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Public policies to overcome the Digital Divide among Older Adults: A Scoping Review

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ABSTRACT

The "generational digital divide", or "gray digital divide", does not necessarily reflect a lack of physical access to devices but rather a barrier to meaningful use, digital competence, and confidence in conducting transactions or consuming digital content among older adults. To map the existing literature on the digital divide among older adults, identifying its determinants, consequences, and possible mitigation strategies, with special attention to the role of public policies. We conducted a scoping review of the Web of Science database, following PRISMA guidelines, covering publications from 2024 to 2026. We included regulatory documents and institutional sources to identify the previously studied context and determine findings, limitations, implications, and areas for future research. The findings reveal that the gray digital divide stems from multiple interrelated factors and is not a consequence of age. This gap affects autonomy, health, social participation, and psychological well-being, and it reinforces other inequities. The mitigation strategies identified in the literature highlight the importance of inclusive technology design, targeted digital literacy programs, and public policies grounded in an intersectional approach. Bridging the digital divide among older adults cannot be achieved through a one-dimensional approach that treats age as the sole determining factor. This study demonstrates that digital inequalities do not operate in isolation but interact with other structures of disadvantage. Inclusive digital governance, approached from an intersectional perspective, will be more effective in ensuring older adults' full participation and the well-being associated with technology.

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Generational Digital Divide, Digital Inequities, Ageism, Intersecting Barriers, Digital Governance.

1. Introduction

Easy access to technology and its effective use can create opportunities and increase use of government resources and services. It also supports participation in public life and better connection to information and the community. Conversely, a lack of digital skills or access to these advantages is a structural risk factor for social exclusion, affecting psychological well-being, autonomy, social participation, and access to fundamental rights and services. This form of exclusion has no single cause; it results from a blend of social, personal, and organizational factors acting simultaneously. Age, gender, education and work experience, health status, place of residence, socioeconomic situation, ethnicity, the availability of social support networks, and the characteristics of technology design and institutional policies regulating access to digital services determine this inequality, known as the digital divide. The concurrence of multiple factors may cause multiple exclusion, as their cumulative effect intensifies the magnitude and consequences of this divide.

Older adults are among the groups most exposed to the risks of the digital divide, as multiple factors—such as the aging process, potential health limitations, lower levels of digital competence, and increased reliance on essential services—tend to converge in this population. The intersection of these determinants increases the likelihood of social exclusion and limits participation and autonomy in a society increasingly shaped by digitalization. Health and well-being remain central concerns for older adults, and the rapid digitalization of health services following the COVID-19 pandemic has further accentuated these dynamics. While digital transformation can improve access and capacity, it can also worsen existing inequalities unless strong public policies prioritize accessibility and equity (Cuadros et al., 2025; Ko et al., 2025).

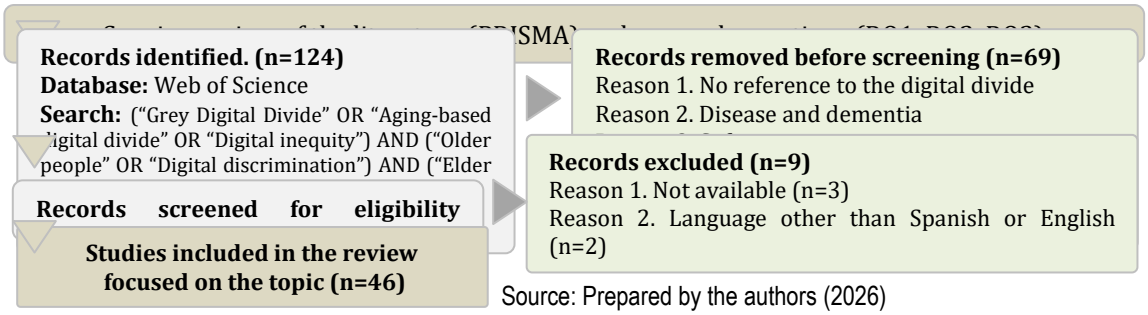
The gray digital divide, or generational digital divide, refers to disparities in access to, use of, and effective utilization of digital technologies among older adults, as well as the consequences arising from these inequalities, such as exclusion, decline in autonomy, health impacts, social inequities, and the deterioration of belief in digital services. Advanced age or aging is not the root cause of digital exclusion, but rather a life stage in which pre-existing structural and social inequalities accumulate and are amplified, which, in turn, intensifies exclusion dynamics inside the digital sphere (Ali et al., 2024; Conduah & Ofoe, 2025; Husain & Greenhalgh, 2025; Hwang et al., 2024; Knowles et al., 2025; Li & Kostka, 2024; Nivestam et al., 2026; Zhang & He, 2022).

This article presents a scoping review of the literature published between 2024 and 2026, following the PRISMA methodological guidelines, to identify and establish measures that public administrations can adopt to reduce this technology divide, supporting a more participatory and less exclusionary existence for older adults and, at the same time, enabling just access to the advantages and resources that technology provides. To conclude, this study poses three research questions: RQ1. What factors determine the digital divide among older adults? To what extent does the intersection of these causes intensify exclusion? RQ2. What adverse effects does the gray digital divide generate among older adults, and how can it aggravate their vulnerability? RQ3. How can we overcome the generational digital divide, and what role do public policies play in lessening its impact on older adults?

