ARTIFICIAL INTELLIGENCE'S IMPACT ON PERSONS WITH DISABILITIES IN AFRICA

SCOPING STUDY, STAKEHOLDER MAPPING AND REGIONAL CONSULTATION ON THE INTERSECTION OF ARTIFICIAL INTELLIGENCE AND DISABILITY INNOVATION IN AFRICA

By

Prof. Jerry John Kponyo, Mr. Bernard Chiira, Dr. Christopher Harrison, and Prof. Hanyurwimfura Damien

FINAL TECHNICAL REPORT

KNUST Kwame Nkrumah University of Science and Technology, Kumasi
RESPONSIBLE ARTIFICIAL INTELLIGENCE LAB
IDRC · CRDI Canada
UNIVERSITY of RWANDA
NEXT STEP FOUNDATION
UK International Development Partnership | Progress | Prosperity
Assistive Technologies for Disability Trust

Project Duration: Jan. 2025 to Dec. 2025
Report Submitted January 2, 2026
Countries / Regions: Pan-African with focus on Ghana, Kenya, Rwanda

Principal Investigator: Responsible AI Lab (RAIL) at Kwame Nkrumah University of Science and Technology (KNUST)
Co-Principal Investigators: Assistive Technologies for Disability Trust (AT4D) and the Next Step Foundation

Contact Information:

Contents

Executive Summary

This scoping study examined how artificial intelligence (AI) can advance disability inclusion, participation, and empowerment across Africa. It provides the first continent-focused synthesis of opportunities, risks, and pathways for scaling responsible and disability-inclusive AI solutions. Focused on Ghana, Kenya, and Rwanda, the study combines literature review, stakeholder mapping, surveys, interviews, and participatory consultations with Persons with Disabilities (PWDs), caregivers, innovators, policymakers, and researchers.

AI is already improving daily life for PWDs in practical ways—powering sign-language avatars, personalized speech recognition models, adaptive learning tools, accessible job platforms, mental health chatbots, and early robotics for independent living. Across education, employment, mental health, and caregiving, promising pilots demonstrate the potential to expand access, reduce barriers, and strengthen inclusion. Yet most innovations remain small-scale and fragmented, constrained by structural barriers that hinder meaningful scale.

Three systemic bottlenecks emerged clearly from the study. First, Africa faces a pervasive "disability data desert." PWDs are systematically under-counted in national data systems, and disability-inclusive datasets for training AI models are rare. As a result, AI systems frequently misread or exclude disabled users. Second, innovation ecosystems across the continent are fragmented. Early-stage ventures lack access to representative datasets, financing, business development support, and partnership pathways needed to move beyond pilot phase. Third, AI governance frameworks insufficiently integrate disability inclusion; accessibility, data safeguards, and inclusive design remain largely absent from national AI strategies and regulatory mechanisms.

The study concludes that disability-inclusive AI in Africa will advance only when data, innovation, and governance are strengthened together. Three enabling conditions are essential: inclusion by design, through co-creation with PWDs and localization to African languages and contexts; enabling rules and rails, including policy commitments that mandate accessibility and promote the development of disability-inclusive datasets; and sustainable delivery mechanisms that integrate community networks, hybrid human-AI services, and financing models to reduce costs to users while enabling innovators to scale responsibly.

Taken together, the findings chart a path for future work: developing an African Disability Data Network, creating a scaling framework for inclusive AI ventures, and embedding disability inclusion into continental and national AI policy. With coordinated effort, Africa can transform promising pilots into equitable, reliable AI systems that expand agency, opportunity, and quality of life for millions of Africans with disabilities.

Rationale And Research Problem

AI is rapidly reshaping economies, public services, and social systems across Africa. Yet disability inclusion has not kept pace with this digital transformation. PWDs—estimated at 10–20 percent of the population—continue to face exclusion from education, employment, health care, and civic participation. At the same time, national AI strategies, innovation ecosystems, and data infrastructures rarely consider the needs of PWDs, despite AI's unique potential to eliminate barriers and expand opportunities.

