Disability, digital information and communications technologies: challenges and opportunities for digital inclusion

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Background

The critical role of digital information and communications technologies (ICTs) in progressing equitable development for people with disabilities in Asia and the Pacific cannot be understated. When digital ICTs are accessible, affordable, and tailored to needs, they provide people with disabilities with vital tools and resources for living independently and participating equitably in social, economic, and political life. Digital ICTs need to be better considered as assistive technologies (AT) as they reduce individual functioning limitations. Innovations and improvements in digital connectivity are constantly evolving, yet barriers to people with disabilities accessing and using digital ICTs remain. This essay presents current challenges and opportunities for expanding the availability, accessibility, and inclusivity of digital ICTs for people with disabilities in the region.

Global commitments reflect the importance of ICTs for ensuring equitable and sustainable development for people with disabilities. Countries are obligated under the United Nations Convention on the Rights of Persons with Disabilities (CRPD) to take action to ensure ICTs are available and accessible for citizens with disabilities at minimum cost (Articles 4 and 9). The role of ICTs in progressing sustainable development for the benefit of all is underscored in Goal 9 of the Sustainable Development Goals (SDGs): 'Significantly increase access to [ICTs] and strive to provide universal and affordable access to the Internet in least developed countries by 2020'. In Asia and the Pacific, regional commitments around equitable access to ICTs for people with disabilities are reflected in the 2012 Incheon Strategy and more recently in the Jakarta Declaration on the Asian and Pacific Decade of People with Disabilities, 2023 to 2032.[2,3]

Expansion of and reliance on digital tools and resources for transmitting, storing, creating, sharing, and exchanging information has increased dramatically since 2015. With dependence on internet-enabled technology accelerating, key human development interventions, such as health care (telehealth), education (remote learning), and social services (online government service platforms) are trending towards online interfaces. While progress toward universal digital coverage is encouraging, bridging 'the digital divide' so people with disabilities are not left behind remains a

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[2] United Nations Economic and Social Commission for Asia and the Pacific. 2012. Incheon Strategy to "Make the Right Real" for Persons with Disabilities in Asia and the Pacific. https://www.unescap.org/sites/default/files/Incheon%20Strategy%20%28English%29.pdf
[3] United Nations Economic and Social Council. 2022. Jakarta Declaration on the Asian and Pacific Decade of Persons with Disabilities, 2023-32. https://www.unescap.org/sites/default/d8files/event-documents/B2200897_L4_E.pdf

significant regional challenge. This was highlighted during the COVID-19 response, with accessibility barriers to online platforms and digital information contributing to limited access to healthcare, education, employment opportunities and income support for people with disabilities in Asia and Pacific countries during the pandemic.[4] Accessible ICTs and digital devices are now recognised as preconditions and priorities for ensuring disability equity by the Pacific Disability Forum and by the United Nations Partnership on the Rights of People with Disabilities.[5,6]

With only modest and patchy focus so far on improving access to and quality of digital ICTs for people with disabilities in many countries there is an opportunity to support the development and implementation of strategies for positive and lasting change in this emerging area. Digital ICTs have transformative potential; however, without consideration of social inclusion and accessibility, they also risk perpetuating the exclusion and marginalisation of people with disabilities.

Challenges and opportunities

Progress in making digital ICTs accessible for people with disabilities has been slow, uneven, and inequitable. This is evident when comparing scores in the Digital Accessibility Rights Evaluation (DARE) Index, which measures country performances across disability inclusion outcomes in ICTs. Southeast Asia and Pacific countries scored on average 36 out of 100, compared with Australia which scored 80.[7] DARE index scores also indicate large variations between countries, with Indonesia (48) and the Philippines (53) scoring higher compared with Papua New Guinea (9.5) and Samoa (26.5).[8] Understanding the underlying challenges and opportunities for overcoming these disparities is important.

Access to affordable internet-enabled devices and broadband coverage is tied with geographic and socioeconomic factors within countries. Significant disparities remain in levels of access between urban and rural or remote areas and between higher and lower income populations. More likely to live in poverty and less likely to move from rural to urban areas for education or employment, people with disabilities typically have fewer opportunities and less capital to access and use digital ICTs. Broader systemic issues impacting on disability inclusion and equality, such as access to general education, employment, social security, mobility and transport, should therefore be considered as underlying barriers to digital inclusion.