2. Material and Methods

This research is framed as a scoping review to map the existing literature on the gray digital divide. This design was chosen because the research questions are exploratory and focus on uncovering key concepts, patterns, and gaps in the literature, as well as gathering as much available evidence as possible. In addition, the selected studies were descriptively coded using a binary matrix to estimate the relative frequency of the identified factors, consequences, and mitigation measures, without conducting a meta-analysis or a comparative assessment of effectiveness. The review followed the PRISMA methodological guidelines, which cover three fundamental phases: planning, execution, and results presentation. This approach enables identification of the present context and the determination of findings, limitations, implications, gaps, and future work to address the proposed research questions (RQ1, RQ2, and RQ3) (Page et al., 2021; PRISMA, n.d.).

Figure 1. Flow of Source Selection and Evaluation.



Source: Prepared by the authors (2026)

2.1 Study Design

During planning, we developed an exhaustive search strategy using relevant keywords and Boolean operators (Figure 1). We applied it to the Web of Science database, selected for its quality and coverage of scientific publications. We conducted the search on April 24, 2026, and included studies published between 2024 and 2026 to capture recent advances. The search yielded an initial corpus of 124 indexed publications that included the core terms in their titles, abstracts, or keywords: "digital inequality," "digital discrimination," and "gray digital divide" or "generational divide." We also included articles on social topics, public governance, health care, behavioral sciences, equitable technology design, and other areas related to the core terms of this research.

We defined inclusion and exclusion criteria for the sources. Inclusion criteria included peer-reviewed articles in English or Spanish, published since 2024, that addressed behavioral sciences, social sciences, digital health, and technological design and examined social exclusion due to the digital divide. Exclusion criteria (see Figure 1) included studies focused on diseases in older adults, dementia, or other groups at risk of exclusion for reasons other than digital exclusion, as well as theoretical or conceptual works. Both researchers independently selected and evaluated the studies, applied these criteria to the full texts, and identified no duplicate records.

2.2 Data and Variables

After the initial selection, the researchers evaluated the remaining articles for eligibility to determine whether they would help answer the research questions. This evaluation was based on the articles' full texts. Five relevant areas of study were identified: (1) digital inequality, associated with the violation of equal opportunities in the digital environment; (2) dependence and social exclusion, resulting from a lack of digital skills and diminution of autonomy; (3) acquisition of digital skills, for the development of digital capabilities among older adults; (4) technological design and availability, associated with the usability and interaction of this group with technological means; and (5) public policies and institutional responsibility, with content related to inclusive governance (Table 1).

Table 1. Areas of Study and Authors

Fields of study	Authors
Digital inequity (19)	Asbaghi et al. (2025); Chadwick et al. (2024); Choolayil et al. (2024); Chu et al. (2025); Cuadros et al. (2025); Haimi et al. (2024); Huang & Ye (2025); Knowles et al. (2025); Lau et al. (2025); López-García et al. (2026); Li & Kostka (2024); Milanfar et al. (2024); Power & Yeo (2026); Qiu et al. (2024); Ren & Zhu (2024); Shang et al. (2024); Shou et al. (2025); Srisaknok et al. (2025); Thomas et al. (2025)
Dependence and social exclusion (9)	Ahmed et al. (2024); Diana et al. (2025); Hu et al. (2024); Husain & Greenhalgh (2025); Hwang et al. (2024); Nivestam et al. (2026); Stanford & Just, (2025); Wankah et al. (2025); Zhang et al. (2025)
Acquisition of digital skills (7)	Díaz-Catalán et al. (2024); Du et al. (2024); Flynn (2025); Kyaw et al. (2024); Morimoto et al. (2025); Standaar et al. (2025); Xu et al. (2025)
Public policies and institutional responsibility (5)	Conduah & Ofoe (2025); Dao (2026); Galinkala et al. (2024); Li & Kostka (2025); Moreal et al. (2025)
Technological design and universal accessibility (6)	Ali et al. (2024); Ganeshan et al. (2024); Husain et al. (2024); Jia et al. (2025); Ko et al. (2025); Schulze Pröbsting et al. (2026)

Source: Prepared by the authors (2026)

2.3 Data Preparation and Analysis

We analyzed each article in depth to identify relevant textual evidence that contributed to the study's objectives. During the process, patterns not foreseen in the initial research design emerged, allowing a more complete and subtle understanding of the phenomenon studied. We created an Excel table to record each article's author, year of publication, title, and DOI, as well as variables related to the causes, consequences, and mitigation factors or strategies for the digital divide. Although we defined some variables based on the research questions, we kept open cells to record and analyze variables not identified during the literature review.

When reviewing each article, we identified both expected and emerging variables. We entered the information into the Excel matrix as follows. We used a dichotomous coding system in which 1 indicated the variable's presence in the article and 0 its absence. The matrix's binary structure facilitated calculating each variable's frequency and obtaining its average value across the analyzed studies. It also allowed us to present figures that clearly visualized the results. Before presenting them, we incorporated complementary sources, including institutional documentation and additional literature identified through a manual search, to enrich the interpretation. We did not include these sources in the quantitative analysis.