This scoping study responds to three interlinked research challenges. The first was the lack of consolidated evidence on the role of AI in disability inclusion in African contexts. Before this project, no comprehensive analysis existed to show how AI was being applied, who was benefiting, and where gaps remained. The second challenge was the severe disability data gap. AI systems used in Africa are trained mostly on non-African and non-disability-inclusive data, leading to inaccuracies, misclassification, and exclusion. National data systems also under-report disability, reinforcing invisibility in planning and policymaking. The third challenge involved fragmented innovation ecosystems and weak policy frameworks. Although early-stage AI tools exist—from sign-language translation systems to mental health chatbots—few have reached scale due to limited financing, inadequate policy support, and a lack of coordinated pathways for growth.

The study therefore sought to build foundational evidence, illuminate systemic gaps, and identify opportunities through which AI could serve as a driver of disability inclusion across the continent.

Objectives Of the Project

The overarching objective of the project was to generate evidence and stakeholder consensus on how AI can advance disability inclusion in Africa, while identifying the enabling conditions required to scale responsible and accessible AI systems.

To achieve this, the project aimed to map ongoing AI and assistive technology initiatives across the continent, with deeper analyses in Ghana, Kenya, and Rwanda. It sought to understand the lived experiences and priorities of PWDs, caregivers, developers, educators, and policymakers. Through consultations and multi-stakeholder dialogue, the study aimed to identify risks and opportunities at the intersection of AI, data, disability rights, and inclusive development. Ultimately, the project sought to produce actionable recommendations to guide research, policy, and investment in disability-inclusive AI.

Research Methods and Analytical Approach

The study relied on a Participatory Action Research (PAR) approach, grounded in the principle that PWDs and caregivers must help shape the research that concerns them. This approach ensured that the study was rooted in lived experience and allowed participants to guide interpretation and priority-setting.

The research drew on several complementary methods. A wide-ranging literature review synthesized academic studies, policy analyses, and grey literature. Stakeholder mapping identified government bodies, OPDs, innovators, universities, and donors working across the AI and disability ecosystem. Mixed-methods fieldwork—including interviews, focus groups, and surveys—captured quantitative patterns and qualitative insights on accessibility, usability, affordability, and perceptions of AI tools. User-journey mapping helped illustrate how PWDs navigate available technologies, highlighting both barriers and opportunities.

A comparative policy analysis examined emerging national AI strategies, disability legislation, and continental frameworks such as the AU's AI Strategy. Thematic analysis then integrated findings across sectors—education, mental health, employment, caregiver support, and assistive technologies—revealing structural patterns and systemic bottlenecks.

Primary Activities of the Project

Over the course of the study, several major activities were undertaken. The research team conducted a continent-wide mapping of AI-enabled assistive and inclusive technologies, identifying emerging tools that support communication, mobility, education, mental health, and independent living. Country-level analyses in Kenya, Ghana, and Rwanda explored the enabling environments for inclusive AI, including digital infrastructure, data ecosystems, financing, and governance.

Extensive stakeholder engagement ensured that the study reflected diverse perspectives. Consultations with OPDs, caregivers, Youth with Disabilities, educators, software developers, and policymakers helped refine the research questions and validate findings. Surveys fielded across the three study countries provided quantitative insight into awareness, accessibility, usage, and affordability of AI-enabled tools.

The project also produced comparative analyses of national and regional AI policies, assessing the extent to which disability inclusion is embedded—or overlooked—within existing governance frameworks.

Contribution To Gender Equality and Inclusion

Gender and intersectionality were central to the study's approach. Women and Girls with Disabilities face compounded exclusion—social, economic, and digital. Their voices were prioritized throughout field research, particularly through caregiver-focused discussions and interviews with women innovators and OPD leaders.

