Enhancing the use of enabling technology (target 17.8)

Target 17.8 calls for enhancing the use of enabling technology. This section focuses on enhancing the use by persons with disabilities of assistive technology, an enabling technology that can drive remarkable change in promoting the inclusion, participation and engagement of persons with disabilities, in reducing inequalities between persons with and without disabilities and therefore in achieving all Sustainable Development Goals and leaving no one behind.

Assistive technology is an umbrella term for assistive products and related systems and services. Assistive products include items such as wheelchairs, spectacles, hearing aids, prostheses, continence pads, communication boards and reminders. A key target to providing access to this technology is target 3.8, which focuses on achieving universal health coverage as the delivery of assistive technology is often carried out through health systems.

The Convention on the Rights of Persons with Disabilities requires States to provide assistive technology to enable people with disabilities to exercise their rights (articles 4, 20, 26, 29 and 32). States should undertake or promote research and development of, and promote the availability and use of, assistive technology at an affordable cost (article 4). They should also provide accessible information about assistive technology (article 4). In international cooperation, States should provide, as appropriate, technical and economic assistance, including by facilitating access to and sharing of accessible and assistive technologies, and through the transfer of technologies (article 32).

The World Health Assembly Resolution 71.8 on improving access to assistive technology, adopted in 2018, urges States (i) to develop, implement and strengthen policies and programmes to improve access to assistive technology; (ii) to ensure that adequate and trained human resources for the provision and maintenance of assistive products are available; and (iii) to ensure that users and their carers have access to the most appropriate assistive products, and use them safely and effectively. Other areas covered by the Resolution include the development of a national list of priority assistive products; conducting research, development, innovation and design; engaging in international and regional collaboration; producing relevant population-based data; investing in barrier-free environments; and investing in access to assistive technology in the context of emergency preparedness and response programmes.

Current situation and progress so far

In 2021, one in three persons needed one or more assistive products and more than 2.5 billion people around the world would have benefited from using one or more assistive products.[301] This number is expected to rise above 3.5 billion by 2050.[301] There is considerable global inequity among countries in terms of access to assistive technology. Among 29 countries, the percentage of persons with their needs for assistive technology met among those with needs varied from 3 per cent to 89 per cent (Table 7). Both

overall need and met need for assistive products increase with the human development index, a composite index of life expectancy, education and per capita income indicators.[301] In countries with a low human development index, only 11 per cent of persons who need assistive technology have these needs met, whereas this percentage is 88 per cent in countries with a very high human development index. Worldwide, this corresponds to more than 800 million persons who needed assistive technology in 2021 and did not have access to it. By 2030, this is expected to increase to at least 1.2 billion unless action is taken to reduce this unmet need.

Table 7. Percentage of persons with need for assistive products and those with their needs met, by human development index category, in 2021.

Human development index (Number of countries)	**Percentage of persons with need for assistive products** (Median and range)	**Percentage of persons with their needs for assistive technology met among those with needs** (Median and range)
Low (7)	15 (10 – 27)	11 (3 – 17)
Medium (9)	21 (13 – 31)	33 (16 – 65)
High (9)	26 (15 – 40)	65 (35 – 80)
Very high (4)	56 (35 – 69)	88 (55 – 89)

