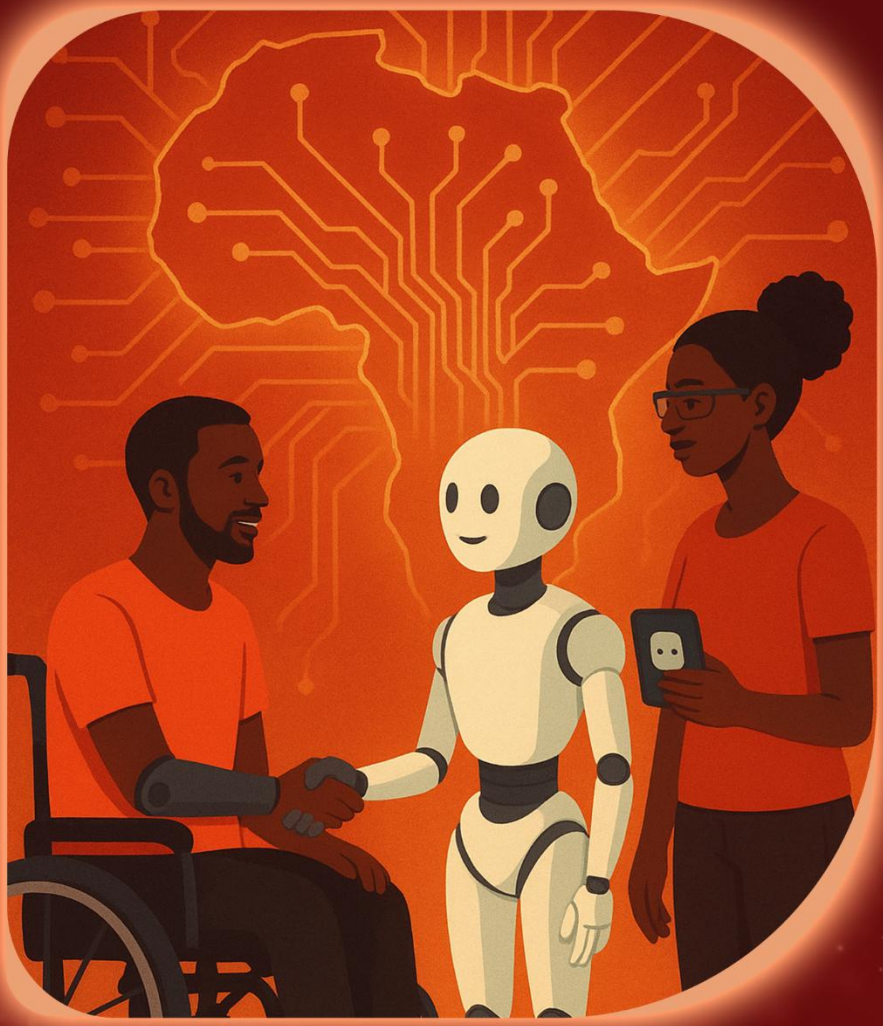
ARTIFICIAL INTELLIGENCE'S IMPACT ON PERSONS WITH DISABILITIES IN AFRICA

SUMMARY



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Assistive Technologies for Disability Trust

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Executive Summary

Artificial intelligence has the potential to improve the daily lives of Persons with Disabilities (PWDs) in Africa in practical, cumulative ways—transcribing, translating, summarizing, personalizing, and predicting to reduce routine frictions in school, work, health, mobility, and access to public services. The study surveys this emerging landscape across Kenya, Ghana, Rwanda, and comparator contexts, mapping how AI augments assistive technologies (AT) and mainstream services while clarifying the policy, data, and delivery conditions that determine real-world impact.

Across sectors, we find promising AI use cases beyond traditional AT. In education, adaptive tutors, captioning, and sign-language tools can widen access, though localized content and language coverage remain thin. In employment, AI can support job matching, accessible applications, task breakdown, and on-the-job accommodations, especially when paired with employer guidance and incentives. In mental health, chatbots can extend scarce services and offer stigma-free entry points to care; caregiver tools use voice, translation, and simple workflows to ease coordination and stress. Mobility and independent living benefit from computer vision, speech interfaces, and early robotics, with African innovators piloting sign-language avatars, personalized speech recognition, and lower-cost bionics. The potential of these advances is real but uneven—most remain pilots, and scale requires fit-for-purpose data, infrastructure, and financing.

