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CIPESA
Promoting Effective and Inclusive ICT Policy in Africa

Best Practices for Digital Inclusion Of Persons with Disabilities In Kenyan Community Networks

2024 study Report

Imprint

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1.0 Executive Summary

Community networks are a driving force in bridging the digital divide, particularly the realisation of digital inclusion, especially for persons with disabilities (PWDs). Kenya's digital inclusion objectives are reflected in Kenya's Constitution, the National Disability Policy, the National ICT Policy, and Vision 2030, all of which seek the active involvement of PWDs in digital transformation.

Therefore, the emergence of community networks reflect a concerted effort to bridge the digital divide and support PWDs and underserved communities. By actively involving PWDs, Kenya can bridge the disability digital divide and empower PWDs to contribute effectively to developing the digital economy.

The methodology for this study was informed by the Revised Disability and ICT Accessibility Framework Indicators developed by CIPESA. This framework was consequently adapted into a survey to evaluate compliance with accessibility standards in 14 registered community networks in Kenya. This was supplemented by physical site visits to the community networks, followed by training workshops to directly engage technicians, custodians, and beneficiaries of community networks.

The survey results analysis revealed that none of the community networks surveyed achieved more than 50% compliance with accessibility standards across all indicators. Additionally, the analysis identified disparities between digital disability initiatives and non-ICT-related efforts, which contribute to the digital gap experienced by persons with disabilities. The study also found that, while community networks strive to bridge the digital divide, various barriers have hindered the implementation of inclusive practices that ensure persons with disabilities have equal access to the network's benefits.

The following are the main barriers identified by the study:

- Misconceptions about the needs and capabilities of persons with disabilities (PWDs) hinder efforts to include them in digital spaces.
- There is limited understanding of the diverse needs of PWDs, including those with invisible disabilities.
- Assistive technologies often focus on single disabilities, creating barriers for individuals with multiple disabilities, consequently making access to digital resources difficult for them.
- There are limited training opportunities for PWDs to enable them to contribute to community networks. Technical jargon and language differences also complicate training and engagement.
- Financial constraints limit the establishment and maintenance of accessible networks.
- Geographic and infrastructural challenges in rural areas create physical barriers, hindering PWDs' access to community networks.
- Frequent electricity blackouts disrupt operations, affecting PWDs reliant on electrically powered assistive technologies, and thus increase operational costs.
- There is uncertainty about insurance coverage for PWDs working as technical experts in community networks.

- Free and open-source software have limitations, while proprietary alternatives are costly.
- Poor enforcement of accessibility standards and specific regulatory frameworks.

Key recommendations to improve digital accessibility and inclusion of Persons with Disabilities were highlighted to include calls on stakeholders to:

1. Recognize and invest in specialised accessibility features tailored to the unique needs of PWDs.
2. Ensure active inclusion of PWDs in decision-making processes to genuinely address their needs and develop community networks.
3. Introduce the Kenya Sign Language into the education curriculum to bridge the communication barrier with persons with hearing disabilities.
4. Engage in aggressive lobbying for increased funding to develop accessible community networks for PWDs.
5. Increase government incentives, investments and support to organisations that create appropriate assistive devices, tools and programmes.
6. Raise awareness about the importance of accessible community networks for all PWDs.
7. Invest in and develop the necessary digital infrastructure, especially in remote areas.
8. Establish baseline standards for software and hardware development to ensure all PWDs can utilise community networks.
9. Conduct regular ICT gap analyses to identify and address specific challenges hindering PWDs from effectively using community networks.
10. Collaborate closely with government agencies providing internet services to promote accessibility for persons with disabilities.

The study makes the following recommendations to community networks:

- **Adopt Assistive Technologies:** Community networks should adopt open-source or low-cost assistive technologies to improve digital accessibility for a wider range of disabilities.
- **Support Programmes targeting PWDs:** Advocacy groups should emphasise the importance of recognizing the unique needs of persons with disabilities and advocate for investments in specialised accessibility features. This can be achieved by providing training workshops and technical support for implementing assistive technologies in community networks.
- **Involve PWDs in Decision-Making:** It is crucial to involve PWDs in decision-making processes to ensure that community networks are developed from their perspective and meet their needs. Their inclusion should be genuine rather than merely performative for regulatory compliance.
- **Create Accessible Documentation:** Community networks should create infrastructure manuals and user guides in local languages. This will bridge language barriers and make it easier to train PWDs in local communities, enabling their participation in the digital ecosystem.
- **Partner with Disability Rights Groups:** Forming partnerships with disability rights groups can increase the involvement of PWDs in the design, development, and implementation of community network infrastructure. This ensures that their needs and preferences are understood and addressed throughout the project lifecycle.

Furthermore, feedback to government and policymakers includes calls to:

1. **Invest in Innovation Centres:** Establish centres dedicated to designing and developing low-cost or free assistive technologies for PWDs.

2. **Foster Open Dialogue and Collaboration:** Create a safe environment for open dialogue with advocacy groups, PWDs, and digital content developers to develop a supportive legal framework for digital accessibility that considers diverse stakeholder perspectives.

3. **Build Capacity of ICT Resource Centres:** The Ministry of ICT should support the ICT hubs to provide low-cost or free technical assistance on ICT accessibility. This includes offering simplified checklists and templates for organisations to test accessibility and develop internal policies.

4. **Outreach Programs:** Develop educational campaigns to highlight the importance of PWDs' contributions to the digital economy and inform communities about available resources for digital accessibility. Utilise local TV, radio, newspapers, and public outreach to maximise reach.

5. **International Standards on Accessibility:** Intensify their efforts to adopt international standards and best practices on accessibility to make their digital platforms, including e-government services, accessible to persons with disabilities.

6. **Mandate Accessibility Audits:** Enforce regular digital accessibility audits for all government websites and publicly available digital services. Encourage Kenyan digital content creators and platform/website owners to ensure compliance with accessibility standards. Encourage transparency by publishing audit scores, promoting accountability, and motivating local organisations to prioritise accessibility.

7. **Universal Service Fund (USF):** Utilise USF to fund the development of community networks that are easily accessible to persons with disabilities.

Abbreviations & Acronyms

CA	-	Communications Authority of Kenya
CBC	-	Competency-based curriculum
CN	-	Community Networks
CIS	-	Commonwealth of Independent States
CISS	-	Community Initiative Support Services
CRPD	-	Convention on the Rights of Persons with Disabilities
DMS	-	Disability Mainstreaming Strategy
FOSS	-	Free and open-source software
GIV	-	Global Innovation Valley
ICT	-	Information Communication Technology
ICTA	-	ICT Authority
GNI	-	Gross National Income
KEBS	-	Kenya Bureau of Stan dards
KICA	-	Kenya Information and Communication Act
MDA	-	Ministries, departments and agencies
NCPWD	-	National Council for Persons with Disabilities
NDFPWD	-	National Development Fund for Persons with Disabilities
NFDK	-	National Fund for the Disabled of Kenya
OPDS	-	Organisations of persons with disabilities
PWD	-	Persons with disabilities
PWSDCT	-	Cash Transfer for Persons with Severe Disabilities
R&D	-	Research and Development
SDG	-	Sustainable Development Goal
USAC	-	Universal Service Advisory Council
USF	-	Universal Service Fund
WCAG	-	Web Content Accessibility Guidelines

1.0 Introduction

1.1 Background

With 2.6 billion people across the world[1] (of which 860 million are from Africa)[2] still without internet access, it is evident that the standard model of internet provision is not always the most effective. Therefore, alternative models like community networks (CNs) are necessary to bridge the digital divide. Unlike the usual top-down approach led by Internet Service Providers, CNs are community-driven, allowing local stakeholders to actively participate in network design, deployment, operation, and maintenance. This grassroots approach is more inclusive and adaptable to the specific needs of the community.

Community Networks are, by definition, decentralised, community-owned, and community-operated communication infrastructures that provide accessible, dependable, and locally relevant connections.[3] These networks are often established to provide connectivity in areas without internet coverage from mainstream internet service providers. They also present a cheaper alternative to the regular Internet rates where telecommunication companies offer connectivity.

Notably, Information and Communication Technology (ICT) services have become increasingly affordable worldwide across all income groups. In 2023, the affordability of both fixed and mobile broadband services improved globally. The cost of a data-only mobile broadband plan decreased from 1.5% to 1.3% of gross national income (GNI) per capita, while fixed-broadband plans dropped from 3.2% to 2.9% of GNI per capita.[4]

Despite this positive trend, affordability remains a significant barrier to internet access, particularly in low-income economies such as Kenya. The main challenges include high connection and subscription costs, unreliable connectivity (including regular power blackouts), and inadequate internet infrastructure.

Compared to regions with a similar income bracket, Kenyans pay more for internet services while receiving lower speeds and poorer quality. On average, Kenyans spend less than 4 hours online daily, of which around 3 hours and 43 minutes are dedicated to social media platforms.[5] The challenges to access have reduced the internet to an occasional means of entertainment for many Kenyans.[6]

Reliable and affordable broadband internet access is crucial for developing a digital economy and

1. How can we bring 2.6 billion people online to bridge the digital divide?https://www.weforum.org/agenda/2024/01/digital-divide-internet-access-online-fwa/
2. Number of people who do not use the internet in Africa as of January 2024, by region https://www.statista.com/statistics/1314257/offline-population-in-africa-by-region/
3. Report of The National Summit of Community Networks, 2024 https://aheri.org/wp-content/uploads/2024/04/REPORT-National-Summit-of-Community-Networks-in-Kenya-2024-compressed.pdf
4. Measuring Digital Development – Facts and Figures 2023 https://www.itu.int/hub/publication/d-ind-ict_mdd-2023-1/
5. Costly internet: East Africans paying the most for the slowest connection globally https://www.theeastafrican.co.ke/tea/business/costly-internet-east-africans-paying-the-most-for-the-slowest-connection-globally-4543072
6. Ibid

ensuring digital inclusion. Increased broadband availability offers significant socio-economic benefits, such as higher productivity, improved information sharing, and better service delivery across various economic sectors.

However, there is a stark disparity between high-income and lower-income economies. Mobile broadband plans are 5.5 times less affordable in lower-middle-income economies than in high-income countries. In low-income economies, mobile broadband plans can be over 20 times less affordable, with fixed-broadband subscriptions costing around a third of the average monthly income.[7]

Approximately 16% of the global population, or about 1.3 billion people, have disabilities. According to Kenya's 2019 national census, around 0.9 million individuals, or 2.2% of the country's population, have disabilities.[8]

> ***Persons with disabilities in Kenya are less likely to use mobile phones and mobile internet compared to those without disabilities, exacerbating their social exclusion, especially in the highly digital post-pandemic world. For women with disabilities, this issue is compounded by an intersectional gap, as they are even less likely to use mobile internet than men with disabilities.***

In contrast, the gender gap in mobile internet usage among non-disabled men and women in Kenya is minimal, with usage rates of 92% and 91%, respectively.[9]

The digital divide in Kenya is significant. A 2022 report by the Kenya National Bureau of Statistics reveals a stark disparity: Only 11% of persons with disabilities use the internet, compared to 22.9% of the non-disabled population.[10] Further, a report by CIPESA [11] on the barriers to accessing ICTs in Kenya for persons with disabilities listed several challenges, including accessing information, limited access to ICTs and assistive tech, and the lack of appropriate knowledge and skills.

