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The Digital Divide: Reinforcing Vulnerabilities

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17.1 INTRODUCTION

Digital technologies have permeated almost every aspect of modern life. The potential for such technologies to enhance the enjoyment of human rights is coupled with risks of exclusion, surveillance, and growing inequality, particularly for vulnerable populations. We need to ensure that everyone benefits from digitalisation, even those who currently lack the skills or the means necessary for it. As the European Parliament has highlighted, digital technologies 'can either help create a more inclusive society and reduce inequities, or they can amplify existing inequalities and create new forms of discrimination'.[1] It is often the most vulnerable sectors of society that are not benefiting from digitalisation (as they tend to have fewer resources and more obstacles to access). Accordingly, their needs and human rights require special attention in this process.

The gap between demographics and regions that have access to digital technology and those that do not is called the 'digital divide'. There is nothing new about the digital divide; it started receiving attention from the mid-1990s.[2] Despite long-standing awareness of the problem, it persists. As the United Nations (UN) General Assembly noted in 2016: 'Despite the previous decade's achievements in information and communications technology connectivity, […] many forms of digital divides remain, both between and within countries and between women and men. […] [D]ivides are often closely linked to education levels and existing inequalities, and we recognize that further divides can emerge in the future, slowing sustainable development'.[3]

[1] European Parliament resolution of 13 December 2022 on the digital divide: the social differences created by digitalisation (2022/2810(RSP)), para. D. Also see UN Secretary-General, *Roadmap for Digital Cooperation* (New York: United Nations, 2020), p. 2.

[2] Overview of early discussions is provided in P. K. Yu, 'Bridging the digital divide: equality in the information age' (2002) 20 *Cardozo Arts and Entertainment Law Journal* 1, 1–52, at 2.

[3] UN General Assembly Resolution 70/125, Outcome document of the high-level meeting of the General Assembly on the overall review of the implementation of the outcomes of the World Summit on the Information Society, 1 February 2016, para. 21.

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Such divides are problematic as they demonstrate how a significant number of individuals are lacking access to the plethora of benefits that digitalisation has brought (such as faster bureaucracy, access to information at all hours, new ways to express oneself). The European Parliament has recognised that digital divides 'may accentuate social differences by reducing some workers' opportunities to obtain quality employment', and acknowledged the especially problematic position of vulnerable groups in relation to the digital divide by noting the potential 'negative impact of the digitalisation of public and private services on workers and people such as older people and persons with disabilities, low-income, socially disadvantaged or unemployed citizens, migrants and refugees or people in rural and remote areas'.[4] As M. N. Cooper has highlighted, those on the right side of the digital divide 'find themselves better trained, better informed, and better able to participate in democracy', whereas the 'disconnected become disadvantaged and disenfranchised', with exclusion manifesting in all aspects of society.[5]

Vulnerable groups are disproportionately impacted by the digital divide, making it both a symptom and a driver of systemic inequities.[6] In the words of the UN Secretary-General, '[d]igital divides reflect and amplify existing social, cultural and economic inequalities'.[7] The digital divide can perpetuate a cycle of disadvantage for vulnerable groups. Bridging the digital divide and ensuring equal access to digital technology is crucial for promoting equity and social inclusion in our increasingly digital world. This divide not only restricts access to critical services such as education, healthcare, and employment, but also undermines fundamental human rights, including the right to equality, dignity, and participation in societal decision-making. Some of the human rights implications of the digital divide are studied in this chapter to illustrate that the digital divide is not just a practical problem but also a legal one.

This chapter focuses on the digital divide in relation to women and older people as sample groups because they are uniquely positioned at the intersection of systemic exclusion and under-representation, making them illustrative of how the digital divide magnifies inequalities and contributes to human rights violations. By examining these groups, the chapter seeks to illustrate the barriers that vulnerable groups are up against, draw attention to the human rights issues that they face and demonstrate the need for tailored solutions within broader efforts to address digital inequities. The chapter also examines international action regarding the digital

[4] European Parliament resolution of 13 December 2022 on the digital divide: the social differences created by digitalisation (2022/2810(RSP)), para. H.

[5] M. N. Cooper, 'Inequality in the digital society: why the digital divide deserves all the attention it gets' (2002) 20 *Cardozo Arts and Entertainment Law Journal* 1, 73–134, at 73–4.

[6] The relationship of the digital divide and social inequality is aptly demonstrated in a recent paper: K. Baraka, 'Digital divide and social inequality' (2024) 3 *International Journal of Humanity and Social Sciences* 3, 30–45.

[7] UN Secretary-General, *Roadmap for Digital Cooperation*, 10.

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divide and whether additional steps need to be taken to adequately respond to the multitude of challenges that the digital divide presents.

17.2 THE DIGITAL DIVIDE AND ITS CONTRIBUTING FACTORS

There is a plethora of different definitions of the digital divide. The European Union (EU) has referenced the Organisation for Economic Co-operation and Development (OECD) definition of the digital divide,[8] which refers to 'the gap between individuals, households, businesses and geographic areas at different socio-economic levels with regard both to their opportunities to access information and communication technologies (ICTs) and to their use of the internet for a wide variety of activities'.[9] When the term 'digital divide' first emerged in the late twentieth century, it was used to describe the gap between people who had access to mobile phones and those who did not. Over time, its meaning has broadened to encompass the technical and financial ability to use technology and access the internet. As technology evolves, the concept of the digital divide continues to change.[10]

The digital divide is influenced by a range of interconnected factors that determine access to and use of technology for individuals and communities. Such factors include socio-economic disparities, geographic isolation, cultural and language differences, technological barriers, and gaps in law and policy. Each of these elements plays a role in determining who can benefit from the opportunities provided by digital technologies and who remains excluded. Understanding these underlying causes helps design effective strategies to bridge the divide and promote equitable digital inclusion.

First, socio-economic inequalities, such as education, employment status and income levels directly influence access to digital technologies and the internet. Low-income households often cannot afford devices or reliable internet connections. And individuals with a limited educational background may lack the skills to effectively use digital tools.[11] This disparity is evident across various demographics and regions. For instance, in India, the digital divide is heavily influenced by income and educational attainment, particularly among disadvantaged caste groups.[12] Second, remote or rural regions often suffer from a lack of investment in broadband and mobile networks (owing to higher costs and logistical challenges).