3. Results

The research process recognized key elements that provide a full understanding of this form of social exclusion. Specifically, the analysis identifies the underlying causes and factors that generate and intensify the digital divide, the range of negative impacts and adverse consequences that stem from unequal access to and use of technology, and the actions and countermeasures key to preventing technology-related barriers from excluding older adults.

3.1. Main Causes of the Gray Digital Divide

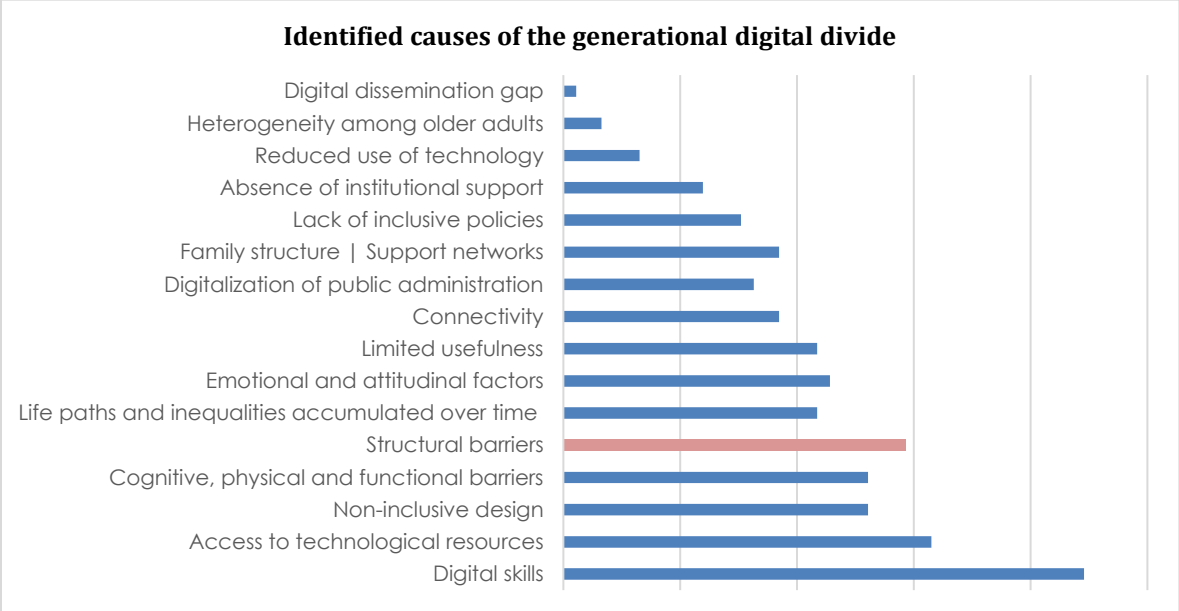
Regarding RQ1, the reviewed studies show that the generational digital divide has multiple causes that cannot be understood outside economic and sociocultural contexts or people's life and employment trajectories. Analyzing it requires an intersectional perspective in which socioeconomic, structural, relational, and personal factors intersect. The overlap of these variables can markedly exacerbate digital inequalities. Different inequality factors can combine to produce marginalization or multiple exclusion when, in the same person, factors such as age, poverty, chronic illness, or digital illiteracy converge. Disadvantages accumulate in an intersectional pattern that amplifies inequities (Choolayil et al., 2024). The literature review shows that these factors not only create the digital divide but also intensify it over time if mitigating or corrective measures are not adopted.

Technological design is of great importance. Technology is ineffective when it creates usability barriers, unintuitive navigation, or information overload, strengthening the idea that it is not "made for them." The more complex digital services are, the more difficult they are to use. More digital access points create greater disorientation (Chu et al., 2025; Husain & Greenhalgh, 2025). Access to technological resources is also a determining factor. Poor connectivity, complex installation requirements, inadequate or outdated devices, inaccessible platforms, and alleged security and privacy risks limit access. These cumulative access barriers can lead to technical problems when interacting with technology (Haimi et al., 2024).

Economic capacity determines digital inclusion in old age. The high cost of smartphones, tablets, and computers prevents older

adults with low pensions from acquiring updated devices. Monthly payments for broadband internet or mobile data plans directly compete with basic expenses such as food, electricity, or medicine. Older devices become incompatible with essential applications (such as online banking or health services), forcing renewals that seniors cannot afford. This lack of resources frequently coincides with precarious environments, where no family members have the knowledge or time to provide technical support. Insufficient income can limit access to devices and digital services, particularly for people living alone. As a result, digitalizing procedures and key services increases the risk of exclusion for older adults with fewer resources. The theory of digital capital explains how people already facing institutional disparities see those disparities accentuated when services become digitalized (Conduah & Ofoe, 2025; Husain & Greenhalgh, 2025). The lack of resources, socioeconomic situation, or educational level deepens current inequalities.

Table 2. Causes of the Generational Digital Divide.



Source: Prepared by the authors (2026).