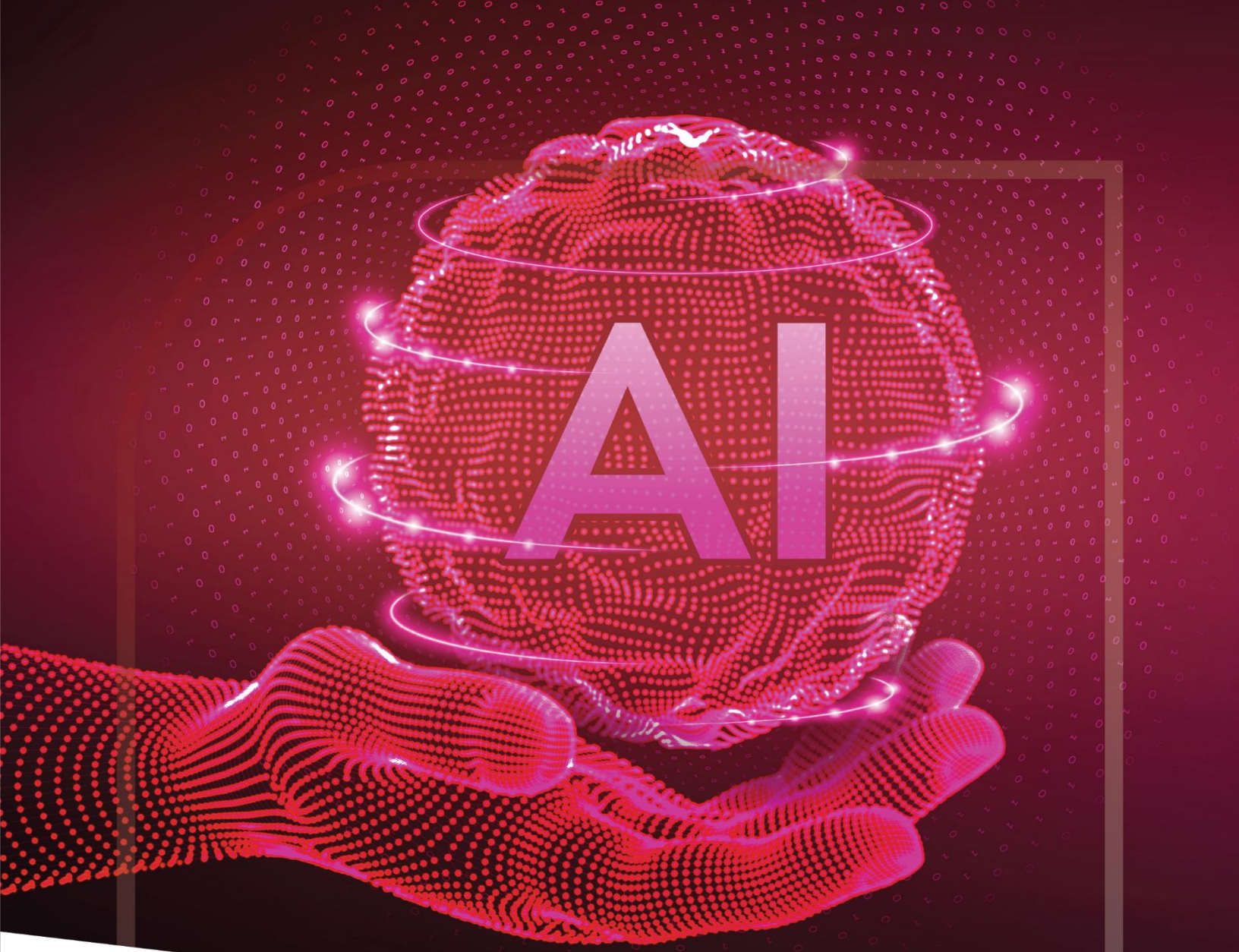
One binding constraint is data. Disability is systematically under-counted in official statistics and under-represented or misrepresented in AI training sets, creating a "disability data desert" that limits accuracy for African contexts (from atypical speech and local sign languages to recognition of mobility aids). Without deliberate collection, curation, and governance that center PWDs, models will continue to miss or misread disabled users, with downstream harms in inclusion, safety, and opportunity. Building representative, ethical datasets—especially for African languages and disabilities—emerges as a first-order priority alongside affordable computing and connectivity.

Policy momentum is encouraging but incomplete. The African Union's Continental AI Strategy (2025–2030) explicitly names disability inclusion, calling for accessible datasets, skills, and governance. Ghana's and Kenya's AI strategies also advance infrastructure, data sharing, and public-sector adoption, although explicit disability provisions are still maturing. Convergence around rights-based, inclusive AI is visible; however, its delivery depends on procurement standards, budgeting for accessibility, and participation by Organizations of Persons with Disabilities (OPDs) in the design and oversight process.