[8] European Parliament resolution of 13 December 2022 on the digital divide: the social differences created by digitalisation (2022/2810(RSP)).

[9] OECD, *Understanding the Digital Divide* (Paris: OECD Publications, 2001), p. 5.

[10] This is also highlighted in K. Taylor (reviewed by E. Rasure), 'The digital divide: what it is and what's being done to close it', 28 April 2024, Investopedia, www.investopedia.com/the-digital-divide-5116352.

[11] See further, e.g., K. Bagchi, 'Factors contributing to global digital divide: some empirical results' (2005) 8 *Journal of Global Information Technology Management*, 3, 47–65, and Yu, 'Bridging the digital divide', 16.

[12] V. Rajam, A. Bheemeshaw Reddy, and S. Banerjee, 'Explaining caste-based digital divide in India' (2021) 65 *Telematics and Informatics*, 101719.

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Geographic isolation hinders digital accessibility, creating a stark gap compared with urbanised areas that have robust technological infrastructure. A similar tendency persists at the international level, with developing countries lagging behind developed nations in technology uptake. Third, cultural norms and language differences often limit the inclusivity of online spaces. Many websites and digital tools are predominantly available in a small number of global languages, creating obstacles for non-native speakers or those of linguistic minorities.[13] Cultural attitudes towards technology, such as mistrust or unfamiliarity, can further deepen this impact. Fourth, technological and infrastructure barriers are among the more obvious causes of the digital divide. The lack of broadband networks and high device costs clearly restrict access to digital technologies. The quality and speed of available internet also vary, affecting user ability to engage fully with digital services. And fifth, regulatory frameworks and government policies can play a critical role in determining the availability and affordability of digital infrastructure. Moreover, inadequate support for public digital initiatives or over-reliance on market-driven models can exclude marginalised populations. It has also been argued that sometimes groups or entities can use 'political institutions to enact policies that block the spread of the Internet'.[14]

Summing up, these challenges perpetuate unequal access to technology and its benefits. Recognising the interconnected nature of these factors is essential for fostering digital equity and ensuring that the benefits of technology are accessible to all.

17.3 GENDER GAP

The digital divide manifests differently across various groups, highlighting distinct patterns of exclusion. Among these, the gender gap and the age gap are particularly significant, as they reflect systemic barriers rooted in social, cultural, and economic inequalities. These gaps not only reveal the unique challenges faced by specific populations but also illustrate the broader structural issues that perpetuate digital inequities worldwide.

One of the most widely recognised digital divides is the gender digital divide (gender gap). According to the International Telecommunications Union (ITU), 70 per cent of men are using the internet worldwide, compared with 65 per cent of women, meaning that globally there were 244 million more men than women using the internet in 2023.[15] In low-income countries only 20 per cent of women have

[13] For a more detailed consideration of geographical and linguistic aspects, see, e.g., R. Cullen, 'Addressing the digital divide' (2001) 25 *Online Information Review* 5, 311–20.

[14] H. Milner, 'The digital divide' (2006) 39 *Comparative Political Studies* 2, 176–99.

[15] ITU, 'Facts and Figures 2023. The gender digital divide. Digital gender parity is still a distant prospect in regions with low Internet use', www.itu.int/itu-d/reports/statistics/2023/10/10/ff23-the-gender-digital-divide/.

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access to the internet (compared with 35 per cent of men).[16] Yet, as UN Women has emphasised, 'digital inclusion and literacy are critical to the well-being and success of women and girls in society, including their ability to take an informed part in electoral processes and exercise their right to vote and to stand for election'.[17]

17.3.1 *Specific Issues Faced by Women and Their Human Rights Implications*

The gender digital divide highlights the problems women and girls can encounter in accessing and using digital technologies, particularly in developing countries.[18] While digital tools offer opportunities for education, economic empowerment, and social engagement, systemic barriers rooted in cultural norms, economic inequalities, and safety concerns disproportionately hinder the digital inclusion of women. This section explores the distinct obstacles women face in their digital journey and looks at the impact of the gender gap on women in relation to various aspects of their lives, including employment opportunities, education, and social inclusion. The effects are placed in the context of human rights to pinpoint the potential human rights infringements arising from the gender gap.

Women in many regions face significant barriers to accessing digital technologies owing to affordability issues and limited infrastructure, particularly in low-income and rural areas. The lack of affordable devices and reliable internet disproportionately affects women, as they are more likely to have lower incomes and fewer economic opportunities.[19]

A particularly difficult aspect to grapple with is the existence of entrenched gender norms and societal expectations, which may discourage women from using digital technologies or pursuing education in digital skills. Cultural biases can restrict women's access to public spaces such as internet cafés or limit their ownership of devices.[20] For example, in Jordan, societal attitudes even result in university educated men being uneasy about allowing women equal access to the internet and computers, reinforced by cultural mores and educational institutions.[21]

[16] Ibid.

[17] UN Women, 'Statement: from clicks to progress – equality in digital access advances rights for young women and girls', 9 August 2024, www.unwomen.org/en/news-stories/statement/2024/08/statement-from-clicks-to-progress-equality-in-digital-access-advances-rights-for-young-women-and-girls.

[18] See further, e.g., A. Antonio and D. Tuffley, 'The gender digital divide in developing countries' (2014) 6 *Future Internet* 4, 673–87; M. Hilbert, 'Digital gender divide or technologically empowered women in developing countries? A typical case of lies, damned lies and statistics' (2011) 34 *Women's Studies International Forum* 34, 479–89; C. Kularski and S. Moller, 'The digital divide as a continuation of traditional systems of inequality' (2012) 5151 *Sociology*, 1–23.

[19] For more detail on this, see Antonio and Tuffley, 'The gender digital divide in developing countries'.

[20] See, e.g., P. Banerjee, 'Gender digital divide – examining the reality' (2019) 8 *International Journal of Innovative Technology and Exploring Engineering* 11S, 214–19.

[21] E. Abu-Shanab and N. Al-Jamal, 'Exploring the gender digital divide in Jordan' (2015) 19 *Gender, Technology and Development* 1, 91–113.

