Disability and Development Report 2024

Accelerating the realization of the Sustainable Development Goals by, for and with persons with disabilities

Advance Unedited Version

Department of Economic and Social Affairs

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United Nations

Department of Economic and Social Affairs

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Increasing access to information and communications technology (target 9.c)

This chapter offers an overview of access to and usage of information and communication technologies (ICT) among persons with disabilities, within the context of target 9.c. This target commits to significantly increase access to ICT and to provide universal and affordable access to the Internet in least developed countries by 2020. The Convention on the Rights of Persons with Disabilities recognizes the critical role that information and communication technologies play in empowering persons with disabilities and in ensuring that they fully enjoy human rights and fundamental freedoms. The preamble stresses the importance of information and communication technologies, and article 9 obliges States to undertake and promote research and development and enhancing the availability and use of information and communication technologies. Article 9 also stresses the need to provide equitable access and to remove barriers in access to information and communication technologies. Article 21 urges private entities and the mass media that provide services and information through the Internet to make these accessible to persons with disabilities. In 2018, the International Telecommunication Union resolution 191 defined a strategy for the coordination of efforts to bridge the digital divide and the standardization gap for persons with disabilities; and resolution 196 called for ensuring that access to telecommunications/ICTs is open, affordable and inclusive, paying special attention to persons with disabilities.

ICT includes any information and communication device or application and its content, such as radio, television, satellite, mobile phones, fixed lines, computers, network hardware and software. In today's digital age, ICT plays a central role in nearly all aspects of life. ICTs affect how people work, learn, buy products and services, approach entertainment opportunities, vote, search and receive information, and interact with each other. ICTs can offer persons with disabilities opportunities for education, work, leisure, social interaction and political participation as well as provide access to public services and information. At the same time, digital technologies also present a major risk of leaving persons with disabilities further behind, in cases where these technologies, products, content and services are not created with accessibility requirements, principles and standards in mind. Increasingly, digital inclusion – i.e., the ability of all persons, including persons with disabilities, to access and use ICTs – and ICT accessibility mainstreaming must be seen as critical elements for ensuring the inclusion of persons with disabilities and the achievement of SDG 9 as well as other SDGs for persons with disabilities.

The COVID-19 pandemic and resulting lockdowns significantly accelerated the demand for ICT enabled services as many people, including persons with disabilities, turned to online options to continue work, education, access to health, shopping, networking and family connections. The pandemic thus raised the demand for accessibility of ICT while also highlighting challenges in digital access and use for persons with disabilities.

This chapter offers an overview of the most recent information and statistics on global ICT access and

usage among persons with disabilities. It highlights trends and progress in advancing digital inclusion of persons with disabilities since 2015. The chapter also highlights national initiatives and ends with recommendations to improve access to ICT among persons with disabilities.
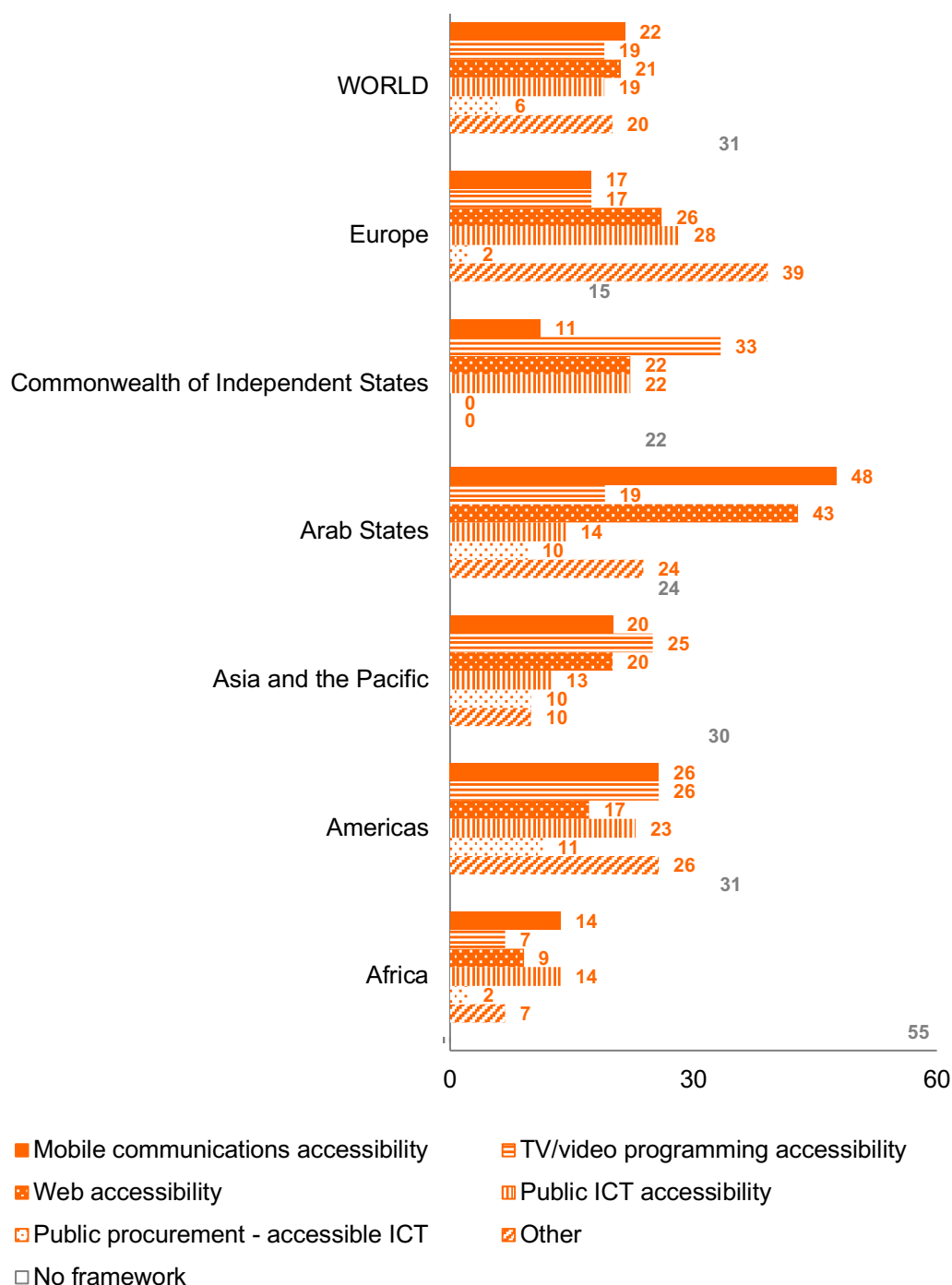
Current situation and progress so far

At the country level, laws, policies and programmes have been progressively introduced to enhance access to ICT for persons with disabilities. Most of these initiatives have focused on providing access on an equal basis with others and improving ICT accessibility. ICT accessibility refers to the design and development of digital technologies, applications and services that are accessible for persons with disabilities. Examples of ICT accessibility features include screen-readers, voice control, adjustable font sizes and gesture-based navigation.

Although many countries worldwide have regulations on accessibility of ICT, 31 per cent of 195 countries/areas worldwide still do not have any regulatory framework on ICT accessibility (Figure 144). Accessibility requirements in public procurement influence accessibility in government services and promote overall ICT accessibility through ripple effects in the broader consumer market. However, this is the least common regulatory framework: only 6 per cent of countries have regulations on public procurement regarding accessible ICT. About 20 per cent of countries have regulations on accessibility of mobile communications, TV/video programming, the Web and public ICT. Europe is the region where regulations are more common and Africa the least: only 15 per cent of countries in Europe have no regulations at all, while 55 per cent of countries in Africa have no regulations. Accessibility of mobile communications and the Web are more common in Arab States, as more than 40 per cent of these States have such regulations.

Internet websites have been ranked as one of the most important ICTs for persons with disabilities for health care, education, employment, access to government services and participation in political and public life.[399,400] However, significant gaps are observed between persons with and without disabilities in the use of the Internet, with persons with disabilities reporting lower usage. Among 46 countries or areas, the average gap is 11 percentage points, with 21 countries showing a gap above 10 percentage points (Figure 145). On average, in these 46 countries, 28 per cent of persons with disabilities use the Internet versus 39 per cent of persons without disabilities. In only two countries, Mauritania and Tajikistan, the percentage of persons using the Internet is higher for persons with disabilities than for persons without disabilities – in Mauritania, for instance, 37 per cent of persons with disabilities versus 31 per cent of persons without disabilities use the internet. A total of 24 out of these 46 countries are least developed countries, and these countries overall show lower Internet use among persons with disabilities, with an average of 20 per cent of persons with disabilities using the Internet, than among persons without disabilities (27 per cent) – a level of Internet penetration among persons with disabilities well below the universal access called for in target 9.c.

Figure 144. Percentage of countries with regulatory frameworks on ICT accessibility, by type of framework and by region, in 2020.

Legend:
- Mobile communications accessibility
- TV/video programming accessibility
- Web accessibility
- Public ICT accessibility
- Public procurement - accessible ICT
- Other
- No framework

Note: Mobile communications accessibility refers to accessibility of mobile devices, such as smartphones and tablets, and the applications running on them. Based on information from 195 countries and areas. Source: ITU.

Figure 145. Percentage of persons who use the Internet, by disability status, in 46 countries or areas, in 2021 or latest year available.
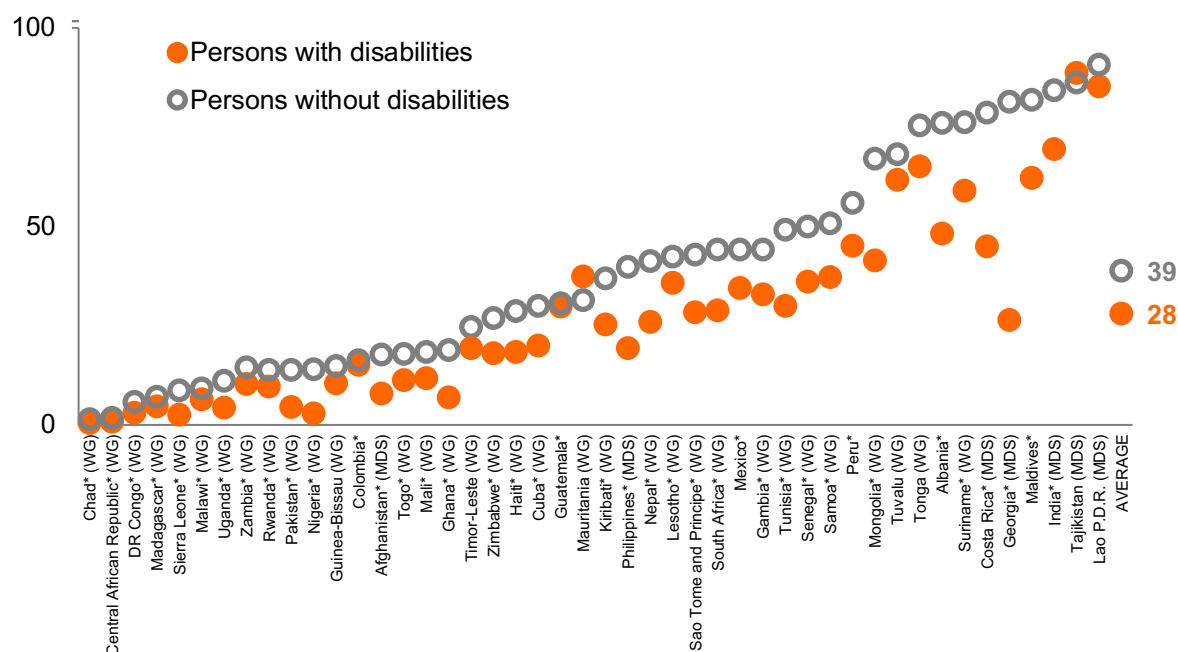
Note: (MDS) identifies data produced with the Model Disability Survey. (WG) identifies data produced with the Washington Group Short Set of Questions. An asterisk (*) indicates that the difference between persons with and without disabilities is statistically significant at the level of 5 per cent.

