

EDITORIAL

Longevity in the digital age: who must adapt to whom?

We are simultaneously experiencing two of the most profound transformations in contemporary society. One is demographic: life expectancy has risen, and the number of people reaching advanced ages is growing in virtually every region of the world. The other is technological: essential daily activities are migrating, at an accelerating pace, to digital environments. Banking, public services, communication, transportation, shopping, information, leisure, and, more and more, healthcare itself have come to rely on smartphones, apps, electronic platforms, and, more recently, artificial intelligence-based systems.

The convergence of these two revolutions brings extraordinary opportunities but also raises a question that cannot be overlooked: *as we digitize society, are we building this new world for all ages?*

Many of today's older adults were shaped in an essentially analog world. Their education, entry into the workforce, and a significant portion of their adult lives took place before the widespread adoption of the internet, smartphones, and apps. The older generation is not incapable of learning technology; rather, it is a generation that must acquire, often in later life, skills that were neither part of their formal education nor required for much of their life journey. The Organisation for Economic Co-operation and Development (OECD) warns that persistent gaps in digital skills can limit older adults' access to essential services, social connections, and civic participation, with consequences for their autonomy and social inclusion¹.

In Brazil, this transition is already evident. The *TIC Domicílios 2025* survey shows significant growth in internet usage among people aged 60 and older, yet it also highlights that a substantial portion of the elderly population remains offline, alongside marked inequalities in the skills needed to use the internet independently². These data reveal a fundamental distinction: digital access is not synonymous with digital inclusion.

Owning a smartphone does not necessarily mean knowing how to use it independently and securely. Sending messages via WhatsApp does not guarantee the ability to access a healthcare portal, identify an official website, correctly install an app, protect personal data, or recognize a scam or fraud attempt. The *TIC Domicílios* survey itself reveals significant disparities in digital skills: activities such as installing programs or apps, modifying privacy settings, attaching documents, and adopting protective measures are performed at considerably lower rates among older age groups².

Digital exclusion, therefore, has moved beyond the issue of equipment availability and connectivity. It encompasses skills, confidence, accessibility, socioeconomic conditions, and the ability to translate technology into tangible life benefits. A systematic review recently published in *npj Digital Medicine* demonstrates that, among older adults, digital exclusion is linked to a convergence of socioeconomic disadvantages, health-related vulnerabilities, and contextual barriers, potentially contributing to poorer health outcomes and quality of life³. Addressing this issue requires systemic responses, including affordable access, skills development, age-friendly services, and non-digital alternatives for those who remain excluded.

This discussion becomes particularly relevant when companies and institutions shift their services to the digital realm without adequately considering the diversity of their user base. Phrases such as “access via the app,” “check the portal,” “point your camera at the QR code,” or “speak to our virtual assistant” have become common. However, what represents convenience for one person may constitute a barrier for another.

A paradox thus emerges. For someone who has mastered a banking app, performing transactions via smartphone can signify independence. For someone who has not, that same digitalization may mean handing their device over to another person and relying on them to manage their own money. An electronic healthcare portal might facilitate access to test results for some patients while simultaneously hindering it for others. The very technology capable of fostering autonomy can also create dependency.

This realization necessitates moving away from an interpretation of digital exclusion that places the burden solely on the individual. When a person is unable to use a particular service, the initial question should not merely be “Why can’t they do it?” but also: “How was this service designed, and what changes are needed to enable them to use it?”

This challenge is particularly critical in the healthcare sector. Teleconsultations, electronic health records, patient portals, apps, wearable devices, sensors, and remote monitoring systems can expand access to care and support the management of chronic conditions. However, as healthcare becomes digitized, digital competence begins to affect the very ability to access care resources. Recent evidence reinforces the idea that digital exclusion and health inequalities can reinforce one another³.