The Communications Authority of Kenya reported that between January and March 2024, there were 51.3 million mobile data subscriptions in the country. Most of these were on 3G, 4G, and 5G networks, which made up 72.6% of all connections. The most popular was 4G, with 27.6 million users, while 5G had a smaller but growing presence, with 653,716 subscriptions. [12] Beyond getting online access, the quality of connection has to be good enough to offer a seamless connection experience. [13]

According to the universal and meaningful connectivity framework, 4G-like speeds are the minimum required to have a meaningful experience on the internet. Kenya's biggest telecommunications company, Safaricom, reported that its 4G network covers 97% of the country.[14] Despite the high level of connectivity penetration, most of the country

7. Measuring Digital Development – Facts and Figures 2023 https://www.itu.int/hub/publication/d-ind-ict_mdd-2023-1/
8. Disability - WHO https://www.who.int/news-room/fact-sheets/detail/disability-and-health#:~:text=Key%20facts,1%20in%206%20of%20us.
9. The mobile Gender Gap Report https://www.gsma.com/r/gender-gap/
10. Kenya 2009 Population and Housing Census Analytical Report on Disability https://www.knbs.or.ke/wp-content/uploads/2023/09/2009-Kenya-population-and-Housing-Census-Analytical-Report-on-Disability.pdf
11. Third Sector Quarter Sector Statistics Report Financial Year 2023/2024 https://www.ca.go.ke/sites/default/files/2024-06/Sector%20Statistics%20Report%20Q3%20FY%202023-24.pdf
12. Achieving universal and meaningful digital connectivity: Setting a baseline and targets for 2030 https://www.itu.int/itu-d/meetings/statistics/wp-content/uploads/sites/8/2022/04/UniversalMeaningfulDigitalConnectivityTargets2030_BackgroundPaper.pdf
13. Our network and infrastructure https://www.safaricom.co.ke/annualreport_2022/our-network-and-infrastructure/#:~:text=Our%204G%20network%20covers%2097,additional%2097%25%20of%20the%20population.
14.Mobile ownership is defined as using a SIM card or a mobile phone that does not require a SIM at least once a month.

still uses 2G feature phones due to the high cost of the newer generation devices required to utilise the 4G network.

Persons with disabilities often face difficult economic choices where they have to prioritise different needs. In Kenya, there's a significant gap in mobile internet usage between non-disabled individuals and those with disabilities, with 85% fewer persons with disabilities using mobile internet. Further, the gap in mobile phone ownership [15] is much smaller, at 11%.[16] Kenya is interlinked with the global network through six submarine fibre-optic cables: **SEACOM, TEAMS, EASSy, LION2, DARE1, and PEACE.**[17]

The majority of internet connections are concentrated in urban areas, highlighting the existing infrastructure inequality that contributes to the digital divide. While efforts have been made to enhance connectivity, many rural areas still lack access due to insufficient last-mile infrastructure.

This includes the absence of digital infrastructure, adequate road networks, and reliable electricity supply, which are imperative for delivering high-capacity bandwidth to these underserved regions. Also, income disparities create avenues where lower income could mean informational inequality. The low-to-free cost of connections provided by community networks can mitigate the cost barrier to internet access. [18]

> ***Community networks in Kenya, which operate in digitally marginalised areas, offer a unique opportunity to address barriers faced by persons with disabilities. However, the potential of these networks to inclusively and effectively support PWDs has not been fully explored.***

Currently, operators of these networks do not meaningfully include and collaborate with PWDs. This study aims to understand and document the digital barriers faced by PWDs within these community networks. Such understanding is necessary to advance efforts to ensure the complete representation and active participation of PWDs in the digital landscape. The empowerment of persons with disabilities is in line with Kenya's constitution, ICT policy, and Digital Economy Blueprint. [19]

1.2 Context of Community Networks

Community networks are becoming more prevalent as alternative internet access models that address digital inclusion challenges by focusing on digital skills, locally relevant content, and applications. Moreover, they provide additional assistance for

15. The digital inclusion of persons with disabilities: Key learnings from our recent disability inclusive research https://www.gsma.com/solutions-and-impact/connectivity-for-good/mobile-for-development/blog/the-digital-inclusion-of-persons-with-disabilities-key-learnings-from-our-recent-disability-inclusive-research/
16. Submarine Cable Networks https://www.submarinenetworks.com/en/stations/africa/kenya#:~:text=There%20are%20now%206%20submarine,TEAMS
17. What is meaningful internet access? Conceptualising a holistic ICT4D policy framework https://a4ai.org/news/what-is-meaningful-internet-access-conceptualising-a-holistic-ict4d-policy-framework/
18.Community Networks, a democratic approach to Internet access. Bottom-Up Citizen Models to Universal and Affordable Access in Kenya https://www.kictanet.or.ke/policy-briefs/#
19. Community-led Connectivity: Assessing the potential of Community Network Models in the context of forced displacement in East Africa https://www.unhcr.org/innovation/wp-content/uploads/2020/05/Community-led-Connectivity-WEB052020.pdf

services that bolster local economies and promote workforce development, all while fostering social connections.[20]

The evolution of community networks has seen a shift from traditional voice telephony over copper cables to Wi-Fi-based networks. The earliest community networks in rural areas of the USA were established as cooperatives to manage their communication infrastructure. In the 1970s and 80s, academic, research groups, and NGO communities also began setting up community networks using public telecom infrastructure.[21] Advancements in technology, such as low-cost Wi-Fi routers operating on licence-exempt radio frequencies (2.4 GHz and 5 GHz) and mesh networking protocols, have led to the emergence of more networks. In Kenya, community networks make use of unlicensed spectrum.[22]

Current regulations in Kenya do not mandate 2.4 GHz and 5 GHz Wi-Fi devices to have a unique national type approval. Still, they must comply with the maximum permitted output powers specified for each band. The primary differences in the wireless frequencies are the range (coverage) and bandwidth (speed) each band offers. Higher frequencies provide better data transmission rates but have lower penetration, while lower frequencies provide wider coverage but slower transmission rates. [23]

In developed countries, Wi-Fi-based community networks are well-established and host thousands of members. Mesh networking protocols make it easier to route signals around tall buildings that characterise cities like New York (NYC Mesh). [24] In other geographical locations, networks can route around hills and other obstacles that block the Wi-Fi signal.

Despite the increased availability of low-cost mobile network equipment, only a few community networks worldwide are taking advantage of low-cost mobile networks. Government authorities regulate access to these radio spectrum bands, usually licensed to commercial operators. This means that community networks cannot simply start using these frequencies without permission. In other words, even if the spectrum is allocated to existing telecom operators, and those operators are not using it in some rural regions, regulatory barriers prevent community networks from utilising this spectrum band. A significant amount of spectrum in Africa still needs to be assigned, creating artificial scarcity. Providing affordable access to this spectrum is crucial for connecting the next billion people. [25]

In Kenya, the Communications Authority of Kenya (CA) [26] is mandated to manage the country's radio frequency spectrum and numbering resources. CA carries out national coordination to ensure the harmonious sharing of frequencies by various users and services. It also performs international and regional frequency coordination to avoid harmful interference of frequency users in different administrations.

20. Licensed Spectrum vs Unlicensed Spectrum vs Lightly Licensed Spectrum https://www.kictanet.or.ke/licensed-spectrum-vs-unlicensed-spectrum-vs-lightly-licensed-spectrum/
21. Licensed Spectrum vs Unlicensed Spectrum vs Lightly Licensed Spectrum https://www.kictanet.or.ke/licensed-spectrum-vs-unlicensed-spectrum-vs-lightly-licensed-spectrum/
22. Community-led Connectivity: Assessing the potential of Community Network Models in the context of forced displacement in East Africa https://www.unhcr.org/innovation/wp-content/uploads/2020/05/Community-led-Connectivity-WEB052020.pdf
23. Licensed Spectrum vs Unlicensed Spectrum vs Lightly Licensed Spectrum https://www.kictanet.or.ke/licensed-spectrum-vs-unlicensed-spectrum-vs-lightly-licensed-spectrum/
24. Community-led Connectivity: Assessing the potential of Community Network Models in the context of forced displacement in East Africa https://www.unhcr.org/innovation/wp-content/uploads/2020/05/Community-led-Connectivity-WEB052020.pdf
25. Challenges of Spectrum Access in Africa https://www.kictanet.or.ke/challenges-of-spectrum-access-in-africa/
26. Communications Authority, www.ca.go.ke

1.1.1. Organisational Structure of Community Networks

There are numerous community networks worldwide, each distinct due to the differences in the environment, technology setup, and the nature of their organisational structures.

> *In Kenya and other African countries, community networks are often based on existing social structures within the community, relying heavily on local associations, traditional authorities, churches, and other community groups to establish and sustain the network. Social cohesion plays a crucial role in maintaining the community's trust and integrating the network into the community.*[27]

These networks typically operate on a decentralised model where local community members are involved in the network's installation, maintenance, and management. This approach empowers the community and ensures that the network is tailored to local needs. The operations often focus on providing basic Internet connectivity, although they can also extend to other services such as telecommunications, training, and support for local economic activities.

1.1.2 Internet Access in Rural vs Urban Areas

In 2023, 81% of urban residents globally were Internet users, compared to 50% in rural areas, with the urban-rural gap barely improving from a ratio of 1.7 in 2020 to 1.6 in 2023. This gap is smallest in high-penetration regions like Europe. It stands at 1.2 in the Americas and Commonwealth of Independent States (CIS) regions, 1.5 in Asia-Pacific, and 1.6 in the Arab States. The disparity remains vast in Africa, with 57% of urban and 23% of rural residents online, reflecting a ratio of 2.5. This underscores the significant digital divide between urban and rural areas, especially in low-income regions.[28]

The digital divide remains in both high and low-income countries, as the level of internet use corresponds directly to the level of the country's development. As of 2023, high-income countries had achieved near universality, with 93% of the population connected to the internet.

The digital divide is narrower in high-income countries, with a ratio of 1.1, but remains deep in low-income countries where only 17% of rural residents use the Internet, and urban dwellers are nearly three times more likely to be online. In contrast, fewer than one-third of the population has internet access in their lower-income counterparts. Although these regions observed increased technology uptake during the COVID-19 crisis, the majority of residents still lack access to the digital world. [29]

In Kenya, a study[31] on access to information for individuals with disabilities revealed that a higher number of people with disabilities reside in rural areas compared to urban areas. Specifically, 0.7 million individuals with disabilities live in rural areas, while 0.2 million reside in urban areas. Consequently, community networks are strategically positioned to serve as the primary point of contact for individuals with disabilities in rural and urban settings, facilitating access to information.

27. Supporting the Creation and Scalability of Affordable Access Solutions: Understanding Community Networks in Africa https://www.internetsociety.org/wp-content/uploads/2017/08/CommunityNetworkingAfrica_report_May2017_1.pdf
28. Measuring Digital Development – Facts and Figures 2023 https://www.itu.int/hub/publication/d-ind-ict_mdd-2023-1/
29. Ibid
30. Scorecard Accessibility of Kenya Government Websites to Persons with Disabilities- https://www.kictanet.or.ke/mdocs-posts/kictanet-accessibility-of-kenya-government-websites-to-persons-with-disabilities-scorecard-2023-2/

1.1.3 Participation of PWDs in Community Networks

Persons with disabilities can participate in community networks in various roles—as end-users utilising the Internet and available devices or as trained technical operators of the telecommunication infrastructure. Furthermore, individuals with disabilities require a supportive social environment to fully benefit from an Internet connection. This includes digital accessibility, digital skills, and relevant content.

> ***Community networks have the potential to promote digital inclusion for underserved populations. They offer affordable internet access in areas neglected by telecommunications companies or where government communication infrastructure deployment is low.***

The availability of low-cost internet reduces barriers to accessing information and knowledge, which is important for PWDs as it provides them with educational, employment, and entertainment opportunities.

Moreover, access to information is a crucial step towards establishing a knowledge-based economy. The earnings generated by community networks can significantly contribute to the community's economic empowerment. When these centres generate profits, the money can remain within the community instead of being sent elsewhere. The impact of the Internet is emphasised in Goal 9 of the SDGs, which aims to substantially increase access to information and communication technology to ensure universal and affordable Internet access in the least developed countries by 2020. [31]

It is worth noting that the installation of telecommunications infrastructure in community centres has positive ripple effects on the surrounding areas. For example, in Ugunja, the installation of internet at the Kijiji Yeetu community network not only benefited the community centre but also provided internet hotspots for five neighbouring schools, the local marketplace, and the chief's camp. It also led to the establishment of Tembea Radio, the community's radio station

31. Department of Economic and Social Affairs, Sustainable Development: Goal 9 https://sdgs.un.org/goals/goal9#targets_and_indicators

2.0 Methodology

This report was developed based on data gathered using primary and secondary data collected through various methods, including qualitative, quantitative, and participatory approaches.

The survey was informed by the second Edition of Disability and ICT Accessibility Framework Indicators: **A Framework for Monitoring the Implementation of ICT Accessibility Laws and Policies in Africa.**[32] The framework was contextualised to the Kenyan community network landscape to assess the level of accessibility to ICT in community networks in Kenya and developed into an online survey.

This survey was administered via an online form emailed to the respondents, primarily drawn from the 14 community networks registered and licensed to operate in Kenya. Out of the community networks in Kenya initially approached for data collection, 10 responses were recorded.