Source: ECLAC,[13] UNDESA (on the basis of data from DHS[6] and SINTEF[9]), WHO and World Bank (on the basis of data from DHS[6] and MICS).

Across 29 countries, an average of 30 per cent of households with persons with disabilities versus 33 per cent of households without persons with disabilities have access to the Internet, with Mongolia, Nepal, Sao Tome and Principe, Tunisia and Tuvalu showing the largest gaps (Figure 146). The country with the highest percentage of households with persons with disabilities with access to Internet is Tonga (86 per cent). Similar to Internet use, the 19 least developed countries in this set show slightly lower levels of access to Internet in households compared to the other countries, with an average of 24 per cent of households with persons with disabilities having access to the Internet. In Lesotho and Rwanda, progress over time in Internet access in households has benefitted both households with persons with and without disabilities (Figure 147).

Household ownership of computers/tablets tends to be lower than Internet access and usage. Across 29 countries, on average, 16 per cent of households with persons with disabilities own a computer or tablet at home compared with 19 per cent of households without persons with disabilities (Figure 148). The largest gaps are observed in Mongolia, South Africa, Suriname and Tunisia. In Guinea-Bissau and Tuvalu, computer/tablet ownership is more common among households with persons with disabilities than

among households without persons with disabilities.

Households of persons with disabilities in urban areas have significantly higher access to Internet connectivity than those in rural areas (Figure 149). Among persons with disabilities, use of the Internet varies with age. Persons with disabilities between the ages of 18 and 35 have higher rates of Internet usage than persons between the ages of 36 and 49 (Figure 150). Women with disabilities on average have slightly lower rates of Internet use than men with disabilities (see chapter on Goal 5).

Figure 146. Percentage of households, with and without persons with disabilities, that have Internet access, in 29 countries, in 2021 or latest year available.
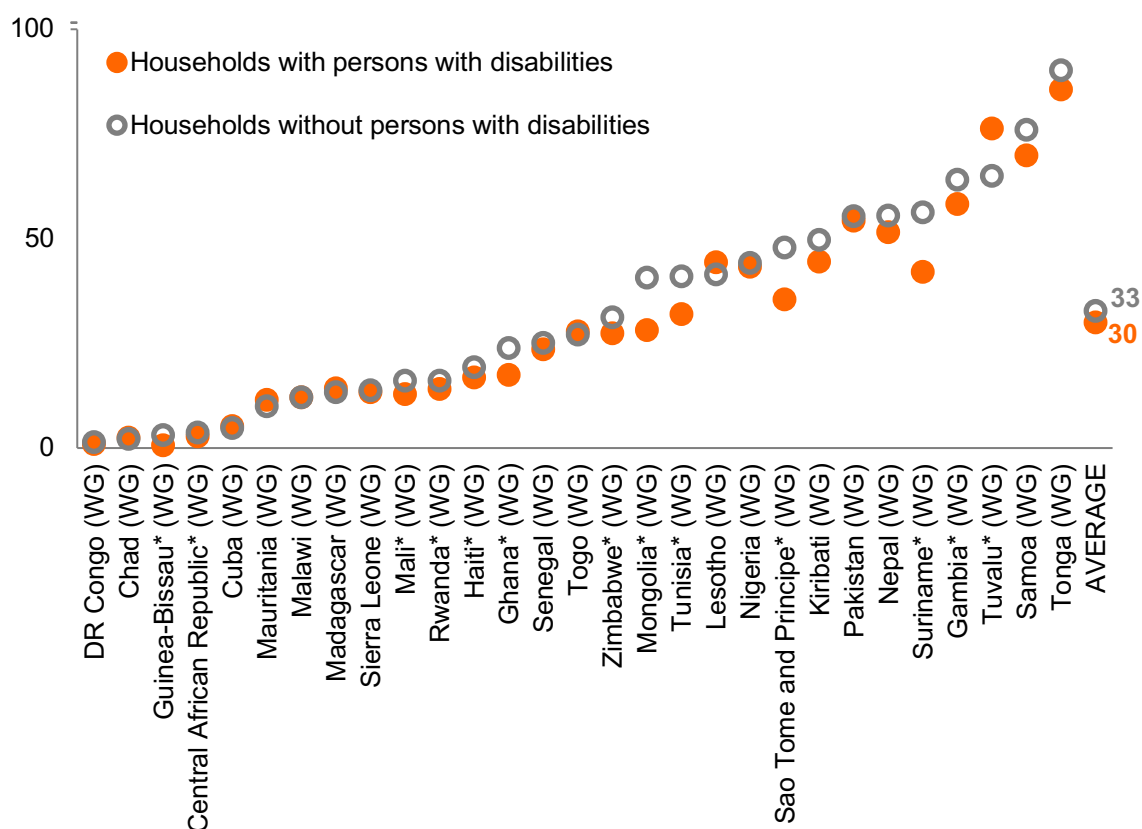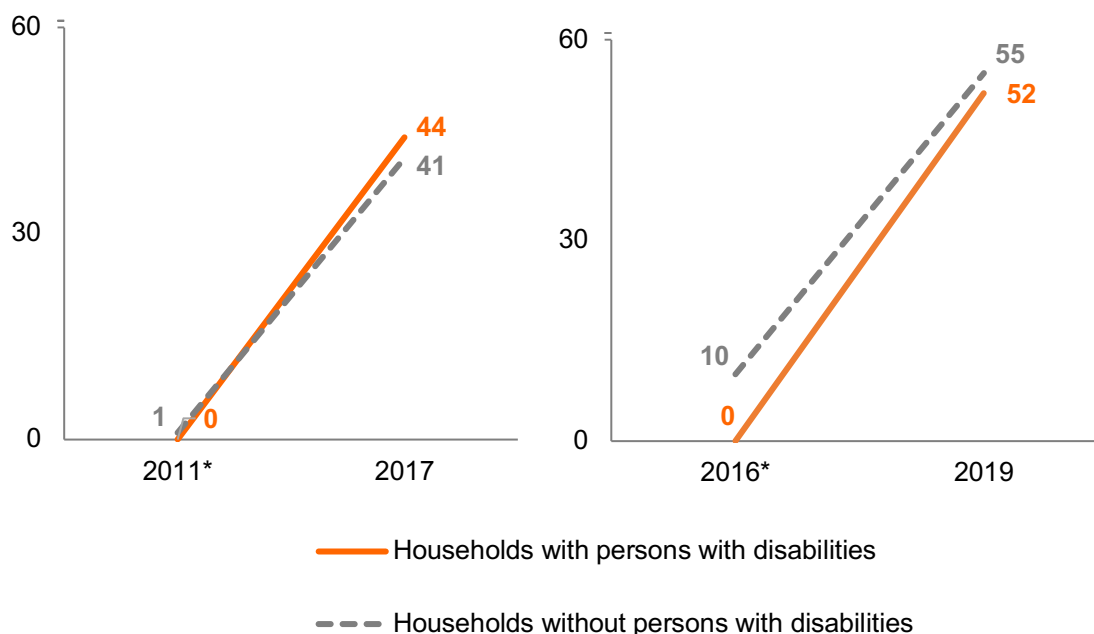

Note: (WG) identifies data produced with the Washington Group Short Set of Questions. An asterisk (*) indicates that the difference between persons with and without disabilities is statistically significant at the level of 5 per cent.

Source: World Bank (on the basis of data from DHS[6] and MICS).

Figure 147. Trends over time in the percentage of households, with and without persons with disabilities, that have Internet access, in 2 countries.

Lesotho (WG)   **Nepal (WG)**

─────── Households with persons with disabilities

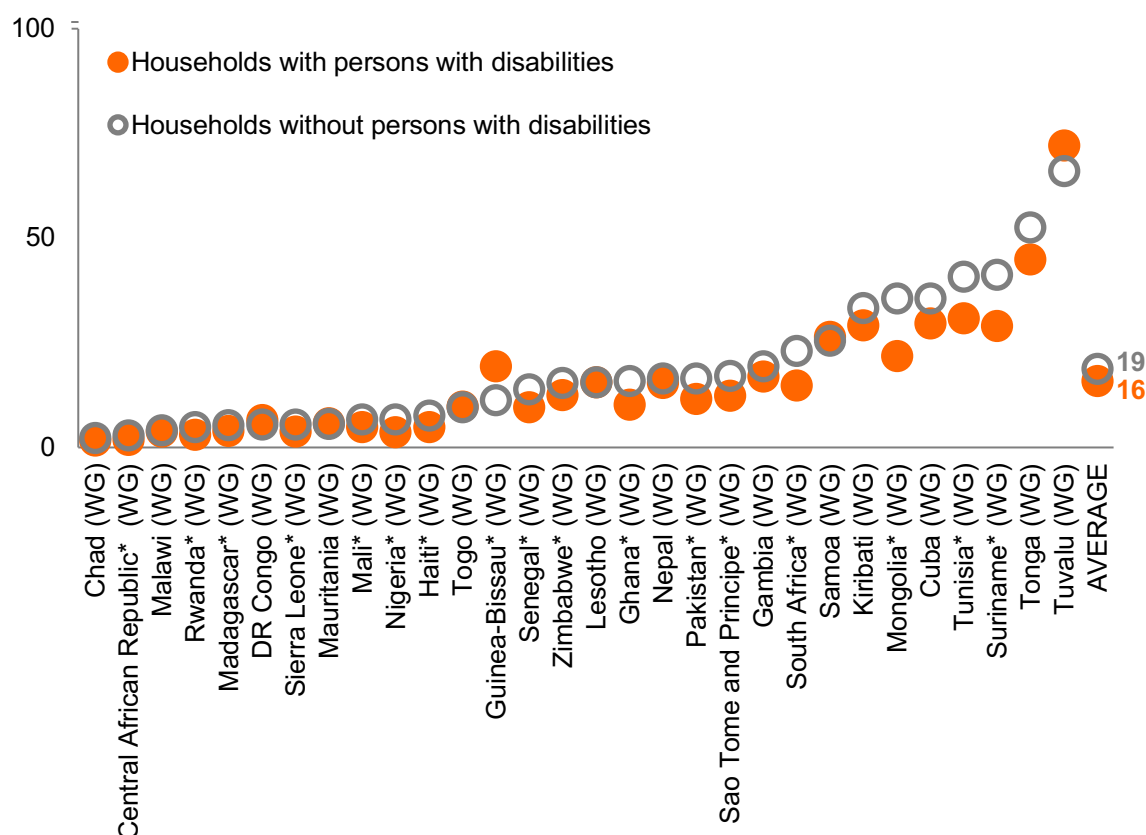- - - - Households without persons with disabilities

Note: (WG) identifies data produced with the Washington Group Short Set of Questions. An asterisk (*) indicates that the difference between persons with and without disabilities is statistically significant at the level of 5 per cent.