The study's central conclusion is pragmatic: AI's near-term value for disability inclusion is unlocked where three conditions meet. First, inclusion by design—co-creation with PWDs and OPDs, localized languages, and multi-modal accessibility baked into products and datasets. Second, enabling rules and rails—national strategies that mandate accessibility in digital services, robust disability-relevant data, and align incentives for inclusive procurement. Third, sustainable delivery—hybrid human-AI service models, community

channels, and financing that lower costs for users and caregivers while supporting innovators to move from pilots to scale. Where these conditions hold, AI can measurably widen access to learning, work, and care; where they do not, tools plateau as proofs-of-concept and risks of bias and exclusion grow.

Overall, the path to disability-inclusive AI in Africa is clear: invest in representative data and affordable infrastructure; mandate accessibility and accountability; and deliver through locally grounded, human-centered services. Done together, these steps turn today's pilots into equitable, reliable systems that expand agency and opportunity for millions of Africans with disabilities—and support the caregivers, educators, and employers who stand with them.



Chapter 1

Introduction to AI and Disability

Purpose and Rationale

The report "AI and Disability in Africa" explores how artificial intelligence (AI) can accelerate disability inclusion and innovation across the African continent. It was commissioned under the Artificial Intelligence for Development (AI4D) program — a partnership between Canada's International Development Research Centre (IDRC) and the UK's Foreign, Commonwealth & Development Office (FCDO) — to inform policy, research, and investment that make AI systems inclusive, ethical, and locally relevant.

Africa faces an urgent dual challenge: advancing responsible AI adoption while ensuring that Persons with Disabilities (PWDs) — estimated at 10–20% of the population — are not left behind in the digital revolution. Historically, disability has been marginalized in both data and technology ecosystems, leading to exclusion from education, employment, healthcare, and public participation. AI has transformative potential to reduce inequities, improve access to services, and foster economic inclusion, but realizing this potential requires intentional design, inclusive governance, and data justice.

Study Objectives

The research set out to:

- Map emerging AI and assistive technology (AT) initiatives across Africa, especially in Ghana, Kenya, and Rwanda.
- Identify policy gaps, data challenges, and opportunities for inclusive innovation.
- Engage stakeholders, including PWDs, caregivers, innovators, and policymakers, to co-create recommendations.
- Develop a roadmap for scaling disability-inclusive AI solutions and informing a future Disability AI Innovation Research Network under the AI4D program.

The report provides a comprehensive overview of how AI is being applied in areas such as mental health, inclusive education, employment, caregiver support, and data ecosystems, with concrete case studies from each focus country.

Approach and Methodology

The study adopted a Participatory Action Research framework, ensuring that PWDs and caregivers were not merely subjects but co-researchers and informants whose lived experiences guided the inquiry and interpretation of findings. This approach emphasized collaboration, empowerment, and practical relevance, ensuring the results reflected on-the-ground realities and community priorities.

Core Components of the Research Approach:

- Scoping Study – A review of academic, policy, and grey literature to establish the current landscape of AI and disability in Africa, including data quality, technological readiness, and policy environments.
- Stakeholder Mapping – Identification of key actors across government, civil society, academia, and the private sector involved in disability inclusion and AI innovation. This included mapping disability organizations, caregiver networks, and AI developers in Ghana, Kenya, and Rwanda.
- Regional Consultations – In-person and virtual workshops in the three focus countries gathered insights from hundreds of participants, including PWD associations, ministries, NGOs, and technology firms. These dialogues shaped the study's recommendations and ensured the integration of diverse perspectives.
- Mixed-Methods Data Collection – The team combined literature reviews, surveys, interviews, and policy analysis to capture both quantitative and qualitative dimensions.
- Tri-Partner Collaboration – The study was implemented through a partnership between Responsible AI Lab (KNUST, Ghana), Assistive Technologies for Disability (AT4D, Kenya), and Next Step Foundation (US/Kenya). Together, these partners combined academic rigor, technical expertise, and community engagement to advance disability-inclusive AI research.

The Report's Conclusions and Calls to Action

Close the Disability Data Gap

Artificial intelligence is only as inclusive as the data that shapes it. Yet across Africa, disability remains undercounted, underrepresented, and mischaracterized in digital data. Governments, research institutions, and private innovators must invest in the creation of representative, high-quality, and ethically governed datasets that reflect Africa's linguistic, cultural, and physical diversity.

- Establish national and regional disability data hubs to collect, curate, and share anonymized datasets that include PWDs.
- Support participatory data collection that engages PWDs as co-creators, ensuring that their lived experiences inform how AI systems learn and respond.
- Align data governance frameworks with principles of privacy, consent, and equity to build public trust and ensure responsible use of disability data.
- Fund longitudinal and comparative research on disability data ecosystems to evaluate gaps, test inclusive data collection methods, and develop ethical frameworks for disability data governance in Africa.