In addition to the survey, the researchers carried out key informant interviews using a purposive sampling method to gather in-depth insights from key stakeholders in community networks. The targeted approach involved speaking with a diverse group of experts, including custodians who oversee the operations of community networks, engineers responsible for the technical infrastructure, and coordinators who manage the day-to-day activities and strategic planning.

The informants were selected because their specific knowledge and experience helped with a comprehensive understanding of the challenges

Image 1: KICTANet Disability officers with members of the Association of Community Networks in Kenya during a site visit to Akala Community Initiative Support Services Center in Siaya County.

32. Disability and ICT Accessibility Framework Indicators: A Framework for Monitoring the Implementation of ICT Accessibility Laws and Policies in Africa https://cipesa.org/wp-content/files/publications/Disability_and_ICT_Accessibility_Framework_Indicators.pdf

and best practices of disability inclusion and accessibility of ICTs in community networks. The research team also conducted field visits to Community Initiative Support Services (CISS) in the Akala Anchor site, Siaya County during the National Summit of Community Networks.

For two days, the team conducted field data collection, which included site visits, presentations, focus group sessions with Community Network operators, policymakers, regulators, donors, and other stakeholders, as well as interviews.

One of the site visits involved the launch of a Wi-Fi Hotspot at Akala Market and a tour of the physical infrastructure supporting the community network in the area. Additionally, the Kijiji Yeetu Ugunja Community Network was launched. The report and the fieldwork naotes from this summit were included in the publications for the desk literature review.

Furthermore, an interview was administered via phone calls to community network custodians in Kenya. This survey aimed to emphasise the efforts made toward digital inclusion for PWDs, identify the challenges they face, and highlight successful initiatives they have implemented to overcome these barriers. It also served to underline how community networks collaborate with stakeholders, including PWDs, to ensure that digital inclusion strategies are effective and aligned with the community's needs.

In addition, the team analysed data from third-party sources and publicly available surveys, which were reviewed for reliability. These sources provided exhaustive information on disability, the digital divide, the adoption rates of fixed and mobile internet, the prevalence of mobile networks, and patterns of mobile ownership. This data was instrumental in providing a broad understanding of the technological landscape and access disparities.

The desk literature review examined a wide range of literature, including official documents like the Constitution of Kenya, 2010, various laws, policies, reports, reputable blogs, and media articles. It aimed to contextualise our findings within the broader socio-economic and policy framework, highlighting relevant legal, regulatory, and societal factors influencing digital inclusion.

Image 2: CISS Community Centre staff members and community network leaders during the Association of Community Networks in Kenya Summit 2024 in Akala, Siaya County.

Image 3: Participants undergoing training on Inclusion of PWDs in Community Networks

Finally, the team hosted a webinar and an in-person training workshop for community networks outside and within Nairobi county to build capacity on the best practices for accessibility and inclusion for persons with disabilities.

The workshop produced presentations, a group work session, feedback surveys, and recommendations, which were reviewed and formed part of the study findings.

3.0 Policies and Programmes on Digital Inclusion

3.1 Policy and Legislative Environment for Digital Inclusion

3.1.1 Constitution

Kenya's Constitution[33] provides for the rights and fundamental freedoms in its Bill of Rights. It calls for the preservation of the dignity of all individuals and communities, the promotion of social justice, and the realisation of the potential of all human beings.

Furthermore, the state is mandated to take legislative, policy, and other measures, including setting standards, to achieve the progressive realisation of the rights guaranteed under Article 43.[34]

Article 54[35] states that individuals with disabilities have the right to reasonable access to all locations, public transportation, and information, as well as the use of sign language, Braille, or other suitable forms of communication. It also guarantees reasonable access to materials and devices to overcome any limitations caused by their disability.

These provisions are designed to ensure that persons with disabilities can fully enjoy their fundamental human rights and related freedoms, including access to digital platforms for active participation in social and economic activities.[36]

3.1.2 Kenya Information and Communications Act

The Information and Communications Act 2013[37] (KICA), establishes the Communications Authority (CA), outlining its mandate and board structure. However, in contrast with Tanzania and Uganda, it does not outrightly call for the inclusion of a representative of persons with disabilities in the commission.

Sections 23 and 24 on the Provision of Telecommunications Services and the Requirement of Licence do not explicitly require licensees to ensure the accessibility of their services as a requirement for licensure.

In addition, the CA manages the Universal Service Fund (USF) to support widespread access to ICT services and promote capacity building and innovation in ICT services in the country. The fund aims to guarantee the availability and accessibility of ICTs in rural, remote, and economically disadvantaged urban areas.

However, the USF conditions for the grant of a loan only call for accessibility in the form of reachability and availability as a requirement

33. KLRC. (n.d.). Chapter Four - The Bill of Rights. Kenya Law Reform Commission. Retrieved July 24, 2024, from https://www.klrc.go.ke/index.php/constitution-of-kenya/110-chapter-four-the-bill-of-rights
34. KLRC. (n.d.). 20. Application of Bill of Rights. Kenya Law Reform Commission. Retrieved July 22, 2024, from https://www.klrc.go.ke/index.php/constitution-of-kenya/111-chapter-four-the-bill-of-rights/part-1-general-provisions-relating-to-the-bill-of-rights/186-20-application-of-bill-of-rights
35. KLRC. (n.d.). 54. Persons with disabilities. Kenya Law Reform Commission. Retrieved June 11, 2024, from https://www.klrc.go.ke/index.php/constitution-of-kenya/113-chapter-four-the-bill-of-rights/part-3-specific-application-of-rights/220-54-persons-with-disabilities
36. KDR. (2017). Disability Overview. Kenya Disability Resource. Retrieved July 24, 2024, from http://www.kenyadisabilityresource.org/Disability-Overview
37. Kenya Law. (2013, December 18). KENYA GAZETTE SUPPLEMENT. KENYA GAZETTE SUPPLEMENT. Retrieved July 29, 2024, from http://kenyalaw.org/kl/fileadmin/pdfdownloads/AmendmentActs/2013/KenyaInformationandCommunications_Amendment_Act2013.pdf

but fail to address usability, which could foresee disability inclusion.

Also, Part VIC of the Act on fair competition and equal treatment fails to protect the interests of organisations that provide accessibility of their products to PWDs against unfair competition from other institutions. This could create an unequal space for compliant organisations and those that are non-compliant.

3.1.3 Disability Act

According to section 2 of the Disability Act of 2003 [38], disability is a "physical, sensory, memory, or other impairment including any visual, hearing, learning, or physical incapacity that impacts adversely on social, economic, or environmental participation." This definition, adopted from the United Nations Convention on the Rights of Persons with Disabilities (CRPD)[39], points to the effects of barriers hindering the full and active participation of persons with impairments.

> *According to section 2 of the Disability Act of 2003, disability is a "physical, sensory, memory, or other impairment including any visual, hearing, learning, or physical incapacity that impacts adversely on social, economic, or environmental participation."*

Further, the Kenya Disability Resource defines disability as "any condition of the body or mind (impairment) that makes it more difficult for the person with the condition to do certain activities (activity limitation) and interact with the world around them (participation restrictions)".

> *Kenya Disability Resource defines disability as "any condition of the body or mind (impairment) that makes it more difficult for the person with the condition to do certain activities (activity limitation) and interact with the world around them (participation restrictions)". [40]*

This law was enacted to ensure their rights and rehabilitation, promote equal opportunities, establish the National Council for Persons with Disabilities, and achieve related objectives.

However, the law does not appear to address technological advancements and the emergence of new technologies including artificial intelligence and virtual reality platforms, there are increased challenges for PWDs in accessing digital services and products.

Such rapid changes in technology may present unexpected challenges for persons with disabilities (PWDs), and in some cases, it may lead to discrimination and marginalisation if left unaddressed. Therefore, it is crucial to continuously review and enhance legal frameworks to accommodate new developments and ensure inclusivity.

38. Disability Rights Education & Defense Fund. (n.d.). Kenya – Persons with Disabilities Act 2003. DREDF. Retrieved July 24, 2024, from https://dredf.org/legal-advocacy/international-disability-rights/international-laws/kenya-persons-with-disabilities-act/
39. UN Convention on the Rights of Persons with Disabilities. (2006, December 6). UNCRPD. the United Nations. Retrieved July 22, 2024, from https://www.un.org/disabilities/documents/convention/convention_accessible_pdf.pdf
40. Kenya Disability Resource. (2017). Disability Overview. Kenya Disability Resource. Retrieved July 25, 2024, from http://www.kenyadisabilityresource.org/Disability-Overview#

In addition, the provisions in Part VII have a narrow scope and do not adequately address the current digital accessibility and accommodations requirements for PWDs. This includes accessibility standards for websites and other digital platforms in the public domain[41]. It is noteworthy that television, telephony, and postal services have undergone tremendous technological changes. Some like telephony and postal services have merged into single platforms, necessitating updated legal provisions for persons with disabilities.

Notably, the effective implementation of the Act, particularly focusing on Sections 35 and 36 on exemptions and incentives respectively, could lead to reduced costs for technological devices that also serve as assistive technologies. This has the potential to level the playing field for local access and utilisation of digital products and services by PWDs.

3.1.4 Kenya Vision 2030

Kenya Vision 2030[42] serves as the nation's long-term development roadmap, driven by the shared goal of achieving a more prosperous society by 2030. The vision aims to position Kenya as a globally competitive country with enhanced prosperity and an improved standard of living. It seeks to elevate Kenya to a newly industrialised, middle-income nation, ensuring a high quality of life for all citizens within a clean and secure environment.

Among the Vision's four pillars, namely economic, social, political, enablers, and macro pillars, particular emphasis is placed on the social pillar, which aims to foster fair, cohesive, and equitable social development within a clean and secure environment.

The enablers and macro pillars also consolidate the other pillars into macroeconomic stability, infrastructural development, Science, Technology and Innovation, Land Reforms, Human Resources Development, Security, and Public Sector Reforms.

In implementing the vision plan, particularly within sector-specific flagship initiatives, it is crucial to recognize that disability cuts across various areas and requires deliberate efforts to ensure that all four pillars of the vision are inclusive and address the respective gaps.

For instance, the rapid advancement of emerging technologies underscores the importance of avoiding any form of exclusion of persons with disabilities, as this could lead to their exponential marginalisation and hinder the overall goal of inclusion. Similarly, failing to incorporate grassroots-level institutions such as community networks would exacerbate inequality in access to ICTs and digital services.

3.1.5 The National ICT Policy, 2019

The National ICT Policy 2019[43] outlines the government's mandate in the ICT space and its position on evolving and emerging technologies. It also identifies several challenges to be overcome in achieving the goals of the policy in the short term.

The key challenges include:

1. Unequal investment and access to ICTs for unserved persons and in underserved areas within Kenya;

2. Underutilisation of ICTs in the provision of government services,

41. KICTANet. (2023, June 15). Accessibility of Kenya Government Websites to Persons with Disabilities- ScoreCard 2023. KICTANet. Retrieved July 25, 2024, from https://www.kictanet.or.ke/mdocs-posts/kictanet-accessibility-of-kenya-government-websites-to-persons-with-disabilities-score-card-2023-2/
42. Kenya Vision 2030. (n.d.). Kenya Vision 2030. Retrieved July 25, 2024, from https://vision2030.go.ke/
43. National Information, Communications and Technology (ICT) Policy. (n.d.). Ministry of Information, Communications and The Digital Economy. Retrieved July 30, 2024, from https://www.ict.go.ke/wp-content/uploads/2019/12/NATIONAL-ICT-POLICY-2019.pdf

3. underdevelopment of opportunities for economic growth and job creation.

The above inequalities are likely to widen the digital divide when they intersect with disability, among other factors.

Notably, key areas within this policy still need attention and effective implementation if the digital inclusion of persons with disability is to be realised.

- **Part 6.1.3 on Universal Access mandates the state to ensure that** "The Universal Service Fund is prudently managed to drive universal access and that service is provided in areas service providers do not consider economically viable."

- **Part 6.1.4 on Accessibility outlines specific measures to ensure ICT accessibility for persons with disabilities,** but it fails to address the issues that directly impact accessibility as a key step towards inclusion.

- **Under the proposed measures, the policy calls for promoting Research and Development for ICT Access for Persons with Disabilities.** This is to ensure evidence-based initiatives and legal frameworks that address the root causes of digital inaccessibility.