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Moreover, in many (especially developing) countries, women tend to have fewer opportunities for formal education and training, which results in them lacking digital literacy and skills. This limits their ability to use technology effectively and benefit from its advantages. For example, in India, women's digital competencies are significantly lower than men's, influenced by household dynamics, caste, and limited digital exposure.[22] And if women do access the internet, they often end up having a more negative experience than men, owing to online harassment and abuse, which disproportionately affects women, deterring them from engaging with digital platforms. Online abuse infringes upon their right to privacy and security, as laid down in human rights instruments such as the Universal Declaration of Human Rights (UDHR): '[n]o one shall be subjected to arbitrary interference with his privacy, family, home or correspondence, nor to attacks upon his honour and reputation'.[23] Women are often targeted with gender-based violence online, such as cyberstalking, threats, and harassment, which creates a hostile environment that limits their digital participation. Many studies have concluded that women are significantly more likely to experience cyberstalking and gender-based abuse than men.[24]

The gender gap brings with it many detrimental effects on the everyday lives and opportunities of women and girls. The digital divide negatively affects women's educational prospects, impacting women and girls' right to education and exacerbating existing gender disparities in learning opportunities. Digital tools provide critical access to educational resources, online courses, and skills building programmes, yet many girls, particularly in low-income and rural areas, are excluded owing to economic, infrastructural, and cultural barriers.[25] This exclusion restricts their ability to gain necessary competencies for academic and professional success. This educational gap further aggravates the employment divide, as women are less

[22] M. Vimalkumar, J. B. Singh, and S. K. Gouda, 'Contextualising the relationship between gender and computer self-efficacy: an empirical study from India' (2021) 58 *Information and Management* 4, Article 103464.

[23] UDHR, GA Res. 217A (III), UN Doc. A/810, at 71 (1948) Art. 12. Also, European Convention on Human Rights, Rome, 4 November 1950, Council of Europe, ETS No. 5, Art. 8; International Covenant on Civil and Political Rights (ICCPR), New York, 16 December 1966, 999 UNTS 171, Art. 17; American Convention on Human Rights, San Jose, 22 November 1969, 1144 UNTS 123, Art. 11; Convention on the Rights of the Child, New York, 20 November 1989, 1577 UNTS 3, Art. 16.

[24] See, e.g., S. Mas'udah et al., 'Gender-based cyber violence: forms, impacts, and strategies to protect women victims' (2024) 26 *Journal of International Women's Studies* 4, Article 5; E. L. Backe, P. Lilleston, and J. McCleary-Sills, 'Networked individuals, gendered violence: a literature review' (2018) 5 *Violence and Gender* 3, 135–46; N. Henry and A. Powell, 'Technology-facilitated sexual violence: a literature review of empirical research' (2016) 19 *Trauma, Violence and Abuse* 2, 195–208.

[25] For more on this issue in the Latin American context, see L. Camacho Gutiérrez, 'Addressing the Digital Divide among students at risk of school dropout in Latin America' (2024), Global Campus Policy Briefs 2024, https://repository.gchumanrights.org/server/api/core/bitstreams/fc5e90b1-f8c6-428f-8d84-81acf7258080/content.

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prepared for the digital economy.[26] Women are less likely to work in technology-related fields,[27] and are often excluded from higher-paying jobs that require technological proficiency, perpetuating economic disparities between genders and impacting the human right to work. As proclaimed in the UDHR, '[e]veryone has the right to work, to free choice of employment, to just and favourable conditions of work and to protection against unemployment'.[28] This free choice of employment is restricted if women are not given the opportunity to develop the skills necessary to have a choice to work in ICT or in higher-paying jobs that require technological proficiency. Moreover, the lack of digital literacy can hinder women's ability to participate in lifelong learning opportunities, which are crucial for adapting to the rapidly changing job market.

The gender digital divide extends beyond individual impacts to affect women's roles in their communities. Women with limited access to ICTs are less able to engage in social, community, and civic activities that are increasingly mediated through digital platforms. This exclusion can lead to a diminished voice in community decision-making processes and reduced social capital. This, in turn, impacts their human right to participate in public affairs.[29] In contrast, women who do have access to ICTs can leverage these tools for community building and advocacy, underscoring the stark contrast in opportunities based on digital access. Women with limited or no digital access often also lack confidence in their ability to learn ICT skills and have a perception that technology is not meant for them, which further limits their ability to engage with digital tools, thereby reinforcing the gender gap.[30]

Consequently, the gender gap also significantly restricts women's freedom of expression, limiting their ability to participate in public discourse, advocate for their rights, and engage with conversations on different levels (local, regional, global). Digital platforms offer spaces for women to voice opinions, share experiences, and connect with wider communities. When women cannot access such platforms, their marginalisation is perpetuated and traditional power dynamics reinforced. Restricted access to technology leads to their perspectives remaining under-represented in both local and global dialogues. And, of course, overall, the gender digital divide significantly undermines the right to non-discrimination and

[26] For more on the gender digital divide in education, see, e.g., I. C. Peláez-Sánchez, C. E. G. Reyes, and L. D. Glasserman-Morales, 'Gender digital divide in education 4.0: a systematic literature review of factors and strategies for inclusion' (2023) 1 *Future in Educational Research* 2, 129–46.

[27] E.g., women occupy only 22 per cent of all tech roles across European companies: S. Blumberg et al., 'Women in tech: the best bet to solve Europe's talent shortage', 24 January 2023, McKinsey Digital, www.mckinsey.com/capabilities/mckinsey-digital/our-insights/women-in-tech-the-best-bet-to-solve-europes-talent-shortage.

[28] UDHR, Art 23, para. 1.

[29] As recognised, e.g., in ICCPR, Art. 25, and UDHR, Art. 21.

[30] S. Singh, 'Bridging the gender digital divide in developing countries' (2017) 11 *Journal of Children and Media* 2, 245–7.

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equality,[31] as it perpetuates and exacerbates systemic gender disparities in access to opportunities and resources.[32]

To avoid such overarching negative impacts on women and ensure the protection of their core human rights, it is essential to find ways to bridge the gender digital divide, in order to foster equality, empower women, and ensure their full participation in the digital society and economy.