Without representative data, Africa's AI future risks replicating global patterns of exclusion. With it, the continent can lead the world in designing systems that truly serve everyone.

Create an African Network for Disability-Inclusive AI Innovation

Inclusive AI innovation cannot flourish in isolation. The continent needs a coordinated hub or network that connects researchers, startups, organizations of persons with disabilities (OPDs), and policymakers to accelerate learning, investment, and scale.

- Establish a Pan-African Disability-Inclusive AI Network under the AI4D framework to link innovators and research labs across countries.
- Launch a Disability AI Innovation Fund to support startups developing affordable, accessible solutions in assistive technology, education, health, and employment.
- Promote cross-sector collaboration through living labs, mentorship, and open-source exchanges that translate research into real-world impact.
- Support applied research within innovation hubs to test, evaluate, and document the social, economic, and ethical impacts of inclusive AI solutions — ensuring evidence informs scale-up and policy uptake.

Such a network would act as a catalyst for inclusive innovation, bridging the gap between pilot projects and scalable systems that enhance the lives of millions.

Embed Disability Inclusion in National and Continental AI Policy

AI policies that do not explicitly address disability risk leaving millions behind. Policymakers must move beyond general commitments to digital equity and adopt concrete measures for accessibility, accountability, and participation in AI ecosystems.

- Integrate disability indicators and accessibility standards into all national AI strategies, ensuring that inclusion is measurable and enforceable.
- Mandate accessibility requirements in public procurement for digital and AI systems.
- Involve OPDs and disability advocates in policy design, monitoring, and evaluation to ensure lived experience informs decision-making.
- Fund policy research and comparative analysis to assess how disability inclusion is reflected in AI strategies across Africa and to generate actionable evidence for integrating accessibility into national and regional policy frameworks.

Inclusive policy is not only a moral imperative — it is a development strategy that unlocks human potential and strengthens Africa's position in the global AI economy.

Chapter 2

Disability, Assistive Technologies, AI

Introduction

Chapter 2 of the report establishes the conceptual foundation for understanding the intersection of AI and disability in Africa. It defines and contextualizes the three key concepts—disability, AT, and AI—to provide a shared framework for policymakers, researchers, and practitioners engaged in inclusive innovation.

Defining Disability

The chapter underscores that disability is not merely a medical or biological condition but a social construct shaped by barriers in the environment, attitudes, and institutional systems. The shift from the medical model (which views disability as a defect to be fixed) to the social model (which sees disability as the result of exclusionary practices) represents a transformative change in global and African policy thinking. The UN Convention on the Rights of Persons with Disabilities (CRPD) and the African Disability Protocol reinforce this rights-based view, emphasizing inclusion, equality, and participation.

Defining Assistive Technologies (AT)

Assistive technologies refer to devices, software, and systems that enhance the functional abilities of PWDs. These include traditional tools such as wheelchairs and hearing aids, as well as digital and AI-powered solutions such as speech-to-text software, screen readers, and intelligent prosthetics. The chapter argues that AI is expanding the boundaries of assistive technology by enabling automation, personalization, and predictive capabilities that can adapt to users' needs in real time.

However, accessibility remains a major barrier in Africa due to limited availability, affordability, and cultural adaptation of ATs. The chapter calls for policies and partnerships that localize production, reduce costs, and promote innovation ecosystems where people with disabilities are co-creators rather than passive users.

Defining AI

Artificial intelligence is defined as the ability of machines to perform tasks that typically require human intelligence, such as perception, learning, decision-making, and language understanding. The report highlights AI's growing role in supporting disability inclusion—through computer vision for mobility assistance, natural language processing for communication, and machine learning for adaptive education and healthcare. Yet, the chapter cautions that AI systems trained on non-representative data risk reinforcing bias and exclusion if disability perspectives are ignored.

The intersection of AI and disability is thus framed as both an opportunity and a responsibility. Effective use of AI demands inclusive design, ethical data governance, and meaningful participation of persons with disabilities in research, testing, and policy development. This foundation sets the stage for the subsequent chapters, which

examine how AI can transform specific sectors such as education, employment, mental health, and caregiving.

Chapter 3

Background: Disability and Development in Africa

Introduction

Chapter 3 provides a comprehensive overview of the historical, social, and policy context shaping disability and development across Africa. It establishes how colonial legacies, data scarcity, systemic poverty, and cultural stigma have contributed to the persistent exclusion of PWDs from education, healthcare, employment, and political participation. The chapter argues that inclusive development requires a shift toward rights-based frameworks and investment in data systems, infrastructure, and technologies that reflect Africa's diversity.

