

Are We Leaving Anyone Behind?

**Access & Usage of ICTs and assistive technologies by
Persons With Disabilities in Uganda**

A scoping review conducted by

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Bonnita Nyamwire
Sandra Nabulega
Neema Iyer

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Foreword

The exclusion and marginalization of persons with disabilities from the digital society is a human rights concern and an indication of a country's inability to recognize and promote the rights of persons with disabilities. ICTs and assistive technology can have a significant impact on persons with disabilities by improving communication, access to information and increasing their ability to live independently. To enable persons with disabilities participate in a barrier free society, and achieve equal opportunities and dignified living, there is need to improve the access and usage of ICTs and assistive technology. Successful access and utilization of ICTs and assistive technology is assessed based on the criteria of the information technology accessibility policies and guidelines. Nevertheless, a digital divide may be created where ICTs and assistive technology is not accessible to persons with disabilities. In this extract, we explore how ICT policies and strategies have impacted on access and use of ICTs by persons with disabilities in Uganda and East Africa.

Persons with disabilities are among special minority groups that seem to be excluded from the digital society and its culture despite deep and continued penetration of digital technology (Lang et.al, 2017).



Inclusion of PWDs in the digital society as well as access to ICTs and assistive technology is part of realization and promotion of human rights like freedom of association, freedom of speech, freedom of expression, freedom to associate online, and also fulfillment of other rights like the right to education, health, employment (Hasan et.al, 2013)

To date ICTs and assistive technologies are adapted to abilities of persons with disabilities for them to be able to equally participate in all aspects of life and partake in an inclusive and barrier free information society (UN General Assembly, 2013). Thus inclusive ICT and assistive technology use is imperative to realizing the rights of persons with disabilities, a precondition for achieving

equal opportunities and living in dignity (WHO , 2015). PWDs interact with ICT-enabled tools in different manners and they also face various barriers in access and use. Successful access and utilization of ICTs and assistive technology is assessed based on the criteria of the information technology accessibility policies and guidelines (Hasan et.al, 2013).

The General Disability Situation

Physical disability is defined as any degree of disability, infirmity, malformation or disfigurement of a physical nature caused by bodily injury, illness, birth defect and may result in lack of physical coordination, visual impediment, hearing impediment, speech impediment (WHO, 2011), The ICT policy for persons with disabilities in Uganda adopts UN Convention on Rights of People with Disabilities (UNCRPD, 2006) definition to describe persons with disabilities as people who have long-term physical, mental,

intellectual or sensory impairments which, in interaction with various barriers, may hinder their full and effective participation on an equal basis with others in society. (MoICT, 2017).

About 15% of the world's population is estimated to be living with some form of disability (WHO, 2011), while an estimated 2.2 billion people are living with a visual impairment globally (WHO, 2019) and an estimated 466 million have a disabling hearing loss (WHO, 2018).

In Sub Saharan Africa, there are over eight times higher blind people compared to higher income countries (WHO, 2019) and the same applies to persons with a hearing impairment where WHO estimates show that the majority of these live in low and middle income countries (WHO, 2018).

In Uganda, for the population aged 2 years and above, the disability prevalence rate according to the National population and housing census 2014, was 12.4% while the equivalent for 5 years and above was close to 14%. Further disaggregation showed that disability is higher among women compared to men and also the prevalence is higher among those living in the rural areas compared to those in the urban areas. Acholi region was among those with a high disability prevalence rate (17%) (UBOS, 2014).

The most commonly observed disabilities are loss and limited use of limbs, spine injuries, hearing difficulties, seeing difficulties and mental retardation (CRPD, 2010).

The Uganda Story

Over time the government of Uganda has recognized through its policy and approaches that people are not only disabled by their bodies but as well by other factors that may be brought about by policy changes, capacity building and other technological developments (Emong P & Eron L, 2016). The ICT policy for persons with disabilities defines ICT as communication that includes languages, display of text, Braille, tactile communication, large print, accessible multimedia as well as written, audio, plain-language, human-reader and augmentative and alternative modes, means and formats of communication, including accessible ICTs such as computers, mobile phones, the internet, automated teller machines(ATMs), digital systems like recorders, cameras, lifts among others (MoICT, 2017). On the other hand assistive technology is used as an umbrella term for both assistive products and related services, also known as assistive devices (Leonard Cheshire, 2018). They are used by persons with disabilities in order to execute certain functions that might otherwise be difficult or impossible without these technologies (DO-IT, 2019). Examples of assistive devices and technologies include wheelchairs, prostheses, hearing aids, visual aids, and specialized computer software and hardware that increase mobility, hearing, vision, or communication capacities (WHO, 2020).