A deficit in technology use during formative stages or a lack of opportunities in professional life creates a gap in digital skills, which can show up as unfamiliarity and low confidence in using technology. Regular use of the internet and social networks is strongly associated with acquiring these digital competencies (Kyaw et al., 2024). Autonomous learning can effectively build digital skills, but it mainly benefits those who already have a foundation or have had contact with technology (Díaz-Catalán et al., 2024). In rural areas, older adults show less autonomous use, less confidence in their digital skills, and less varied digital use, which limits their digital and social participation (Zhang & He, 2022).

Older adults who live alone and/or have less community integration also have fewer opportunities for intergenerational learning and peer support. Relying on family members or others to complete online tasks or use digital tools reduces autonomy and leaves people vulnerable when support is unavailable or relationships are unstable (Faith et al., 2026). A helpful family member might be a double-edged sword, as it may reinforce the idea that someone will always help with technology, which could prevent them from improving their digital skills (Thomas et al., 2025). In rural areas, young people migrating for work also reduces older adults' access to intergenerational digital support (Zhang et al., 2025).

Not being socialized in digital contexts directly affects their confidence, motivation, and perception of technology's usefulness. Lack of confidence, feeling "too old" for technology, and fear of the new could hinder older adults' digital participation. Negative past experiences reinforce low self-efficacy; anxiety about making mistakes, along with frustration and helplessness from not progressing at the expected pace, reinforces the rejection of technology (Cuadros et al., 2025). Added to this is the fear of putting their privacy and security at risk. Likewise, resistance to using technology stems from the assumption that it is a greater burden than the benefits it can provide, that it will not be possible to integrate it within daily life, or that health technologies will not add value to health and well-being (Chadwick et al., 2024). Preference for face-to-face interactions also reduces engagement.

Older adults are not a homogeneous social group in the face of digitalization (Kokorelias et al., 2022); rather, they are internally diverse, shaped by social and structural inequalities, life trajectories, and physical and cognitive conditions. Focusing exclusively on chronological age as the cause of the divide is simplistic. Multiple dimensions of age—biological, psychological, generational, experiential—and how they combine to define a person's capacity and desire to interact with technology must be considered (Knowles et al., 2025). Nevertheless, older adults are generally more likely to face cognitive, physiological, and functional barriers. They may experience visual, auditory, motor, or memory impairments due to their life stage, as well as attention and comprehension difficulties that limit both device use and remote interaction (Chadwick et al., 2024; Haimi et al., 2024). Memory deterioration and the cognitive demands

of technology itself exacerbate these challenges. Technology use often declines significantly—in duration, frequency, and breadth or variety—during the transition to older ages (Qiu et al., 2024). Moreover, the rise of mobile phones (Álvarez et al., 2024) has reduced educational use, replacing it with entertainment, since mobile devices are less suitable for activities that require greater cognitive effort, such as those performed on computers (Ren & Zhu, 2024).

In recent years, Public Administration has accelerated digitalization, sometimes without digital alternatives, intensifying exclusion and dependence on others, since in contexts of low digital competence, third-party support is required to carry out administrative procedures, request appointments, or manage finances. This digitalization is implemented without support, training, guidance, or protection. It can widen existing disparities and lead to exclusion (Nivestam et al., 2026) by removing the possibility of help or incident resolution for people with lower digital skills. For digital transformation to be inclusive, it requires an even stronger political focus on equity and digital inclusion.

Inclusive measures on accelerated digitalization are lacking, not only in the administration but also in the private sector, and this can even violate the fundamental rights of older adults. Eliminating face-to-face support in public administration makes it harder to access pensions, medical appointments, and tax services. The massive closure of bank branches and ATMs leaves many seniors without access to their own money. A lack of specific cybersecurity training makes them easy targets for scams and phishing. Leisure, communication, and transportation services require complex applications that replace human interaction. Digitalization should be a tool for integration, not a mechanism for segregation. Human rights do not expire with age or depend on a citizen's technological skills. Digitalization must be implemented through an equity lens and supported by effective mechanisms to combat age discrimination. States' protection of older adults' digital rights, companies' responsibility in human rights matters, and international cooperation to share best practices (Atli & Ayan, 2026) are key tools to prevent older adults from being excluded in the digital era.