Contributing to gaps in digital coverage are challenges in the availability and affordability of digital ICTs in low-resource and remote settings. Improvements in local digital infrastructure, such as for broadband internet and 3G–4G networks, are needed to support use of internet-reliant devices and software in rural and remote areas. Portability and offline capabilities of ICT devices themselves are critical for users living in areas with limited or unreliable internet connectivity. Cost is a significant barrier, with both retail cost and the extent to which people with disabilities are entitled to subsidies or government support to purchase assistive products both impacting on affordability. Country strategies for improving universal digital coverage often fall short of adopting approaches for improving accessibility and affordability of digital ICTs for people with disabilities. Global

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[5] Pacific Disability Forum. 2020. Guide on pre-condition to inclusion of persons with disabilities – COVID-19 response. Pacific Disability Forum COVID-19 Update, Ref no. COVID-19_PDF_09.

[6] United Nations Partnership on the Rights of People with Disabilities. 2020. The preconditions necessary to ensure disability inclusion across policies, services, and other Interventions. http://unprpd.org/sites/default/files/library/2020-08/Annex%202%20UNPRPD%204th%20Funding%20Call%20Preconditions%20to%20disability%20inclusion%20ACC.pdf

[7] Narasimhan N. 2021. 'Digital accessibility in the Asia-Pacific Region', in Accessible Technology and the Developing World. Oxford Academic. https://doi.org/10.1093/oso/9780198846413.003.0006

[8] The Global Initiative for Inclusive ICTs. 2020. Country dashboards. https://g3ict.org/country-profile

commitments around access to ICTs and AT are not synergised with national standards and planning objectives, with many countries lacking legal definitions of accessibility and AT that include ICTs.

Investment to increase coverage of digital ICTs in Asia and the Pacific is crucial. Reliance on market-driven incentives for innovation and scaleup of digital technologies has contributed to limited availability of consumer-friendly products in remote and linguistically diverse areas. This is evident in the development of language-based digital products, such as speech synthesis software and text-to-speech (TTS) systems. On the one hand, progress in speech synthesis product development is promising, with manufacturers incorporating more South and East Asian languages as part of multilingual TTS systems. On the other hand, less widely spoken languages, such as Indigenous and Pacific Island languages, and languages spoken in countries with less consumer purchasing power, such as Tok Pisin in Papua New Guinea, are not being prioritised for speech synthesis software development by global manufacturers. Most countries in the region continue to rely on importing digital technologies from overseas manufacturers. Increasing capacities to develop digital ICTs locally can reduce costs and encourage design of products to suit niche consumer needs.

Developing digital products in local languages has potential for high impact. When communication tools and resources are available in local languages, people from cultural and linguistic minorities rely less on lingua franca for communication and participation. This approach not only ensures greater digital inclusion for people with disabilities, but also protects the rights and traditions of minority ethnic and indigenous groups in line with the UN Declaration on the Rights of Indigenous Peoples.[9] There are signs of progress in this area; digital braille display devices, such as Brail Me, are examples of low-cost digital products becoming more widely available in Asian languages.[10] More investment is required to ensure wider coverage, particularly across Pacific Island communities.

Increasing access to ICT-specific education is another area with high potential impact. According to the World Bank's Digital Development Partnership, improving ICT education creates demand for accessible ICT products and equips end-users with the necessary skills and knowledge to use them.[11] Digital literacy in Asia and Pacific countries is low compared with other regions and is commonly confined to urban areas.[12] People with disabilities are disproportionately excluded from formal education and less likely to obtain vital skills and knowledge in digital communications. Education systems are often underprepared to support learners with disabilities in developing digital ICT skills and knowledge, and related learning criteria and outcome areas are often left out of national education curriculums.[13] Increasing digital literacy can give people with disabilities opportunities to work in the 'tech' industry and contribute directly to the design and quality assurance of digital ICT products, as well as contribute to OPDs' capacity to build skills and advocate on digital inclusion.