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(MoICT, 2017)

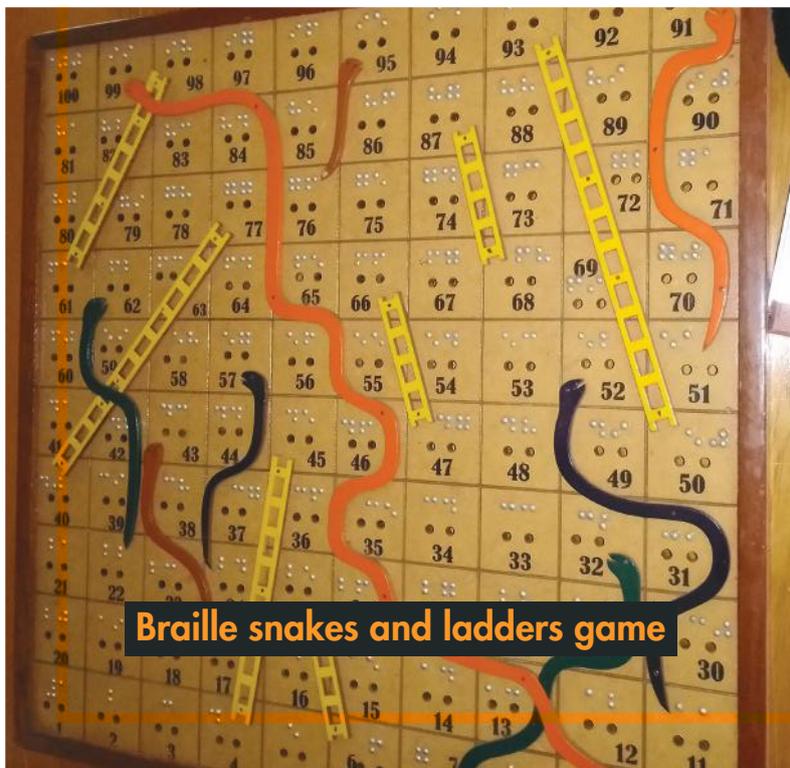
Braille plate & braille training board for mastering braille