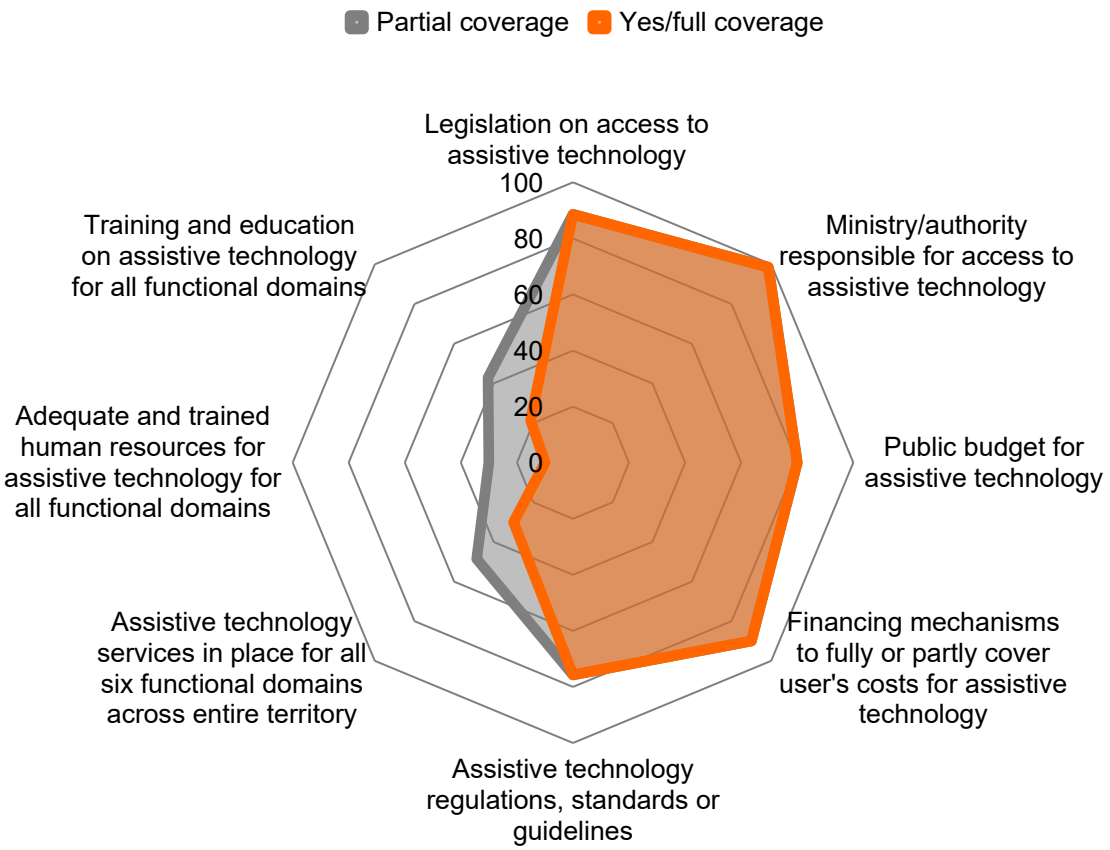
Source: WHO and UNICEF (2022).[301]

The most frequently reported barrier to accessing assistive products across the surveyed countries was affordability (31 per cent) followed by lack of support to get them. Regarding funding for assistive products, out-of-pocket payments for assistive products were reported by a majority of users (66 per cent). Funding from family and friends was the second most common funding source. Users mainly got their assistive products from private shops, clinics or pharmacies (67 per cent) while self-made products and products from public services were other important sources. Most users (68 per cent) travelled less than 25 kilometres to obtain their assistive products, but some had travelled more than 100 kilometres.[301]

Various countries have taken measures to promote access to assistive technology (Figure 238). In 2021, among 70 countries, 89 per cent had at least one piece of legislation on access to assistive technology, and 99 per cent had at least one ministry or other authority responsible for access to assistive technology. Eighty per cent had a public budget allocated for assistive technology and 90 per cent had financing mechanisms in place to cover users' costs for assistive technology fully or partly. Seventy-six per cent of countries had assistive technology regulations, standards or guidelines in place. Thirty per cent had services in place for all six functional domains (cognition, communication, hearing, mobility, self-care and vision) across their entire territory, while the services in 49 per cent of countries did not cover all

functional domains or the entire territory. Only 10 per cent of countries reported adequate and trained human resources at all levels for all functional domains. An additional 30 per cent of countries had human resources only for some functional domains (mainly mobility, vision and hearing). In relation to training, 21 per cent of countries had training and education on assistive technology for all functional domains, while 43 per cent of countries had training and education for some functional domains (mainly mobility, vision and hearing).[301]

Figure 238. Percentage of countries with measures to promote access to assistive technology, by type of measure, in 70 countries, in 2021.