Historical and Structural Context

Historically, colonial and post-colonial governments in Africa did not prioritize disability inclusion, often relegating PWDs to charity-based or institutional care. This legacy of exclusion persists today in the form of weak policy enforcement and fragmented social services. It was only with the adoption of the UN's CRPD and the African Disability Protocol that disability began to be recognized as a human rights issue, prompting several countries to include disability in national development agendas.

Data and Demographic Challenges

Reliable data on disability in Africa remains scarce and inconsistent. National surveys often underestimate prevalence due to stigma, underreporting, and narrow definitions focused on physical impairments. UNICEF estimates that nearly 29 million children in Eastern and Southern Africa live with disabilities, though this figure is likely conservative. Without disaggregated and reliable data, policymakers struggle to allocate resources effectively or design inclusive programs. This 'data desert' underscores the need for AI-driven solutions and improved national data systems that can accurately represent the realities of PWDs.

Disability, Poverty, and Exclusion

The chapter highlights the bidirectional relationship between disability and poverty: disability can lead to poverty through limited access to education and employment, while poverty increases vulnerability to disabling conditions due to malnutrition, unsafe working conditions, and limited healthcare. Over 70% of PWDs in Sub-Saharan Africa live in rural areas with limited access to services. Excluding PWDs from the workforce costs African economies an estimated 3–7% of GDP annually, illustrating the economic cost of inaccessibility.

Education, Health, and Social Stigma

Education remains one of the largest barriers to inclusion. Children with Disabilities in Africa are less likely to complete primary school and even more unlikely to transition to secondary school than their peers without disabilities. Barriers include inaccessible infrastructure, lack of trained teachers, and stigmatization by peers and

communities. In healthcare, discrimination and inaccessibility of facilities further marginalize PWDs, while access to assistive technologies such as wheelchairs or hearing aids remains extremely low. Cultural stigma—rooted in beliefs that disability is a curse or punishment—continues to isolate individuals and families, perpetuating cycles of exclusion.

Policy and Cultural Shifts

Despite challenges, progress is emerging. Many African Union member states have ratified the CRPD and adopted disability rights legislation. The African Disability Protocol contextualizes these principles within African realities, addressing harmful traditional practices and intersectional discrimination. However, enforcement remains inconsistent, and civil society organizations often fill the implementation gap. The chapter concludes that dismantling attitudinal and systemic barriers—through awareness, education reform, and inclusive policy design—is essential to achieving sustainable disability inclusion.

Chapter 4

The Rise of AI in Global and African Contexts

Introduction

Chapter 4 traces the global evolution of AI and examines Africa's entry into this rapidly expanding ecosystem. It highlights how AI's transformative potential—spanning automation, data analytics, and human–machine collaboration—can be harnessed to address pressing development challenges, including disability inclusion. The chapter situates Africa's progress within broader global trends, emphasizing the opportunities and obstacles that shape responsible and equitable AI adoption.

Global Momentum and Technological Evolution

The global rise of AI has been driven by advances in computing power, data availability, and machine learning. AI now underpins major industries from healthcare and education to finance and agriculture. Internationally, frameworks such as UNESCO's 2021 Recommendation on the Ethics of Artificial Intelligence and the OECD AI Principles guide governments toward ethical, inclusive, and rights-based AI development. These principles emphasize fairness, transparency, and accountability—values that are critical for protecting marginalized groups, including PWDs.

Africa's Entry into the AI Ecosystem

African countries are increasingly recognizing AI's potential for social and economic transformation. The continent has seen the emergence of AI strategies, innovation hubs, and research labs in countries such as Ghana, Kenya, Rwanda. These initiatives are supported by academic centers, startups, and public–private partnerships focused on localization of AI tools. However, despite this momentum, Africa's share of the global AI market remains small due to persistent structural barriers—limited digital infrastructure, lack of skilled AI professionals, low investment in research, and inadequate policy coordination across borders.

Challenges of Localization and Representation

A central theme of the chapter is that Africa's AI landscape must reflect its linguistic, cultural, and socioeconomic diversity. Most AI models are trained on datasets from the Global North, leading to poor representation of African realities and the exclusion of minority languages. The chapter warns that without localized data and inclusive design, AI tools risk replicating biases and inequities. Addressing these gaps requires investment in African data ecosystems, open-access repositories, and the inclusion of disability-relevant datasets.