Source: UNDESA and World Bank (on the basis of data from DHS,[6] MICS and SINTEF[9]).

Barriers to Internet use exist in the household as well as outside the household. Public places for Internet access are still seldom designed considering accessibility to persons with disabilities. Worldwide, in 2022, 52 per cent of Internet cafes remained not accessible for wheelchair users, down from 59 per cent in 2019. In 2022, only 21 per cent of Internet cafes were partially accessible – the same percentage as in 2019 - and only 27 per cent were fully accessible – up from 20 per cent in 2019 (Figure 151).
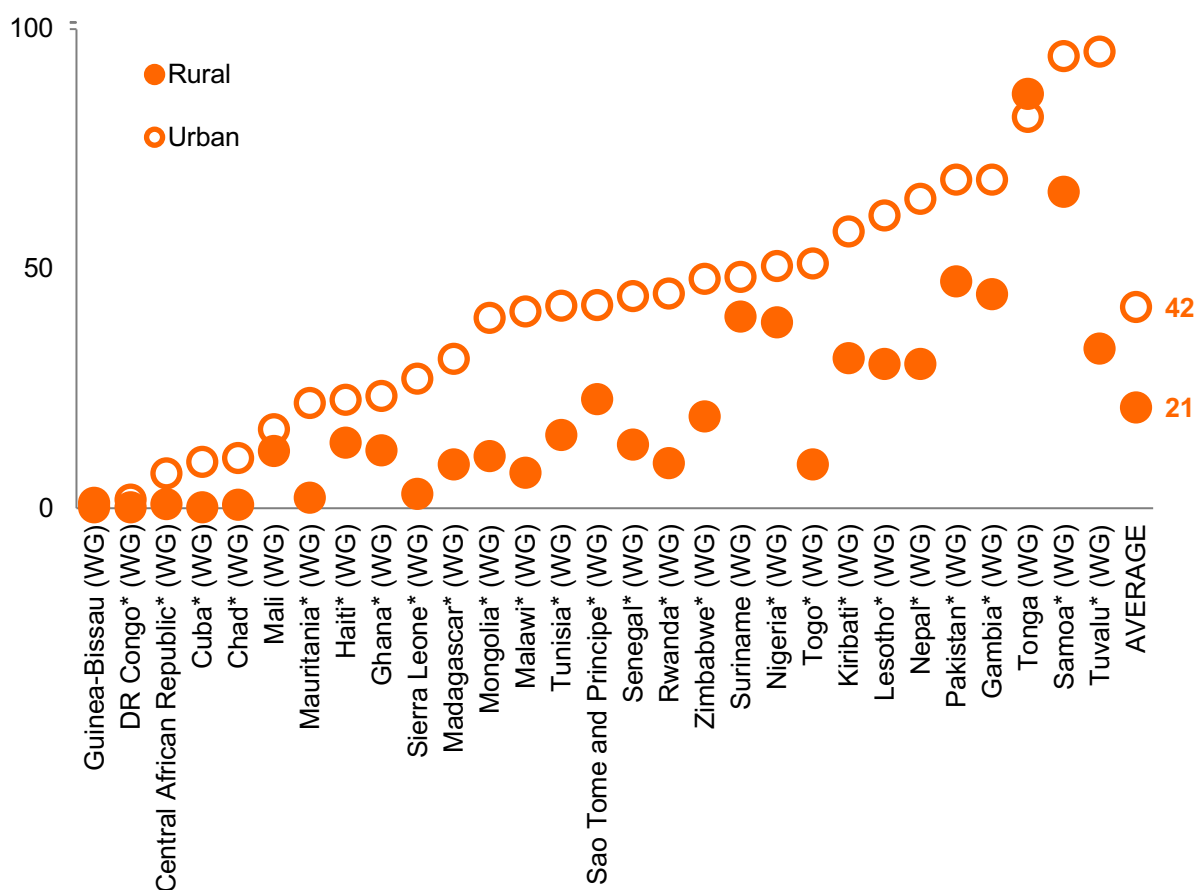
Figure 148. Percentage of households, with and without persons with disabilities, that own a computer or tablet, in 30 countries, in 2021 or latest year available.

Note: (WG) identifies data produced with the Washington Group Short Set of Questions. An asterisk (*) indicates that the difference between persons with and without disabilities is statistically significant at the level of 5 per cent.

*Source: World Bank (on the basis of data from DHS[6] and MICS).*

Figure 149. Percentage of households with persons with disabilities that have Internet access, by location of residence, in 29 countries, in 2021 or latest year available.

Note: (WG) identifies data produced with the Washington Group Short Set of Questions. An asterisk (*) indicates that the difference between persons with disabilities in rural and urban areas is statistically significant at the level of 5 per cent.

*Source: World Bank (on the basis of data from DHS[6] and MICS).*

Figure 150. Percentage of persons with disabilities who use the Internet at least once a week, by age, in 30 countries, in 2021 or latest year available.
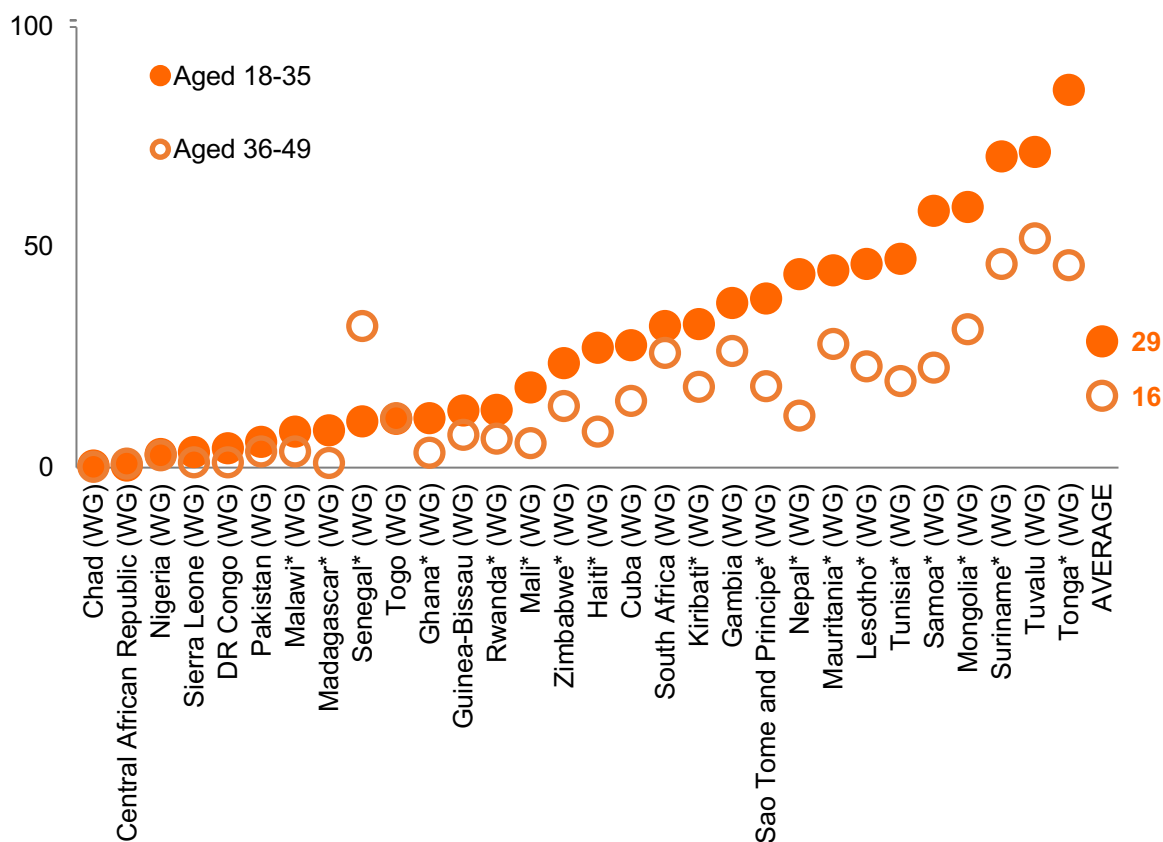
Note: (WG) identifies data produced with the Washington Group Short Set of Questions. An asterisk (*) indicates that the difference between persons aged 18-35 and persons aged 36-49 is statistically significant at the level of 5 per cent.

Source: World Bank (on the basis of data from DHS[6] and MICS).

Figure 151. Percentage of Internet cafes that are accessible for wheelchair users, worldwide, yearly from 2019 to 2022.
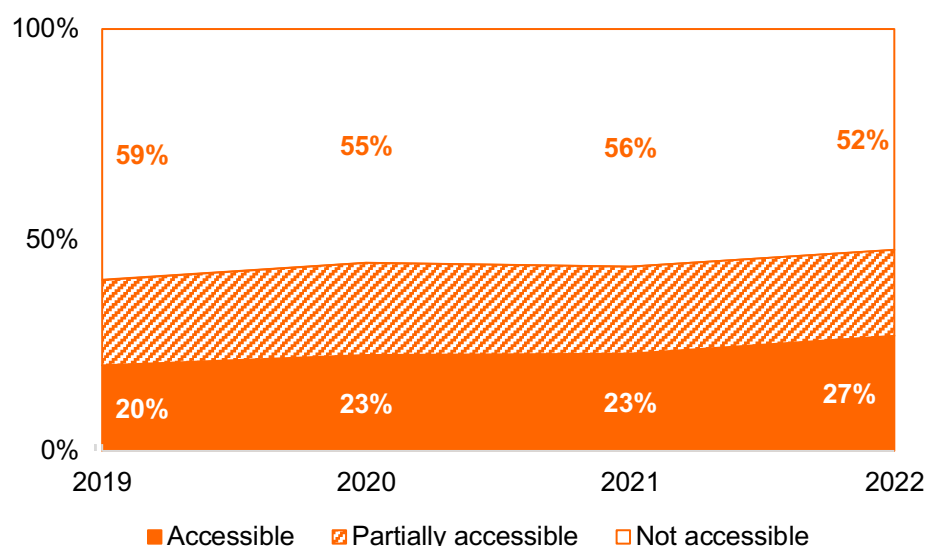

Source: UNDESA (on the basis of data from Sozialheden[10]).