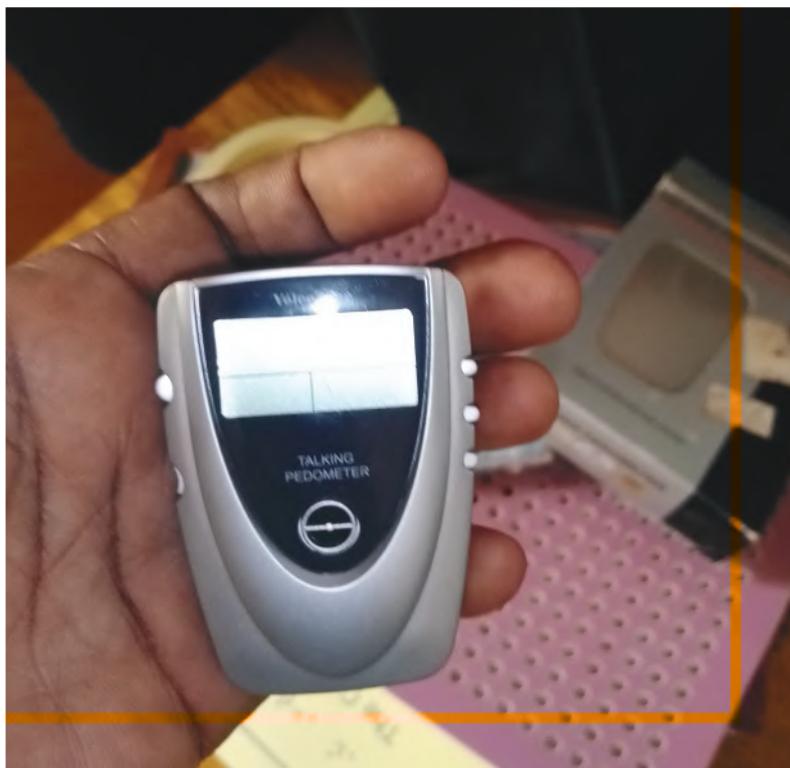
Embosser - Braille printer



Braille Geometry set



Braille snakes and ladders game

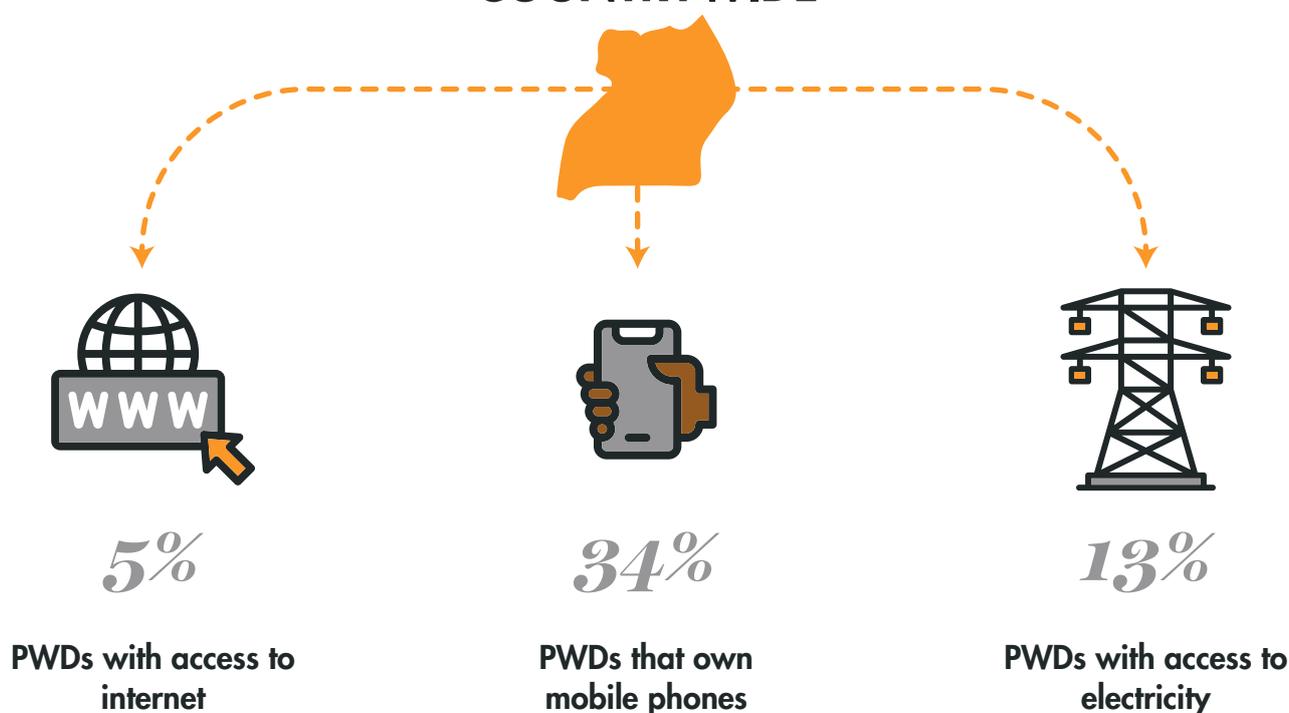


These items or piece of equipment, or product system, may be acquired commercially off the shelf or modified, or customized, and used to increase or maintain, or improve functional capabilities of individuals with disabilities (WHO, 2015).

The Convention on the Rights of Persons with Disabilities (CRPD) requires member states like Uganda to promote full inclusion and active participation of persons with disabilities in all aspects of life, ensure availability and use of new technologies including ICTs and assistive technologies at an affordable cost and provide accessible information on assistive technologies to PWDs (CRPD, 2006).

However according to a UNESCO report, people with disabilities face a myriad of barriers that hinder them from access to education, health services, information, and employment opportunities as a result of failure to access and use ICTs and assistive technologies (Bendix. R, 2013). The majority of ICTs and assistive technologies in Uganda are imported with a handful that are locally manufactured in the country like wheelchairs, crutches, walking sticks, that persons with disabilities can afford to buy on their own (Namaganda R, 2017).