17.3.2 *International Action in Relation to the Gender Gap*

As the gender digital divide remains a critical barrier to achieving gender equality in the digital age, several international organisations have adopted declarations, policies, or programmes to address this issue. These organisations have aimed to bridge gaps in digital access, skills, and representation, but the approach has been haphazard and inconsistent. There has not been systematic engagement with the gender gap in high-level policy documents. This section outlines the most significant efforts in some of the international organisations that have addressed the problem at least to a certain extent.

The UN has been one of the organisations drawing attention to the gender digital divide. Already in 1995, the Fourth World Conference on Women in Beijing recognised the transformative potential of ICTs for women's empowerment. The declaration identified 'Women and the Media' as a critical area, calling for equitable access 'to expression and decision-making in and through the media and new technologies of communication' and the promotion of 'balanced and non-stereotyped portrayal of women in media'.[33] A prominent step, twenty years later, was to include target 5b of '[e]nhanc[ing] the use of enabling technology, in particular information and communications technology, to promote the empowerment of women' in the Sustainable Development Goals.[34] Unfortunately, the only indicator that was chosen for assessing the achievement of this target was the '[p]roportion of individuals who own a mobile telephone, by sex', which has limited the follow-up activity and analysis to aspects connected to this narrow indicator.

A year later, the General Assembly called for 'immediate measures to achieve gender equality in Internet users by 2020, especially by significantly enhancing women's and girls' education and participation in information and communications

[31] The prohibition of non-discrimination is contained in both general international human rights instruments and specialised treaties such as the Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW), New York, 18 December 1979, 1249 UNTS 13, which mandates state parties to eliminate gender-based disparities in all areas of life.

[32] See further, e.g., M. P. Treuthart, 'Connectivity: the global gender digital divide and its implications for women's human rights and equality' (2019) 23 *Gonzaga Journal of International Law* 1, 1–53.

[33] UN Fourth World Conference on Women, Beijing Declaration and Platform for Action, September 1995, www.un.org/womenwatch/daw/beijing/pdf/BDPfA%20E.pdf, strategic objective J.1. and J.2.

[34] UN General Assembly, Sustainable Development Goals and targets, 25 September 2015, GA Res. A/RES/70/1.

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technologies, as users, content creators, employees, entrepreneurs, innovators and leaders', and reaffirmed its 'commitment to ensure women's full participation in decision-making processes related to information and communications technologies'.[35] Clearly, the goal was not reached as no concrete large-scale action followed that document.

An important development in the digital sphere was the 2020 UN Secretary-General Roadmap for Digital Cooperation.[36] Its thematic areas include digital human rights, achieving universal connectivity and digital inclusion. The implementation of the roadmap is managed and coordinated by the Office of the Secretary-General's Envoy on Technology, established at the beginning of 2021. For women's rights, the most important aspects of the roadmap are digital inclusion (as it emphasises the need to address the gender digital divide) and cyber-violence.

The Commission on the Status of Women (CSW; a functional commission of the UN Economic and Social Council) is the main global inter-governmental body exclusively dedicated to the 'promotion of gender equality, the rights and the empowerment of women'.[37] The CSW's annual sessions regularly include discussions on ICTs and digital equity. The 2023 priority theme was 'innovation and technological change, and education in the digital age for achieving gender equality and the empowerment of all women and girls'. The agreed conclusions of that session urge governments at all levels to '[p]rioritiz[e] digital equity to close the gender digital divide' and to '[l]everag[e] financing for inclusive digital transformation and innovation towards achieving gender equality and the empowerment of all women and girls'.[38] The document includes a plethora of well-founded recommendations and declarations of the importance of the issues, but fails to include specific measurable targets that would help ensure implementation. As there are no binding commitments coming from this document, it is unlikely that it will lead to tangible action in the short term, but it could serve as guidance to the states genuinely invested in tackling this issue.

The UN also supports gender equality in ICT through its specialised agency, the International Telecommunication Union (ITU). Since 1998, the ITU has adopted several resolutions to promote gender equality and its mainstreaming. The first resolution was on gender and telecommunications policy in developing countries.[39] In

[35] UN General Assembly, Outcome document of the high-level meeting of the General Assembly on the overall review of the implementation of the outcomes of the World Summit on the Information Society, 1 February 2016, GA Res. A/RES/70/125, para. 27.

[36] UN Secretary-General, *Roadmap for Digital Cooperation*.

[37] UN Women, 'Commission on the Status of Women', www.unwomen.org/en/how-we-work/commission-on-the-status-of-women.

[38] CSW, 'Innovation and technological change, and education in the digital age for achieving gender equality and the empowerment of all women and girls. Agreed conclusions', 20 March 2023, ECOSOC Resolution E/CN.6/2023/L.3.

[39] ITU, 'Gender and telecommunication policy in developing countries', 1998, www.itu.int/en/ITU-D/Digital-Inclusion/Women-and-Girls/Documents/Resolutions/WTDC%20Valetta%20Res-7.pdf.

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2018, the ITU adopted a resolution on gender mainstreaming in the ITU and the promotion of gender equality and the empowerment of women through telecommunications/ICT.[40] A year earlier, in 2017, the ITU Working Group on the Digital Gender Divide adopted 'Recommendations for action: bridging the gender gap in Internet and broadband access and use', but follow-up activities have been very limited (just two progress reports – from 2017 and 2018).[41]

The EU's efforts in relation to the gender gap are mostly limited to the last ten years. The main relevant strategy is the EU's Women in Digital policy, which has the aim of ensuring that 'everyone, regardless of gender, gets a fair chance to benefit from and contribute to the digital age'.[42] In 2019, twenty-six EU countries, along with Norway and the UK, signed the Women in Digital Declaration to achieve equality in tech.[43] The signatories of the declaration agreed to take action to create a national strategy to encourage women's participation in digitalisation, stimulate companies to combat gender discrimination at work, and advance a gender-balanced composition of boards, committees, and bodies dealing with digital matters.[44]

The 2022 European Declaration on Digital Rights and Principles addresses the gender digital divide by emphasising inclusivity and gender balance as necessary elements of the digital transformation. The Declaration has the ambitious aim of 'promot[ing] a European way for the digital transformation, putting people at the centre, built on European values and EU fundamental rights, reaffirming universal human rights, and benefiting all individuals, businesses, and society as a whole'.[45] Chapter 2 on Solidarity and inclusion proclaims that 'technology should be used to unite, and not divide, people' and that the 'digital transformation should contribute to a fair and inclusive society and economy in the EU'. The EU committed to 'a digital transformation that leaves nobody behind' and 'should benefit everyone, achieve gender balance […]'. And with Chapter 4, the EU committed to 'promoting high-quality digital education and training, including with a view to bridging

[40] E.g., ITU, 'Mainstreaming a gender perspective in ITU and promotion of gender equality and the empowerment of women through telecommunications/information and communication technologies', 2018, www.itu.int/en/ITU-D/Digital-Inclusion/Documents/Resolutions/RESOLUTION%2070%20(REV.%20DUBAI,%202018).pdf.