The study highlights how female caregivers, often single mothers, shoulder disproportionate emotional and financial burdens. AI tools that support communication, provide mental health assistance, or streamline caregiving tasks have the potential to improve both caregivers well-being and child outcomes. The research also underscores how gender norms limit access to digital tools and training for Women with Disabilities, calling attention to the need for gender-responsive policies.

Project Outputs

The major output of this project is the comprehensive scoping study report, "Artificial Intelligence's Impact on Persons with Disabilities in Africa." It consolidates sector analyses, case studies, policy reviews, survey findings, and stakeholder insights into a single evidence base that now informs continental discussions on inclusive AI.

Unlike previous research on AI and disability that have focused exclusively on AI's potential contribution to assistive technologies, this scoping study considered all of the myriad ways in which AI could positively impact the lives of PWDs and their caregivers. Specifically, the report considered AI-powered solutions across mental health, education, employment, and caregiver-specific support.

AI and Mental Health for Persons with Disabilities

The scoping study found that mental health is one of the most urgent yet least resourced dimensions of disability inclusion in Africa. PWDs, and especially Youth with Disabilities, face significantly higher rates of depression, anxiety, stress, and social isolation compared to their non-disabled peers. These vulnerabilities stem from deep-seated stigma, exclusion from education and employment, economic hardship, caregiver strain, and barriers in accessing traditional mental health services. Across the study countries, the availability of trained counselors, psychologists, and psychiatrists remains extremely low, making mental health care inaccessible to most PWDs.

Within this context, artificial intelligence emerged as a promising avenue to expand access to support. The study identified early deployments of AI-enabled mental

health chatbots such as Kenya's Tumaini.ai, a WhatsApp-based tool co-designed with Youth with Disabilities. These tools offer immediate, stigma-free entry points to psychosocial support, particularly for young users reluctant or unable to seek help in person. Global platforms such as Woebot and Wysa demonstrate that AI-driven Cognitive Behavioral Therapy (CBT) tools can reduce symptoms of anxiety and depression, though African localization remains limited.

However, the scoping study also emphasized that GenAI poses substantial risks for PWDs if deployed without safeguards. Unrepresentative datasets can cause chatbots to misunderstand disability-related content or provide inappropriate responses. Youth with cognitive or psychosocial disabilities may be especially vulnerable to misinformation or AI "hallucinations." Importantly, the study stressed that AI tools should supplement—not replace—human mental health professionals and community support. Hybrid human-AI models, culturally grounded content, strong privacy protections, and continuous oversight by professionals are essential for safe and effective deployment.

Overall, the study concludes that AI-enabled mental health tools represent one of the clearest near-term opportunities to enhance well-being and resilience for PWDs, provided that deployment is rooted in inclusivity, ethics, and contextual appropriateness.

AI for Inclusive Education

Education consistently surfaced as both an area of greatest need and greatest potential impact for AI-enabled solutions. The study found that Youth with Disabilities in Sub-Saharan Africa face steep educational barriers—limited assistive technology, inaccessible classrooms, inadequate teacher training, and widespread stigma. With less than 10 percent of Children with Disabilities completing primary school in many African countries, the risk of lifelong exclusion is substantial.

Artificial intelligence is already beginning to reshape the accessibility landscape in African classrooms. The study documented several promising innovations: sign-language avatars that bridge communication gaps for Deaf learners; AI-enabled captioning tools that support students with hearing impairments; screen readers and text-to-speech systems for blind and low-vision learners; and adaptive learning platforms that adjust content to the needs of students with cognitive or learning disabilities.

Despite this momentum, the study found that educational AI remains unevenly deployed and often insufficiently localized. Many tools lack functionality in African languages, including local sign languages. Teachers frequently lack training to integrate AI-enabled support tools effectively into lesson plans. Moreover, without

device access or reliable connectivity, learners with disabilities in rural areas remain at risk of being excluded from emerging innovations.