- **In Part 6.2.4 on Rules, the policy stipulates measures on consumer protection.** For example, the policy intends to protect all citizens from unfair and deceptive business practices, educate consumers about their rights, duties, and responsibilities, ensure equitable nationwide access to goods and services of general utility, and develop appropriate incentives and support for nationwide access.

The policy does not effectively outline the channels for resolving complaints or the bodies responsible for handling the complaints. This could result in increased and continuous violation of accessibility demands for persons with disabilities under consumer protection.

3.1.6 Digital Economy Blueprint

The Kenyan Digital Economy Blueprint[44] underscores the importance of affordable, accessible, resilient, and reliable infrastructure as a critical enabler of the digital economy. It also notes that cybersecurity threats affect PWDs as well.

Further, the blueprint highlights the importance of accessibility and utility but lacks specific indicators for PWDs. This gap is also evident in the convenience and ease of use indicators. Moreover, it recognises the need to address legislative gaps concerning the accessibility of digital platforms and products for PWDs.

However, it only refers to visual and hearing impairments as the disabilities requiring accommodations. This could point to a gap in the definition of disability and a misunderstanding of the concept of digital accessibility.

3.1.7 The Kenya National Digital Master Plan 2022-2032

The Kenya National Digital Master Plan 2022-2032[45] adopts a conceptual model highlighting the critical elements necessary for a pervasive

44. DIGITAL ECONOMY BLUEPRINT (2019). Ministry of ICT. Retrieved July 29, 2024, from https://www.ict.go.ke/wp-content/uploads/2019/05/Kenya-Digital-Economy-2019.pdf
45. The Kenya National Digital Master Plan 2022-2032. (n.d.). ICT Authority. Retrieved July 30, 2024, from https://cms.icta.go.ke/sites/default/files/2022-04/Kenya%20Digital%20Masterplan%202022-2032%20Online%20Version.pdf

and ubiquitous ICT infrastructure to drive social, economic, and political growth. It also acknowledges digital inaccessibility, digital illiteracy, non-inclusive infrastructure, and employment barriers as some of the key issues facing persons with disabilities. The Plan recognises the need to incorporate marginalised groups, including persons with disabilities, ensuring that the benefits of ICT are accessible to all segments of society.

This inclusive approach aims to bridge the digital divide and foster equitable growth across Kenya. On stakeholder engagement, the plan entrusts associations of PWDs with accurate information on PWDs and articulates their needs for inclusion.

3.1.8 ICT Security Policy Controls (2014)

ICT Security Policy Controls (2014)[46] has led to a significant investment in ICT resources by the Ministry, which is crucial for achieving its business objectives and ensuring efficient operations. This policy outlines guidelines, rules, and regulations for protecting the Ministry's information, data, systems, and use of ICT services. Its implementation aims to promote the availability, integrity, and confidentiality of the Ministry's ICT systems.

The policy's objectives are to raise awareness about necessary security measures to safeguard the Ministry's operations, outline responsibilities for protecting ICT systems, preserve the integrity and privacy of the Ministry's information, and safeguard its reputation. The policy also aims to protect Ministry data and information from unauthorised access and use and minimise risks associated with malicious hacking.

However, the policy lacks a balance between accessibility and security. It focuses more on cybersecurity measures without enough consideration for how this may impact the usability of ICT systems, products, and services, especially for individuals with disabilities.

3.1.9 National Pre-Primary Education Policy (2018)

The Kenyan education system has seen various changes, the most recent being the roll-out of the competency-based curriculum (CBC) to replace the old 8-4-4 system. The new system focuses more on skills and competencies rather than rote learning. There are also adjustments to reduce the number of learning areas and lessons to ease the burden on learners.[47]

According to the Ministry of Education, enrolment in primary education has increased, with near-universal access. Secondary education has also increased significantly. A focus has been put on inclusive education, particularly for marginalised groups and children with disabilities.[48] More emphasis is placed on integrating ICT in education to enhance learning outcomes and bridge the digital divide.

Despite these progresses, challenges remain in ensuring quality education, particularly in rural and underserved areas and among marginalised groups including persons with disabilities. A look into the local education policies, from the digital and disability perspectives, reveals a need for more accessible and inclusive systems.

The Pre-primary Education Policy Standard Guidelines,[49] which are aligned with the National

46. Ministry of Education. (2014). ICT Security Policy Controls. Ministry of Education. Retrieved August 5, 2024, from https://www.education.go.ke/sites/default/files/2022-05/ict-security-policy-system-controls-and-security-policies.pdf
47. Education News Hub. (2024): Number of Subjects and Lessons - Educationnewshub.co.ke Retrieved August 5, 2024, from https://educationnews-hub.co.ke/new-cbc-changes-from-2024-onwards-number-of-subjects-and-lessons/
48. International Journal of Research and Scientific Innovation (IJRSI). (n.d.). Kenya: Investing in education for a better future | Stories of change. Global Partnership for Education. Retrieved August 5, 2024, from https://www.globalpartnership.org/results/stories-of-change/kenya-investing-education-better-future
49. Ministry of Education. (2022, May 19). NATIONAL PRE-PRIMARY EDUCATION POLICY STANDARD GUIDELINES. Retrieved August 5, 2024, from https://www.education.go.ke/node/215

Policy Framework for Reforming Education and Training in Kenya, serve to ensure quality services in pre-primary institutions. They cover establishment, registration, management, curriculum, learning materials, facilities, health, teacher quality, inclusivity, and safety.

The framework notes the importance of inclusive education, ensuring that children with disabilities have access to quality pre-primary education alongside their peers. For example, the policy provisions include the development and distribution of disability screening tools, early identification, assessment and interventions of children with special needs and disabilities, and training of personnel working with children with special needs, among other interventions.

Amid the robustness of the policy in identifying and addressing the needs of learners with disabilities, a significant gap lies in the adoption and use of digital technologies in the form of assistive technologies, particularly among learners with disabilities.

3.1.10 Policy on Information and Communication Technology in Education and Training (2021)

The Information and Communication Technology (ICT) in Education and Training[50] policy acknowledges the essential role of ICT in providing quality education to support Kenya's Vision 2030 and in cultivating a globally competitive workforce. It provides directives for government investment in accessible, pertinent, and fair education.

The policy emphasises the need for accessible ICT infrastructure and resources for learners with disabilities, including the use of assistive technologies. It calls for integrating ICT into the curriculum to support inclusive education and specialised training for teachers to use ICT effectively in teaching learners with disabilities. Further, the policy provides for support services such as digital learning materials tailored to the needs of learners with disabilities.

However, the current policy inadequately tackles the expenses associated with acquiring assistive devices and technologies for implementing learning strategies. This is especially problematic for learners in marginalised areas and those with disabilities, as they may already have additional costs, such as purchasing mobility aids and hiring caregivers. Failing to address this issue effectively could result in higher levels of digital illiteracy within communities and lower enrolment rates in educational institutions for persons with disabilities.

3.1.11 Sector Policy and Implementation Guidelines for Learners and Trainees with Disabilities (2018)

The 2018 Sector Policy and Implementation Guidelines for Learners and Trainees with Disabilities [51] have been developed to advance the provision of education and training for individuals with disabilities. The policy recognises inclusive education and aligns with the person-first language principle, recognizing the importance of the individual over their disability.

It prioritises coverage for individuals with various disabilities, including hearing impairments, visual impairments, deafness, blindness, physical impairments, intellectual disabilities, specific learning disabilities, cerebral palsy, speech and language difficulties, multiple disabilities, autism, and albinism.

50. Implementation Guidelines. (n.d.). Ministry of Education. Retrieved August 5, 2024, from https://www.education.go.ke/sites/default/files/2022-05/Implementation-guidelines-sector-policy-for-learners-and-trainees-with-disabilities.pdf
51. KIPPRA. (n.d.). Sector Policy for Learners and Trainees with Disabilities 2018. Retrieved August 7, 2024, from https://repository.kippra.or.ke/handle/123456789/555

3.2 National Programmes on Digital Inclusion

3.2.1 Disability Supporting Initiatives

According to the NCPWD Disability Mainstreaming Status Report for the Financial Year 2021/2022,[52] disability inclusion in Kenya has not significantly progressed. It is indicated, for example, that certain organisations had not put in place plans to fulfil the legal obligation of hiring a minimum of 5% of individuals with disabilities.

Similarly, it showed that fewer than 1% of the more than 400 institutions assessed had achieved this goal. Furthermore, it was observed that in numerous organisations, people with disabilities tend to hold lower and mid-level positions, and it is the same trend in most public institutions, including ministries, departments, and agencies (MDAs).

The Government of Kenya, working with Ministries, Departments, and Agencies (MDAs), makes budgetary allocations for disability-supporting initiatives every financial year.

These include:

- The National Development Fund for Persons with Disabilities (NDFPWD).
- National Fund for the Disabled of Kenya (NFDK), Cash Transfer for Persons with Severe Disabilities (PWSD-CT) scheme.
- Vocational rehabilitation and social development services.

The funding, to some extent, has allowed persons with disabilities to participate in society to the best of their abilities.[53]

The NDFPWD report for the financial year 2019-2020[54] showed 3,544 PWDs as beneficiaries. Also, all the funding went into just three categories of disabilities: physical, visual, and hearing disabilities. This left out other forms of disabilities, like cognitive impairments. A similar trend in funding is observed in the type of assistance and devices issued in NFDK and PWSD-CT, with no indication of digital accessibility assistive technology.

Also, one aspect is dragging behind the very efforts of inclusivity, low digital inclusion. Several reports, including the 2021 Status Report on Disability Inclusion in Kenya,[55] have portrayed progress in ensuring that the voices of persons with disabilities are heard on all platforms. Still, they have fallen short of addressing digital inclusion.

The NCPWD's disability mainstreaming status reports highlight the inclusion efforts that have been achieved so far about the outlined indicators in the Disability Inclusion Performance Indicators. Some of the key indicators include the appointment of a Disability Mainstreaming Champion; Sensitisation and Training on Disability Mainstreaming; Registration with the NCPWD Career Portal; Compliance with the 5% Employment of Persons with Disabilities Requirement; Increase Equal and Easy Access to Products and, Services/Programmes.

However, it is observable that the Disability Inclusion Performance Indicators are skewed towards social and economic incentives with little effort towards promoting digital inclusion.

52. NCPWD. (2023). Disability Mainstreaming Status Report for FY 2021/2022, (2023), 4. https://ncpwd.go.ke/download/disability-mainstreaming-status-report-for-fy-2021-2022/
53. NCPWD. (n.d.). NDFPWD Funding Summary – NCPWD. National Council for Persons with Disabilities. Retrieved July 25, 2024, from https://ncpwd.go.ke/ndfpwd-funding-summary/
54NCPWD. (2021, April 21). Assistive Devices Beneficiaries FY 2019-2020. https://ncpwd.go.ke/download/asstive-devices-beneficiaries-fy-2019-2020-compressed-1-pdf/#.
55. 2021 Status Report on Disability Inclusion in Kenya. (2021, February 25). State Department for Social Protection. Retrieved July 25, 2024, from https://www.socialprotection.go.ke/sites/default/files/Downloads/STATUS-REPORT-ON-DISABILITY-INCLUSION-IN-KENYA-2021.pdf

3.2.2 The Universal Service Fund

The Universal Service Fund (USF)[57] aims to extend access to ICT services in underserved and marginalised areas, ensuring that all Kenyans, regardless of location or socio-economic status, have access to communication services.

The Communications Authority of Kenya (CA) governs the USF in Kenya, with oversight from the Universal Service Advisory Council (USAC). The USAC, whose members are appointed by the ICT Minister based on their expertise in broadcasting, telecommunications, postal systems, information technology, or finance, plays a crucial role in advising the CA and providing strategic policy guidance for the administration and implementation of the USF.

The CA Board is responsible for the overall management and administration of the Fund, including approving annual operating plans, project proposals, and performance targets. A dedicated department within the CA manages the Fund's day-to-day operations, ensuring efficient communication between the USAC, the Board, and management through the Director-General. The USF collects approximately KES 1.2 billion annually from licensed operators, which must be disbursed efficiently to support sustainable and impactful projects.