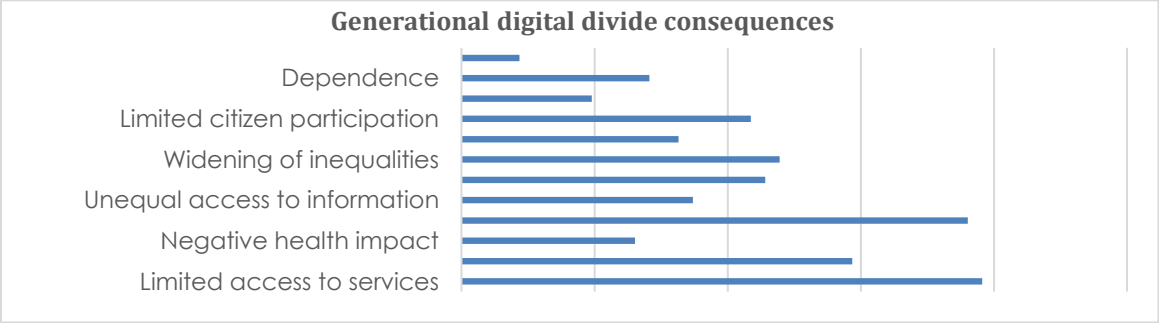
Likewise, older adults have limited awareness of digital inclusion policies and government programs. The digital divide also deprives older adults of access to information. These accumulated barriers prevent them from participating in online preventive wellness campaigns or accessing adequate, secure information about care and well-being. Effective dissemination methods are lacking, even though digital competence campaigns should reach their target audiences and, to do so, spread through the same media older adults use to keep updated (Li & Kostka, 2024). All of the above limitations affect rural populations, older migrants, and older women more intensely, especially when low educational levels and/or economic limitations are also present (Chadwick et al., 2024; Conduah & Ofoe, 2025; Husain et al., 2024; Husain & Greenhalgh, 2025; Li & Kostka, 2024; Ren & Zhu, 2024).

3.2. Main Consequences of the Digital Divide Among Older Adults

Regarding RQ2, the digital divide amplifies social inequalities, generating both direct and indirect effects on health and well-being. Based on the literature review, various adverse effects have been identified through different areas of daily life that affect, to varying degrees, self-governance, access to and use of public services, and social and civic participation, with relevant consequences for physical and mental well-being. Low digital knowledge limits older adults' ability to access digital public administration and, even more so, the healthcare system, one of the most in-demand services for this group. As care becomes increasingly digital, older adults struggle to complete online procedures, face barriers when using portals not adapted to their needs and find it difficult to participate in videoconferences. A lack of digital skills means they cannot fully benefit from digitalization; these deficiencies prevent them from fully accessing technology-based services and care, especially in digital health. Digital solutions can address various health determinants, including psychological, environmental, and social aspects, which are necessary for promoting active and healthy aging. Limited access to and use of digital technologies prevents older adults from participating in and benefiting from health services such as remote medical consultations, personalized exercise programs, and digital monitoring of chronic diseases.

When telematic consultations replace a personal, stable, and direct doctor-patient relationship, it is perceived as fragmented. Digital services disorient patients, as they find it difficult to express their symptoms accurately and feel their doctor is not fully present, which weakens the existing bond because communication is perceived as lower, and empathy decreases (Haimi et al., 2024; Husain & Greenhalgh, 2025). At the same time, it weakens the patient's sense of autonomy, as they feel powerless when interacting in the virtual environment (Husain et al., 2024).

Table 3. Consequences of the Generational Digital Divide



Source: Prepared by the authors (2026)

The lack of confidence in using technology generates anxiety, frustration, and stress associated with skill deficits, as well as a decline in autonomy due to dependence on others, which also limits well-being. Internal perceptions of abandonment and being left behind due to lack of participation may arise, leading to situations of social exclusion. The digital divide affects not only physical health but also emotional health, creating significant psychological costs reflected in many aspects of daily life. At the same time, when older adults encounter repeated obstacles, there is a growing disaffection toward the system, which results in delays in seeking care, less continuity in follow-up, and distrust in digital health (Choolayil et al., 2024; Chadwick et al., 2024; Haimi et al., 2024; Husain & Greenhalgh, 2025). Exclusion also extends to health by preventing individuals from accessing the benefits telemedicine offers in accessibility, flexibility, and independence (Ko et al., 2025).

Relying on others to access basic services reduces self-determination. It increases vulnerability by creating a permanent need for another person or institution to manage digital services, and it risks privacy because a third party handles personal information. Older adults largely depend on family members or peers for digital support, creating "delegated security ecosystems" (Murthy et al., 2021) and undermining end-user autonomy by placing them in a passive role. The available social support significantly affects digital participation. Living alone or having little social support hinders digital skill development (Li & Kostka, 2024). Intergenerational support between parents and children is beneficial when relationships are harmonious. When conflict is common, it harms well-being and mental faculties (Hu et al., 2024).

Technology use is the gateway to the digital world, but it closes when digital skills are insufficient. Older adults may lose contact with family and friends because they lack the knowledge to use social networks. They are deprived of reaffirming their social identity when they are unable to engage in online discussions or experience greater difficulties in daily life by not adapting to the use of public transport system applications, which increases their sense of loneliness and social isolation (Du et al., 2024), both of which are risk factors for worsening well-being and mental health (Stanford & Just, 2025). Ageism is also a form of social discrimination. Artificial intelligence can reproduce discriminatory patterns present in society (Ricoy-Casas, 2021; Ricoy-Casas et al., 2025).

Older adults have less capacity for discerning false information than younger adults and are therefore more vulnerable to manipulated information. According to Galinkala et al. (2024), this group needs interventions to help them identify and debunk false information. Health professionals can play a key role in this effort. Studies show how behavioral vulnerabilities intersect with digital risks, noting that older adults share misinformation at a significantly higher rate than young people (Sakhnini & Chattopadhyay, 2022). Older adults struggle to configure password managers, navigate two-step authentication, and use biometrics because of demanding user interfaces (Iqbal et al., 2020). This usability gap leads to reliance on unsafe practices or total avoidance of digital security measures, increasing overall vulnerability. In addition, poor design features such as small touch targets, cluttered interfaces, and unclear icons substantially obstruct safe use (Gupta et al., 2026). Risk behaviors such as password reuse, writing down sensitive information, and failing to recognize suspicious app activity also cause lower cyber literacy, heightening vulnerability to threats such as phishing and social engineering (Frik et al., 2019).