Teachers, OPDs, and students emphasized that AI must be embedded into broader inclusive education strategies rather than introduced as isolated pilot projects. The study recommended incorporating accessibility into national procurement frameworks, developing localized datasets for sign and spoken languages, and investing in training for teachers and content creators. When implemented thoughtfully, AI has the potential to transform access to learning and help African education systems overcome long-standing infrastructure and resource limitations.

AI and Disability-Inclusive Employment

The study's employment analysis revealed stark disparities: unemployment and underemployment rates among PWDs remain significantly higher than national averages across the continent. Barriers include inaccessible hiring processes, employer biases, transportation challenges, and lack of reasonable accommodations in the workplace. Many PWDs are funneled into informal or low-wage work, limiting long-term economic mobility.

AI, however, has the potential to strengthen inclusion at every step of the employment pathway—job search, application, hiring, onboarding, and day-to-day productivity. For jobseekers, emerging AI-enabled platforms assist with CV development, interview preparation, and skills translation. Tools that use natural language processing can help convert informal sector experience into formally recognized competencies. Assistive AI enhances workplace performance—speech-to-text aids for employees with hearing loss, vision-based readers for blind workers, predictive text and task planning tools for neurodivergent employees, and increasingly sophisticated bionics or mobility supports.

From the employer perspective, AI can help identify essential job tasks, structure accommodations, detect ableist language in job descriptions, and ensure hiring models do not inadvertently exclude PWDs. Some global companies have begun integrating AI into inclusive hiring pipelines, but such practices are not yet widely adopted in African labor markets.

The scoping study cautioned that AI-enabled hiring tools can also exacerbate discrimination if algorithms are trained on biased data. Without auditing, AI may misinterpret speech differences, wheelchair use, or gaps in employment history as "poor fit" indicators. Strong regulatory frameworks, transparent algorithms, and inclusive datasets are therefore essential to prevent harm.

AI-Enabled Support for Caregivers

Caregiver support emerged as one of the most overlooked areas in the disability ecosystem, despite being central to the well-being of PWDs. The scoping study found that caregiving in Sub-Saharan Africa is performed overwhelmingly by women—often single mothers—who face emotional exhaustion, financial strain, limited access to information, and profound social stigma. Caregivers frequently lack training, respite, or mental health support, and many are isolated from community networks.

AI-driven tools offer promising ways to strengthen caregiver resilience and improve the quality of care. The study identified innovations that use speech, translation, and workflow automation to help caregivers manage daily routines, track behaviors or symptoms, and communicate with non-verbal children. Chatbots can provide psychoeducation, answer questions about disability management, and offer emotional support during stressful moments. For caregivers with limited literacy, voice-first interfaces reduce barriers to obtaining guidance. AI-enabled communication systems—such as symbol-to-speech or predictive AAC (augmentative and alternative communication)—support children with complex communication needs, easing daily interactions for families.

Yet the study also highlighted risks. Over-reliance on AI tools without human support could place caregivers in vulnerable situations, particularly when misinformation, harmful advice, or misinterpretation of symptoms occurs. Privacy concerns are heightened for caregivers dealing with sensitive health or behavioral data. The study emphasized that AI tools must be coupled with community-based services, clear safety protocols, and training that empowers caregivers rather than replaces human networks.

AI Governance

The scoping study found that AI governance in Africa is advancing rapidly, but disability inclusion remains uneven and often underdeveloped across policy frameworks. At the regional level, the African Union's Continental AI Strategy (2025–2030) represents the most ambitious attempt to guide responsible AI adoption on the continent. The Strategy explicitly recognizes PWDs as a vulnerable group requiring targeted inclusion, calling for accessible datasets, equitable skills development, and AI systems that support diverse linguistic and cultural contexts. It also highlights risks of bias, discrimination, and digital exclusion—emphasizing that AI must be ethical, rights-based, and aligned with African values. However, while the AU sets strong principles, implementation depends heavily on national governments and local institutions.