Digital ICTs and social media offer critical tools for enabling 'full and effective participation and inclusion in society' for people with disabilities. Harnessing this potential means ensuring digital and online spaces are safe, inclusive, and free from discrimination. Evidence shows people with disabilities, especially younger users, are more susceptible to cyberbullying than people without disabilities.[14] The negative impacts of disability stigma and cyberbullying are often considered as

[9] United Nations. 2007. UN declaration on the rights of indigenous peoples. https://social.desa.un.org/sites/default/files/migrated/19/2018/11/UNDRIP_E_web.pdf
[10] Narasimhan N. 2021. 'Digital accessibility in the Asia-Pacific Region', in Accessible Technology and the Developing World. Oxford Academic. https://doi.org/10.1093/oso/9780198846413.003.0006
[11] World Bank Group. 2022. South Asia's digital opportunity: Accelerating growth, transforming lives, digital development partnership, accessed via: https://openknowledge.worldbank.org/server/api/core/bitstreams/4044c18e-d6ba-50aa-8e3f-efade3ca5ab1/content
[12] Taneja-Johansson S, Singal N. 2021. Pathways to inclusive and equitable quality education for people with disabilities: cross-context conversations and mutual learning. International Journal of Inclusive Education. https://doi.org/10.1080/13603116.2021.1965799
[13] Hoogerwerf E. 2021. Removing barriers to digital inclusion: Engaging stakeholders in rethinking policies and services. UN Commission for Social Development 59th Session Side Event: Overcoming the Digital Divide to Ensure Disability Inclusiveness 11 February 2021 (New York)
[14] United Nations Educational, Scientific and Cultural Organization. 2021. Violence and bulling in educational settings: the experiences of children and young people with disabilities. https://unesdoc.unesco.org/ark:/48223/pf0000378061

separate topics, with research into how people with disabilities experience cyberbullying and how online and offline discrimination impacts on use of ICTs still lacking. While most countries are signatories of the CRPD with dedicated anti-discrimination legislation, laws may not make explicit reference to online conduct. Strategies for addressing disability stigma should address problematic online behaviour and assume that people with disabilities are active users of, and benefit from equitable access to, shared digital spaces.

Looking ahead to 2030

The benefits of ensuring people with disabilities have easy and equitable access to high quality, affordable digital ICTs, regardless of where they live, is a major opportunity for enhancing disability inclusion and sustainable regional development. Achieving this will not be easy. Asia and the Pacific are culturally and linguistically diverse, with large populations living in rural and remote areas and in low resource urban centres. Innovations and improvements in digital technologies are constantly expanding the realm of possibilities for positive and negative impacts on disability inclusion. As reliance on portable, internet-enabled communications devices for everyday life increases, so do the stakes for bridging the digital divide so people with disabilities are not left behind.

The transformative power of artificial intelligence (AI) in shaping future opportunities for disability inclusion is already apparent and an example of things to come. While the same underlying challenges for digital inclusion apply, there are new challenges with AI. Lack of government control and oversight of the AI industry has sparked concern about advanced AI systems posing 'profound risks to society and humanity', including amplifying entrenched discrimination and biases, and further marginalising disadvantaged communities and diverse viewpoints.' [15,16] AI language models, such as Chat-GPT, have shown tendencies to perpetuate negative stereotypes about people with disabilities.[17] Bias in AI systems has the potential to impact negatively on equity, for instance fair employment. The outsourcing of job recruitment processes, such as job applicant screening, to AI firms is already a trend in global AI investment.[18] As with digital ICTs more generally, progress towards accessible and inclusive AI systems can be achieved through design considerations and setting appropriate regulations. Ensuring AI developers have access to accurate disability data and comply with updated inclusion guidance and regulatory frameworks will reduce the risk of bias and exclusion.[19]

Ensuring the widespread availability of digital ICTs that are accessible, affordable, and tailored to the needs of people with disabilities by 2030 must be a priority. This requires a multi-pronged approach. Digital inclusion cannot be seen as separate from disability inclusion more broadly. Addressing the underlying reasons for unequal access to digital ICTs between people with and without disabilities will have a big impact. This means increasing access to education, employment opportunities, and secure incomes. Improving digital literacy and digital coverage, including infrastructure and access to digital devices, is crucial for rural, remote and low resource areas. Improving the design and quality of digital ICT products so they are user-friendly and culturally safe will increase uptake, particularly among minority and linguistically diverse groups. Working with countries to tackle these challenges should be a major priority for the next 7 years.

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[15] Future of Life Institute. 2023. Pause giant AI experiments: An open letter, Mar. 22, 2023.
[16] Future of Life Institute. 2023. Policymaking in the pause: What can policymakers do *now* to combat risks from advanced AI systems? https://futureoflife.org/wp-content/uploads/2023/04/FLI_Policymaking_In_The_Pause.pdf
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