Note: The six functional domains are cognition, communication, hearing, mobility, self-care and vision. Full coverage refers to all six functional domains being covered or covers entire territory. Partial coverage refers to one to five functional domains covered or only part of territory covered.
Source: WHO and UNICEF (2022).[301]

For many persons with disabilities, social protection systems are critical to financing the costs of assistive technology through different mechanisms such as health insurance, subsidies and direct provision.[582]

Among the 63 countries that reported at least one financing mechanism to cover users' costs, 45 had a combination of measures.[301] However, in most developing countries, the costs of assistive technology are covered out-of-pocket or from families and friends, with government support being less frequent. This is explained by two main elements: the limited scope of assistive technology covered by existing social protection or universal health coverage schemes combined with the limited coverage of those schemes due to issues related to disability certification, access to information and indirect costs of accessing assistive technology, such as transport, which are rarely covered by those schemes.[583,584]

Having laws and responsible government bodies in place does not necessarily guarantee that assistive technology is available to those in need. Similarly, public budgets and multiple financing mechanisms do not necessarily cover costs sufficiently to obtain assistive technology. Moreover, shortfalls in well-trained workforces and service provision likely exacerbate the lack of necessary support for people to access assistive products and to use them safely and effectively.[301]

To support countries in their efforts to improve access to assistive technology, WHO published a global priority assistive products list in 2016. It is not a restrictive list but aims to provide States with a model from which to develop national lists of priority assistive products. Since then, at least seven countries have adopted national lists of priority assistive products (for an example, see Box 13).[585]

Box 13. Improving access to good quality and affordable assistive products in Nepal

In 2018, the Ministry of Health and Population of the Government of Nepal published a national priority assistive products list. The list contains 45 assistive products and recommends 13 assistive products for emergencies. Guiding principles for budgeting, supply and provision were published and actions were set for improving access to the priority assistive products. In May 2022, standards for assistive technology were approved by the Ministry of Health and Population, which include measures on the responsibility of institutions and personnel in the provision of assistive products, the quality requirements and regulations on prices for the 45 priority assistive products.

Source: Government of Nepal (2018)[586] and Gurung (2022).[587]

A number of factors can affect the availability of assistive technology at the national level, including intellectual property rights, international trade and international cooperation. These factors can particularly impact countries with low resources that cannot produce or finance the assistive technology they need.

Access to innovative assistive technology needs to become widespread to ensure that no one is left behind. Inventions related to innovative assistive technologies are often disclosed through patents. Patents offer their owners an exclusive right to prevent others from commercially exploiting a patented invention for a limited period of time in the countries or regions in which the patent has been granted. At the same time, patents are a source of technical information and help stimulate follow-on innovations

because detailed information about an invention must be disclosed to the public by a patent applicant seeking to obtain an exclusive right over their invention. More than 132,000 inventions related to assistive technology have been patented worldwide from 1998 to 2019, with 88 per cent of these patents corresponding to conventional assistive technology (that is, innovations on well-established technology, such as hearing aids) and 12 per cent to emerging assistive technology (that is, innovations that improve conventional technology or introduce novel solutions, such as brain-computer interfaces). Some of these inventions have been filed as patents in more than one country. Patent protection for conventional assistive technology is sought primarily in China (41 per cent), the United States (27 per cent) and Japan (21 per cent) – and 16 per cent in other countries.[588] Patent protection for emerging assistive technology is sought primarily in China (44 per cent of patent families from 1998 to 2019) and the United States (38 per cent) – and 18 per cent in other countries.[588]

International trade of assistive products is concentrated in developed countries: they account for 74 per cent of the value of exports of assistive products in the world and 82 per cent of the value of imported assistive products (see the chapter on targets 17.10-17.12). The per capita value of imports of assistive products is five times higher in Europe, Northern America and Oceania than in Asia, Latin America and the Caribbean, and sub-Saharan Africa. Barriers to trade persist in assistive products. Many assistive products have taxes imposed at the border in the form of tariffs. Tariffs on some assistive products remain high. Depending on the type of assistive product, 29 to 97 per cent of least developed countries apply non-zero tariffs; and 21 per cent to 80 per cent of other countries apply non-zero tariffs. The average applied tariff is 5 per cent for wheelchairs, orthotics and prosthetics and hearing aids; and 5 per cent to 10 per cent for spectacles and lenses. Behind these average values lies a wide range of applied tariffs, sometimes as high as 35 per cent (see the chapter on targets 17.10-17.12).