[41] Broadband Commission for Sustainable Development, 'Working Group on the gender digital divide. How can we bridge the gender digital divide?', https://broadband.itu.int/working-groups/digital-gender-divide-2017/.

[42] European Commission, 'Shaping Europe's digital future. Women in digital', https://digital-strategy.ec.europa.eu/en/policies/women-digital.

[43] European Commission, 'Shaping Europe's digital future. EU countries commit to boost participation of women in digital', 9 April 2019, https://digital-strategy.ec.europa.eu/en/news/eu-countries-commit-boost-participation-women-digital.

[44] Ibid.

[45] European Parliament, the Council and the Commission, European Declaration on Digital Rights and Principles for the Digital Decade (2022), https://ec.europa.eu/newsroom/dae/redirection/document/94370, preamble.

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the digital gender divide'. The broad language (e.g., 'achieve gender balance' and 'promoting […] digital education') lacks measurable targets and enforcement mechanisms to ensure accountability.

The EU 2022 Digital Compass & Digital Decade Policy Programme 2030 (DDPP) is unique as it sets concrete targets for 2030 in areas such as digital skills, digital infrastructure, and making public services more digital.[46] It also emphasises the importance of women having equal opportunities in the ICT work sector and sets an ambitious target to increase the number of female ICT professionals, which involves increasing the number of girls and women studying ICT, both at school and at university. Importantly, EU Member States have to submit national strategic roadmaps about their actions to achieve all DDPP targets, which are published online, and report to the Commission about progress, which should add pressure on states to take action to meet the targets. This type of approach should also be adopted in relation to other aspects of the gender gap.

Other regional organisations are also addressing some facets of the gender gap in their policy. The Digital Transformation Strategy for Africa (2020–30) recommends promoting 'gender-inclusive education frameworks and policies and boosting relevant education opportunities and digital skills development for women and girls in STEAM-subjects to narrow the gender digital divide'.[47] And at the fifteenth session of the Regional Conference on Women in Latin America and the Caribbean, the member states of the Economic Commission for Latin America and the Caribbean (ECLAC) signed the Buenos Aires Commitment, underscoring the need to support women's participation in Science, Technology, Engineering, and Mathematics, and eliminating occupational segregation.[48] While these regional initiatives recognise the importance of addressing the gender digital divide through education and occupational inclusion, they fall short of creating systemic change. The policies lack implementation plans, mechanisms, and funds, and do not tackle deeply rooted socio-economic and cultural barriers.

In addition to policy documents, there have been several global initiatives targeted at closing the gender digital divide, including, among others, International Girls in ICT Day (ITU), the Global Partnership for Gender Equality in the Digital Age (the EQUALS initiative), the EQUALS in Tech Awards (ITU, UN Entity for Gender Equality and the Conference on Trade and Development), Gender-Sensitive Indicators for Media (UNESCO), Women on the Homepage (UNESCO), the Global Survey on Gender and Media (UNESCO), the Broadband

[46] European Commission, '2030 Digital Compass: the European way for the Digital Decade', 9 March 2021, COM(2021)118 final.

[47] African Union, 'The digital transformation strategy for Africa (2020–2030)' https://au.int/sites/default/files/documents/38507-doc-dts-english.pdf, p. 16. The acronym STEAM stands for Science, Technology, Engineering, Art, and Mathematics.

[48] ECLAC, Buenos Aires Commitment, LC/CRM.15/6/Rev.1, (Santiago: United Nations, 2023).

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Commission Working Group on Broadband and Gender, and the Best Practice Forum on Gender and Access of the Internet Governance Forum.[49]

Despite various regional and international policy commitments and global initiatives, the gender digital divide persists (albeit slowly decreasing). While efforts by organisations such as the UN highlight the importance of integrating gender equality into the digital agenda, the lack of binding commitments and systematic implementation frameworks limits progress. There is a need for cohesive, measurable, and actionable strategies to ensure that the digital transformation benefits everyone, regardless of gender, and that the human rights of women and girls are not negatively impacted. The gender gap undermines their ability to fully exercise their rights to education, work, freedom of expression, and access to information. This not only limits individual potential but also hampers progress towards gender equality more broadly. The gender digital divide exacerbates existing vulnerabilities by reinforcing systemic inequalities that disproportionately affect women, particularly those in marginalised communities. Limited access to digital tools and skills excludes women from opportunities in education, employment, and civic participation, deepening poverty and social exclusion. The lack of representation and participation in the digital economy and technology design also preserves biases, further entrenching gender inequality. To avoid perpetuating such issues, promises on paper need to be translated into concrete action.

17.4 AGE GAP

The digital divide disproportionately affects older populations. According to the ITU, younger generations are significantly more likely to use the internet than older populations. Globally, internet usage rates are highest among individuals aged fifteen to twenty-four, reaching over 75 per cent, while fewer than 55 per cent of people aged sixty-five and older are online.[50] And only around one-third of those aged fifty-five to seventy-four, the retired and the inactive, have at least basic digital skills.[51] This age-based digital divide (grey digital divide, age gap) limits older adults' access to vital services, social connections, and opportunities for lifelong learning. As societies digitise, the inability to engage with technology not only marginalises older individuals but also raises human rights concerns. As the EU Agency for Fundamental Rights has noted, '[o]lder persons, a heterogeneous group with diverse socio-economic backgrounds, are among those whose enjoyment of fundamental

[49] UN Economic and Social Council, Resolution 2021/28. Assessment of the progress made in the implementation of and follow-up to the outcomes of the World Summit on the Information Society, 22 July 2021, UN Doc. E/RES/2021/28.