The USF 2022-2026 strategic plan[58] outlines the expenditure allocation as follows:

- **Voice and Data Projects (KES 6.191 billion)**: This includes subsidising broadband coverage, establishing community networks, and conducting technology adoption studies.
- **Broadcasting (KES 1.373 billion):** This involves expanding digital terrestrial television and radio broadcasting services in underserved areas.
- **Postal & Courier (KES 5.1 billion):** This encompasses establishing Citizen Service Centres and innovating last-mile delivery solutions.
- **E-Government (KES 7.1 billion):** This aims to enhance connectivity for health centres, schools, and government services in underserved areas.
- **E-Inclusivity (KES 190 million):** This involves providing ICT access for persons with disabilities and other vulnerable groups.
- **Digital Skills and Content (KES 487 million):** This focuses on developing local content and capacity-building programs.
- **Institutional Capacity (KES 607 million):** This includes strengthening CA's capacity, governance, and stakeholder engagement.

However, there is still no data on how the Universal Service Fund (USF) has impacted persons with disabilities.

Concerns remain that if this fund is not managed effectively, it could defeat its intended purpose. Since the USF is raised through fees and levies, there is a risk of negatively affecting the affordability of services for end-users, including persons with disabilities.

56. NCPWD. (2024, April 22). Kenya's Disability Inclusion Report Reveals Progress and Gaps – NCPWD. Retrieved June 14, 2024, from https://ncpwd.go.ke/kenyas-disability-inclusion-report-reveals-progress-and-gaps/
57. Universal Service Fund https://ca.go.ke/universal-service-fund
Purpose of the Fund - Draft USF Strategic Plan 2022-2026 https://www.ca.go.ke/purpose-fund

3.2.3 ICT Authority Digital Training Programs

The ICT Authority (ICTA) of Kenya offers a range of digital training programs to enhance digital skills among citizens, government employees, and professionals. These initiatives, including the Citizen Training program, Public Sector Training, and the Presidential Digital Talent Programme, are designed to equip individuals for active participation in the digital economy, improve digital literacy, and support Kenya's digital transformation goals.

However, none of these programs explicitly address the inclusion of persons with disabilities in terms of accessibility to the ICTs involved in the training. The sole exception is the National Digital Skills Program, offered in collaboration with the Association for the Physically Disabled in Kenya (APDK) under the UK Aid Digital Access Program (DAP) project,[59] which incorporated a learning management platform with comprehensive accessibility features.

ICTA also launched a subsidised digital skills training program called the Smart Academy. [60] The goal of the programme is to equip 20 million citizens with the necessary skills to participate in the country's rapidly evolving digital economy. The curriculum covers foundational, intermediate, advanced, and ICT security.

The program targets citizens of all ages, from pupils and children to senior citizens, as well as the public sector workforce, women in STEM, and ICT professionals. However, the program does not explicitly address the inclusion of persons with disabilities, particularly regarding the accessibility of the ICT tools and resources used in the training. While the use of imagery featuring persons with disabilities on the Academy's website suggests an inclusive approach, this remains largely inferential without the explicit mention of accessibility features.

Public Sector Training has been undertaken by ICTA, in collaboration with Huawei Corporation Kenya. ICTA is responsible for overseeing the training of the public sector workforce in essential digital skills. The objective is to train at least 200,000[61] government employees in areas such as IT risk management, regulations, policies and standards, business continuity and disaster recovery, and cybersecurity.

The Presidential Digital Talent Programme [62] targets recent graduates in ICT and engineering, providing them practical work experience through internships in government ministries, departments, and private sector companies. The goal is to develop a pool of skilled professionals who can drive the digital agenda in Kenya.

DigiSchool[63] is a Kenyan government initiative managed by the ICTA to integrate ICT into primary education. Its goal is to equip students with digital skills by providing them with tablets and laptops preloaded with curriculum-aligned educational content. The program also includes teacher training in digital literacy and educational software. Additionally, DigiSchool focuses on enhancing ICT infrastructure in schools, such as setting up computer labs and improving internet connectivity, especially in remote and underprivileged areas.

The Ajira Digital Program[64] focuses on enabling Kenyans, especially the youth, to access digital job opportunities, and provides training on online work skills, digital marketing, content creation, and more. It aims to bridge the gap between education and the job market by promoting online work as a viable source of income.

59. National Digital Skills Programme https://elearning.apdk.org/
60. Smart Academy https://www.smartacademy.go.ke/
61. Public sector Training https://www.smartacademy.go.ke/public-sector-training/
62. Presidential DigiTalent Programme https://digitalent.go.ke/
63. DigiSchool https://www.digischool.go.ke/
64. Ajira https://ajiradigital.go.ke/#/index

4.0 Findings

4.1 Description of Respondents

The study collected primary data on potential predictors of ICT accessibility in community networks. This data included indicators from CIPESA's Disability and ICT Accessibility Framework. Since the indicators were broad, the research team adapted them to evaluate accessibility levels in Kenya's community networks.

The survey respondents were registered community network operators and program leads in various counties across Kenya, including rural, urban, and remote areas. The survey allowed respondents to identify the extent to which their facilities, public access communication, and web-based information and services were accessible to persons with disabilities. The key access indicators ranged from "yes" to "to some extent" and "no."

Of the fourteen registered community networks in Kenya that were contacted, ten responded to the survey, making up 71% of the replies received. The following community networks were surveyed: AHERINET, Angaza Community Network, Athi Community Network, Kijiji Yeetu (Siaya), Tanda Community Network, Action Pour Le Progres, Ngikeyokok, Global Innovation Valley (GIV), Oasis Mathare, Dunia Moja, CISS, and Lanet Umoja.

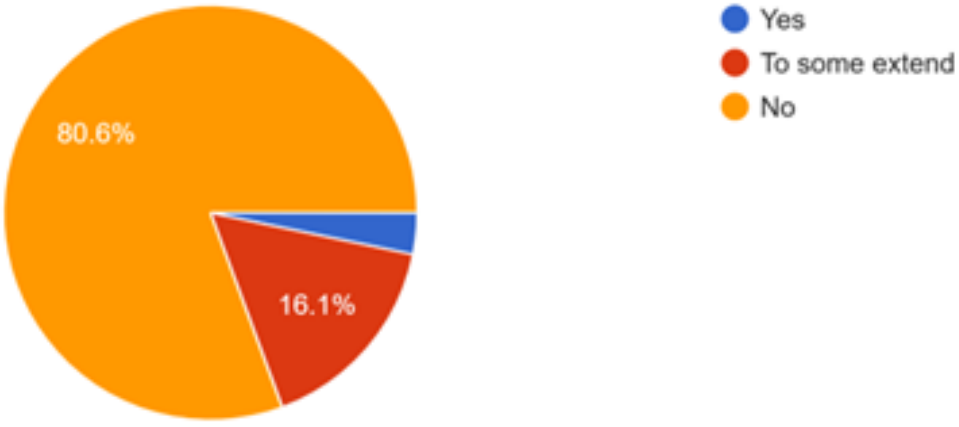
4.2 ICT Accessibility Framework on Public Access

4.2.1 Access to USF

Image 4:

1. Does your community network / organization have access to USF to support their investment in ICT infrastructure to serve marginalised communitie..bility, rural communities, the eldely, and Women?

31 responses



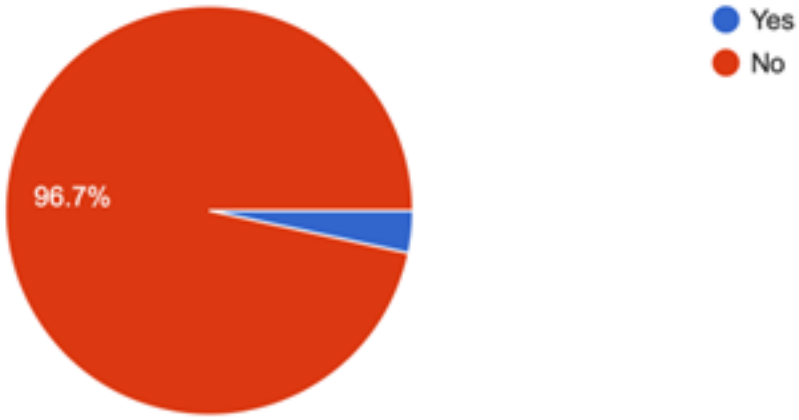
The question gauged community network awareness of the Communication Authority's Universal Service Fund. The results on chart 1 above show that 80.6% of the respondents had never accessed the fund, 16.1% had some extent, and 3.2% of the CNs had access. This suggests a lack of public awareness, inadequate information reaching the intended beneficiaries, and ineffective targeted communication to community networks.

4.2.2 Accessibility and provision of appropriate signage

Image 5:

2. Has your CN applied for or benefited from the USF?

31 responses



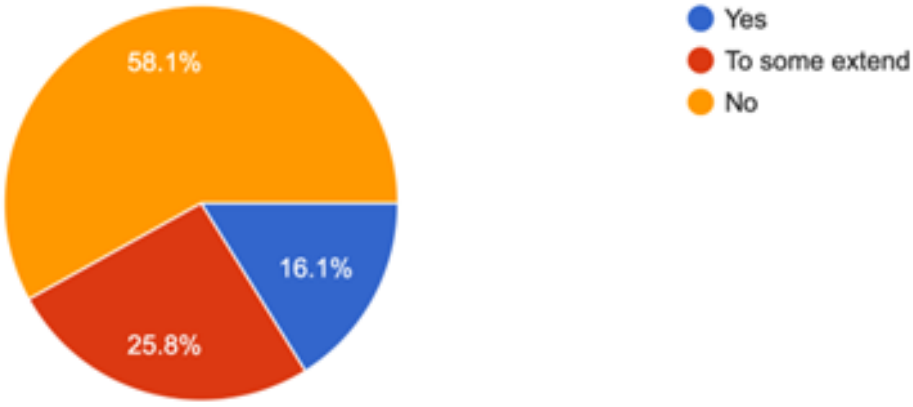
As shown in the chart 2 above, only 3.3% of the respondents who indicated that they had access to USF, had actually applied for or benefited from the fund. This shows that there is still limited awareness or engagement of community networks with the USF.

4.2.2 Accessibility and provision of appropriate signage

Image 6:

3. Does the CN ensure that appropriate signage, including the use of universal icons as appropriate, is provided near installed payphones, payphone kiosks points, communicating that they are accessible?

31 responses



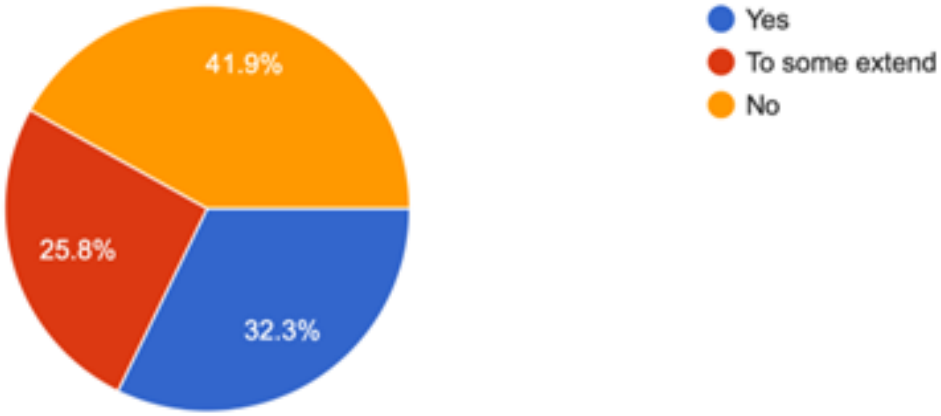
This question sought to understand whether the CNs ensure that appropriate signage, including the use of universal icons as appropriate, is provided near installed payphones, payphone kiosks, or community Internet access points. As shown in chart 3 above, only 16.1% of the CNs have implemented the measures, while, surprisingly, 58.1% have not taken any initiative to ensure accessibility. This demonstrates a significant accessibility gap and highlights the reasons for the low number of PWDs and their associated programs in the CNs. Additionally, it indicates a clear disregard for the Disability Act of 2003.

4.2.3 Staff Training on Accessibility ICT features

Image 7:

4. Has the CN trained its staff on accessible ICT features for people with different kinds of disabilities, including physical setup and use with assistive technologies?

31 responses



As shown in the chart 4 above, 32.3% of the CN staff possess the necessary skills and knowledge, 25.8% have received some training, and 41.9% still need training.