International cooperation can play a major role in facilitating access to and sharing of assistive technology, including through technical and economic assistance as well as transfer of technologies. From 2018 to 2021, only a small percentage of disability-related bilateral aid focused on widening access and providing training on assistive technology (0.1 per cent, corresponding to 19 million US dollars).[589] This aid came from various donors, with the United Kingdom providing most of this aid (61 per cent), followed by Norway (23 per cent), Canada and Italy (4 per cent each), Finland (3 per cent), Czechia and Japan (2 per cent each), Austria (0.4 per cent) and Poland (0.1 per cent). Philanthropic foundations contributed 2 per cent of this aid. Among the bilateral aid directed to assistive technology, 64 per cent was directed at multiple countries worldwide, 25 per cent at countries in Asia and the Pacific, 7 per cent at countries in Africa, 3 per cent at countries in the Americas and 0.2 per cent at countries in Europe.[589] Eight per cent of the bilateral aid focusing on assistive technology was directed at least developed countries.[589]

In an international effort to accelerate the availability of assistive technology for those who need it, ATscale, a global partnership for assistive technology, was launched in 2018 with the goal of catalysing

action to reach 500 million more people with assistive technology by 2030.[590]

Impact of the COVID-19 pandemic

During the COVID-19 pandemic, from 2020 to 2022, the cost and availability of assistive products and services were affected, leading to increasing unmet needs.[591] Access barriers to assistive products and services, such as training and repair, were exacerbated worldwide due to disruptions in supply chains, social distancing requirements, and strains placed on healthcare, education, and other economic and social systems.[592,591,593] In some countries, persons with disabilities suffered a greater socioeconomic impact of the pandemic, such as job losses and reduced income (see the chapters on Goals 1 and 8), leading to additional barriers to afford the assistive technology they needed. Moreover, rising inflation since the start of the COVID-19 pandemic has impacted the cost of assistive technology. For example, in the Maldives, inflation was 8 per cent for assistive products in the first quarter of 2022, compared to a national inflation rate of 0.6 per cent.[594]

Box 14. The impact of the COVID-19 pandemic on the use of and access to assistive technology in Sweden

In Sweden, a majority of persons (86 per cent) used their assistive products as much during the COVID-19 pandemic as before the pandemic. Among those that used their assistive products less (5 per cent) or more (8 per cent) during the pandemic, the major reasons for changes in use were the same, namely: choosing to stay at home (25 per cent and 11 per cent), studying or working from home (18 per cent and 24 per cent) and doing different activities than before the pandemic (12 per cent for both groups). Less frequent reasons for changes in the use of assistive products were deteriorating health, keeping distance and others.

During the pandemic, 13 per cent of these users needed to acquire at least one assistive product and 9 per cent needed to get their assistive product serviced or repaired. Among those that needed to acquire an assistive product, 10 per cent reported that the delivery of the assistive product was delayed because of the pandemic. Similarly, among those that needed their assistive product serviced or repaired, 16 per cent reported delays in the service or repair because of the pandemic.

Source: Borg and Zhang (2022).[595]

A 2020-2021 study conducted among persons with disabilities in 24 countries around the world, found a decrease in access to needed assistive technology when comparing pre- and post-COVID-19 access: only 37 per cent of persons with disabilities could use human support like personal assistance post-COVID-19 compared to 92 per cent before COVID-19; only 49 per cent of persons with disabilities could use mobility products like wheelchairs post-COVID-19 compared to 86 per cent before COVID-19; only 4

per cent of persons with disabilities could use hearing products like hearing aids post-COVID-19 compared to 19 per cent before COVID-19.[596] The negative impact on access to assistive technology was already felt early in the pandemic. In a study in March and April 2020, 32 per cent of persons with disabilities indicated that the COVID-19 crisis had decreased their access to personal assistance, wheelchair replacement and repair, or accessibility services such as sign language interpretation.[597] However, the situation was not heavily disrupted in all countries (see Box 14).

Summary of findings and the way forward

Target 17.8 calls for enhancing the use of enabling technology and universal access to assistive technology, which is essential to ensuring the equal social, economic and political participation of persons with disabilities, and which in turn is integral to the implementation of all Goals of the 2030 Agenda for Sustainable Development. However, much work remains to be done until everyone, everywhere, uses the assistive technology they need without delay or financial or other hardships.

In countries with low levels of the human development index, only 11 per cent of the persons who need assistive products can get them; in countries with medium levels of the human development index, only 33 per cent. The most frequent barrier to accessing assistive products is cost, with this barrier being experienced by 31 per cent of those who cannot access the assistive products they need. Although 90 per cent of countries have a financing mechanism in place to fully or partially cover the users' costs for assistive technology, in practice, in most developing countries, the cost of assistive technology is covered out-of-pocket or by families or friends.