[50] ITU, 'Measuring digital development: facts and figures 2024', www.itu.int/itu-d/reports/statistics/facts-figures-2024/.

[51] Digital Economy and Society Index (DESI) 2022, 'Human capital', https://ec.europa.eu/newsroom/dae/redirection/document/88765

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rights might be at risk from digitalisation'.[52] Their right to participate in civic and public life, the right to work, to health, and to education, can all be impacted by digital exclusion. The age gap exacerbates existing inequalities, as those excluded from digital connectivity face challenges in accessing services, healthcare, and opportunities for social inclusion.

17.4.1 *Specific Issues Faced by Older People and Their Human Rights Implications*

The age-based digital divide highlights the significant barriers older generations face in accessing and effectively using digital technologies.[53] The rapid digitalisation of services and social interaction is leaving many older people behind, owing to obstacles such as lack of digital literacy, limited access to devices or internet connectivity, and design biases in technology that cater predominantly to younger users.[54] Moreover, technophobia and cyberphobia can pose significant self-imposed barriers to engaging with ICT.[55] This section examines the specific issues stemming from the age gap in digital inclusion and looks at their human rights implications.

FRA emphasises that only one in four people aged sixty-five to seventy-four in the EU 27 have at least basic digital skills, which, along with up-to-date technological tools, are essential to participate in public life.[56] The right to access to public services is part of the right to good administration protected, for example, under Article 41 of the EU Charter of Fundamental rights.[57] This includes equal access to public services that are in the process of being digitalised.[58] As governments and businesses shift services online, older individuals without digital access often struggle to apply for benefits, schedule government appointments, or use banking services. This creates a dependency on others or exclusion from essential services.

[52] FRA, *Fundamental Rights of Older Persons: Ensuring Access to Public Services in Digital Societies* (Luxembourg: Publications Office of the European Union, 2023), p. 7.

[53] For more on the age-based digital divide, see, e.g., B. Mikołajczyk, 'Universal human rights instruments and digital literacy of older persons' (2022) 27 *The International Journal of Human Rights* 3, 403–24; T. N. Friemel, 'The digital divide has grown old: determinants of a digital divide among seniors' (2016) 18 *New Media and Society* 2, 313–31; M. Sourbati, '"It could be useful, but not for me at the moment": older people, internet access and e-public service provision' (2009) 11 *New Media and Society* 7, 1083–100; B. Jæger, 'Trapped in the digital divide? Old people in the information society' (2004) 17 *Science Studies* 2, 5–22.

[54] See, e.g., I. Mannheim et al., 'Ageism in the discourse and practice of designing digital technology for older persons: a scoping review' (2023) 63 *The Gerontologist* 7, 1188–1200.

[55] P. K. Yu, 'Bridging the Digital Divide: Equality in the Information Age' (2002) 20 *Cardozo Arts and Entertainment Law Journal* 1, 1–52, at 15.

[56] FRA, *Fundamental Rights of Older Persons*, p. 6.

[57] Charter of Fundamental Rights of the European Union, 26 October 2012, OJ C 326.

[58] FRA, *Fundamental Rights of Older Persons*, p. 8.

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The lack of digital skills can also prevent older individuals from accessing the information necessary for informed decision-making. Many voting resources and election updates are primarily available online. Older adults without digital skills or internet access struggle to find essential information about candidates, polling locations, or registration deadlines. This limits their ability to make informed decisions or participate fully in democratic processes. Voter registration, government consultations, and even voting are increasingly moving online, which reduces the ability of older people (without digital skills or access) to participate in such processes, and may end up infringing their right to participate in civic and public life. As much of today's political mobilisation and discussion occurs in digital spaces, but older individuals with limited digital access are often excluded from these forums, the perspectives of older people end up under-represented.[59] This exclusion not only diminishes their influence but also perpetuates generational divides in political representation and policymaking.

Older persons may also struggle with accessing digital healthcare services and information. People without internet access miss out on crucial health information, such as vaccination updates and preventive care guidance, exacerbating health inequities, especially in underserved areas.[60] Telemedicine, vital for remote care and during emergencies such as the COVID-19 pandemic, often excludes older individuals lacking digital skills, leading to delayed diagnoses and untreated conditions. Being unable to use digital healthcare systems, including electronic health records and online appointment platforms, creates further barriers and impacts the ability to manage one's healthcare effectively. Such problems may end up impacting older persons' right to health.

The age gap can fuel social isolation by limiting the ability of older adults to connect in an increasingly digital world. Without internet access or digital skills, many miss out on video calls, social media, and online communities that sustain relationships and combat loneliness. Human rights instruments, such as the EU Charter of Fundamental Rights, recognise the 'rights of the elderly to lead a life of dignity and independence and to participate in social and cultural life'.[61] But if older people lack digital literacy or access to social media and messaging platforms, they are at a higher risk of social exclusion and loneliness, as family and friends increasingly rely on digital communication to stay connected. This disconnect is especially impactful for those with mobility challenges or in rural areas, where

[59] See further, e.g., M. Sànchez-Valle, 'The perception of older adults regarding socio-political issues disseminated on social networks' (2023) 11 *Communication for Seniors' Inclusion in Today's Society* 3, 112–23.

[60] R. M. Tappen et al., 'Digital health information disparities in older adults: a mixed methods study' (2021) 9 *Journal of Racial and Ethnic Health Disparities* 1, 82–92.

[61] Article 25 of the EU Charter of Fundamental Rights states that EU 'recognises and respects the rights of the elderly to lead a life of dignity and independence and to participate in social and cultural life – Charter of Fundamental Rights of the European Union, 26 October 2012, OJ C 326.

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digital tools often replace in-person interactions.[62] This exclusion from (digital) social life negatively affects mental health, increasing the risk of depression and cognitive decline.[63]

The age-related digital divide can also impact older adults' rights to education and work. As (adult) education shifts online, those without sufficient digital skills face barriers to lifelong learning and skill development, limiting their ability to adapt in a changing job market. Many older individuals looking to stay in or re-enter the workforce struggle with the technological skills required in many jobs, widening economic inequality and reducing their employability. Similarly, as job applications and interviews are increasingly digital, older adults struggle to access employment opportunities.[64] Being excluded from online platforms for networking, remote work, and training can deepen economic and social inequalities.

