

# The Digital Divide: A Barrier to Social, Economic and Political Equity

## Executive Summary

Digital technologies are evolving at an extremely rapid pace, and they now permeate almost all aspects of societies, economies, and ordinary lives. Despite recent progress, 2.6 billion people remained offline as of 2024, with access to and use of technologies such as the internet and artificial intelligence being highly uneven – a disparity known as the “digital divide”.

Globally, developing countries continue to lag behind in internet access and technological adoption: in low and lower-middle income countries, only 27% and 53% of the population have, respectively, internet access, compared to 80% and 93% in upper-middle and high-income countries. Moreover, within countries, significant disparities emerge in levels of digitalization between urban and rural areas, often due to infrastructural limitations. Social inequalities also compound these challenges, as disadvantaged groups like women and young people are more prone to experiencing digital skills gaps. In low-income countries, for instance, 90% of adolescent girls and young women (15-24) remain offline, compared to 78% of their male counterparts.

The impacts of this divide are profound. From a social perspective, low levels of digital training can lead to fewer employment and career opportunities. In healthcare, without digital services patients in rural areas and developing countries risk being excluded from essential care. A limited digital adoption can also hinder economic growth: a 10% rise in mobile broadband penetration can increase per capita GDP by 1.5-1.6%. Lower use of modern digital technologies can harm financial inclusion and limit credit access for entrepreneurs, while also reducing foreign investment inflows by as much as 8%. Finally, digital inequalities can have major political implications, ranging from lower civic engagement to disruptions in democratic processes.

Closing the digital divide is not just a technological challenge. It is essential for fostering economic equality, social inclusion, and political participation and building a more prosperous future for all.

“The digital economy is the economy of the future, yet 2.6 billion people remain offline. The digital divide is a major barrier to economic growth and sustainable development, with only 27% of the population in low-income countries that has access to the internet, compared to 93% in high-income ones. In a world where digital access drives opportunity, one third of the population is excluded from education, jobs, and financial services. Bridging the digital divide goes beyond technology—it is a fundamental driver of economic equality, social inclusion, and political participation. With an estimated \$418 billion needed to connect individuals worldwide through digital infrastructure, prioritizing strategic investments, digital literacy, and cybersecurity is essential to unlocking global economic potential, fostering social inclusion, and building a more equitable and connected future for all.

**Andrea Poggi | Head of DCM Public Policy & Stakeholder Relations Centre | DCM Innovation Leader**



“The cost of exclusion is higher than the cost of inclusion. According to the World Bank, digital exclusion could cost low and middle-income countries up to \$2 trillion in lost economic growth over the next decade. Investing in digital access today prevents greater economic disparities tomorrow. Digital inclusion doesn’t happen by chance—it happens by choice, a choice we must make for a future of shared prosperity.

**Antonio Villafranca | ISPI Vice-President for Research**



## Introduction

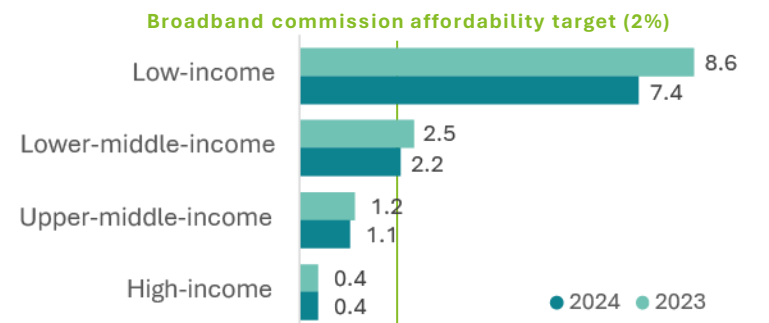
Digital technologies are evolving rapidly, permeating every aspect of economies, societies, and people’s lives. Global **internet penetration** kept growing from 65% in 2023 to 68% in 2024<sup>1</sup>. Despite this progress, **2.6 billion people** – one-third of the global population, mostly in low and lower-middle income countries<sup>2</sup> – remained **offline** as of 2024<sup>3</sup>. This persistent “digital divide”<sup>4</sup> underscores unequal access to the use of Internet, artificial intelligence (AI) and other digital technologies, deepening **disparities** among and within countries, **urban and rural areas**, as well as different social groups, with significant **socio-economic** and **political implications**.

## The different dimensions of the digital divide

The adoption and use of digital technologies varies widely across countries. In **low and lower-middle income countries**, only **27%** and **53%** of the population have, respectively, access to internet, compared to **80%** and **93%** in **upper-middle and high-income** countries<sup>5</sup>.