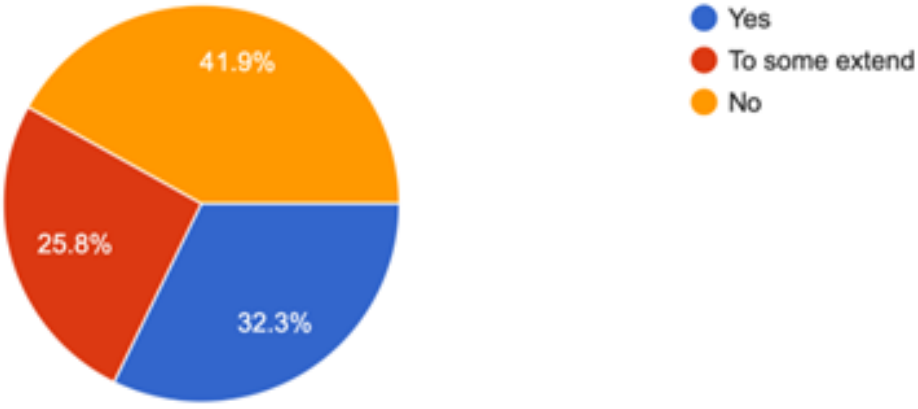
This highlights the importance of training staff members to ensure they can offer necessary accommodations and make projects and activities inclusive and accessible for persons with disabilities.

4.2.4 Emergency Communications

Image 8:

5. Are the emergency communications services provided in public access facilitiesccessible for persons with disabilities?

31 responses

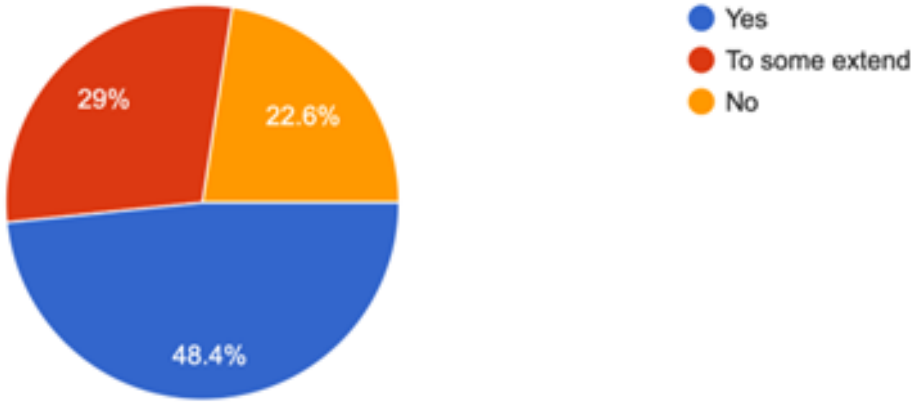


Concerning accessibility of emergency services, 32.3% of the respondents reported that the publicly available emergency communications services within the CNs were accessible to PWDs, as shown in chart 5 above. 25.8% indicated that they were accessible to some extent. In comparison, 41.9% mentioned that they do not have accessible emergency services within their CNs.

Image 9 :

6. Can persons with disabilities use their everyday communication means (email, telephone calls, SMS) to access emergency services, without any difficulty?

31 responses

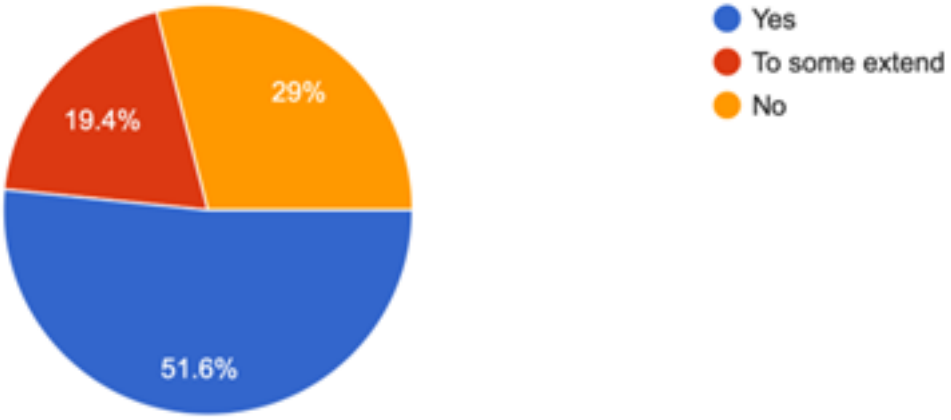


There was an indication of improvement in the usability of common platforms to access emergency services compared to the responses on accessibility. As per chart 6 above, 48.4% of the respondents mentioned that persons with disabilities could use everyday means of communication to access emergency services, and 22.6% indicated that it could be possible to some extent. In comparison, 29% stated that it was impossible within their community networks.

Image 10 :

7. Does the CN create awareness in accessible publication formats about how persons with disabilities can use their emergency services?

31 responses



As per the chart 7 above, 51.6% of the respondents mentioned that their CNs created awareness about using emergency services in accessible formats. Additionally, 19.4% stated that they did this to some extent, while 29% replied that they did not provide such awareness.

The data on access to emergency services for persons with disabilities indicates a lack of provisions for protecting individuals with disabilities during humanitarian emergencies. This issue was specifically highlighted by the Ministry of Labour and Social Protection in

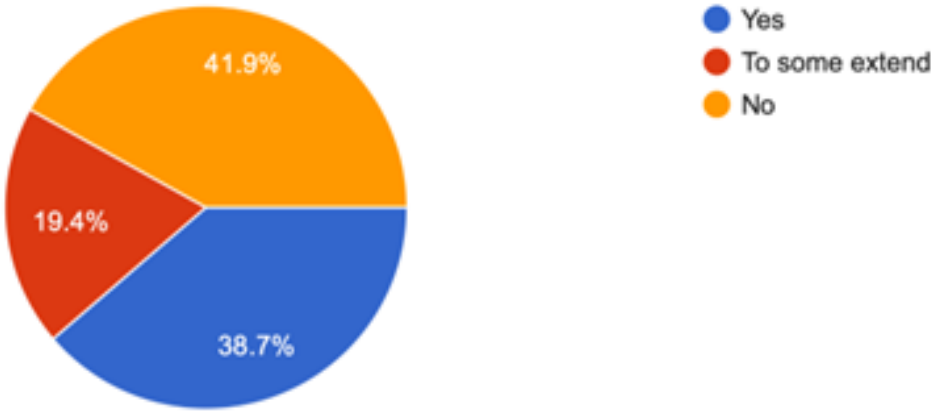
their submission of General Comments on Persons with Disabilities in Situations of Risk and Humanitarian Emergencies.[65] Furthermore, these concerns were addressed in the Persons with Disabilities Bill, 2023,[66] intended to enforce Article 54 of the Constitution and establish an institutional framework for safeguarding, advocating for, and overseeing the rights of persons with disabilities.

4.2.5 Physical and Equipment Accessibility

Image 11 :

8. Does the CN have physically accessible premises, equipment, and software for persons with disabilities?

31 responses



The chart 8 above shows on-premises access and equipment and software accessibility. 38.7% of the respondents confirmed that their CNs are accessible, while 19.4% reported accessibility to some extent. However, 41.9% of respondents stated that their CNs were inaccessible. This aligns with the feedback obtained during an oral interview with senior CN officials, who attributed the issue to the remote location of the CN, inadequate funding for accessibility initiatives, and inadequate physical planning, particularly in urban slums.

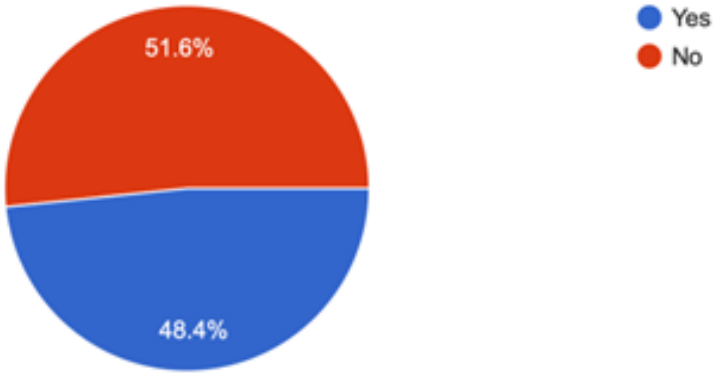
65. General Comments on Persons with Disabilities in situations of Risk and Humanitarian Emergencies. (2023, 3 24). Ministry of Labour and Social Protection. Retrieved August 7, 2024, from https://www.labour.go.ke/
66. The Persons with Disabilities Bill, 2023. (2023, June 12). KENYA GAZETTE SUPPLEMENT. Retrieved August 7, 2024, from https://kenyalaw.org/kl/fileadmin/pdfdownloads/bills/2023/ThePersonswithDisabilitiesBill_2023.pdf

4.2.6 Community Network Web Accessibility

Image 12 :

1. Does your Community Network (CN) have a website? (If yes, please answer the following question)

31 responses

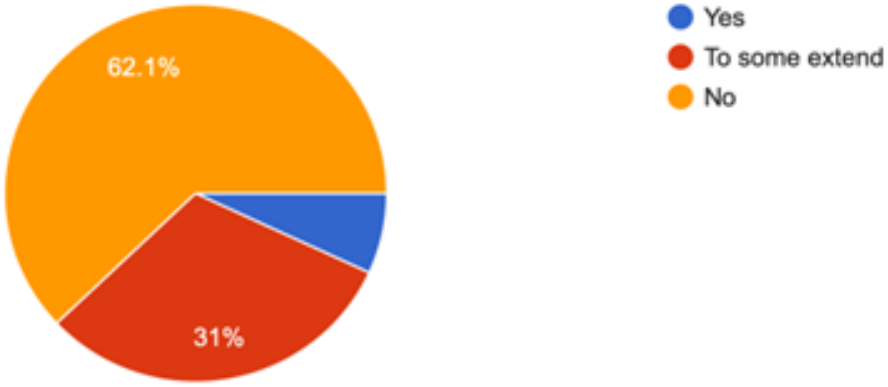


As shown in chart 9 above, out of the CNs surveyed, 51.6% reported having at least one website, while 48.4% did not. It's important to note that having a website is not a requirement under the Communication Authority's Unified Licensing Framework for CNs.[67]

Image 13 :

2. Has the CN developed web accessibility guidelines for use by persons with disabilities?

29 responses



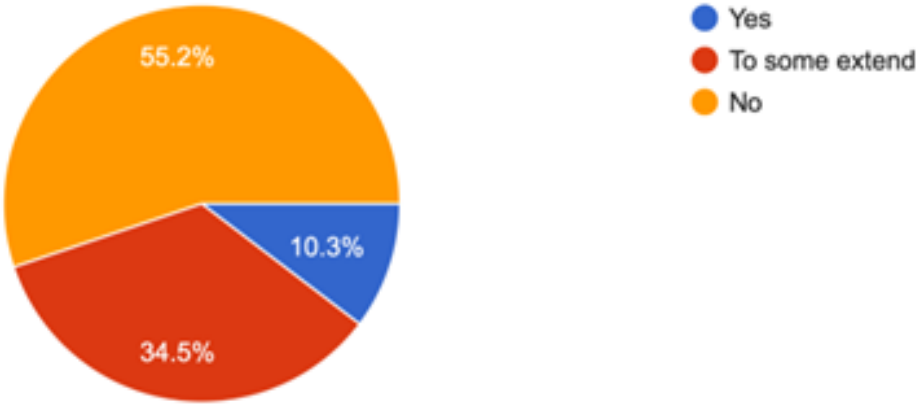
The chart 10 above shows whether the CN has developed web accessibility guidelines. Of the 51.6% of the respondents who said that their CNs had a website, only 6.9% of the websites claimed to have been developed as per the web accessibility guidelines, 31% had done it to some extent, and surprisingly 62.1% did not consider any web accessibility guidelines.

67. Communication Authority of Kenya. (n.d.). Unified Licensing Framework. Retrieved August 7, 2024, from https://www.ca.go.ke/sites/default/files/articles/Telecoms%20Forms/Application%20Form%20For%20Community%20Network%20and%20Service%20Provider%20Licence1-TL-8-0.pdf

Image 14 :

3. Does the CN conduct a systematic assessment of their websites and website infrastructure and of their staff's skills and knowledge in readiness... standards such as WCAG 2.0 (ISO/IEC 40500:2012)?