Summing up, the age gap exacerbates age-based discrimination, undermining older people's human right to participate in civic and social life, the rights to education and work, the right to vote, and the right to health, among others. Without intervention, this digital exclusion deepens systemic inequalities, further marginalising older individuals.

17.4.2 *International Action in Relation to the Age Gap*

In order to achieve the equitable inclusion of older adults in the digital realm, some international organisations have introduced policies to address this disparity. Yet efforts remain limited and fragmented. High-level policy documents have yet to systematically engage with the unique challenges faced by older individuals because of the digital divide. This section highlights some (sporadic) policy initiatives by international organisations to tackle the age gap specifically; it does not look at broader instruments that address the (human) rights of older persons not limited to the context of digitalisation.

One of the main UN instruments in this area is the Madrid International Plan of Action on Ageing.[65] The plan emphasises the need to enhance the quality of life of older persons by ensuring their full participation in society, which includes access to ICTs. It encourages the development of programmes to reduce the digital divide and promote digital literacy among older persons.[66] In 2010, the UN's Open-Ended

[62] For more on this, see, e.g., A. Seifert, S. R. Cotton, and B. Xie, 'A double burden of exclusion? Digital and social exclusion of older adults in times of COVID-19' (2021) 76 *The Journals of Gerontology: Series B* 3, e99–e103.

[63] Y. Wang et al., 'Digital exclusion and cognitive impairment in older people: findings from five longitudinal studies' (2024) 24 *BMC Geriatrics* 406.

[64] G. Karaoglu, E. Hargittai, and M. H. Nguyen, 'Inequality in online job searching in the age of social media' (2021) 25 *Information, Communication and Society* 12.

[65] UN, Second World Assembly on Ageing, Madrid 8–12 April 2002, *Political Declaration and Madrid International Plan of Action on Aging* (New York: UN, 2002).

[66] E.g., ibid., para. 40(b).

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Working Group on Ageing was established.[67] It has advanced the promotion of a rights-based approach towards ageing, but has not paid much attention to addressing the age gap.

In 2022, ministers from the member states of the UN Economic Commission for Europe committed to 'promoting user-friendly digitalisation, enhancing digital skills and literacy to enable older persons to participate in an increasingly digital world, while also ensuring the right to access to information, participation, and services through access to digital devices and the Internet, and to suitable offline or other secure alternatives in user-friendly and accessible formats'.[68] However, this is a regional commission, which includes fifty-six member states, so the declaration does not reflect a global consensus. In 2013, the UN Human Rights Council established the mandate of the independent expert on the enjoyment of all human rights by older persons.[69] One of its annual thematic reports addressed the impact of automation on the human rights of older persons,[70] but the independent expert has not engaged with the age gap in detail.

The 2020 UN Roadmap for Digital Cooperation addresses the age-related digital divide through its broader focus on inclusivity and equitable digital access.[71] The roadmap highlights the importance of leaving no one behind, emphasising the need to close gaps in digital access and skills for vulnerable groups (including older people). The roadmap calls for partnerships across governments, private sectors, and civil society to address barriers, such as those faced by older populations in adopting digital technologies. The ITU as a UN specialised agency also has relevant policy goals. Its Connect 2030 Agenda has the ambitious target to bridge all digital gaps, including the age gap.[72] Other relevant targets include broadband services being affordable to all, broadband access to every household, universal access to the internet by all individuals, the majority of individuals having digital skills, and the majority of individuals accessing government services online. If successful, this would be a significant step towards eliminating the age gap. Yet the targets are very broad and do not have any specific actions or binding commitments attached to them.

The EU's approach is focused on inclusion in general and does not have many instruments specifically targeting older people (e.g., Europe's Digital Decade

[67] UNDESA, 'Open-ended Working Group on Ageing for the purpose of strengthening the protection of the human rights of older persons', https://social.un.org/ageing-working-group/.

[68] 2022 Rome Ministerial Declaration, 'A sustainable world for all ages: joining forces for solidarity and equal opportunities throughout life', https://unece.org/sites/default/files/2022-06/Rome__Ministerial_Declaration.pdf, para. 25.

[69] HRC, Resolution 24/20. 'The human rights of older persons'

[70] HRC, 'Report of the Independent Expert on the enjoyment of human rights by older persons. Robots and rights: the impact of automation on the human rights of older persons', UN Doc. A/HRC/36/48, 21 July 2021.

[71] UN Secretary-General, *Roadmap for Digital Cooperation*.

[72] ITU, 'Connect 2030 – An agenda to connect all to a better world', www.itu.int/en/mediacentre/backgrounders/Pages/connect-2030-agenda.aspx, target 2.1.

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policy programme sets targets such as achieving basic digital skills for 80 per cent of adults by 2030, but does not specify how high this percentage should be among older people).[73] The main document with a distinct focus on older people and the digital divide is the 2020 Council of the EU conclusions on the human rights, participation, and well-being of older persons in the era of digitalisation.[74] The conclusions advocate for tailored strategies to enhance digital literacy among older people, improve their access to digital infrastructure, and foster their active engagement in the digital society. But the document is phrased in a very soft manner, with the Council inviting member states and the European Commission to consider, promote, and enable different steps that would improve the situation of older persons.

There are no EU directives or regulations dedicated specifically to protecting the fundamental rights of older persons or addressing the age gap. Two directives that do have a somewhat positive impact on accessibility are the Web Accessibility Directive and the European Accessibility Act.[75] The former directive obliges states to ensure that public sector websites and mobile apps have specific technical accessibility standards, which are accessible to everybody, including persons with disabilities. And the latter has the aim of improving cross-border trade in accessible products and services between EU Member States. The EU Agency for Fundamental Rights (FRA) has drawn attention to the fundamental rights implications of digital exclusion among older adults, in the particular context of access to public services. Its 2023 report underscores the risk of marginalisation in accessing essential services, including healthcare and social benefits, and advocates for inclusive digital policy frameworks.[76] Despite the acknowledgement of the issue in the EU, action is lagging.

In general, regional and specialised organisations have not been focusing on the age-related digital divide. Although many organisations have general policies in relation to the digital divide, the specific issues that older people face have not received much attention. Yet the age-related digital divide continues exacerbating existing vulnerabilities among older adults by amplifying their risk of exclusion across multiple domains. It can further marginalise those already disadvantaged by factors such as low income, poor health, or geographic isolation, particularly in

[73] European Commission, 'Europe's Digital Decade: digital targets for 2030', https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/europe-fit-digital-age/europes-digital-decade-digital-targets-2030_en.