**Affordability** remains a key barrier: users in lower-middle income economies spend **six times** more of their income on mobile broadband than those in high-income countries, while users in low-income nations pay **19 times** as much<sup>6</sup> (Fig. 1).

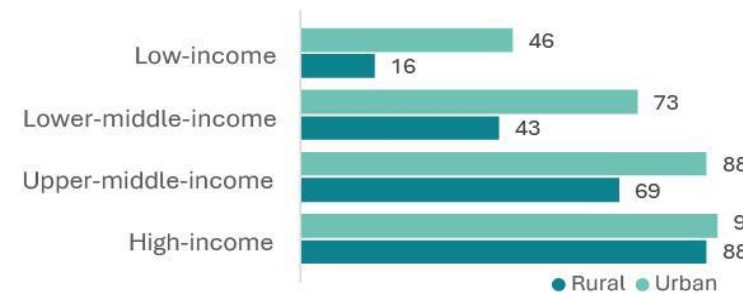
**Figure 1** | Price of Data-only mobile broadband (2GB) as % of gross national income per capita, 2023-2024.



Source: Facts and Figures 2024, The International Telecommunication Union (ITU)

**Geographical disparities** within countries are equally pronounced. In 2024, **global internet usage in urban areas** reached **83%**, compared to just **48%** in **rural regions**<sup>7</sup>, where infrastructural limitations hinder connectivity (Fig. 2). This gap is narrower in high-income countries but significantly **wider in low and lower-middle income** ones.

**Figure 2** | Percentage of individuals using the Internet in urban and rural areas, 2024.



Source: Facts and Figures 2024, The International Telecommunication Union (ITU)

Beyond internet access, disparities extend to **AI adoption**, development, and investment levels. China and India are the only countries facing significant gaps in internet penetration ranking among the 15 countries with the highest private **AI investment**. The IMF’s AI Preparedness Index<sup>8</sup> – measuring digital infrastructure, human capital investment, STEM expertise, technological innovation, and regulatory adaptability (among other variables) – further highlights this divide. **Advanced economies** score an average of **0.68**, while **low-income countries** lag with an average score of **0.32**, thus highlighting significant disparities also in AI readiness and capacity<sup>9</sup>.

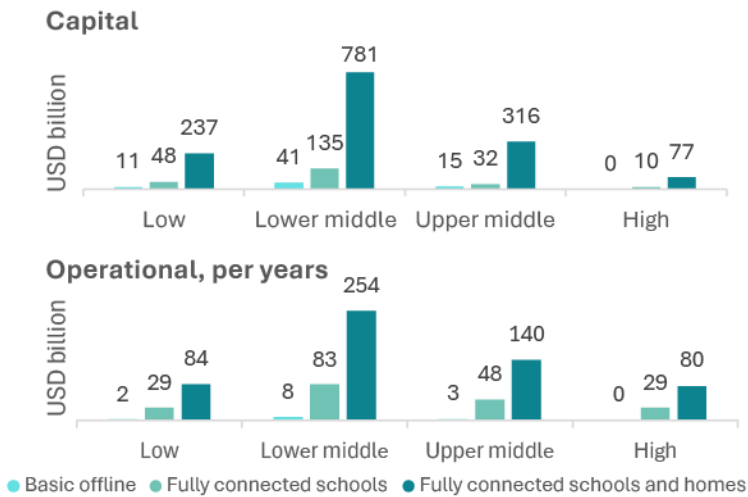
**Social inequalities** compound these challenges. **Women and young girls** face the largest disparities in digital access. In low-income countries, **90% of adolescent girls and young women (15-24)** remain **offline**, compared to **78%** of their **male counterparts** in the same age group<sup>10</sup>. This digital skill gap limits access to well-paying jobs, exacerbating workforce gender disparities and hindering economic independence.

Unequal digital adoption is closely linked to **investments in infrastructure** (i.e., cables, data centers, digital hubs). In 2023, the **investment needs** in global digital infrastructure to connect all the unconnected citizens globally were estimated at **\$418 billion**<sup>11</sup>, with 73% (\$305 billion) required in emerging markets and 24% (\$102 billion) in low-income countries. **Advanced economies** accounted for **just 3%** of the total investment needs<sup>12</sup>.

