

Tags: Inclusion, Disability, Infrastructure, Economic, Private sector

**Disability is not a side issue.** The World Health Organisation (WHO) estimates that 15% of the world's population lives with a disability. An estimated 80% of people with disabilities live in developing countries<sup>1</sup> and are reported to be amongst the poorest, most marginalised and socially excluded groups in society.<sup>2</sup> The UN consistently reports that children with disabilities are the most at risk of being left behind in education compared to their non-disabled peers.<sup>3</sup> By adulthood, disability is too often a key determinant of not being able to secure decent employment. In turn, individual challenges can become nationwide issues; the International Labour Organisation (ILO) estimates that developing countries lose up to 7% of their GDP due to the exclusion of people with disabilities from the labour market.<sup>4</sup>

Technology is increasingly becoming a significant enabler to improve the everyday lives of people with disabilities across areas such as education, employment, civic participation, and financial inclusion. However, while technological innovations have significant potential to 'level the playing field' for people with disabilities, if these technologies are not developed in an inclusive way they could lead to an uneven distribution of benefits.

Technology that is accessible and allows for adaptability, customisation and individualisation has the potential to improve the lives of everybody, not least people with disabilities. However, assistive devices are still an important way of improving access to essential services for people with disabilities and improve their quality of life.

**Assistive technologies and devices** - such as hearing aids, wheelchairs, prosthetics, braille devices and glasses - have long been used to maintain or improve functional capabilities and independence for people with disabilities, and thereby promote their well-being. However, only a tenth of people in need have access to these devices globally, particularly in low-income countries where high costs, lack of policy, financing and trained personnel, or erratic and low-quality charity donations mean they are out of reach or not fit for purpose.<sup>5</sup> While the importance of assistive technologies is clear, they do not necessarily guarantee accessibility to services or products which could be designed with everyone in mind in the first place.

**Accessible technologies** are designed inclusively for many different people, regardless of ability or disability. Taking the form of apps, ICT and new technology solutions, these accessible technologies can be customised and individualised. Simple examples include accessibility controls on mobile phones that allow text-to-speech, voice recognition or changes in text size; adjustments which not only help blind or partially sighted people but can be useful for others also. However, while activity on accessible technologies is increasing, its applications and benefits can still be expanded.

Mainstreaming accessible technology depends largely on availability and affordability. Free to use software, such as Google Maps, is now part of the mainstream the world over; Google has piloted an accessible functionality, showing wheelchair accessible routes and doorways in trial cities. Although not available

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<sup>1</sup> Source: [http://www.who.int/disabilities/world\\_report/2011/en/](http://www.who.int/disabilities/world_report/2011/en/)

<sup>2</sup> Source: <http://hpod.org/pdf/Disability-poverty-and-development.pdf>,  
[http://www.who.int/disabilities/world\\_report/2011/en/](http://www.who.int/disabilities/world_report/2011/en/)

<sup>3</sup> Source: <http://unesdoc.unesco.org/images/0023/002322/232205e.pdf>,  
<http://uis.unesco.org/sites/default/files/documents/fs40-education-and-disability-2017-en.pdf>

<sup>4</sup> Source: [http://www.ilo.org/skills/pubs/WCMS\\_149529/lang--en/index.htm](http://www.ilo.org/skills/pubs/WCMS_149529/lang--en/index.htm)

<sup>5</sup> <http://www.who.int/mediacentre/factsheets/assistive-technology/en/>

globally yet, this is an example of a free and easy-to-use application benefitting many, inclusive of those both with and without disabilities.<sup>6</sup>

Using the principles of universal design, organisations can be inclusive from the start when developing products and services. Key to the success of universal design is a deeper understanding of the spectrum of disabilities and the range of accessibility challenges that people can experience as a result. Virtual Reality (VR) is just one way to increase the understanding of the challenges people with disabilities face. In one example, VR has been used to help people understand what it feels like to experience a neurodivergent condition such as dementia.<sup>7</sup> VR has also been used to widen participation of people with disabilities directly, for example through simulating road crossing in order to help some people with autism feel safer about going out.<sup>8</sup>

A holistic approach is needed to fully integrate people with disabilities into society. More work is needed on equitable and accessible services, buildings and transport networks, but the traditional approach of designing these for the general population first and thinking about people with disabilities later is not going to achieve the disability-inclusive development envisioned in the Sustainable Development Goals.

**Definitions:**

**Accessible technology:** A technology that has been designed universally, with the needs of a range of different users in mind.

**Assistive products:** Any external product (including devices, equipment, instruments or software), especially produced or generally available, the primary purpose of which is to maintain or improve an individual's functioning and independence, and thereby promote their well-being.

**Assistive technology:** Assistive technology is an umbrella term covering the systems and services related to the delivery of assistive products and services.

**Universal design:** The design of products and environments with the goal to be usable by all people, to the greatest extent possible, without the need for adaptation or specialised design. Universal design emphasises that access features are built into the design and making of a product or environment to ensure it is accessible to persons with disabilities, and this often, also, benefits others also.

**What is the next step for accessible technology?**

Accessible technology creation needs three key things to succeed:

1. Mainstreaming universal design principles
2. Building a nuanced understanding of different disabilities
3. Reducing barriers to access

To ensure further development and better uptake of accessible technologies, the enabling environment needs to change. This requires updated governance and regulatory systems for such technologies, removing barriers to trade that may affect availability and affordability and promoting universal design in all new product and service designs. Bringing low-cost internet connectivity to the masses, as Avanti ECO is doing in Africa,<sup>9</sup> is also crucial to ensure the accessibility of these technologies.

In the future, both assistive and accessible technology will be essential enablers to improving the lives of people with disabilities. A key determinant of success will be the collaboration of a range of actors (disabled people's organisations, technology developers, private sector, governments, and international bodies) to

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<sup>6</sup> <https://www.blog.google/products/maps/building-map-everyone/>

<sup>7</sup> <http://www.bbc.co.uk/news/av/technology-36433868/alzheimer-s-virtual-reality-app-simulates-dementia>

<sup>8</sup> <https://www.vrs.org.uk/virtual-reality-healthcare/autism-treatment.html>

<sup>9</sup> <http://www.avantiplc.com/eco/>

understand how to develop both accessible and assistive technology to achieve the greatest impact for people with disabilities.

**For further information, case studies and technical guidance on how to 'build in' disability inclusion into infrastructure and cities programming please contact the ICED team or visit the ICED website [www.icedfacility.org](http://www.icedfacility.org)**