Mobiles phones can have a strong impact on promoting the independent living of persons with disabilities.[399] Among 40 countries, 63 per cent of persons with disabilities own a mobile phone compared with 72 per cent of persons without disabilities (Figure 152). In 15 countries, the gap between persons with and without disabilities is 10 percentage points or higher. The percentage of persons with disabilities owning a mobile phone ranges from 19 per cent in the Central African Republic to 94 per cent in Suriname. Women with disabilities are the least likely to own a mobile phone lagging behind women and men without disabilities and men with disabilities (see chapter on Goal 5).

Lack of comparable data over time is generally lacking. Among 3 countries, the percentage of households with persons with disabilities that own a mobile phone has been increasing and the gaps between households with and without persons with disabilities have narrowed or stagnated over time (Figure 153). For example, in Lesotho, while the gap between households with and without persons with disabilities was 14 percentage points in 2011, the gap closed to zero by 2017.

Persons with disabilities also face barriers in accessing and using digital banking services; and are less likely to use mobile phones for financial transactions than persons without disabilities, with gaps over 15 percentage points between persons with and without disabilities in some countries (see chapter on Goal 1).
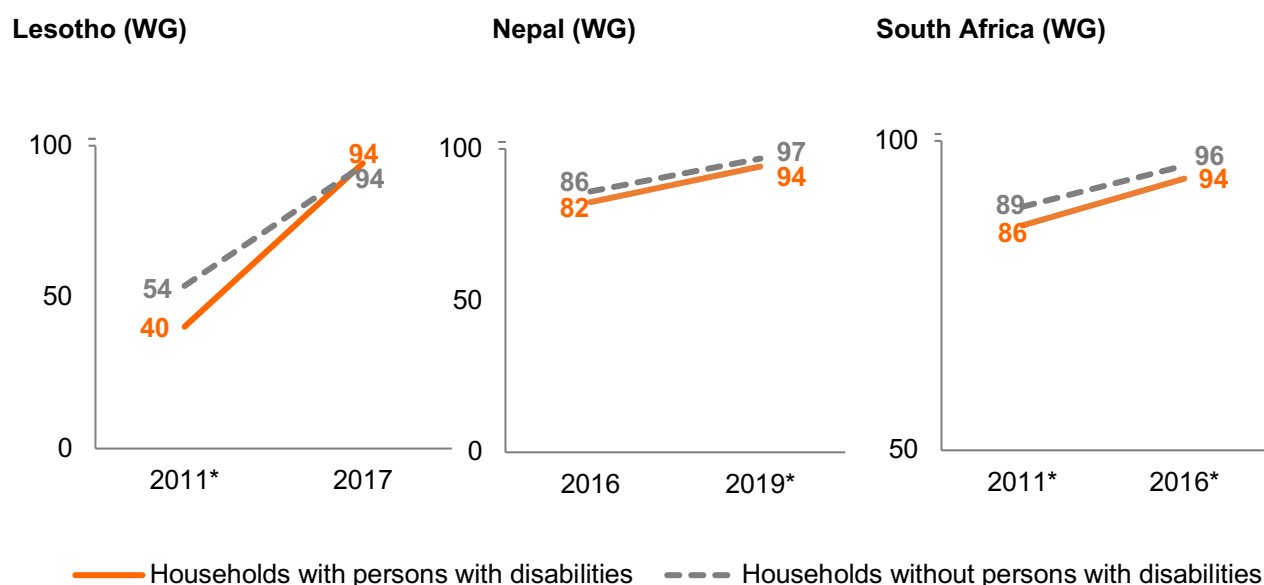
Figure 152. Percentage of persons who own a mobile phone, by disability status, in 40 countries, in 2021 or latest year available.
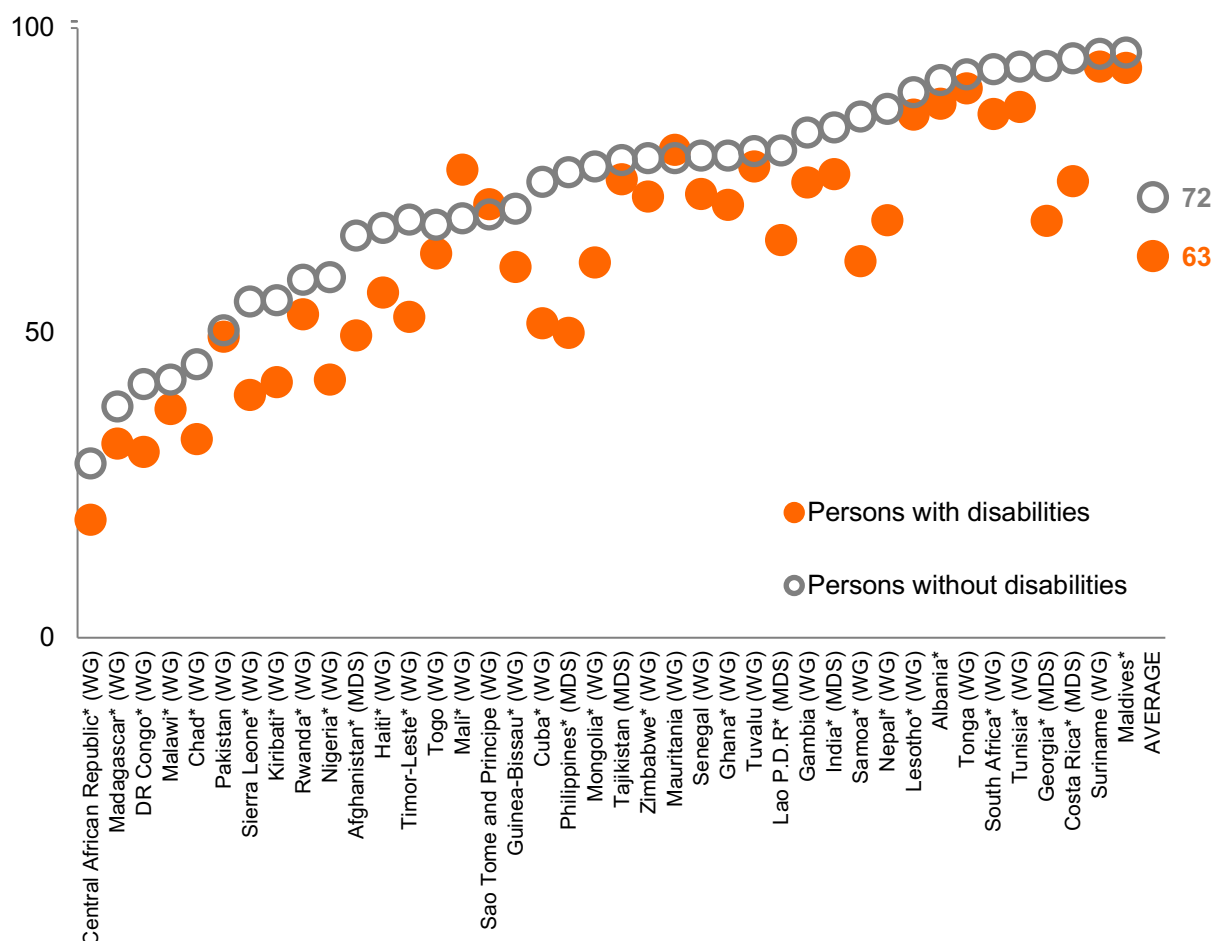
Note: (MDS) identifies data produced with the Model Disability Survey. (WG) identifies data produced with the Washington Group Short Set of Questions. An asterisk (*) indicates that the difference between persons with and without disabilities is statistically significant at the level of 5 per cent.
Source: ESCWA (on the basis of data from DHS[6] and MICS), WHO and World Bank (on the basis of data from DHS[6] and MICS).

Figure 153. Trends over time in the percentage of households, with and without persons with disabilities, that own a mobile phone, in 3 countries.