Sources: <sup>1</sup> ITU, 2024 [Link](#) | <sup>2</sup> The World Bank Group assigns the world’s economies to four income groups: low (primarily Sub-Saharan Africa), lower-middle (primarily Northern, Western and Southern Africa, and South Asia), upper-middle (primarily China, South-East Asia, Central and South America), and high (primarily Europe, Middle East, and North America). The classifications are updated each year on July 1, based on the GNI per capita of the previous calendar year (World Bank, 2024-2025 [Link](#)) | <sup>3</sup> ITU, 2024 [Link](#) | <sup>4</sup> “Digital divide refers to the distinction between those who have access to the internet or other digital technologies and are able to make use of online services, and those who are excluded from these services” (Eurostat, 2024 [Link](#)) | <sup>5</sup> World Bank on ITU, 2024 [Link](#) | <sup>6</sup> ITU, 2024 [Link](#) | <sup>7</sup> ITU, 2024 [Link](#) | <sup>8</sup> The index is derived as the simple average of the four key dimensions: digital infrastructure, human capital, technological innovation, and legal frameworks. Each dimension is in turn computed by averaging a rich set of macro-structural sub-indicators, including some perceptions-based indicators that reflect individuals’ subjective assessments and experiences (IMF, 2024 [Link](#)) | <sup>9</sup> The developing economies broadly comprise Africa, Latin America and the Caribbean, Asia without Israel, Japan, and the Republic of Korea, and Oceania without Australia and New Zealand. The developed economies broadly comprise Northern America and Europe, Israel, Japan, the Republic of Korea, Australia, and New Zealand (UNCTAD, 2025 [Link](#)). The IMF groups developed economies as “advanced economies” and developing economies as “emerging markets and developing economies” (IMF, 2023 [Link](#)) | <sup>10</sup> UNICEF, 2023 [Link](#) | <sup>11</sup> The estimate is based on the assumption of providing universal 4G cellular broadband to users with approximately 40-50 GB of monthly data at 95 percent reliability | <sup>12</sup> IMF, 2023 [Link](#)

The **investment gap** between nations spans multiple sectors, including **digital education**, with funding needs varying based on connectivity targets. In a **basic offline scenario**<sup>13</sup>, the required capital expenditure totals **\$67 billion**, with **78%** (\$52 billion) needed for low and lower-middle-income nations<sup>14</sup>. A **fully connected schools scenario** raises expected costs to **\$225 billion**, with **81%** (\$183 billion) allocated to these countries<sup>15</sup>. Extending connectivity to **both schools and domestic environment** escalates costs to **\$1.4 trillion**, with over **70%** (over \$1 trillion) required for low and lower-middle-income nations<sup>16</sup>, underscoring the vast financial commitment needed to bridge the digital education divide (Fig. 3).

**Figure 3** | Capital and operational expenditure needed to achieve the digital transformation of education systems, 2024-2030.



Source: 2023 Global Education Monitoring Report, [UNESCO](#)

**Sources:**<sup>13</sup> The basic offline scenario involves some digital teaching and learning opportunities in schools, with shared devices. All schools will have power, even if not connected to the grid, but there will be no internet connection beyond levels currently available. The fully connected schools scenario involves some tailored digital learning, still shared – but more – devices, and fully electrified and connected schools. The fully connected schools and homes scenario involves a scenario with tailored digital learning in schools and at home and the universal availability of devices, electricity and internet connectivity (UNESCO, 2023 [Link](#)) | <sup>14</sup> UNESCO, 2023 [Link](#) | <sup>15</sup> UNESCO, 2023 [Link](#) | <sup>16</sup> UNESCO, 2023 [Link](#) | <sup>17</sup> World Economic Forum, 2025 [Link](#) | <sup>18</sup> UN, 2023 [Link](#) | <sup>19</sup> Deloitte, 2024 [Link](#) | <sup>20</sup> World Economic Forum, 2024 [Link](#) | <sup>21</sup> World Health Organization, 2023 [Link](#) | <sup>22</sup> World Health Organization, 2024 [Link](#)

## Impacts of digital divide

### Social impacts

The digital divide and the limited access to education and training have significant **impacts on employment as well**, with millions **being at risk of exclusion from emerging job opportunities**. As the job market evolves, **digital skills** are becoming essential across nearly all sectors: the **World Economic Forum** warns that nearly **40% of today’s skills will become obsolete**, with **60% of workers** estimated to be in need of reskilling **by 2030**<sup>17</sup>.

Vulnerable groups, such as young and women, are particularly exposed. **Young girls** are **35% less** likely than their male peers to have **digital skills**<sup>18</sup>. Gender disparities place adolescent girls and young women in a position of disadvantage regarding internet use, job opportunities, and access to essential services, worsening inequality, and perpetuating gaps in the labor market. As a result, **women remain underrepresented in technology and AI-related roles**, limiting innovation and diversity of thought. In the absence of a significant contribution from female perspectives, AI can perpetuate or even amplify discrimination and reflect unconscious biases, as well as reinforce gender stereotypes<sup>19</sup>. Women, in particular, play a pivotal role in **global agriculture**, especially in developing countries, where the sector represents a **large part of the economy** and where they produce up to **80% of food**. At the same time, the **lack of access to technological resources**

can prevent them from fully benefiting from **agritech advancements**, hindering the **development of the agricultural sector** of these countries in general<sup>20</sup>.