[74] Council of the EU, 'Human rights, participation and well-being of older persons in the era of digitalisation. Council Conclusions', EU doc. 11717/2/20 REV 2, 9 October 2020.

[75] Web Accessibility Directive: Directive (EU) 2016/2102/EC of the European Parliament and of the Council of 26 October 2016 on the accessibility of the websites and mobile applications of public sector bodies, OJ 2016 L 327. European Accessibility Act: Directive (EU) 2019/882/EC of the European Parliament and of the Council of 17 April 2019 on the accessibility requirements for products and services, OJ 2019 L 151.

[76] FRA, *Fundamental Rights of Older Persons*.

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rural areas where digital infrastructure is often less developed. Older individuals who lack digital skills or access to technology may struggle to book medical appointments, access telehealth services, or manage financial transactions, leaving them more vulnerable to unmet needs and financial instability. Social vulnerabilities are also intensified as digital technologies have become central to communication and community engagement. Older people without digital literacy are at greater risk of loneliness and social isolation, as family, friends, and community networks have become reliant on digital platforms for connection. This isolation can contribute to mental health issues, such as depression and anxiety, which are already prevalent among older populations.

An aspect to bear in mind when addressing the age gap (and the digital divide in general), is intersectionality. Intersectionality highlights how overlapping vulnerabilities, such as age, gender, socio-economic status, and geographic isolation, compound the impacts of the digital divide.[77] Older women in rural areas exemplify this, facing barriers from age-based exclusion, entrenched gender norms, and limited infrastructure. These intersecting disadvantages amplify the risk of marginalisation. Addressing the age-related digital divide thus requires policies that account for the complex, intersecting needs of marginalised groups to ensure that digital inclusion efforts are equitable and effective.

In sum, the age-related digital divide magnifies the disparities older adults face, reinforcing cycles of exclusion that intersect with economic, social, and health vulnerabilities. Bridging this divide is not merely a matter of technological advancement but a fundamental requirement for ensuring dignity, autonomy, and inclusion for older individuals in contemporary society. Addressing this issue holistically is essential to mitigating its broader societal impacts and safeguarding the human rights of an ageing population.

17.5 CONCLUSIONS

The digital divide represents a critical fault line in the global move toward digitalisation. Despite decades of attention, the problem persists owing to the interplay of systemic factors, including socio-economic disparities, geographic isolation, cultural norms, insufficient policy interventions, and inadequate resources. This chapter has examined the gender and age dimensions of the digital divide, illustrating how these gaps perpetuate and exacerbate exclusion and vulnerability among women and older populations. Bridging this divide requires a more cohesive, enforceable, and inclusive approach that prioritises the voices and needs of marginalised groups. This has been acknowledged by the UN Secretary-General, who has noted that '[r]isk factors that affect the ability of vulnerable and marginalized groups to

[77] See further, e.g., P. Tsatsou, 'Vulnerable people's digital inclusion: intersectionality patterns and associated lessons' (2021) 25 *Information, Communication & Society* 10, 1475–94.

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have access to connectivity should be specifically identified and addressed'.[78] The same has been recognised by the European Parliament, which 'call[ed] for careful examination of people's needs when it comes to digital developments and innovation, especially the needs of vulnerable groups, in order to assess how they can benefit from these new technologies' as 'the digital transition must take place in a way that benefits everyone'.[79]

Both covered dimensions of the digital divide reflect broader systemic failures to address structural inequalities. While international and regional bodies have adopted policies to address these gaps, their efforts are often inconsistent, fragmented, and lack enforceable commitments. For instance, international instruments such as the UN's Sustainable Development Goals include digital inclusion targets, but fail to address the problem in a comprehensive manner. Similarly, the EU's Digital Decade policy programme and other regional initiatives advocate for inclusivity but provide limited mechanisms to enforce digital equity for women and older individuals. The organisations themselves are also calling for more action. Some of the concrete aspects that have been noted as key to bridging the digital divide are 'better metrics, data collection, and coordination of initiatives' (UN Secretary-General),[80] and 'strengthened enabling policy environments and international cooperation to improve affordability, access, education, capacity-building, multilingualism, cultural preservation, investment and appropriate financing' (UN Economic and Social Council).[81] The European Parliament has emphasised the need to design 'online services in a comprehensible way so that they can be accessed and used by people of all ages and levels of educational attainment',[82] and the importance of promoting 'basic and specialised skills with a specific focus on the most vulnerable groups of people, and the development of education and training systems including lifelong learning, re-skilling and up-skilling'.[83] Such calls for action have yet to lead to significant results.

Addressing the digital divide is not merely a matter of technological advancement but a profound human rights imperative. Civil society groups such as AGE Platform Europe have emphasised that human rights need to be used as a compass for digitalisation more broadly.[84] International and regional frameworks must

[78] UN Secretary-General, *Roadmap for Digital Cooperation* (2020), at p. 7.
[79] European Parliament resolution of 13 December 2022 on the digital divide: the social differences created by digitalisation (2022/2810(RSP)), para 1.
[80] UN Secretary-General, *Roadmap for Digital Cooperation* (2020), at p. 10.
[81] UN Economic and Social Council, Resolution 2021/28. Assessment of the progress made in the implementation of and follow-up to the outcomes of the World Summit on the Information Society, 22 July 2021, UN Doc. E/RES/2021/28.
[82] European Parliament resolution of 13 December 2022 on the digital divide: the social differences created by digitalisation (2022/2810(RSP)), para 7.
[83] Ibid., para 15.
[84] AGE Platform Europe, 'Digitalisation and older people: our call to EU policy makers', 28 June 2024, www.age-platform.eu/content/uploads/2024/07/AGE_Paper-on-Digitalisation-and-Older-People_June-2024_FINAL-1.pdf.

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go beyond aspirational targets and implement binding commitments and concrete initiatives that address the specific barriers faced by vulnerable groups. Achieving digital equity is essential not only for fostering individual empowerment but also for advancing broader societal goals of inclusivity, fairness, and human rights in an increasingly digital world.

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