Lesotho (WG)　　　　**Nepal (WG)**　　　　**South Africa (WG)**

Households with persons with disabilities ---- Households without persons with disabilities
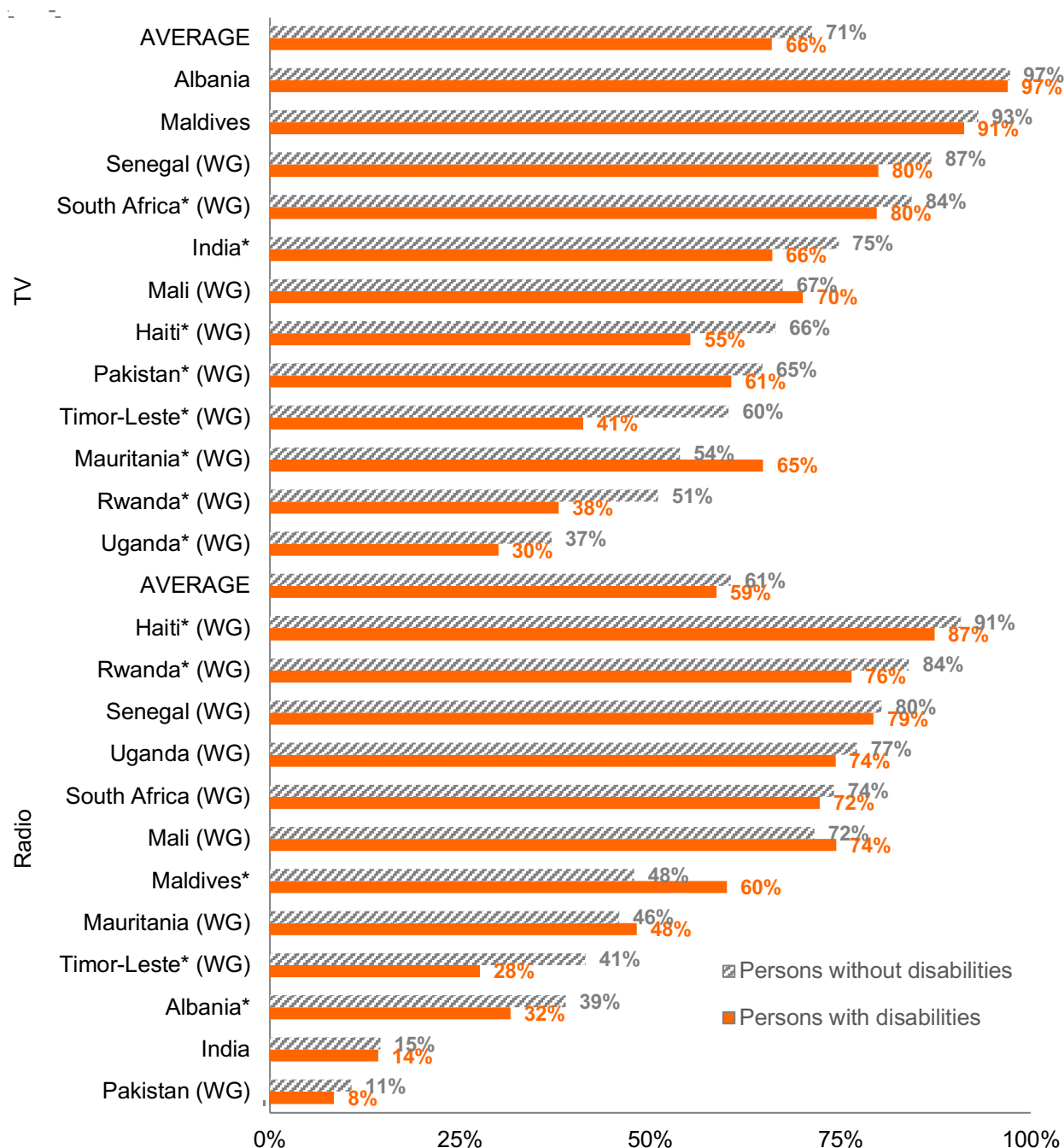
Note: (WG) identifies data produced with the Washington Group Short Set of Questions. An asterisk (*) indicates that the difference between persons with and without disabilities is statistically significant at the level of 5 per cent.

Source: UNDESA and World Bank (on the basis of data from DHS,[6] IPUMS,[8] MICS and SINTEF[9]).

In four developing countries, the use of radio and TV tends to be lower among persons with disabilities (Figure 154), but the gaps between persons with and without disabilities are narrower than those observed for the Internet. On average, 59 per cent of persons with disabilities and 61 per cent of persons without disabilities listened to the radio; 66 per cent of persons with disabilities and 71 per cent of persons without disabilities watched TV.

In Europe, persons with disabilities and their households face more barriers in affording ICTs. Among 33 countries (Figure 155), the percentage of persons who cannot afford a computer is higher among persons with disabilities (7 per cent) than among persons with disabilities (4 per cent). In Hungary, North Macedonia, Montenegro, Portugal and Serbia, the gap is over 5 percentage points.

**Figure 154. Percentage of persons who use radio and TV, by disability status, in 12 countries, in 2021 or latest year available.**

Note: (WG) identifies data produced with the Washington Group Short Set of Questions. An asterisk (*) indicates that the difference between persons with and without disabilities is statistically significant at the level of 5 per cent.

Source: UNDESA (on the basis of data from DHS[6]).

Figure 155. Percentage of persons aged 16 and over who cannot afford a computer, by disability status, in 33 countries, in 2021 or latest year available.
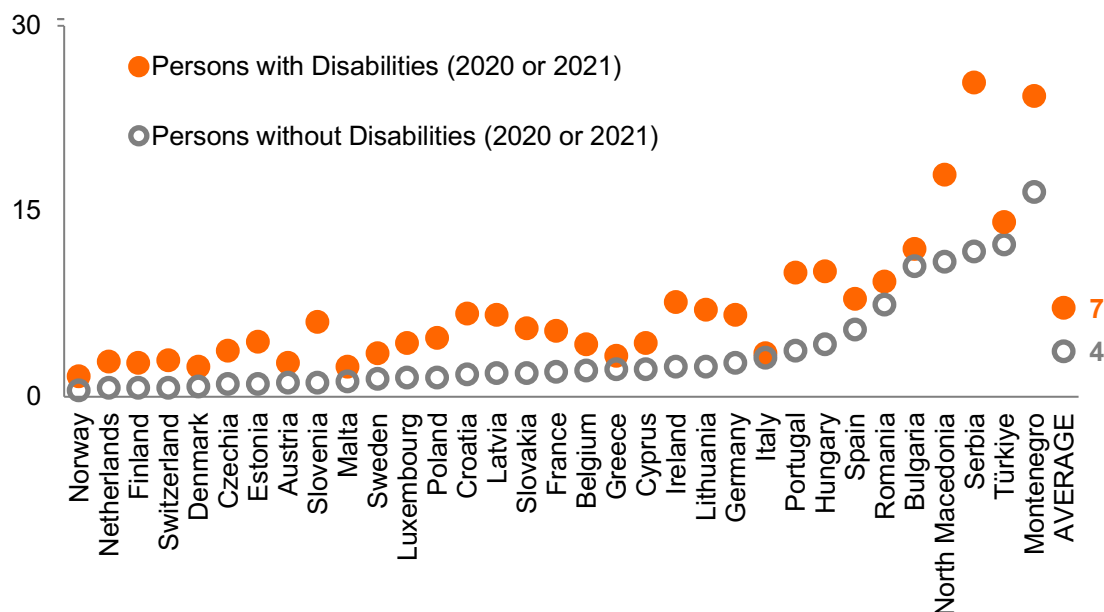
Note: Persons with disabilities include persons with some or severe limitations.
Source: Eurostat. [7]

Figure 156. Percentage of persons aged 16 and over who cannot afford a telephone, by disability status, in 24 countries, in 2020.
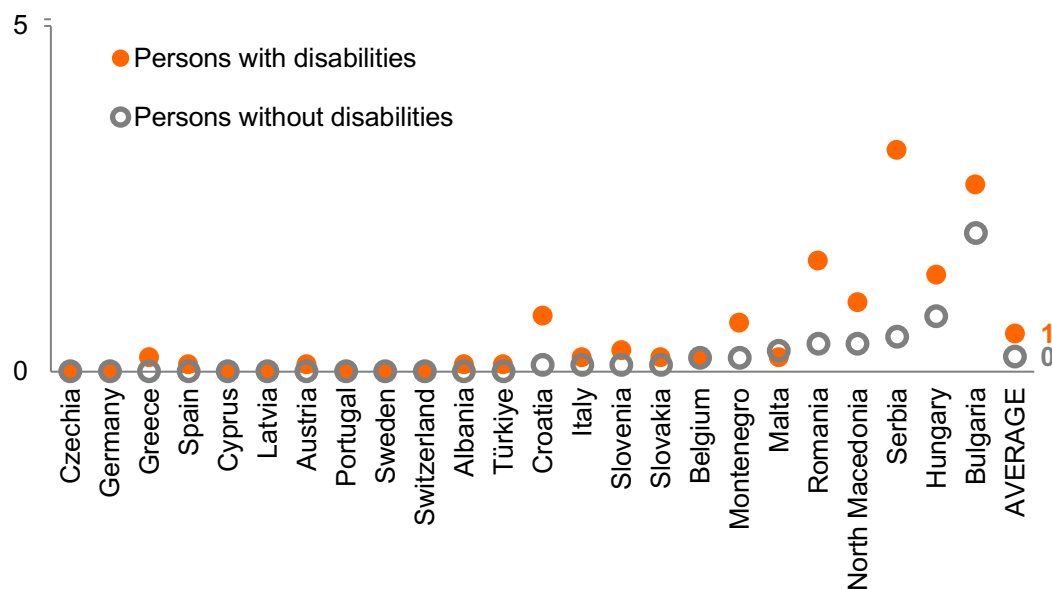
Note: Persons with disabilities include persons with some or severe limitations.
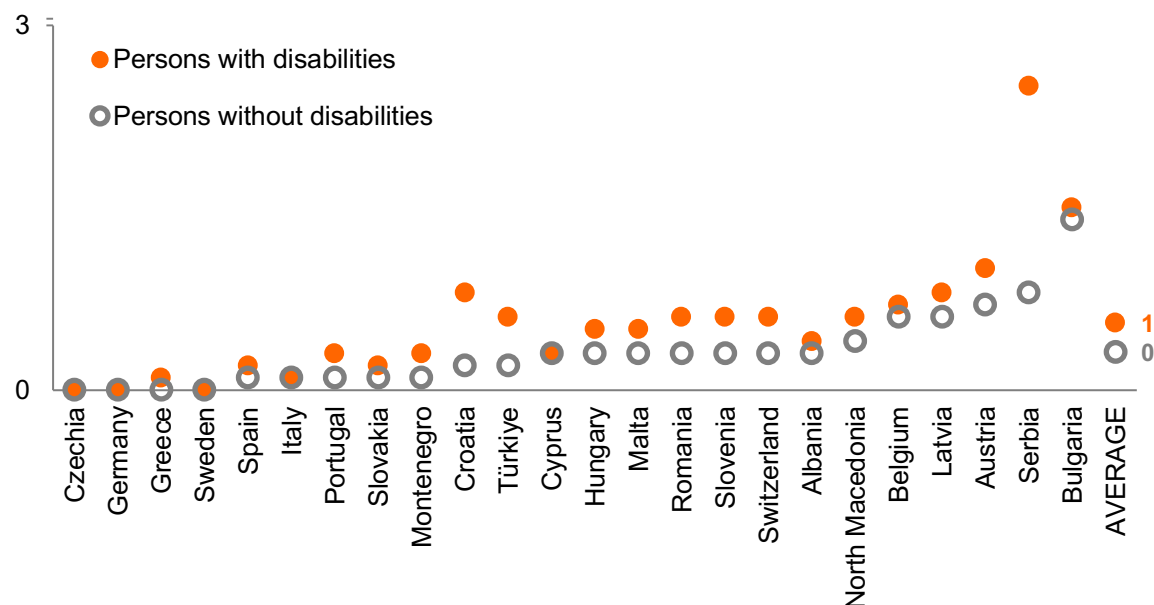*Source: Eurostat. [7]*

Figure 157. Percentage of persons aged 16 and over who cannot afford a television, by disability status, in 24 countries, in 2020.