COUNTRYWIDE



Additionally, ICTs and assistive devices are not available everywhere in most parts of the country, and all designs are not appropriate in all settings. Therefore, product research and development is still required (Jjuuko.D, 2019). For instance countrywide,

only 5% of persons with disabilities are able to access internet, and 34% own mobile phones (UBOS, 2019), and only 13% of PWDs country wide can access electricity which is vital for them to use some ICTS (UBOS, 2019).

Stakeholder Understanding, awareness and knowledge of disability issues.

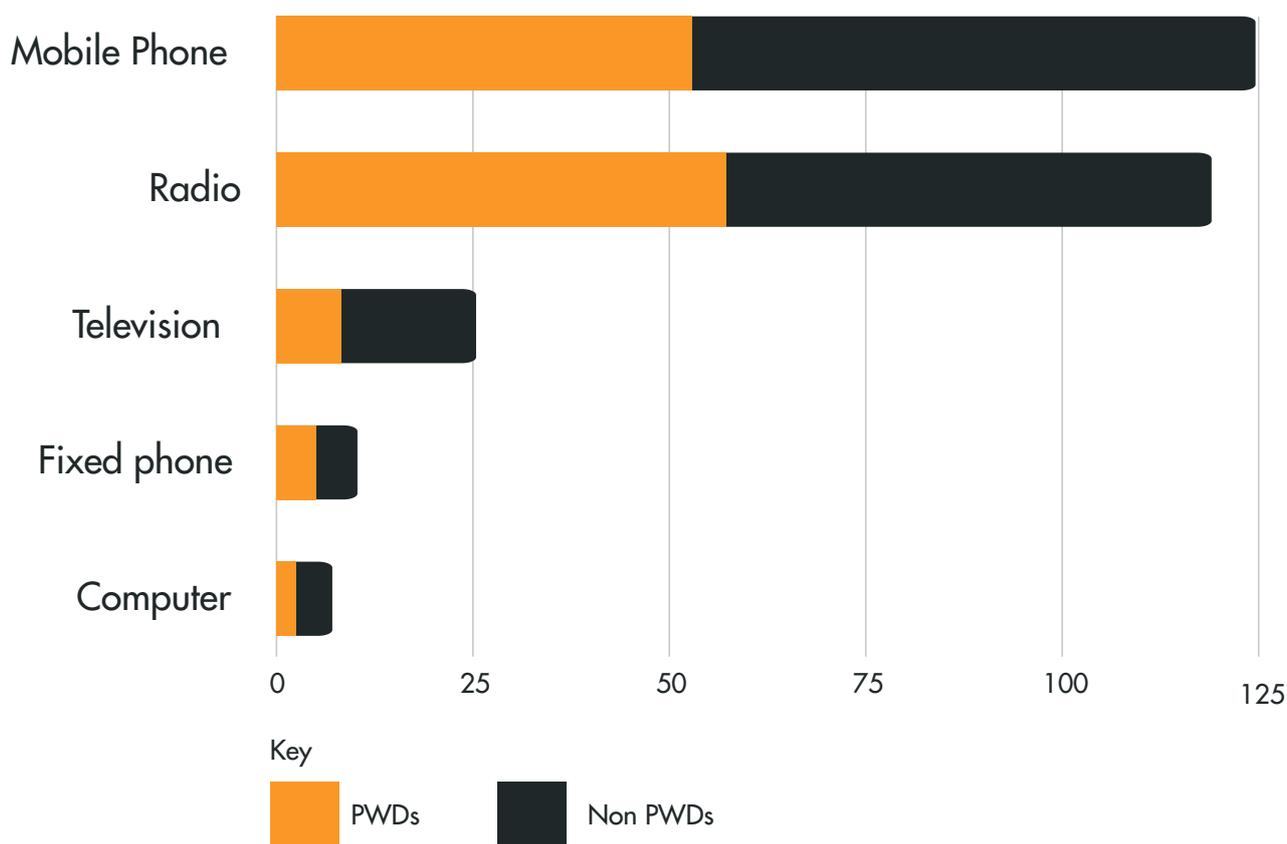
The ICT policy for disability states that there shall be awareness raising and sensitization of government sectors and departments and persons with disabilities on programs, products and services that benefit PWDs (MoICT, 2017). This was partly realized through efforts by UNESCO in collaboration with National Information Technology Authority-Uganda (NITA-U) and Uganda Technology and Management University (UTAMU) where government officers were trained, sensitized and equipped with skills on how to develop and maintain ICTs enabled services and other websites of government ministries, departments and make them accessible to persons with disabilities in Uganda (UNESCO Communication and Information sector, 2016). Additionally the ministry of health passed out 40 health workers who completed a sign language interpretation training so as to extend health services to persons with disabilities (Kamali Geofrey, 2000). Increasing awareness about ICT accessibility and building capacity of all relevant stakeholders is hence a priority to increase the proportion of accessible digital content and acquisition of appropriate accessible solutions by persons with disabilities (Deepti Samant, 2016). Awareness raising activities help the public and the private sectors to understand and know the needs of PWDs (UN General Assembly, 2013).