29 responses

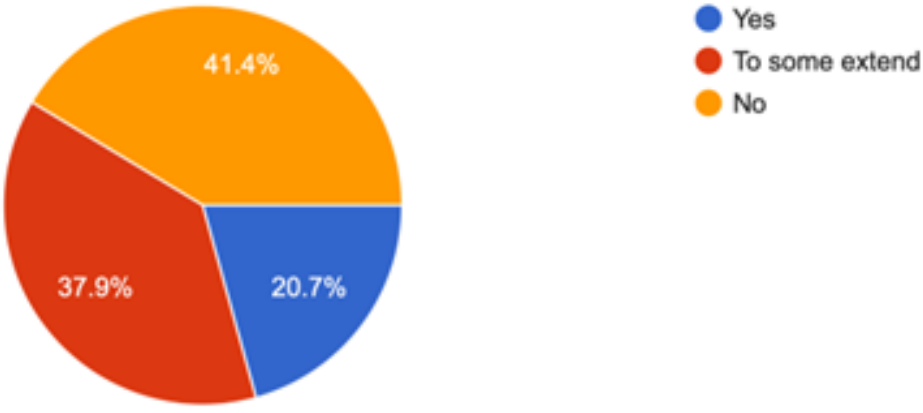


The study also sought to understand the extent of compliance among CNs with the Web Content Accessibility Guidelines (WCAG 2.0) under ISO/IEC 40500:2021. As shown in the chart 11 above, only 10.3% of the respondents acknowledged conducting systematic assessments of their websites, website infrastructure, and staff expertise. It is important to note that even though our country doesn't have a local version of the WCAG, the Kenya Bureau of Standards KS 2952-1-2:2022,[68] which heavily draws from global standards, guides local compliance to website accessibility. Therefore, every website must adhere to these standards legally.

Image 15 :

4. Does the CN's online platforms, including websites, comply with international web accessibility standards/guidelines?

29 responses



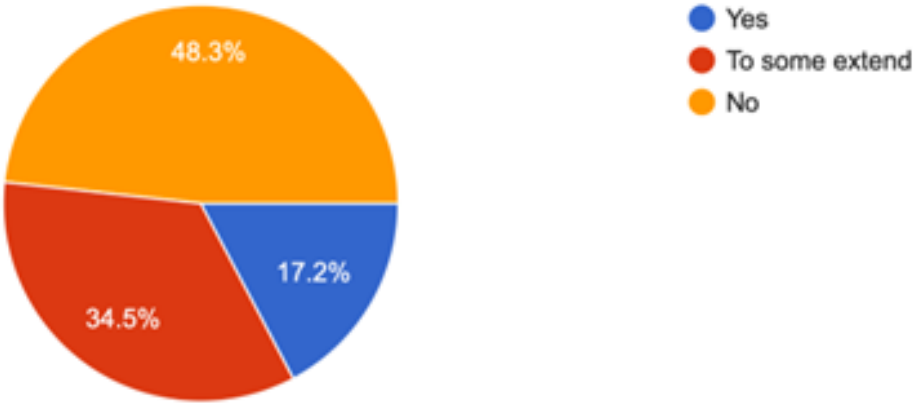
As shown in chart 12 above, the CN's online platforms and websites demonstrated low compliance with web accessibility guidelines. Only 20.7% were fully compliant, 37.9% partially compliant, and 41.4% noncompliant.

68. KEBS. (n.d.). Accessibility - ICT products and services Part 1: Requirements. Retrieved August 7, 2024, from https://webstore.kebs.org/index.php?route=product/product&product_id=17111

Image 16 :

5. Are the electronic documents available on the CN'ns websites accessible to persons with disabilities?

29 responses

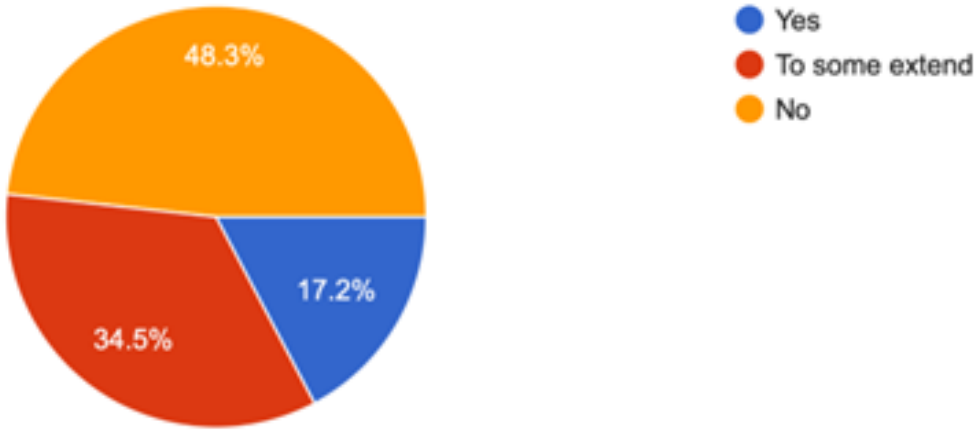


On the accessibility of electronic documents on CN websites, 48.3% of the respondents' sites were completely inaccessible, 34.5% said theirs was accessible to some extent, and only 17.2% were fully accessible as shown in chart 13 above.

Image 17 :

6. Does your CN regularly update its procument policies to ensure all website development service contracts require compliance with accessibility requirements?

29 responses



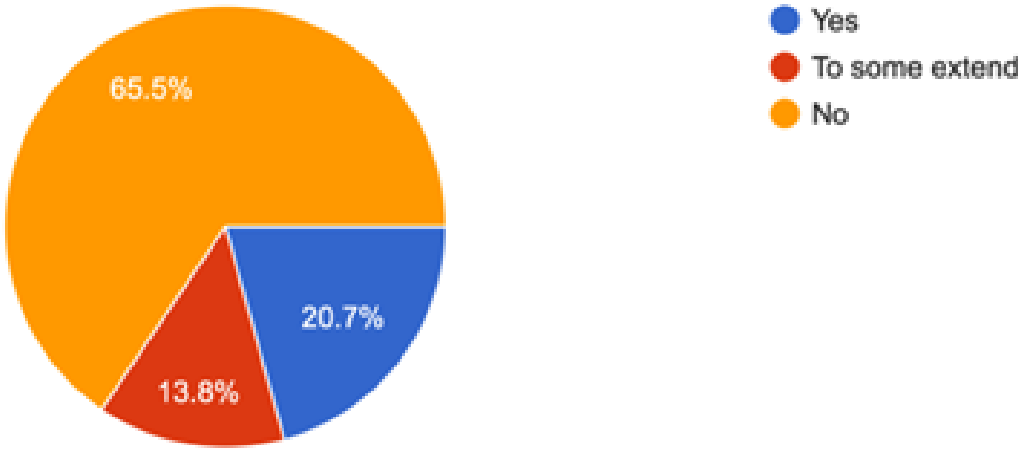
As per chart 14 above, only 17.2% of respondents reported that they regularly update their procurement policies to ensure that website development service contracts comply with accessibility requirements.

Additionally, 34.5% indicated doing so to some extent, while 48.3% stated that they did not update their procurement policies for this purpose.

Image 18 :

7. Does your CN provide accessibility training to their web developers to ensure the accessibility statndards as outlined in the WCAG 2.0 (ISO/IEC 40500:2012) standards?

29 responses

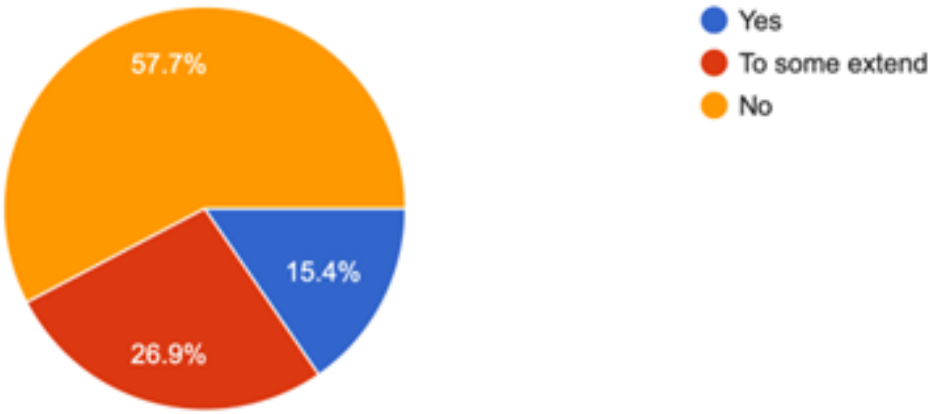


Out of the CNs complying with WCAG 2.0, only 20.7% provide accessibility training to their web developers, 13.8% did so to some extent, while 65.5% of them did not offer any accessibility training as shown in chart 16 above.

Image 19 :

8. Are web users, especially persons with disabilities, provided guidance on accessibility testing tools and procedures? (To be answered by web developers and/ persons with disability)

26 responses

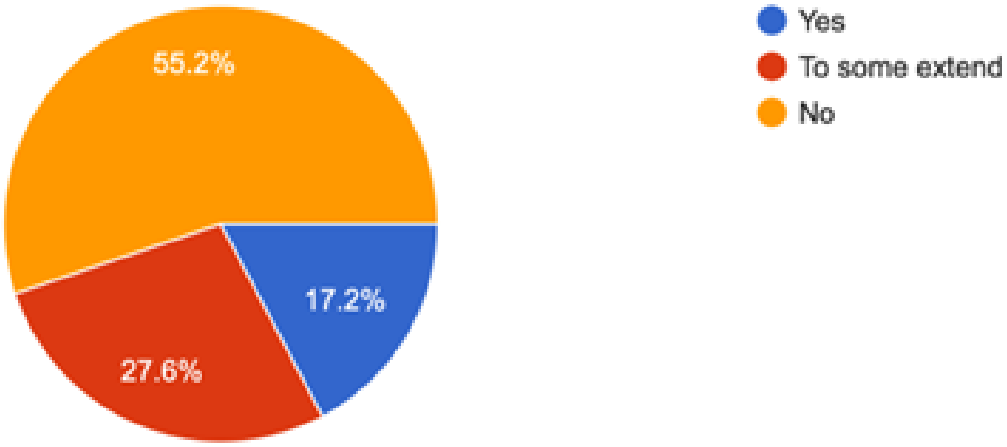


When web developers and persons with disabilities were asked whether they had received guidance on accessibility testing tools and procedures, 57.7% reported not receiving any guidelines as shown in chart 17 above. 26.9% of the respondents indicated they received the guidelines to some extent, and only 15.4% were issued with the testing guidelines. This suggests a lack of inclusive procedures in accessibility testing and quality assurance of CNs' digital platforms.

Image 20 :

9. Are there routine monitoring and publishing of reports on progress achieved in CN's wesite accessibility?

29 responses

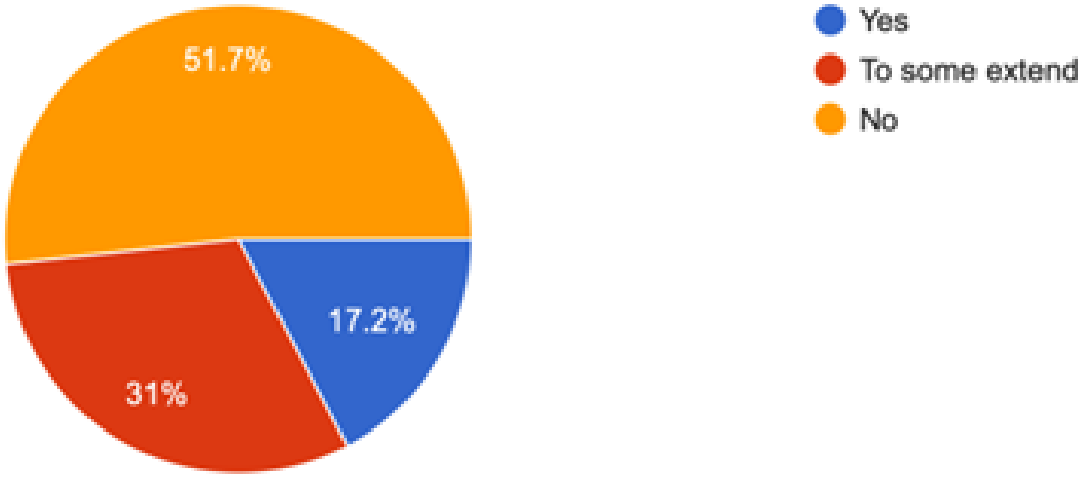


Routine monitoring and publication of reports on the state of website accessibility within CNs were also assessed. The chart 18 above reveals that 17.2% publish the reports, 27.6% do so to some extent, and 55.2% do not publish at all. Continuous monitoring is a valuable tool for learning and improving ongoing initiatives. A lack of monitoring for accessibility suggests minimal effort is being made to enhance accessibility within the CNs.