During the COVID-19 pandemic, rising inflation, especially on assistive technology, reduced incomes and financial means to afford the technology, disruptions in supply chains, access barriers created by lockdowns and other strains placed on supplying systems, led to higher unmet needs for assistive technology in many countries. For personal assistance and hearing aids, fewer than half the number of persons used them during the pandemic compared to before the pandemic.

Over the past few years, several promising steps have been taken by individual countries, regions and the international community to improve access to assistive technology. More than 80 per cent of countries have laws, regulations and financing mechanisms to support access to assistive technology. Adequate services, human resources and education on assistive technology have progressed more slowly, with less than 50 per cent of countries providing these. At least seven countries have developed national lists of priority assistive products to facilitate acquisition and prioritization of essential assistive technology.

The transfer of assistive technology from developed to developing countries can boost access to this technology worldwide. But overall, many developing countries receive insufficient aid for assistive technology, cannot import the technology they need and do not have the resources to produce or finance their own research and innovations on assistive technology. Innovations are concentrated on a few

countries, with more than 80 per cent of patents of assistive technology filed in China, Japan and the United States. Bilateral aid dedicated to providing access to assistive technology is small, corresponding to only 0.1 per cent of all bilateral aid dedicated to disability-inclusion. International trade of assistive technology happens mostly from and to developed countries, leaving developing countries mostly outside this trade. In particular, the per capita value of imports of assistive products is five times higher in Europe, Northern America and Oceania than in Asia, Latin America and the Caribbean, and sub-Saharan Africa. Trade barriers persist, with trade tariffs for some assistive products as high as 35 per cent.

The ATscale partnership launched in 2018 aims to meet the assistive technology needs of 500 million persons by 2030. This will cover a substantial part of the numbers of persons with unmet needs for assistive technology, which is expected to be over 1.2 billion by 2030. For the remaining 700 million, current bilateral aid to assistive technology, if kept at the same level as in the past years, will provide 4 cents of a US dollar for each remaining person with an unmet need for assistive technology, a level too low to cover the costs of assistive technology, which can range from a few US dollars to several thousand US dollars depending on the assistive product or service.

To address the remaining unmet needs of assistive technology by 2030, existing national, regional and international initiatives need to be expanded or complemented by other initiatives. In particular, to accelerate and better coordinate efforts to progressively improve access to assistive technology, the following recommendations should be considered:

1. Improve awareness and access to safe, effective and affordable assistive technology. Introduce, expand or advance systems and programmes for the provision of assistive technology. Strengthen regulatory systems, standards and procurement processes to ensure that assistive products are safe, effective and affordable. Enlarge, diversify and improve workforce capacity at all levels for the provision of assistive products, and increase the capacity of government officials to administer, manage and supervise assistive technology programmes. Develop and invest in enabling environments to ensure barrier-free access and use for all, including users of assistive products. Increase awareness about the benefits and availability of assistive technology among policymakers, duty bearers, media and the public at large.

2. Involve users of assistive products and their families as well as representative organizations of persons with disabilities in policy development and programme planning. Ensure that they have access to necessary information and knowledge about assistive products and related services and schemes, in accessible formats.

3. Invest in data and research on unmet needs for assistive technology to guide policymaking. Invest in data by monitoring needs for and access to assistive technology and the capacity of countries to meet those needs. Invest in research on innovation in and an enabling ecosystem for assistive technology to ensure that assistive products and related services meet identified needs. Formulate and

implement evidence-based policies and laws to support the provision of assistive technology on the basis of evidence.

4. Include assistive technology in emergency and humanitarian responses. Train all stakeholders involved in humanitarian assistance on assistive technology and make assistive technology accessible to frontline staff. Ensure that the production, distribution, delivery and provision of assistive products are resilient to disruptions in supply and service chains during pandemics and other crises.

5. Provide technical and financial assistance through international cooperation. Support national efforts, especially in least developed countries, in areas such as research, policies, regulations, fair pricing, market shaping, product development, technology transfer, manufacturing, procurement, supply, service provision and human resources.

6. Encourage local and regional production of assistive products. Support technology transfer and waivers of intellectual property rights, while creating incentives for innovation, research and development in the assistive technology sector.

7. Reduce barriers to international trade of assistive technology to help make this technology available for all persons with disabilities who need it. Promote trade of assistive technology among developing countries. Keep commitments on imports and exports of assistive technology during global health emergencies and other crises.