Digital Infrastructure and Capacity Constraints

AI's growth in Africa depends on foundational digital infrastructure—reliable electricity, affordable broadband, data centers, and skilled human capital. Many countries continue to face significant connectivity gaps, particularly in rural areas. Capacity building is equally vital: while the continent has seen a rise in AI training

programs and coding bootcamps, there remains a shortage of local talent to sustain long-term AI innovation. Strengthening education systems, research institutions, and international partnerships is essential to build a robust ecosystem.

Opportunities for Disability-Inclusive AI Leadership

The chapter concludes that Africa's AI expansion presents an opportunity to embed inclusion from the outset. By integrating accessibility, ethical governance, and participatory design into national AI strategies, Africa can pioneer models of 'AI for Good' that serve diverse communities, including PWDs. The growing recognition of responsible AI principles signals a shift toward inclusive innovation. If governments, private sector actors, and civil society collaborate effectively, AI can become a cornerstone for equitable development and disability inclusion across the continent.

Chapter 5

Rationale for a Focus on Disability and AI

Introduction

Chapter 5 articulates the rationale for linking disability inclusion with AI development in Africa. It argues that AI and disability represent two transformative frontiers—each reshaping how societies function, access services, and define participation. Yet, without deliberate inclusion, the rapid growth of AI could reinforce existing inequities faced by PWDs. The chapter calls for an intentional, intersectional approach to ensure that emerging AI systems become enablers rather than barriers to inclusion.

Bridging Two Transformative Frontiers

AI is redefining economies, public services, and communication, while disability inclusion challenges long-standing social and structural barriers. Integrating these two agendas offers a unique opportunity to accelerate inclusive development. The chapter emphasizes that as AI reshapes access to education, healthcare, and employment, it can simultaneously dismantle barriers that exclude PWDs—if designed responsibly. Conversely, exclusion from AI design and data will deepen inequalities, reproducing digital systems that ignore the needs of disabled users.

The Risk of Compounded Exclusion

The chapter warns that the digital divide can create new forms of exclusion layered upon existing ones. AI systems trained on incomplete or biased data often fail to recognize or serve PWDs, perpetuating social invisibility. Examples include speech recognition tools that cannot interpret non-standard speech patterns or hiring algorithms that misread disability-related gaps in resumes. Without corrective action, the AI revolution risks amplifying ableism within digital ecosystems and development policy.

Disability as a Driver of Innovation

Disability inclusion is presented not only as a moral imperative but also as a catalyst for innovation. Many technologies that benefit all users—such as voice assistants, predictive text, and captioning—originated as accessibility tools. By centering the needs of PWDs, AI developers can design solutions that are more adaptive, resilient, and universally usable. The chapter calls this the 'curb-cut effect' of inclusive AI: innovations made for marginalized groups tend to improve usability for everyone.

Intersectionality and Inclusive Development

Recognizing intersectionality, the chapter notes that disability often overlaps with gender, poverty, and geography. Women with Disabilities, for instance, face higher unemployment and lower digital access. Therefore, policies promoting AI for development must integrate a disability lens across all sectors—education, health, employment, and governance. Inclusive design, accessible infrastructure, and

equitable data representation are essential to achieving the Sustainable Development Goals (SDGs).

Global Momentum Meets Local Urgency

Globally, there is growing momentum toward responsible and inclusive AI. Organizations such as the UN, OECD, and African Union emphasize fairness, transparency, and equity in AI governance. The African context adds urgency: as the continent adopts AI-driven systems, embedding accessibility from the start can prevent the replication of global inequities. By leveraging Africa's youthful population, mobile innovation, and social entrepreneurship, the region can become a global leader in ethical, disability-inclusive AI.

A Call to Reframe

The chapter concludes with a call to reframe AI not merely as a technical innovation but as a tool for social transformation. It urges governments, researchers, and developers to embed disability inclusion into AI policy, design, and data governance frameworks. Only by engaging PWDs as co-creators can Africa ensure that AI advances human rights, expands opportunities, and supports full participation for all.

Chapter 6

AI and the Future of Assistive Technology in Africa

Introduction

Chapter 6 explores how AI is transforming the field of AT in Africa. It highlights the shift from traditional mechanical or static tools to intelligent, adaptive systems that can learn from user behavior and environmental inputs. The chapter argues that AI-enhanced assistive technologies can significantly expand accessibility, independence, and participation for PWDs, while also presenting challenges related to cost, infrastructure, and ethical deployment.

Why AI Matters for Assistive Technology Now

AI is redefining assistive technology by introducing automation, personalization, and predictive capabilities. Machine learning enables devices to adapt to users' specific needs—such as learning an individual's speech patterns, movement style, or visual preferences. This adaptability makes AI-driven AT more effective and user-centered than traditional one-size-fits-all tools. In Africa, these innovations are particularly relevant given the shortage of rehabilitation professionals and the inaccessibility of conventional ATs.