Image 21 :

10. Are persons with disabilities involved in user acceptance testing of new/updated CN websites?

29 responses



The response chart 19 in question 9 above shows that only 17.2% of the respondents fully involved persons with disabilities in user acceptance testing of new/updated CN websites and digital platforms, while 31% only involved them to some extent, and 51.7% did not. This pattern also holds for the above routine monitoring and reporting on progress achieved in web accessibility. Overall, the findings suggest that accessibility and inclusion within CNs have not been fully embraced, with ratings below 50%. This indicates a consistent gap in awareness across essential components of inclusion and accessibility.

4.3 Barriers to Implementing Inclusive Practices by Community Networks

While community networks strive to bridge the digital divide, barriers have made it challenging to implement inclusive practices that ensure persons with disabilities in the community have equal access to the network's benefits. The field visit, training workshop, webinar, and online survey highlighted various challenges.

4.3.1 Misconceptions and Attitudinal Barriers

During the workshop, PWDs emphasised that a significant barrier to their digital inclusion in community networks is the common misconception about their capabilities and needs. They identified several key misconceptions that present substantial challenges.

One common belief was that persons with disabilities do not need community networks and do not benefit from them. This overlooks the value these networks can provide and implies that their participation is unnecessary.

Additionally, there is an assumption that persons with disabilities engage with community networks only passively, out of necessity, rather than actively utilising them for purposes such as entrepreneurship or work.

Another common but misguided belief is that individuals with disabilities are illiterate and lack the cognitive ability to effectively use or contribute to community networks. This stereotype diminishes their potential and overlooks the diverse skills they can bring to the table. Furthermore, there is a tendency to assume that all PWDs have the same needs, leading to the false notion that one-size-fits-all solutions can address their diverse requirements.

4.3.2 Training and Educational Barriers

During the Focus group discussions, it was highlighted that there are not enough training opportunities for people with disabilities to learn how to participate in their community networks. The technical language used in these networks makes training even more challenging, especially when trying to explain technical terms to non-English speakers. Language barriers make it even harder for people with disabilities to get involved.

In a webinar hosted by KICTANet during the study period, community network operators expressed their concerns about their lack of knowledge in communication mediums, such as Kenyan Sign Language, used by the country's deaf community. However, they also showed a willingness to learn the language themselves to avoid the ongoing expense of regularly hiring sign language interpreters.

During the Summit of Community Networks, concerns were raised about the digital skills of persons with disabilities. A community network coordinator expressed concern about the proficiency of persons with disabilities in various digital skills. Furthermore, community network custodians were eager to know the next steps after encouraging more persons with disabilities to join the networks.

4.3.3 Financial and Resource Barriers

Financial constraints are a critical issue for many communities, who have limited funds to establish and maintain networks and make them accessible to people with disabilities. Additionally, communities often resist collaborating on how to include people with disabilities in these networks.

Limited accessibility features and assistive technologies are also a concern. Research conducted

by KICTANet[69] revealed that while persons with disabilities can use free and open-source assistive software (FOSS) to access certain websites, these budget-friendly options have significant limitations. FOSS often lags in updates and demands technical expertise from users to troubleshoot errors. Consequently, the more dependable and user-friendly proprietary alternatives have additional financial implications.

The Universal Service Fund, managed by the Communications Authority of Kenya (CA), aims to enhance digital inclusion by focusing on underserved areas and marginalised populations, including persons with disabilities. It aims to support projects to improve ICT infrastructure and provide affordable access to digital services in these regions.

However, according to a community network operator, the USF has not yet been operationalized for community networks, which diminishes its potential impact on grassroots digital inclusion efforts.

4.3.4 Technological Barriers

Discussions with respondents revealed that technological barriers play a significant role. There is a lack of the specialised knowledge needed to set up and maintain accessible community network infrastructure. Also, developing accessible features for community networks from scratch is time-consuming and resource-intensive, adding to the overall complexity of achieving digital inclusion for persons with disabilities.

Moreover, accessing community networks becomes even more challenging when an individual has multiple disabilities. Many assistive technologies are designed to cater to a single disability at a time, failing to increase accessibility for those with multiple disabilities.

4.3.5 Infrastructure Barriers

Frequent blackouts and power outages significantly affect the operations and activities of community networks, particularly in areas with unreliable electricity, such as rural locations in Kenya. Power shortages and limited charging options particularly impact individuals who rely on electrically powered assistive technologies.

During the Community Networks Summit in Akala, Siaya County, the research team noted that frequent blackouts and brownouts disrupted the proceedings. These power interruptions also lead to increased operational costs, necessitating the consideration of alternative power sources, such as costly backup generators.

For instance, during the Summit, a diesel generator was needed to supplement the electricity supply for the duration of the event. These challenges often force community networks to conduct projects offline, undermining efforts to use technology to promote inclusion and accessibility.

4.3.6 Policy and Regulatory Barriers

Kenya has established standard regulations (KS 2952-1:2022) for the accessibility of ICT products for persons with disabilities. The provisions are outlined in the Kenya Bureau of Standards KS 2952. However, the Kenya Bureau of Standards (KEBS) does not appear to have clear enforcement protocols for these accessibility standards, which has resulted in situations where these guidelines are not being followed.

Additionally, the Communication Authority of Kenya and the ICT Authority have not provided specific guidelines tailored to address accessibility issues within the community networks.

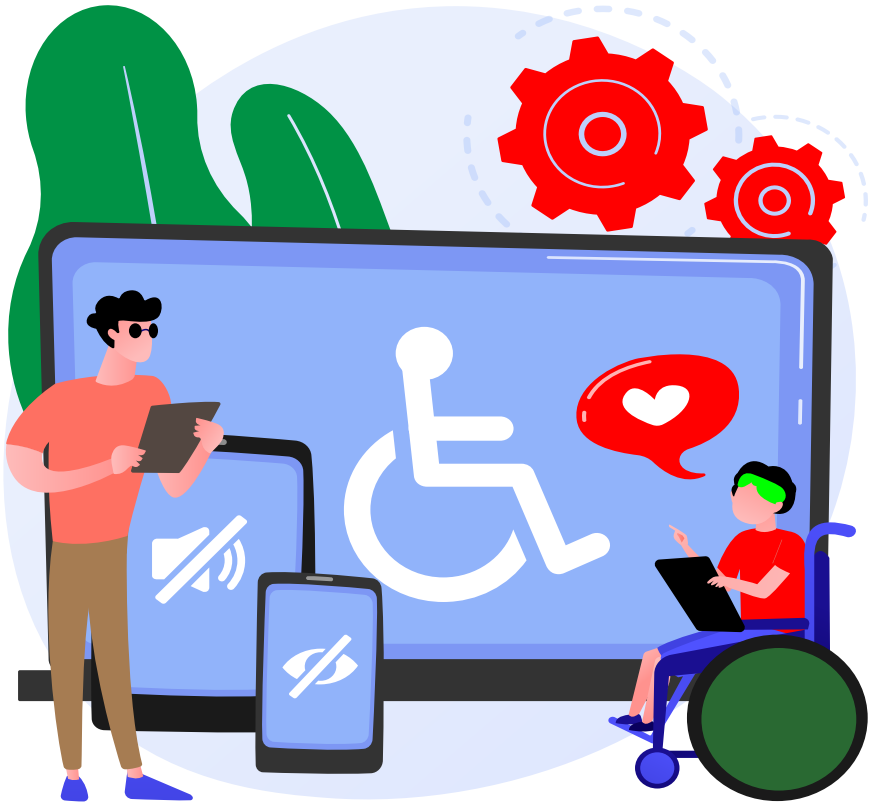
69. Scorecard: Accessibility of Government Websites for Persons with Disabilities https://www.kictanet.or.ke/policy-briefs/#

4.3.7 Awareness and Cultural Barriers

Disability is a spectrum that encompasses both traditionally recognized disabilities, such as the use of a wheelchair, and invisible disabilities, such as cognitive disabilities, among others. "Often our fears and discomfort about interacting with persons with disability are based on lack of knowledge, uncertainties, and stereotypes that can influence your attitudes."

There are significant gaps in understanding the needs of persons with disabilities in traditional non-disability spaces such as community networks. A site visit by the research team to rural community networks reveals that communities are grappling with disability inclusion versus cross-cutting issues like assistive devices, access to work, training and work opportunities, and caregiving.

A community network custodian during the training webinar expressed ongoing concerns about the legal ramifications in case persons with disabilities handling their equipment got injured in the field. While workplace injuries can happen to anyone, persons with disabilities are considered especially susceptible, and there are no clear insurance coverage options for persons with disabilities working as technical experts in the CNs.



5.0 Recommendations

This section contains the recommendations gathered by the research team from stakeholder engagements. Digital inclusion of persons with disabilities is a continuous process that necessitates cooperation, fairness, and a dedication to addressing varied needs. These recommendations, highlighted from the various data collection exercises, aim to foster an inclusive digital environment where everyone can participate and thrive. Digital accessibility and inclusion should not be a one-time effort. Instead, it should be a continuous learning process that allows for ongoing improvement and adjustment to meet the increasing accessibility needs.

5.1 Community Networks

1. Recognize and invest in specialised accessibility features tailored to the unique needs of PWDs.

2. Ensure active inclusion of PWDs in decision-making processes to genuinely address their needs in the development of community networks. The inclusion should not be merely performative to comply with regulations.

3. Create accessible documentation in local languages. This will bridge language barriers and make it easier to train PWDs in local communities, enabling their participation in the digital ecosystem.

4. Partner with disability rights groups to increase the involvement of PWDs in the design, development, and implementation of their infrastructure. Actively involving PWDs ensures that their needs and preferences are understood and addressed across the project lifecycle.

5. Raise awareness about the importance of accessible community networks for all PWDs and invest and develop the necessary digital infrastructure to support accessibility, particularly in remote areas.

6. Establish baseline software and hardware development standards to ensure all PWDs can utilise community networks.

7. Conduct regular ICT gap analyses to identify and address specific challenges hindering PWDs from effectively using community networks near them.

8. Adopt open-source or low-cost assistive technologies to improve digital accessibility for a wider spectrum of disabilities.

9. Once a community network is equipped to implement digital inclusion, it should extend these practices to other members of its community to facilitate the smooth integration of persons with disabilities into socio-economic activities.

10. Collaborate closely with government agencies and other stakeholders providing internet services to promote accessibility for persons with disabilities.

5.2 Government

1. Establish centres dedicated to designing and developing low-cost or free assistive technologies for people with disabilities. The government should significantly increase subsidies to make these technologies more affordable and provide strong incentives to organisations that develop accessibility tools and programs.

2. Engage in open dialogue and collaboration with advocacy groups, PWDs, and digital content developers to develop a supportive legal framework for digital accessibility that considers diverse stakeholder perspectives.

3. Support ICT resource centres to provide low-cost or free technical assistance on ICT accessibility. This could involve providing simplified checklists and templates for organisations to use when testing accessibility or developing internal accessibility policies.

4. Support community outreach programs such as educational campaigns to highlight the importance of PWDs' contributions to the digital economy and inform communities about available resources for digital accessibility. Utilise local TV, radio, newspapers, and public outreach to maximise reach.

5. Intensify their efforts to adopt international standards and best practices on accessibility to make their digital platforms, including e-government services, accessible to persons with disabilities.

6. Encourage digital content creators and website owners to prioritise accessibility and transparency by publishing audit scores.

7. Introduce the Kenya Sign Language into the education curriculum to bridge the communication barrier with persons with hearing disabilities.

8. Utilise USF to fund the development of community networks that are easily accessible to persons with disabilities .

5.3 Other Stakeholder Groups

Media should portray people with disabilities fairly and accurately in TV shows, movies, and advertisements. Too often, the content focuses on their limitations, negative portrayal contributes to their exclusion from society, particularly in the digital world.

Civil society should create platforms for PWDs to share their experiences and perspectives, especially in the digital space.

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