National AI strategies reveal varied levels of maturity and attention to disability. Ghana's National AI Strategy emphasizes inclusive growth, digital equity, and strong data governance, but does not explicitly address the needs of PWDs within its core pillars. Kenya's AI Strategy, by contrast, includes more explicit references to PWD inclusion, signaling a national commitment to ensure AI systems are accessible and responsive to marginalized communities. Rwanda's national AI policy, though forward-looking in its digital ambitions, contains no specific provisions for disability inclusion, illustrating a broader trend where accessibility considerations are still siloed within disability ministries rather than integrated into AI policy.

Across all three countries, the study observed shared gaps: limited national investment in disability-relevant datasets, the absence of mandated accessibility standards in public-sector AI procurement, and weak participation of Organizations of Persons with Disabilities (OPDs) in policymaking processes. Many national strategies focus on economic competitiveness, innovation ecosystems, and data governance but rarely connect these priorities to the lived realities of PWDs.

Survey Results

The scoping study incorporated surveys across Ghana, Kenya, and Rwanda to better understand how PWDs, caregivers, and innovators perceive and experience AI-enabled tools. The survey findings provided a critical empirical layer to the study, revealing patterns of awareness, accessibility, affordability, and perceived value across the three countries.

Across all contexts, survey participants demonstrated a high level of general awareness of AI technologies, despite varying levels of direct use. Many respondents had encountered AI in everyday tools such as mobile apps, social media platforms, or translation services, even if they were not always aware these technologies were AI-driven. Yet awareness did not always translate into effective access. One of the most consistent themes across all three countries was the cost barrier: AI-enabled assistive technologies and digital devices remain unaffordable for many households, making price the single greatest determinant of adoption.

Localization emerged as another major challenge. Respondents frequently noted that tools were not designed with African languages, accents, or disability contexts in mind. Sign-language users highlighted the absence of datasets for national sign languages; individuals with speech differences reported that speech-recognition systems struggled to interpret them; and blind and low-vision respondents emphasized that AI-driven platforms often lacked accessibility features or were incompatible with screen readers.

Survey data also provided nuanced insights into how PWDs and caregivers perceive the usefulness of AI. Many saw strong potential for AI to support communication, education, mobility, and mental health, but expressed concerns about reliability, safety, and the risk of AI misunderstanding disability-related cues. Caregivers, particularly mothers of Children with Disabilities, expressed a desire for AI tools that could help them manage daily tasks, provide educational content, or offer emotional support—underscoring the heavy caregiving burden many families carry.

Across the three countries, innovators and developers echoed similar concerns about the lack of disability-representative datasets, limited testing environments, and inadequate pathways for scaling. They emphasized that without stronger collaboration between disability organizations, researchers, and government actors, inclusive AI tools would continue to stagnate at the pilot stage.

Project Outcomes

The project produced several important outcomes that extend beyond the life of the study. It established a shared evidence base on disability-inclusive AI in Africa, helping shape emerging discussions within national AI strategy processes. It also clarified three priorities for future action: strengthening disability data ecosystems; supporting innovation pathways that help inclusive AI tools scale; and integrating disability inclusion into national and continental AI governance frameworks.

Perhaps most importantly, the study catalyzed new collaborations among African universities, OPDs, innovators, and policymakers. These networks form the basis for a proposed Hub on AI and Disability Inclusion (HAIDI), designed to support ongoing research, dataset development, scaling mechanisms, and policy engagement.

Reflections On Value and Importance

This study arrived at a critical moment, as African countries accelerate AI adoption and define national governance frameworks. By centering disability inclusion, the project ensured that PWDs are not left behind in the digital transition. The investment produced disproportionately high value by laying the intellectual, institutional, and strategic groundwork for a new generation of disability-inclusive AI initiatives.

The findings illuminate how Africa can build AI systems that reflect its diversity, reduce inequities, and expand opportunities. The study demonstrates that inclusive AI is achievable—but only through coordinated attention to data, innovation, and governance. In this sense, the project does more than document a landscape; it

charts a pathway for ensuring that AI strengthens, rather than undermines, human rights and inclusion across the continent.