Improving Existing Tools

AI is improving the functionality and efficiency of existing assistive devices. Examples include voice recognition systems for users with speech impairments, computer vision tools that help people with low vision navigate environments, and AI-powered hearing aids that automatically adjust to background noise. Innovations such as Signvrse, a Kenyan social enterprise using AI and 3D avatars to break communication barriers between Deaf and hearing communities, demonstrate how context-specific design can make ATs more affordable and accessible. These advances bridge communication gaps and foster greater social inclusion.

Creating New Categories of Assistive Technology

Beyond improving existing tools, AI is enabling entirely new forms of assistive technology. Intelligent prosthetics that learn from muscle signals, smart wheelchairs that navigate autonomously, and speech-to-text applications in African languages exemplify the next generation of inclusive innovation. In Tunisia, startups like Cure Bionics use 3D printing and AI to produce affordable bionic limbs tailored to African users. Such developments expand the definition of assistive technology from compensatory devices to empowerment tools that enhance quality of life and participation.

Barriers to Adoption

Despite rapid innovation, the chapter cautions that many African countries face significant barriers to scaling AI-enabled ATs. These include high production costs, unreliable electricity and internet connectivity, limited access to digital devices, and low awareness among users and policymakers. Moreover, imported technologies often

fail to reflect local cultural or linguistic realities, limiting their usefulness. The chapter calls for policies that promote local manufacturing, open-source design, and inclusive procurement to ensure long-term sustainability.

Chapter 7

Use of AI Beyond Assistive Technologies

Introduction

Chapter 7 broadens the focus of the report by examining how AI extends beyond traditional AT to address systemic challenges that affect PWDs in education, employment, mental health, and caregiving, each of which is discussed in greater lengths in subsequent chapters. The chapter argues that while AI-powered ATs are critical for individual empowerment, the next frontier lies in applying AI to reform institutions, expand access to services, and promote social inclusion at scale across Africa.

AI for Mental Health and Psychosocial Support

AI-driven mental health tools, such as chatbots and digital therapy platforms, are helping fill critical service gaps in low-resource settings. These tools can offer private, stigma-free mental health support to PWDs and caregivers who often face stress, anxiety, and depression due to social exclusion. For instance, Next Step Foundation's Tumaini.ai is an AI-enabled mental health support chatbot that delivers cognitive behavioral therapy (CBT), tracks emotional patterns, and connects users to support networks and was co-designed with PWDs to address their unique mental health challenges. Such innovations hold promise for improving well-being, though they must be designed with strong safeguards for data privacy and cultural relevance.