The digital divide also affects the **healthcare sector**, where **digital health** is revolutionizing patient care in clinics, hospitals, and at home. Access to digital health is scarce, as some countries lack structured systems, restricting their ability to provide **remote medical consultations**, electronic health records, and AI-powered diagnostics. Even in countries with advanced digital health services, literacy barriers prevent many from fully benefiting from these advancements<sup>21</sup>. Although over **70% of countries have digital health strategies in place**, many lack financial commitments, standardized frameworks, and cohesive governance, limiting their effectiveness<sup>22</sup>.



## Economic impacts

Limited digital adoption can hinder progress and **slow down economic growth**. Broadband access plays a crucial role in economic development, with several studies **linking higher broadband penetration to increased GDP**. A review of such studies conducted during the COVID-19 pandemic found that a **10% rise in mobile broadband penetration increased per capita GDP by 1.5-1.6%**<sup>23</sup>.

**On the other side, lack of digital financial services** may lead to **financial exclusion**, restricting **credit access, entrepreneurship, and income growth**. **Low and middle-income countries** without a proper digital public infrastructure in financial services may miss the opportunity of **20 to 33% faster GDP growth** in the upcoming years<sup>24</sup>. Such infrastructure also benefits **enterprises**, especially MSMEs: digital financial services could help bridge capital gaps, expanding access to funding for up to **19 million MSMEs by 2030**<sup>25</sup>.

Data show that governments leveraging digital solutions also attract more investments. **Developing countries** that offer online services, either as an information portal or within a single window (a transactional portal where business registration or licensing can be conducted online) see, on average, **8% higher Foreign Direct Investments inflows**. These online services also boost business registration rates, with beneficial effects especially on **women, young entrepreneurs, and people living outside urban areas** – groups disproportionately affected by the digital divide<sup>26</sup>.

Sources: <sup>23</sup> ITU, 2021 [Link](#) | <sup>24</sup> Digital public infrastructure: "a set of digital building blocks which are interoperable, built on open standards and specifications providing access to public and private services at societal scale and are governed by enabling rules to drive innovation, inclusion, and competition in the digital economy" (UNDP, 2023 [Link](#)) | <sup>25</sup> UNDP, 2023 [Link](#) | <sup>26</sup> UNCTAD, 2024 [Link](#) | <sup>27</sup> Inter-Parliamentary Union, 2024 [Link](#) | <sup>28</sup> Inter-Parliamentary Union, 2024 [Link](#) | <sup>29</sup> OECD, 2024 [Link](#)

## Political impacts

Digital technologies also have profound impacts on political issues. Parliaments worldwide are embracing digital transformation to enhance **efficiency, transparency, and participation**: currently, **68% of them** have adopted **multi-year digital strategies**, while **73%** are implementing structured **modernization programs**<sup>27</sup>. However, in **low-income nations**, **75%** of parliaments consider the **lack of internet access** as a barrier to **public participation**, compared to just **6%** in **high-income countries**<sup>28</sup>.

Weak digital and cybersecurity capabilities expose institutions to **growing threats**, potentially exacerbating economic and political instabilities. AI-related incidents surged **1278%** between 2022 and 2023<sup>29</sup>, compounding political risks as well: deepfake technologies and AI-generated misinformation may erode trust in governance, enabling malicious actors to **manipulate public perception and disrupt democratic processes**. Those countries where traditional media is weak and digital literacy is limited are particularly **vulnerable** to misinformation that spreads at a much faster rate due to a **lack of fact-checking mechanisms and digital awareness**.

Deloitte refers to one or more of Deloitte Touche Tohmatsu Limited ("DTTL"), its global network of member firms, and their related entities (collectively, the "Deloitte organization"). DTTL (also referred to as "Deloitte Global") and each of its member firms and related entities are legally separate and independent entities, which cannot obligate or bind each other in respect of third parties. DTTL and each DTTL member firm and related entity is liable only for its own acts and omissions, and not those of each other. DTTL does not provide services to clients. Please see [www.deloitte.com/about](http://www.deloitte.com/about) to learn more.

**Research, data and case studies demonstrate that bridging the digital divide** is not just about the technological sphere. It is a key **driver for promoting economic equality, social inclusion, and political participation**. Without strategic investments in infrastructures, digital literacy, and cybersecurity, disparities will continue to widen, **limiting global economic potential and deepening social inequalities**.