Despite these and more efforts, there are still gaps in the implementation of ICTs and assistive devices access and use for persons with disabilities. For a wide range of government sectors including educational, health, and legal, persons with disabilities are unable to access services because of lack of devices to enable them to effectively communicate with the service provider. The deaf and hard of hearing for instance find it difficult to access health services and information because of lack assistive devices,

women are unable to receive information to help them make choices of their contraceptive needs as well inability to access HIV counseling from health workers (Victoria Nampala, 2017). Similarly other government sectors face the same challenges. For instance the judicial/legal system kept a deaf prisoner in detention after appearing in court several times but his case was adjourned because of failure to provide simplified text, audio visual formats and sign language services (NTV, 2020).

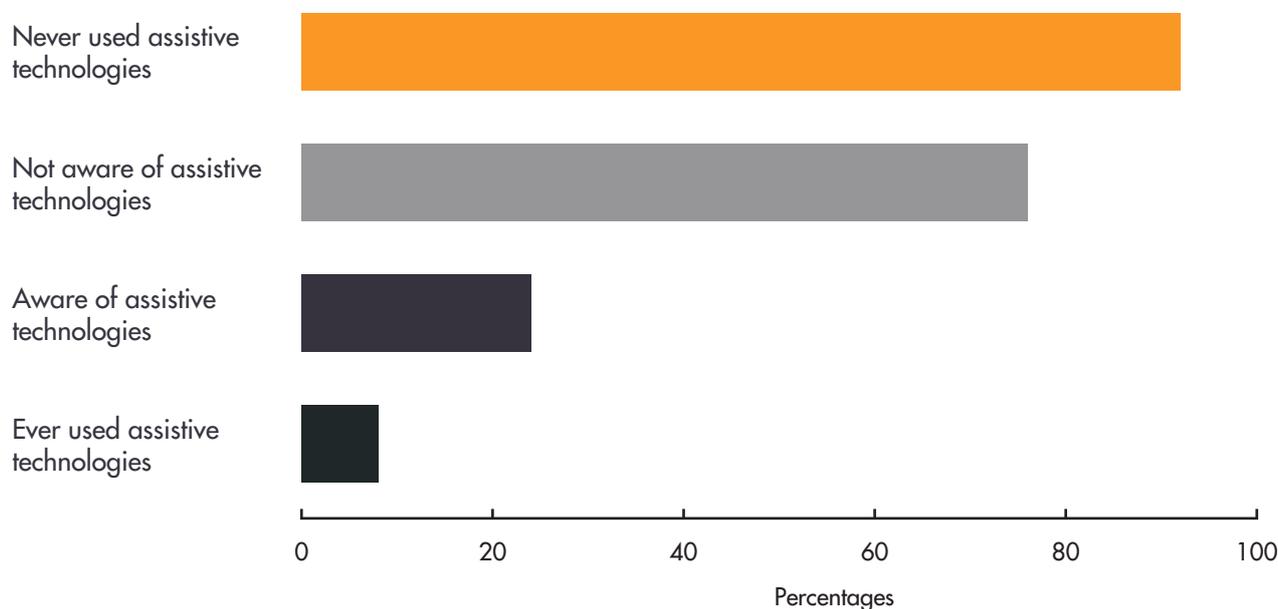
Awareness of availability of ICTs and assistive technology devices by persons with disabilities

It is evident that many persons with disabilities, their families and disability service providers, especially in low class, are not aware of the range of accessible ICTs available and, worse still, they have low levels of skills and knowledge of usage of electronic devices. These affect the degree of access to information, particularly for persons with visual and hearing impairment (CIPESA, 2019). The degree of disconnect in awareness is evidenced by the limited accessibility of products and services available in the market compared to relative need (UN General Assembly, 2013). Ownership of ICT devices is still low among PWDs compared to those without disabilities.