Older adults are mainly concerned about institutional privacy threats, such as data breaches and surveillance, rather than device security (Žvanut & Mihelič, 2024). This high perceived risk often leads to avoidance strategies, such as limiting app use or avoiding online services (Gupta et al., 2026). They may accept privacy trade-offs in exchange for critical security features, such as health monitoring (Schomakers & Ziefle, 2023). People with greater digital competence have more social contact than those with lower digital skills. Limited access, skills, and confidence in digital technologies limit civic participation when it moves online. Digital deficiencies impede individuals from enjoying technology's inherent benefits, including psychological well-being and autonomy. They can limit their capacity to connect with peers through digital networks (Mubarak & Suomi, 2022) or to participate autonomously in online civic consultations. These limitations reinforce social isolation.

3.3. Main Factors for Lessening the Digital Divide Among Older Adults

Regarding RQ3, the evidence indicates that reducing the generational digital divide requires a multidimensional strategic approach. This approach should be grounded in equity standards and in recognizing older adults' right to participate fully in the public sphere and to exercise their rights under conditions of equality. The analysis exposes distinct areas where public policies must design integrated solutions and adopt methods to evaluate the impact of proposed strategies.

Improving access and connectivity is necessary. Digital access is an essential prerequisite for using technology, but devices and internet access alone do not guarantee effective use. However, investing in connectivity, device lending, and technical support reduces territorial and financial inequalities in internet access. Structured digital education programs build digital skills and reinforce autonomy, as participants feel more self-sufficient as they acquire the skills needed to conform to the digital world (Standaar et al., 2025). The effectiveness of a digital integration program depends on understanding the economic and cultural environment in which it is implemented so that it can adapt its design and content to that context. Organizations should provide reliable digital information that helps people carry out their tasks, maintain trust, and avoid unnecessary risks.

The European "*DigComp* 2.2" framework (*Digital Competence Framework for Citizens*) offers a clear reference for identifying the basic digital skills needed to function in digital environments (Vuorikari et al., 2022). For older adults, some areas are especially relevant because they directly affect everyday autonomy, such as information search and management, online communication (messaging, video calls), and using online services and digital procedures. Alongside acquiring digital skills, creating accessible, integrated designs is the most frequently cited mitigating factor. A requirement for effectively advancing toward digital equity is the development of easy-to-use technologies, with clear information and user-friendly interfaces, designed under the principle of universality and, if necessary, adapted to

the capacities, paces, and specific needs of older adults (Ali et al., 2024; Ganeshan et al., 2024). Non-inclusive technology increases the need for informal support, while inclusive design reinforces autonomy. Co-creation, or participatory design, involves older adults in technology design so that, based on their experiences, technology is developed to meet their needs. However, as Schulze Pröbsting et al. (2026) note, true co-creation requires meaningful participation of older adults throughout the entire development process. Technologies not designed with an inclusive perspective end up being exclusionary.

Digital inclusion may also be strengthened by supporting community mediators or trusted figures who facilitate gradual use of digital information without requiring full autonomy from the outset. For many people over 60, the drive to engage in new learning opportunities decreases (Ren & Zhu, 2025). In this regard, Lau et al. (2025) note that community digital initiatives that raise motivation, highlight technology's possible benefits, improve access to resources, provide training to build more complex skills, and reinforce technology use are effective. Support can also come from informational material and video tutorials with easy-to-understand instructions (Ali et al., 2024).