Note: Persons with disabilities include persons with some or severe limitations.
Source: Eurostat. [7]

Figure 158. Percentage of persons who cannot afford a computer, a telephone and a television, by disability status, in 24-33 countries in Europe, in 2015 and 2020-2021.
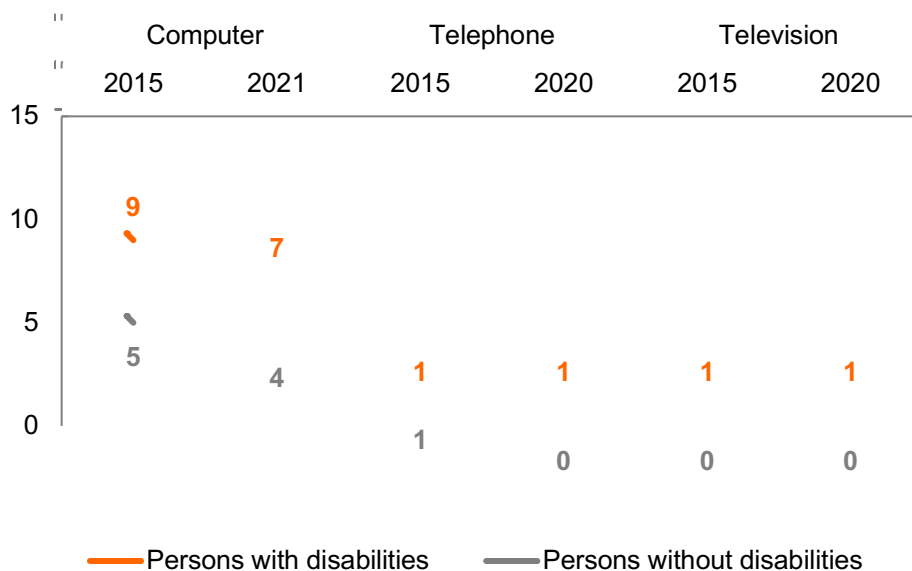
Note: Persons with disabilities include persons with some or severe limitations.
Source: Eurostat. [7]

Fewer barriers exist in affording a telephone and a television (TV). Among 24 countries in Europe, 1 per cent of persons cannot afford a telephone, compared to 0 per cent for persons without disabilities (Figure 156). Among 7 countries (Cyprus, Czechia, Germany, Latvia, Portugal, Sweden and Switzerland), all persons with disabilities can afford a telephone. In other countries, a small percentage of persons with disabilities still face barriers affording a telephone – the widest gap between persons with and without disabilities is observed in Serbia where 3 per cent of persons with disabilities and 1 per cent of persons without disabilities cannot afford a telephone. Similar barriers are found in affording a TV: on average, 1 per cent of persons with disabilities versus 0 per cent of persons without disabilities cannot afford a TV -- the widest gap is observed in Serbia, where 3 per cent of persons with disabilities but 1 per cent of persons without disabilities cannot afford a TV (Figure 157). Five countries show no gap between persons with and without disabilities: Cyprus, Czechia, Germany, Italy and Sweden, with all persons with and without disabilities being able to afford a TV in all of them except in Cyprus.

Across countries in Europe, progress has been made since 2015 in removing barriers for persons with disabilities to afford a computer but no progress has been made in removing barriers to afford a telephone and a TV (Figure 158). Moreover, although there has been a faster decrease in the percentage of persons with disabilities who cannot afford a computer than in the percentage of persons without disabilities who cannot afford it, the decrease has not been enough to close the gap between persons with and without disabilities. For telephone affordability, progress since 2015 benefited persons without disabilities but not persons with disabilities. For TV affordability, there has been no improvement since 2015 and the gaps observed in 2015 remain in 2020.

Meaningful access to ICT requires ICT skills. Some countries have focused on improving ICT skills of persons with disabilities through training, especially of youth with disabilities.[401,402,403,404] But persons with disabilities are still often left behind in ICT skills training. Moreover, digital divides and barriers in accessing ICT limit opportunities for persons with disabilities to learn and enrich the types of digital skills required for meaningfully use of ICT and access to technology-enabled jobs and digital services (see chapter on Goal 8). Among 22 countries, persons with disabilities were on average 3 percentage points behind persons without disabilities on the regular use of six digital skills: (a) copy or move a file or folder; (b) create an electronic presentation; (c) send e-mail with attached file; (d) connect and install a new device; (e) install and configure software; and (f) write a computer program (Figure 159). These gaps are above 10 percentage points in some countries.

Figure 159. Percentage of persons who used selected ICT skills on a weekly basis over the last 3 months, by disability status, in 22 countries, in 2020 or latest year available.

