning styles, reinforcing stereotypes of incapacity. When programmes are designed around empowerment, relevance, and peer learning, older adults report greater confidence, autonomy, and participation in civic and community life.

While digital ageism is increasingly well documented in the academic and policy literature, there remain very few examples of governments, organisations or institutions taking concrete operational steps to address it, and equally few interventions or projects specifically targeting the issue, suggesting that it is still a relatively new area where significant opportunities exist for innovation and action.

Taken together, these findings demonstrate that digital ageism is a cross-cutting issue requiring a systemic response. It cannot be solved by training alone or by isolated initiatives. Instead, it demands a rights-based, participatory approach that embeds older people's voices in policy, design, and practice, while challenging the stereotypes that continue to shape digital environments.

Recommendations

For the Older People's Commissioner for Wales:

1. **Raise awareness of 'compassionate ageism':** lead public awareness and policy guidance on avoiding patronising assumptions about older people's technology use, taking all opportunities to urge designers and service managers to respect older users' capabilities and preferences.

2. **Advocate for age in digital rights and policy frameworks:** encourage Welsh Government, the UK Government and regulators (e.g. ICO) to explicitly recognise age in data protection, privacy and AI ethics legislation. The Commissioner should also engage and collaborate with the Equality and Human Right Commission (EHRC) Wales to ensure that age discrimination in digital settings (for example, in AI deployment) is monitored, reported, and where necessary challenged, drawing on EHRC's regulatory powers.

For Welsh Government and public services:

3. **Empower older people about their digital rights:** building on the rights-based approach in Age friendly Wales: our strategy for an ageing society, the Welsh Government should consider how issues around ensuring that older adults understand data privacy, consent and service entitlements can be incorporated. This could form part of future Welsh Government-funded work on digital inclusion via workshops, factsheets and partnership events and include training community advocates or 'digital champions' to advise peers.

4. **Promote co-design with older adults in digital public services:** the Welsh Government and digital public service teams (e.g. Centre for Digital Public Services (CDPS)) should seek to involve diverse older users in designing and testing all digital services. Existing standards such as the CDPS Digital Service Standard and Welsh Government guidance which already insist on inclusive design and offline alternatives should be promoted widely. Public bodies (such as health boards and local authorities) should adopt similar guidelines.

5. **Enshrine age in procurement and policy standards:** Welsh Government should require that all publicly-commissioned digital products and services meet age-inclusive accessibility and usability standards. This could be done by ensuring that the Social Partnership and

Public Procurement (Wales) Act frameworks explicitly consider older users. The Strategic Equality and Human Rights plan and its associated action plans (disability, race, LGBTQ+, gender) should explicitly include digital ageism (algorithmic age bias, access issues, etc). For example, when Welsh Government refreshes the Advancing Gender Equality Plan or drafts the Disabled People's Rights Plan, it should ensure age intersects with technology considerations. The Welsh Government should further ensure that the Strategic AI Advisory Group and the Office for AI in Wales include a remit to assess age equality impacts in the design, procurement, deployment and regulation of AI systems in public services.

6. **Embed an intersectional, bilingual approach:** All Welsh digital policies must account for and recognise the diversity among older people's experiences – including gender, disability, ethnicity, income and rurality. It is also imperative that the Welsh language is seen and embedded as a language of AI, tech and digital.

7. **Improve digital health and care inclusion:** Welsh Government and NHS bodies must ensure that new telehealth tools are co-designed with older users so that moves towards further digitisation and increased use of AI avoid inbuilt bias. Staff training in age-inclusive digital communication should be mandated – and organisations such as Digital Health and Care Wales, Health Inspectorate Wales and Care Inspectorate Wales could set and monitor standards in this area.

8. **Ensure Fair Work practices in AI-driven recruitment:** public bodies in Wales should review their recruitment and training practices in light of the increasing use of AI and digital tools. This includes auditing recruitment platforms and algorithms for potential age bias, and publishing results transparently. They should also provide ongoing, role-specific digital training and upskilling opportunities, co-designed with staff of different ages, to ensure that older workers are not excluded from advancement or retention opportunities. Welsh Government could promote this through the Fair Work agenda and public procurement requirements, encouraging private and third-sector employers to follow suit.

9. **Leverage Age-Friendly community networks:** where not already underway, Age-Friendly Communities coordinators in each Welsh authority could also promote digital inclusion locally. Age-friendly partnerships in local authorities could host digital cafés, ensure community centres have internet access, and include tech literacy in social prescribing. They could encourage, support and highlight intergenerational initiatives that bring younger

and older people together to share digital knowledge, helping to reduce stereotypes and strengthen community bonds.

For the tech sector and digital service designers:

10. **Design products inclusively with older users:** technology companies and digital designers should involve older people in testing and co-design, ensuring interfaces avoid ageist stereotypes. Inclusive design could offer text size, voice assist or simple modes optionally, but never assume all older users need simplistic solutions. Welsh-language support and clear privacy controls should also be provided.

11. **Audit and mitigate against algorithmic bias:** public bodies and companies alike, when developing AI and digital tools (e.g. recruitment platforms, credit scoring) must test for age bias and report on fairness. Where bias is found, they should refine or remove offending algorithms. This follows the same logic as audits for gender/race biases. Industry bodies (such as the UK's AI Safety Institute) should issue standards that place responsibility on the tech sector.

12. **Promote older people's representation:** Digital media and online platforms should feature and hire older people and support content that reflects their lives. For instance, streaming services or social media campaigns can challenge stereotypes by showcasing older models, voices and stories.

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