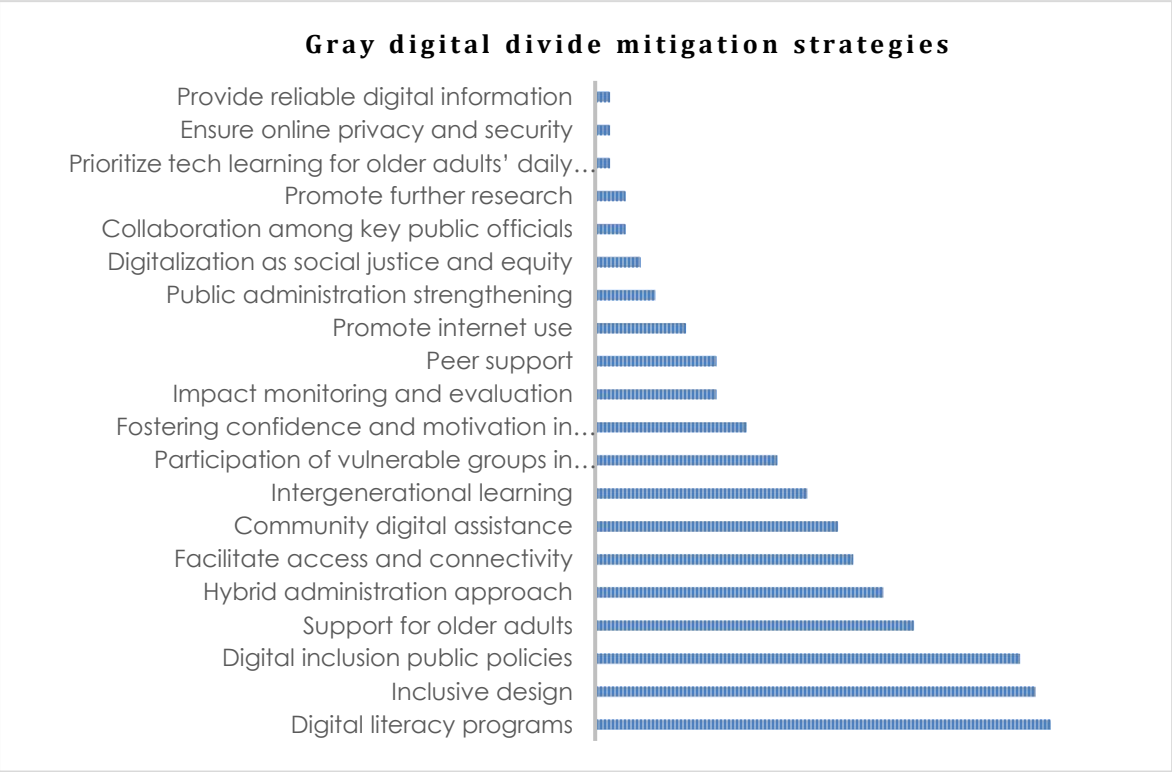


Table 4. Factors for Lessening the Generational Digital Divide

Source: Prepared by the authors (2026).

According to the study by Xu et al. (2025) on the main digital competence initiatives, it is very effective to design digital skills solutions that group students by similar levels of digital competence, provide step-by-step instructions and an appropriate lesson pace, and include content that further integrates technologies into the daily lives of older adults and analyzes how telemedicine can improve their health. Having older adults teach other older adults to solve specific problems in an informal setting is an effective way to build digital skills. Promoting informal peer learning has untapped potential (Flynn, 2025). Support from younger generations in knowledge transfer should also be encouraged, based on the premise that older adults represent an opportunity for social development. Exchanging experiences can help them develop a positive attitude toward new technologies (Diana et al., 2025). Therefore, intervention can be handled through a threefold action: promoting intergenerational relationships, leveraging opportunities offered by collaborative peer learning, and developing training activities in community settings, such as senior centers, public libraries, or local associations, where there is already a relationship of trust and knowledge of the social and cultural context. The success of these interventions depends on adapting to this group's needs, literacy levels, access to technology, and cultural values (Moreal et al., 2025).

Overcoming the divide requires moving away from a technocratic approach to digitalization and toward a model of participatory digital governance, based on developing intersectional policies that meet the vital needs of older adults and on implementing proactive equity strategies (Conduah & Ofoe, 2025) that center their voices. It is also important to account for the heterogeneity of this group, so interventions should be redesigned for different age ranges, life trajectories, and practical needs (Wankah et al., 2025). Promoting effective digital inclusion means that governments must establish the conditions needed to guarantee equitable access to the digital environment.

Public administrations must require that digital services and environments be developed in accordance with the principle of digital accessibility so that anyone can use them in a useful and satisfactory way, at any time or in any circumstance. Since difficulties in digital access cannot be addressed in isolation, collaborative strategies are required among the Administration, especially health providers, policymakers, and users, to jointly promote more accessible, equitable, and user-centered digital solutions focused on real needs, especially for groups in more vulnerable situations (Ahmed et al., 2024; Asbaghi et al., 2025; Milanfar et al., 2024).

Digitalization should help reduce structural inequalities rather than perpetuate or widen them. Public authorities must promote effective digital inclusion by guaranteeing equitable access to digital content and the opportunities provided by information technologies so that all groups can participate on equal terms in the digital society (Maillo, 2025). Offering multiple channels of interaction with the administration is important to ensure equity in public service. A hybrid strategy, with multichannel attention, keeps analog pathways open, preventing anyone from being excluded or disadvantaged in accessing services. Offline or non-digital alternatives recognize the right not to be forced to use only digital channels to exercise rights and fulfill obligations, especially for older adults (Dao, 2026), and reflect an equity-based governance model. Digital innovation in health brings benefits such as time savings and greater convenience, but older adults fear it may become the default and that in-person options may disappear (Ahmed et al., 2024).

Keeping physical, telephone, and in-person channels available is crucial for managing key services. Laws should guarantee accessibility and penalize noncompliance. Institutions must make their websites easy to read and simple to navigate. Private companies should adopt more inclusive designs and create software, apps, and devices with simple interfaces, larger fonts, and robust voice-command features. Simpler menus and clear feedback can greatly improve usability and security (Ziefle & Bay, 2005; Gupta et al., 2026). Vulnerable clients should not be left with complex chatbots or similar answering machines, and they must be able to reach a human operator. Companies should also ensure that people who want traditional options, like paper invoices, are not charged extra.