(a) Copy or move file/folder
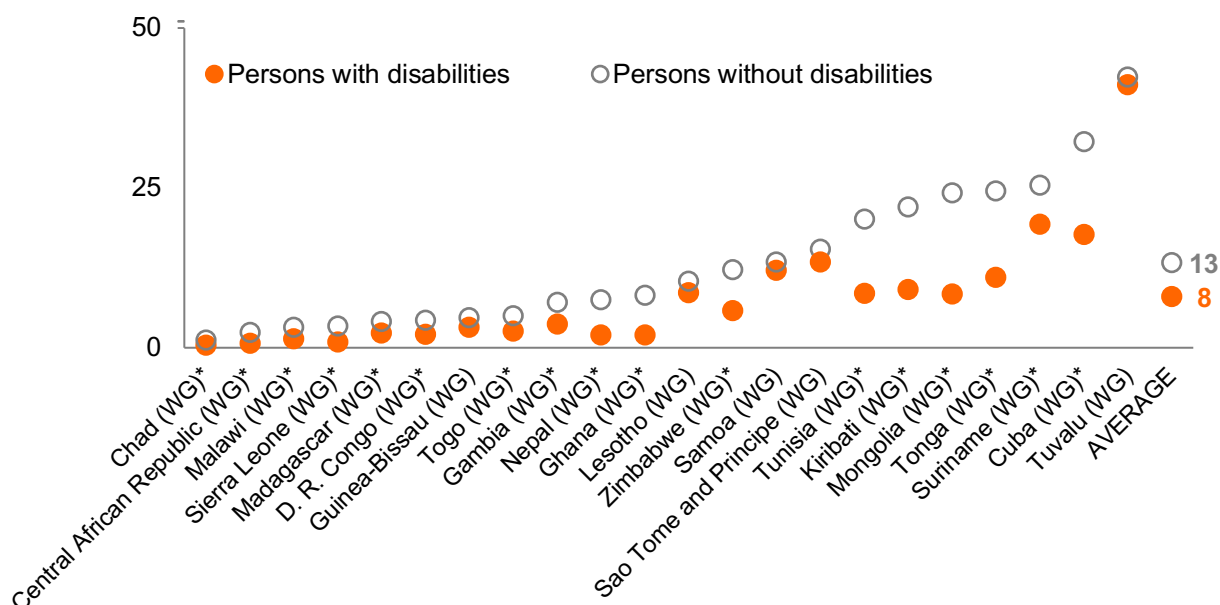
(b) Create an electronic presentation
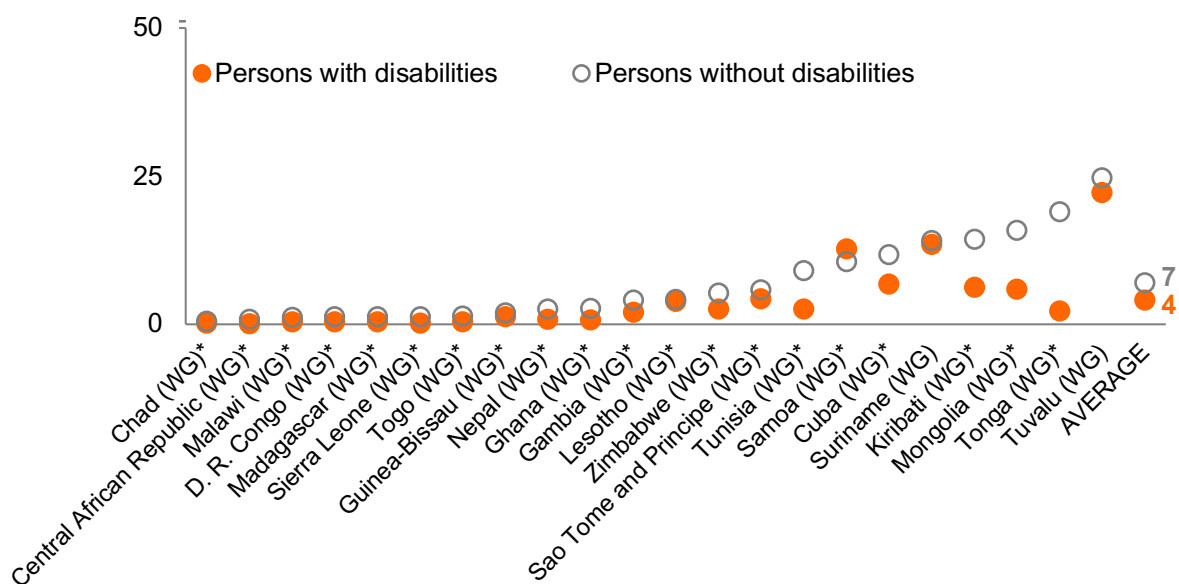
(c) Install and configure software
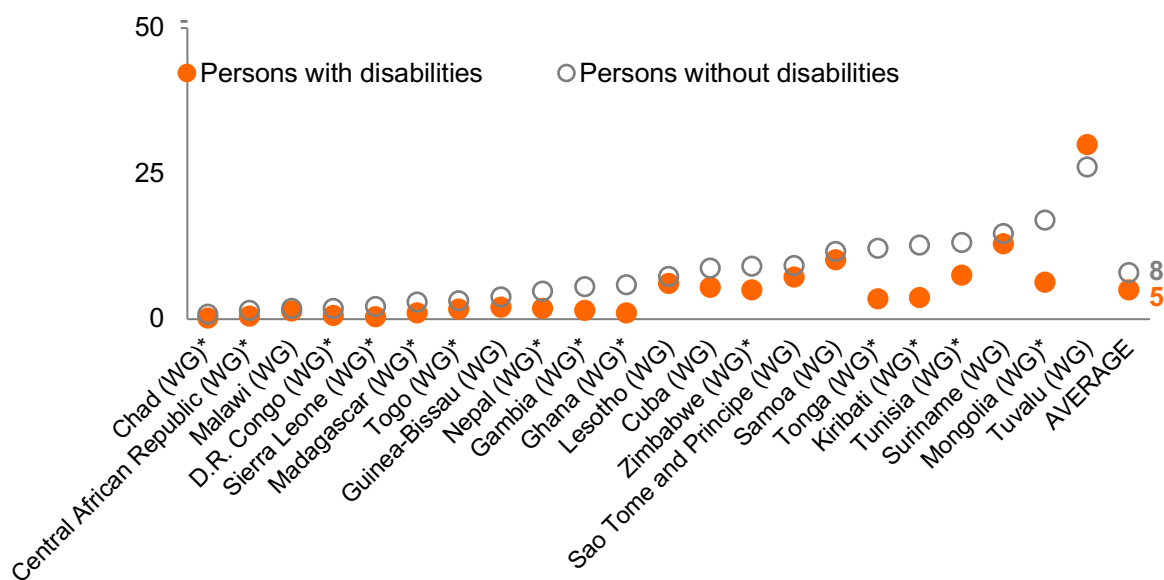
(d) Connect and install a new device
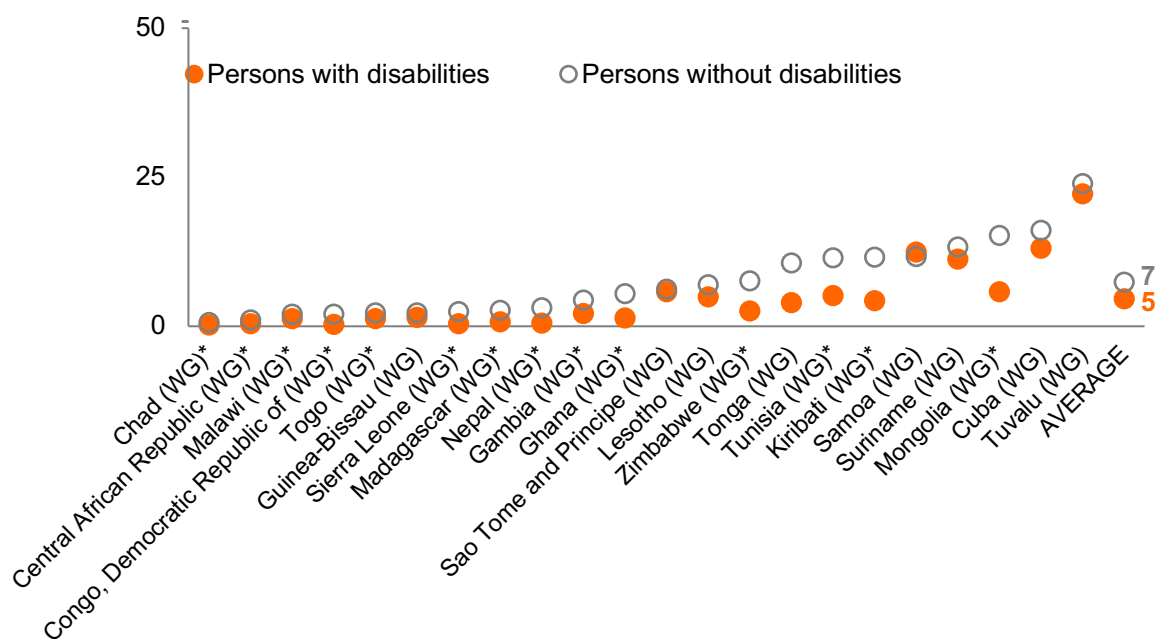
(e) Send an email with an attached file
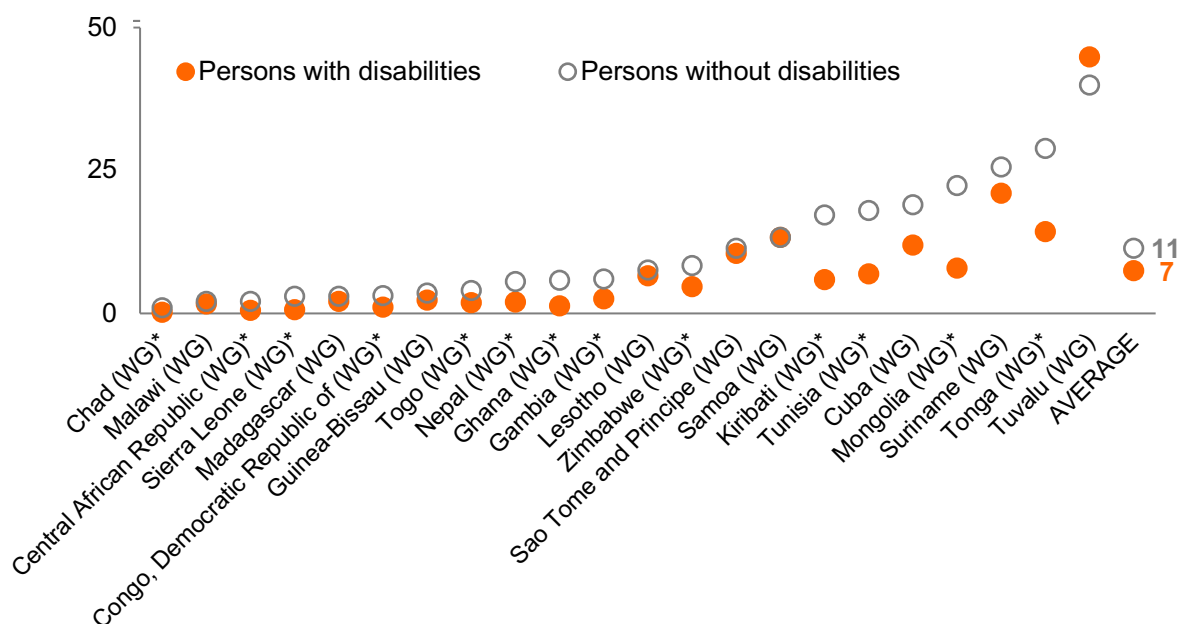
(f) Write a computer program
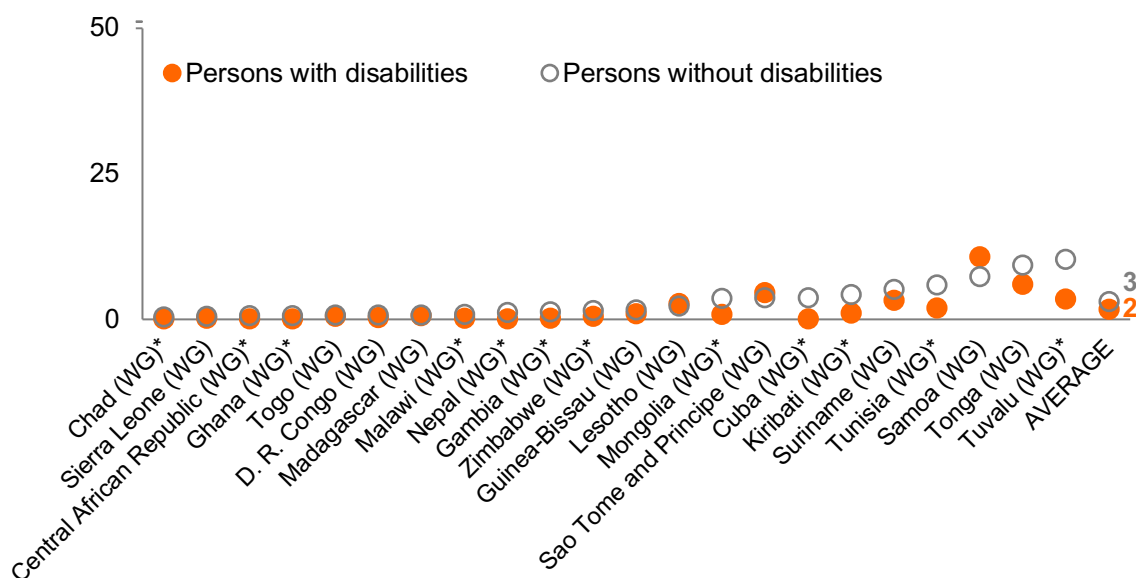
Note: (WG) identifies data produced with the Washington Group Short Set of Questions. An asterisk (*) indicates that the difference between persons with and without disabilities is statistically significant at the level of 5 per cent.

Source: World Bank (on the basis of data from MICS).

A growing number of ICT, such as TV programmes and online websites, offer functionalities that facilitate communication and information access for persons with disabilities. Features such as sign language and captioning in TV programmes and alternative text/audio descriptions of images and videos in online sites are increasingly being used. These features break the barriers that persons with disabilities often find in these media. For example, persons with hearing impairments can access TV programmes that include sign language; and persons with visual impairments can access images in online sites with screen-readers that read alternative text describing the image.

However, the use of these accessibility features is not yet universal. For example, in 9 countries or areas in Asia and the Pacific, on average, only 17 per cent of news in national public TV channels include both captioning and sign language, 37 per cent include captioning only, 7 per cent include sign language only and 39 per cent do not include any of these accessibility features (see chapter on target 16.10). The availability of these accessibility services in news programmes vary from country to country. In Bhutan, only 6 per cent of news include accessibility features, and the only feature available is sign language. In Thailand 67 per cent of news include both captioning and sign language. In China, Hong Kong (Special Administrative Region of China) and in the Republic of Korea, all news include captioning.

Lack of accessibility remains a barrier in other ICTs as well. While international standards for web accessibility have been adopted and updated since the late 1990s,[405] a 2019 study of the top one million websites found that 98 percent of website home pages had detectable failures to comply with the Web Content Accessibility Guidelines (W3C).[406] In 2020, 63 per cent of the national governmental portals also failed to comply with the W3C, with Africa having the largest percentage of countries with governmental websites which are not accessible for persons with disabilities, 87 per cent, and Europe the lowest, 30 per cent (see chapter on Goal 16). Similar barriers are found in social media sites. Investigations into social media platforms in 2019 and 2022 concluded that they were generally not accessible for blind users and users with visual impairments.[407,408]

Impact of the COVID-19 pandemic

Since the declaration of COVID-19 as a pandemic in 2020, a majority of countries moved to curb the spread of the virus by instituting nationwide lockdowns and restrictions on mobility and gatherings in public spaces. This resulted in a massive need for digitally enabled solutions to offer continuity in schooling, jobs, healthcare, access to services and products, and information and communication. In the months after the declaration of the pandemic, mobile data usage in emerging markets surged by 23 per cent and international Internet bandwidth usage by 18 per cent.[409]

Despite this pressing need to access information and communication technologies, many persons with disabilities faced digital barriers with a negative impact on their employment and education. During the school closures due to the pandemic, only 62 per cent of children with disabilities worldwide had access to a television in their household and only 47 per cent had access to the internet (see chapter on Goal 4).

Among children with disabilities, only 7 to 12 per cent had access and found ICT technologies accessible, from 7 per cent for radio and tablets to 12 per cent for TV and internet. Many families with children with disabilities, 42 per cent, did not have access to financial support to cope with the cost of additional devices, internet and personal support that remote learning required (see chapter on Goal 4). Educational and work online platforms were also not always accessible to persons with disabilities: 64 per cent of persons with disabilities in work or education indicated that at least one online platform was not accessible to them and 29 per cent indicated that all online platforms were not accessible to them.[410] Overall, 49 per cent of workers with disabilities faced barriers working online or by telephone.[410] In May 2022, two years after the start of the pandemic, many businesses continued to struggle to provide digital accessibility to persons with disabilities in the workplace: among 111 private sector companies committed to disability inclusion, 32 per cent reported a need for more capacity building in providing workplace adjustments for inclusive remote work (see chapter on Goal 8).