Source: UBOS DISABILITY MONOGRAPH REPORT 2019.

According to a survey conducted by Uganda communications commission(UCC), 95% of PWDs in Uganda have never heard of assistive technologies, most of them have no knowledge about devices like Perkins braille, handheld magnifiers, hand frames, and communication boards (UCC, 2018).



Source: UCC report 2017

“ There is also a lack of awareness on the side of product and service providers. Coupled with this is the lack of accessibility related training for providers of ICT and assistive technology. This further exacerbates the issues of accessibility because service providers do not have a clear perspective of different groups of persons with disabilities. (UN General Assembly, 2013)

Education and digital literacy

ICT education and digital literacy are essential components in access and use of ICTs and assistive technology. The ICT for disability policy states that one of its strategies is to promote ICT as an alternative career for PWDs among other minority groups through the informal and formal educational system, and in schools and other training institutions to have computer terminals accessible to students with disabilities (MoICT,

2017). UNICEF is piloting a project meant to keep learners with hearing and visual impairments in school by providing assistive technology devices to help them improve their learning in 20 schools in Uganda (Jjuuko.D, 2019)

Despite this and similar efforts, there is a widening gap in educational attainment among children and young adults with disabilities compared to attainment levels of older individuals without disabilities; and a greater share of children with disabilities were out-of-school compared to children without disabilities. This suggests that the education gap not only exists but may widen in the future (CIPESA, 2019). For instance there is less support provided to learners who have impairments in terms of mainly personal assistance related support such as sighted guides for the blind, sign language interpreters for the deaf, helpers for those with physical disabilities and funds to purchase disability related devices, such as wheelchairs and Braille material and the mode of providing these supports differs in learning institutions; while in some government institutions especially higher institutions this is provided for, the situation is different in private institutions. (Emong P & Eron L, 2016).

Telecommunications and broadcasting

Telecommunication products have become essential tools across all sectors, and today most people in Uganda use telecommunication products for routine and daily activities. For instance the feature phone is used to communicate through calls and text based SMS, while the smartphone have more features that address more needs of persons with disabilities such as captioned content, video chats applications, screen reading applications, adjustable font size and many other innovative features (UN General Assembly, 2013). Furthermore mobile devices are portable and easy to carry and move around with compared to a laptop computer or TV set. Thus for persons with disabilities the mobile phone increases chances of living independently as well as allowing them to access services instantly and immediately at any time of need and from anywhere in the network (Jenny Casswell, 2019). TV sets and broadcasting

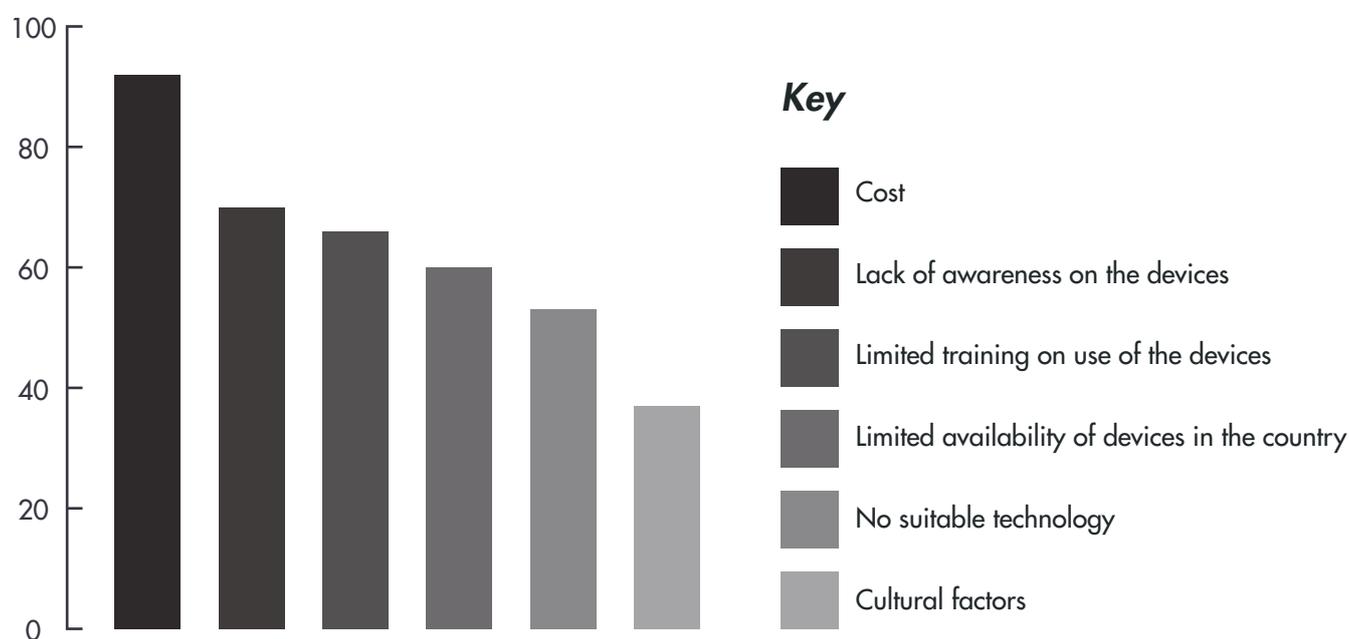
services provide visual audio and text output through closed captioning. The ICT policy for disability states that there shall be improved access to information for persons with various types of disabilities via the broadcasting services by introducing minimum access standards in the following areas among others; radio programming, telecommunications, facilities and services, Internet services, television broadcasting (MoICT, 2017). To date, most of the television stations in Uganda have integrated sign language interpretation with exception for the major news broadcast, but the majority of other programs that are broadcast on television stations do not provide sign language, inset or sub titles in their programs. Information on ICTs and its applications, is communicated (stored, packaged and disseminated) in a way that is not cognizant of the needs of persons with disabilities (Mugimba C, 2008). This in turn affects the PWDs like the deaf and hard of hearing in that they are unable to access information, share their opinions.