Strengthening administration requires allocating financial resources to optimize infrastructure, expand support staff, and implement digital inclusion education programs. In this context, targeted programs are needed to demonstrate the benefits of technology and, in particular, to promote digital health use among older adults and other vulnerable groups (Qiu et al., 2024; Shang et al., 2024; Srisaknok et al., 2025). There is an urgent need to prevent digital exclusion by identifying public or private procedures that may prevent older adults from accessing services for technology-related reasons. Thus, Dao (2026) proposes monitoring public policies to identify possible risks of exclusion or indirect discrimination. Furthermore, public interventions in digital inclusion must include impact assessments to measure effectiveness. For example, when evaluating training actions, comparing competency levels at the beginning and end of interventions provides information on their effectiveness. Moreover, the literature review shows a growing concern among older adults about the security of their personal information and the risks associated with online interactions. As Pacheco (2024) points out, when these risks materialize, the resulting harm negatively affects people's emotional, physical, and/or psychological well-being. Beyond cybersecurity efforts, awareness-raising, informing, and education can help reduce these risks.

4. Discussion

Digital knowledge and inclusive design are the most frequently cited mitigation approaches in the literature. Evidence indicates that without adequate digital skills or technology adapted to older adults' abilities and limitations, effective interaction with digital environments remains unattainable. Together with reliable connectivity, these dimensions constitute fundamental prerequisites for digital inclusion, but they alone do not ensure its effectiveness or long-term sustainability. Therefore, it is necessary to integrate additional elements, including formulating targeted public policies, providing and acquiring technological resources, strengthening security and learning opportunities, reinforcing community support networks, and promoting motivation, frequency, and meaningful use of technology.

Addressing cycles of cumulative disadvantage requires sustained interventions that recognize the digital divide's intersectional and multidimensional nature. This entails acknowledging how personal, structural, social, and technological factors interact and accumulate, creating complex barriers that prevent older adults from fully benefiting from digitalization. The scoping review identified a wide range of strategies to mitigate the digital divide in this population. However, no single approach can be declared superior or most effective; instead, authors broadly agree that strategies should be grounded in an intersectional perspective.

More structured support mechanisms and legislation are urgently needed to promote age-inclusive digital security practices (Ellefsen & Chen, 2022; Hanif & Lallie, 2021). Studies should also include more diverse groups. Many current studies focus on healthy older adults living in cities, often overlooking minorities, those living in rural areas, people with memory problems or limited reading skills, and people with low incomes. Studying these groups over time would provide a clearer view of their distinct needs and experiences. Including older adults in usability testing and design efforts is fundamental, as is improving collaboration among designers, government employees, and aging experts to develop inclusive policies and user-friendly technologies that ensure accessibility for all (Gupta et al., 2026). Another observation is that, although the review discusses the need to strengthen cybersecurity, online safety, and privacy for this group, it does not explain how to achieve this for older adults beyond training. This review recommends this direction for future research.

This review relied solely on information from the Web of Science database, which, although high quality, may have excluded other relevant studies available in databases such as Scopus or PubMed. In addition, the manual literature inclusion, used solely for interpretation, may introduce bias into the results. Finally, the descriptive nature of coding prevents establishing causal relationships and understanding how the different factors interact. It also limits the evaluation of the effectiveness of the mitigation strategies analyzed. Future research could develop inclusive digital governance models grounded in an intersectional approach and evaluate public policies that integrate this perspective to mitigate the generational digital divide. On the other hand, it could also be useful to compare the effectiveness of measures to mitigate the generational digital divide or to monitor the progress of some of these measures over time.

5. Conclusions

Digitalization has transformed society and streamlined many operations, simplifying processes and speeding up their resolution; however, it has also put at risk of exclusion those who, for various reasons, lack the technological means or sufficient digital skills to interact with technology. One of the most affected groups is older adults. Although age might initially be thought to be the cause, this work shows that other factors related to life experiences, economic conditions, sociocultural circumstances, and personal or interest factors determine the divide and could also occur in other age groups.

To reduce the present and future impact of the digital divide, the evidence analyzed indicates that public policies must be defined from an intersectional perspective. This issue recurred throughout the work and led to the idea that guaranteeing digital inclusion requires specific, tailored action plans, in which the segmentation criterion is not age but other relevant factors that determine the digital divide. It may be more appropriate to design digital literacy programs based on participants' levels of digital skills rather than their age. It may be more effective to strengthen motivation to use technology by user type (Quan-Haase et al., 2018) or to develop software adapted to the different barriers presented by this group's diversity. This finding suggests that public policies aimed at reducing the digital divide among older adults should not be designed on an exclusively age-based criterion but from an equity perspective that accounts for the group's internal heterogeneity.

Likewise, as has been done to address other social inequalities, such as gender, transferring best practices in public administration (across regions, countries, or international organizations) can be highly beneficial for designing more effective measures and reducing persistent gaps. An important finding is that older adults' digital inclusion is closely related to their health literacy. For this group, where health literacy is fundamental in daily life, the ability to understand and use health information is key to personal autonomy and to promoting self-care.

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