The accessibility of online portals that served as gateways to COVID-19 testing, vaccination appointments and other crucial information was another critical necessity – yet, many of these websites were not designed with accessibility features for persons with disabilities. In 2021, among 21 governmental COVID-19 vaccination information websites across Asia and Europe evaluated on their accessibility in relation to Web Contact Accessibility Guidelines 2.0 and 2.1, all of the websites lacked essential features to make them accessible to persons with disabilities: 70 per cent were not accessible to blind persons, 71 per cent did not have accessible contrast between the text and background colours and none of the websites allowed for font size adjustment (crucial features for persons with visual impairments).[411] Similar accessibility barriers were found in COVID-19 vaccine registration and information websites in the United States, with the most common barriers including lack of accessible contrast between the text and background colours and lack of alternative text describing images.[412]

During the COVID-19 pandemic, the use of telehealth services increased substantially in many countries and telehealth became a basic need for the general population. But, again, many persons with disabilities experienced difficulties and challenges accessing and using telehealth services and were often forgotten in the design of these digital services. Especially in developing countries, persons with disabilities could not benefit from telehealth services due to highly inaccessible formats of delivery. Very often telehealth platforms were not compatible with devices such as screen-readers used by persons with vision impairments; or the lack of captioning or volume control in video conferencing impeded persons who are deaf or hard of hearing to interact with health professionals virtually.

To respond to these challenges, in 2020, the International Communication Union (ITU) released guidelines on how to ensure that digital information, services and products are accessible by all people, including persons with disabilities, during COVID-19. The guidelines provided two key messages and actions: (i) to ensure that key digital information, services and requirements on reducing contamination of COVID-19 are provided in accessible formats to enable all people including persons with disabilities to

have access to this vital information, and (ii) to consider public information, radio, television, SMS, WhatsApp, E-mail, social networks and websites when ensuring that all people, including persons with disabilities. can access, understand and use digital information and services. [413] Similarly, in 2021, the United Nations Educational, Scientific and Cultural Organization (UNESCO) released guidelines on the inclusion of learners with disabilities in open and distance learning, with recommendations for key stakeholders to support opportunities for continued quality learning, including by harnessing open, free and publicly available solutions such as open-sourced software and education materials released under an open license;[414] as well as guidelines for emergency movement to online and distance learning. The latter includes an emergency response actions checklist, for educators and ICT developers in situations that require the dissemination of Open and Distance Learning resources accessible to persons with disabilities.[415] ITU also adopted a new global standard on the accessibility of telehealth services, which defined accessibility requirements to be used and implemented by governments, healthcare providers and manufacturers of telehealth platforms to facilitate the access and use of telehealth services by persons with disabilities.[416]

Summary of findings and the way forward

ICT is crucial for the independent living and for the inclusion of persons with disabilities and is becoming imperative for achieving all SDGs. However, digital divides remain between persons with and without disabilities. In developing countries, Internet use is 11 percentage points lower for persons with disabilities than for persons without disabilities. In order to close the gap between persons with and without disabilities, internet access among persons with disabilities will need to increase 1.2 percentage points every year till 2030. In Europe, persons with disabilities are twice as likely to not be able to afford a computer than persons without disabilities. In least developed countries, an average of 20 per cent of persons with disabilities uses the Internet, a level too low compared to the universal access by 2020 called for in SDG target 9.c. This target was missed in 2020; in order to meet this target by 2030, internet access among persons with disabilities in least developed countries will need to speed up and increase 9 percentage points every year till 2030.

ICT access among persons with disabilities is impacted by location of residence, gender and age, with persons with disabilities in urban areas, men with disabilities and younger persons with disabilities having higher access. In developing countries, households of persons with disabilities in urban areas are twice as likely to have access to Internet connectivity than those in rural areas. Younger persons with disabilities aged 18-35 are twice as likely to use Internet regularly than persons with disabilities aged 36-49. In some countries, the gaps between women and men with disabilities exceed 20 percentage points for Internet use and for ownership of a mobile phone.

Comparable data overtime on access to ICT disaggregated by disability is generally lacking, especially in developing countries. In these countries, limited available data show increasing access to the Internet and

increasing ownership of mobile phones among households with persons with disabilities. In Europe, more persons with disabilities can now afford a computer than in 2015 (91 per cent in 2015 versus 93 per cent in 2021), but 1 per cent of persons with disabilities cannot afford a telephone nor a television – a percentage that has remained stagnant since 2015.

Lack of accessibility features in ICTs continues to be a barrier for persons with disabilities. Despite the existence of international web content accessibility guidelines since the 1990s, the vast majority of websites does not comply with these guidelines: 98 per cent of the top 1 million websites; 63 per cent of national governmental online portals worldwide; and 100 per cent of governmental COVID-19 vaccination information websites in Asia and Europe. Lack of accessibility features in governmental portals is particularly high among countries in Africa (87 per cent). Similarly, TV channels lack accessibility services in their programmes. For example, in Asia and the Pacific, 39 per cent of news programmes in national public TV channels do not include captioning nor sign language.

Lack of accessibility of public places for Internet access also remains high, despite progress since 2019. For example, as of 2022, only 27 per cent of Internet cafes were fully accessible for wheelchair users compared to 20 per cent in 2019. At this rate progress, only half of public Internet cafes is expected to be accessible to wheelchair users by 2030. The rate of progress needs to double in the remaining years till 2030 in order to make all Internet cafes fully accessible for wheelchair users.

In order to eliminate these barriers for persons with disabilities, countries have increasingly adopted regulatory frameworks on accessibility of mobile communications, Web, public procurement for ICT, TV/video programming and public ICT. As of 2020, 69 per cent of countries had at least one of these regulatory frameworks. Europe is the region where these regulations are more common and Africa the least, as 55 per cent of countries in Africa have no regulations.

Due to its growing importance, it is critical that the digital economy becomes a source of inclusive income generation and access to products and services for persons with disabilities. This requires investments in the digital literacy and digital skills of persons with disabilities. Persons with disabilities are not far behind their peers without disabilities, although overall a lower percentage of persons with disabilities attest to a range of basic ICT skills like copying or moving a file/folder and sending an email with an attachment, with persons with disabilities being on average 3 percentage points behind. In various countries, the gaps between persons with and without disabilities in using ICT skills are above 10 percentage points, suggesting the need for more mainstream and targeted interventions to bring persons with disabilities to the same levels of ICT skills as persons without disabilities in these countries.

As digitalization of services and activities rose substantially during the COVID-19 pandemic, the digital divide in ICT access and the lack of ICT accessibility for persons with disabilities impacted access to education and health services and created additional barriers in employment: in the middle of the pandemic, 88 per cent of children with disabilities either didn't have access to Internet for education or the internet was not accessible and useful to them; and 49 per cent of workers with disabilities faced barriers

working online or by telephone. Gaps in digital access were also visible in remote telehealth services.

As a critical element to ensure that persons with disabilities have equitable opportunities and access to educational, economic, social and civic participation, policy and decision makers should build on the progress made so far and continue to invest in digital inclusion. Looking forward, the following recommendations offer guidance on how to strengthen the ICT ecosystem to ensure inclusion and accessibility for persons with disabilities:

1. Make disability inclusion a core feature of digital development investments and programs. Planning and budgeting for disability inclusion in digital investments from the start will ensure comprehensive planning, targeting of beneficiaries with disabilities, cost efficiency and lower need for expensive retrofitting.

2. Enhance knowledge and build human capacity on ICT accessibility. Digital inclusion requires investments in people. Improving awareness of the barriers and solutions presented by ICTs for persons with disabilities will be crucial to successfully increase ICT access and use among persons with disabilities. In particular, key stakeholders such as governments and decision makers, educators, statisticians, non-governmental organizations, particularly organizations of persons with disabilities, and ICT industries in the public and private sectors must be alerted to the vast potential and urgent need for accessible ICTs to improve quality of life and inclusion of persons with disabilities. Methods to achieve this could include the development of academic programmes and training programmes highlighting ICT accessibility and Universal Design. Programmes are also needed to develop ICT accessible for persons with intellectual disabilities, including the use of easy-to-understand language in TV, radio, computers, smartphones, etc.

3. Promote digital skills training and digital literacy of persons with disabilities. Ensure that persons with disabilities have equitable opportunities to build digital literacy and digital skills to participate in and benefit from the digital economy. This can include twin track approaches by making sure that mainstream skills development programs are inclusive, while identifying and addressing unique challenges that persons with disabilities may face.

4. Involve persons with disabilities and their representative organizations. In order to properly understand the variety of needs and abilities that ICTs can address, as well as necessary accessibility requirements, persons with disabilities must be involved and able to provide their input and insights at every stage of ICT development. One of the most effective ways to do this is to work together with organizations of persons with disabilities, particularly those which have expertise in the field of ICT accessibility, and connect them with ICT businesses.

5. Develop and strengthen implementation of ICT accessibility policies and regulations. As countries continue to develop better policy, legislative and regulatory frameworks, it is also important to strengthen cross-ministerial collaboration, alignment of policies across sectors and monitoring and

accountability mechanisms to ensure appropriate implementation of the policies.

6. Promote the principles of Universal Design in the ICT industry. Implementing Universal Design principles is more inclusive, affordable and often simpler than developing specialized software or hardware for persons with disabilities.

7. Provide affordable Internet access for persons with disabilities. Introduce programmes, policies or regulations that facilitate free or reduced-rate Internet access for persons with disabilities, particularly those in lower income brackets. This could be in the form of either a monetary social benefit for persons with disabilities, or non-monetary benefits such as free or subsidized mobile devices and Internet subscriptions. Mobile Internet access, in particular, should be prioritized, given that mobile network coverage is globally higher than broadband penetration, and is expected to increase further, especially in developing countries. Alternatively, community resource centres could be established, where persons with disabilities can have facilitated access to the Internet. Affordable Internet access is a crucial element of digital inclusion, as it can provide job opportunities, access to information and education materials, access to services and social participation.

8. Develop and publish comparable data on access to and use of ICTs disaggregated by disability as well as on accessibility of ICTs. Data on digital access, usage and growth should be disaggregated by disability to enable reliable and comparable analysis to monitor the progress towards meeting SDG target 9.c. A systematic collection of data, a clear methodology for comparison, regular data evaluation, and a publicly available platform to showcase to interested parties are strongly recommended for a successful analysis of the state of the 2030 Agenda in terms of ICT access, use and accessibility.