Financial vulnerability

The ICT policy for disability states that there should be made available ICT and assistive technologies for persons with disabilities and at affordable prices. The government of Uganda allowed importation of most of these devices for PWDs with a few locally made within the country (Namaganda R, 2017). Most devices are given to PWDs by non-governmental organizations, faith based organizations and other well-wishers together with the few given by the government (CIPESA, 2019) . Some devices are locally made in the country like wheelchairs, but they are expensive considering the poverty levels of most PWDs. A wheel chair fabricated locally in Uganda with all the medical assessments costs about 300USD. A study by UCC showed that most of the PWDs are unemployed and about 38% depend on donor funding, 29% from government while 5% and 4% from benefactors and faith based organizations respectively (UCC, 2018). Thus this shows that poverty significantly affects access and utilization of ICTs. Device and software cost is a huge consideration when it comes to access and use of ICTs.

Efforts to support PWDs to access the much-needed ICT have been derailed by lack of financial resources. Moreover the ICT devices are highly taxed making it impossible for most persons with disabilities to afford them. In an extract from a media report by The Independent, a media paper, it was reported that assistive devices for PWDs are heavily taxed by the Government, which hinders PWDs from accessing them. It was reported that the cochlea implant, which helps people with hearing impairment, costs Shillings 15 million, digital hearing aid costs around Shillings 3, 000,000 from eulogy Centre, which is very costly for most of them (The Independent, 2020). Such taxes negatively impact the ability of persons with disabilities to access information, participate and express themselves online. The cost of assistive technology as well as the cost of training to use all other support services to use the technology is high and is a significant barrier to accessing health services, education and being competitive in the labor market and being able to live independently.

Barriers to ICT use by PWDs



Source: UCC report 2017

ICTs for disabilities among East African countries

Figures from the 2012 Tanzania National Population and Housing Census show that there were 3.6 million persons with disability in Tanzania, representing 8% of the total

population, while in Kenya; about 1.3 million people were living with some form of disability, representing 3.5% of the total population (CIPESA, 2019). On the other hand, an estimated 14% of Uganda's population was considered to have some form of disability, according to the 2014 National Population and Housing Census (UBOS, 2014).

As of 2012;



8%

of Tanzania's population was considered to have some form of disability.

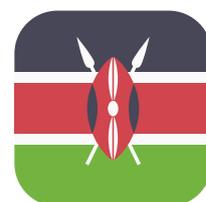
By 2014;



14%

of Uganda's population was considered to have some form of disability.

And by 2019;



3.5%

of Kenya's population was considered to have some form of disability.