It is equally necessary to recognize that contemporary digital literacy goes far beyond learning where to tap on a screen. It involves locating and evaluating information; communicating and sharing content; using digital services; managing files and passwords; protecting privacy and personal data; solving problems; identifying misinformation;

recognizing scams and fraud attempts; and gaining an understanding of the possibilities and limitations of artificial intelligence.

This requires lifelong digital education. And older adults do learn. Properly structured programs can strengthen autonomy and reduce exclusion, provided they take into account learning pace, prior experience, accessibility, the meaningfulness of activities, and ongoing support. The OECD highlights precisely that traditional literacy models, developed for the general population, may fail when they disregard the needs and experiences of older learners¹.

This perspective also demands addressing digital ageism. Asserting that a person is “too old to learn,” performing a task for them without offering them the chance to do it themselves, or presuming that family members will always be available to mediate their interaction with digital services can, even if unintentionally, hamper autonomy. Teaching requires time, repetition, clear language, and respect. Doing something for a person may solve the immediate problem; teaching them how to do it can preserve their independence.

Security is another indispensable dimension. The expansion of digital transactions increases exposure to fraud, social engineering, data theft, and information manipulation. However, it would be inappropriate to turn this discussion into yet another stereotype suggesting that older adults are naturally incapable of protecting themselves. A review of digital fraud victimization reveals a more complex phenomenon involving trust, cognition, behavior, social context, and the increasingly sophisticated strategies employed by criminals⁴.

Artificial intelligence adds a new layer to this landscape. Systems capable of generating text, images, videos, and synthetic voices create opportunities for learning, communication, and accessibility, but they also amplify misinformation and fraud. At the same time, algorithms can perpetuate age-related biases when older adults are underrepresented in data or overlooked during technology development. Thus, reflection on artificial intelligence and longevity should not be limited to what these tools can do for older adults; it must also include their participation in defining how these technologies are developed and used.

It is at this point that the question posed in the title of this editorial takes on significance: *Who must adapt to whom?*

It will certainly be necessary to foster opportunities for older adults to develop digital skills. Lifelong learning will become increasingly essential in technologically dynamic societies. However, it would be socially unjust to place the sole responsibility on the individual to keep pace with transformations occurring at such extraordinary speed. Responsibility must be shared.

Governments must ensure policies for inclusion and digital literacy. Healthcare services need to develop accessible solutions without abandoning those unable to use specific tools. Companies must test products and services with users of varying ages and abilities. Developers need to incorporate universal design principles and user participation. Families can support learning without unnecessarily undermining autonomy. And society must recognize meaningful access to digital technologies as an increasingly relevant dimension of citizenship.

Especially regarding essential services, digital transformation should expand access points rather than simply close off those that previously existed. Maintaining human, non-digital alternatives for those who need them does not represent resistance to innovation; it represents a commitment to equity³.

Population aging is not a phenomenon peripheral to technological development. It is one of the defining structural characteristics of the society for which we are developing these technologies. It makes no sense to design the future envisioning a "standard user" as a young person who is fully digitally literate, possesses good vision, hearing, and manual dexterity, and has an up-to-date device and a high-quality connection. The future will age, too.

Perhaps, then, longevity in the digital age invites us to move beyond a limited concept of inclusion. It is not enough to connect people to the internet; we must connect them to the opportunities it offers. It is not enough to make apps available; we must ensure they can actually be used. It is not enough to digitize services; we must ensure that digitization does not curtail rights.

Technology will fulfill its social purpose when it expands possibilities, strengthens autonomy, facilitates care, brings people together, and fosters participation. The central question, then, is no longer whether older adults will be able to keep up with digital transformation. The essential question will be: *Will digital transformation be able to keep pace with demographic transformation?*

In a society that celebrates the achievement of longevity, living longer cannot mean becoming a stranger in the world one inhabits.

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Happy reading!

 **Yeda Aparecida de Oliveira Duarte**

School of Nursing. School of Public Health. Universidade de São Paulo. São Paulo/SP, Brasil



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