Each of the East African countries has ratified policies and strategies that endorse and promote the rights of persons with disabilities, including access to information and ICTs. Regrettably, most of these have not been implemented thus impacting negatively on the lives of persons with disabilities and widening the digital gap between persons with a disability and those without. This has been attributed to the existence of very limited investment in telecommunication infrastructure that supports ICT access for persons with disabilities as well as lack of access to the required assistive technologies (Jenny Casswell, 2019).

However as part of compliance and commitment with the UNCRPD principles for inclusion of PWDs, some persons with disabilities have benefited from interventions brought by these policies and strategies in different sectors like education, employment, financial inclusion in these countries (Shakespeare et.al, 2019). Kenyan Government has shown a strong commitment to disability issues, as evidenced by a range of

policies aiming to address rights and inclusion of persons with disabilities to access information and make use of ICTs, access to quality education, medical services, among others (Muriuki.L, 2015).



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For example Safaricom Kenya introduced a DOT Braille watch, an innovation that is an equivalent of a smart gear that displays SMS notification in Braille thus enabling a visually impaired person to read.

(Safaricom, 2018)

Additionally, Safaricom in 2017 the Interactive Voice Response (IVR) an ICT that would enable the visually impaired and blind customers to be in control of their mobile money transactions. It has further doubled its efforts in creating an enabling environment for the blind and visually impaired where call agents have been identified to respond to queries raised by the blind /visually impaired people. Other programs implemented by Safaricom include enabling visually impaired customers to access smartphones that will enable them to access mobile services and applications through voice recognition software at more affordable price points (Safaricom, 2017). All these innovations have unlocked the value of mobile technology to the visually impaired as well as financial inclusion and a reduction in defrauding visually impaired customers, which was as a result of exposing their money balances on mobile money and their PIN numbers, since they used to rely on other people to carry out their transactions. Further Kenya rolled out a program for entrepreneurs in the assistive technology space to enable them create demand for these products and make them part of assistive technologies (All Africa, 2019).



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In the neighboring Tanzania efforts have not been as forthcoming as in Kenya. In a study carried out in one of the public universities in Tanzania showed that efforts had been put in

place to mainstream the visually impaired students by providing them with assistive technologies to improve their learning capabilities.

However the study findings showed that there existed barriers to access and use of ICTs by visually impaired students such as inadequate ICT facilities, lack of effective ICTs training provision, power cut off, outdated ICT facilities, indicated shortage of technicians for repairing ICT facilities and poor internet connectivity. This in turn has an impact on their ability to learn independently thus lowering their confidence, self-esteem, and failure to acquire the required skills and knowledge (Eligi I & Mwantimwa, 2017)

Previous research has also highlighted gaps in funding, and a lack of robust monitoring and enforcement mechanisms and the failure to decentralize administrative powers which has further complicated the picture, with distinct differences in policy and implementation (Leonard Cheshire, 2018).

Recommendations and Conclusion

A comprehensive approach towards facilitating the widespread adoption and use of accessible ICT requires social, economic, and legal and policy incentives and mandates. A significant cross cutting theme of this review is that ensuring access and use of ICTs and assistive technologies for persons with disabilities depends on a complete implementation of policies and strategies that foster an all-inclusive digital ecosystem.

This review shows that there are significant gaps in the implementation of ICT policies and strategies where some have either not been completed or have been partially implemented. While there are some isolated successes, it is difficult to find a sizable impact of these policies on the access and use of ICTs and assistive devices by persons with disabilities. The policies set several goals that were not fully realized for persons with disabilities. Identifying these gaps provides a basis to understand the disconnect between policy design and its implementation. This highlights the need to understand the causes of this disconnect and come up with strategies to address them.

The implication of these review findings for policymakers is the need for an improved comprehensive assessment that gathers input for policy development from persons with disabilities and representatives of their organisations in order to minimize the gap between policy design and actual implementation. This will help to have a greater bearing on the access and use of ICTs and assistive devices by persons with disabilities.

A strong case, therefore, exists for improving access and use of ICTs and assistive devices for persons with disabilities that especially is aimed at improving universal access to services and opportunities as well as closing the gap in ICT use by these persons.

Finally, there is a need for collaborative and targeted action by all stakeholders to develop a coordinated response to the ICT issues highlighted in this paper.

The objectives of the collaboration may include: raising awareness about disability issues throughout the society, combating stereotypes, facilitating access of people with disabilities to information, products, and services, as well as inclusive digital literacy systems and life-long learning.

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