AI for Inclusive Employment and Economic Empowerment

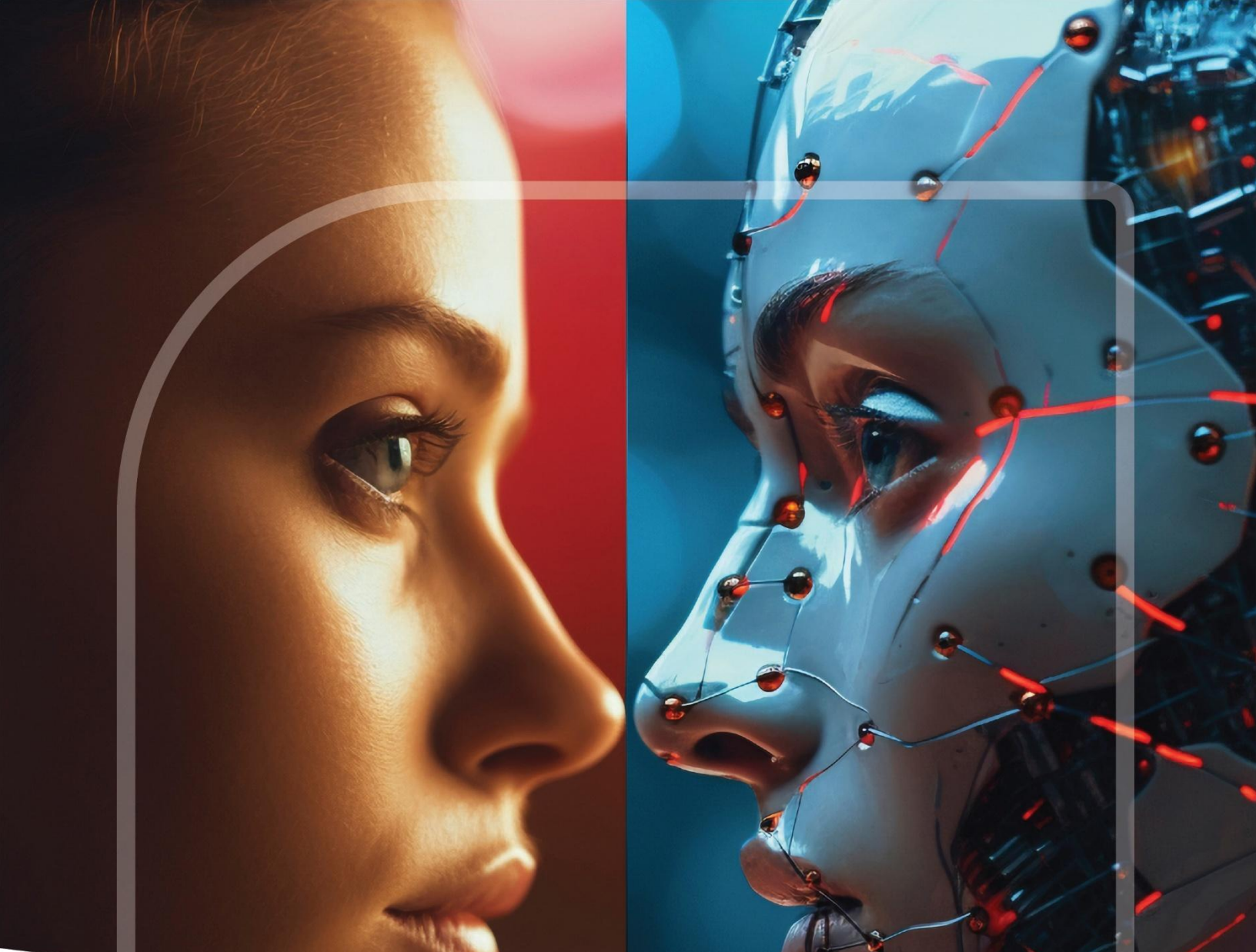
AI is creating new opportunities for PWDs in the labor market by enhancing access to training, job matching, and workplace accommodation. Machine learning algorithms can match jobseekers with disabilities to suitable roles, suggest adaptive technologies for specific tasks, and help employers adopt inclusive hiring practices. Generative AI tools also assist jobseekers in creating resumes and preparing for interviews. However, the chapter cautions that biased AI recruitment systems can perpetuate discrimination if training data lacks disability representation, underscoring the need for auditing and ethical oversight.

AI for Education and Learning

AI has the potential to revolutionize inclusive education by tailoring learning materials to the needs of students with disabilities. Adaptive learning systems can adjust difficulty levels, provide real-time feedback, and convert materials into accessible formats such as Braille, sign language, or audio. Natural language processing and speech recognition also enable multilingual and multimodal education tools, improving literacy and participation among students with diverse disabilities. In Africa, however, localized data and accessible digital infrastructure remain prerequisites for scaling these solutions.

AI for Caregiver Support

AI systems are increasingly supporting caregivers of children and adults with disabilities by streamlining coordination, monitoring, and emotional support. Voice assistants and chatbots can remind caregivers about medication schedules, connect them to social services, and provide stress management exercises. AI-enabled networks can also link caregivers to peer support communities, reducing isolation and sharing best practices. These innovations demonstrate how AI can strengthen the entire care ecosystem, not just individual users.



Chapter 8

GenAI-Enabled Mental Health Tools for Persons with Disabilities in Sub-Saharan Africa: Risks and Opportunities

Introduction

Chapter 8 examines the emergence of generative artificial intelligence (GenAI) in the field of mental health and its potential to support PWDs and their caregivers in Sub-Saharan Africa. It highlights how AI-driven chatbots, virtual agents, and personalized digital companions can address the severe shortage of mental health professionals while providing accessible, stigma-free support. However, the chapter also underscores the ethical, cultural, and safety challenges associated with deploying these technologies in low-resource settings.

Mental Health Challenges for PWDs and Caregivers

PWDs and their caregivers face significant psychological burdens stemming from poverty, stigma, and social isolation. Many live in environments with limited access to mental health services, and caregivers often experience high levels of stress and burnout. The chapter emphasizes that mental health support is both a human right and a development issue, integral to improving quality of life and participation.

Promise of GenAI in Expanding Access

GenAI tools—such as conversational chatbots and AI-assisted therapy platforms—can help democratize mental health care by offering 24/7, affordable, and private support. These tools use natural language processing to engage users in guided conversations, teach coping strategies, and monitor emotional well-being. Because they can operate via text, voice, or sign-language avatars, GenAI systems have the potential to reach people with various disabilities, including visual, hearing, and mobility impairments.

Opportunities and Benefits

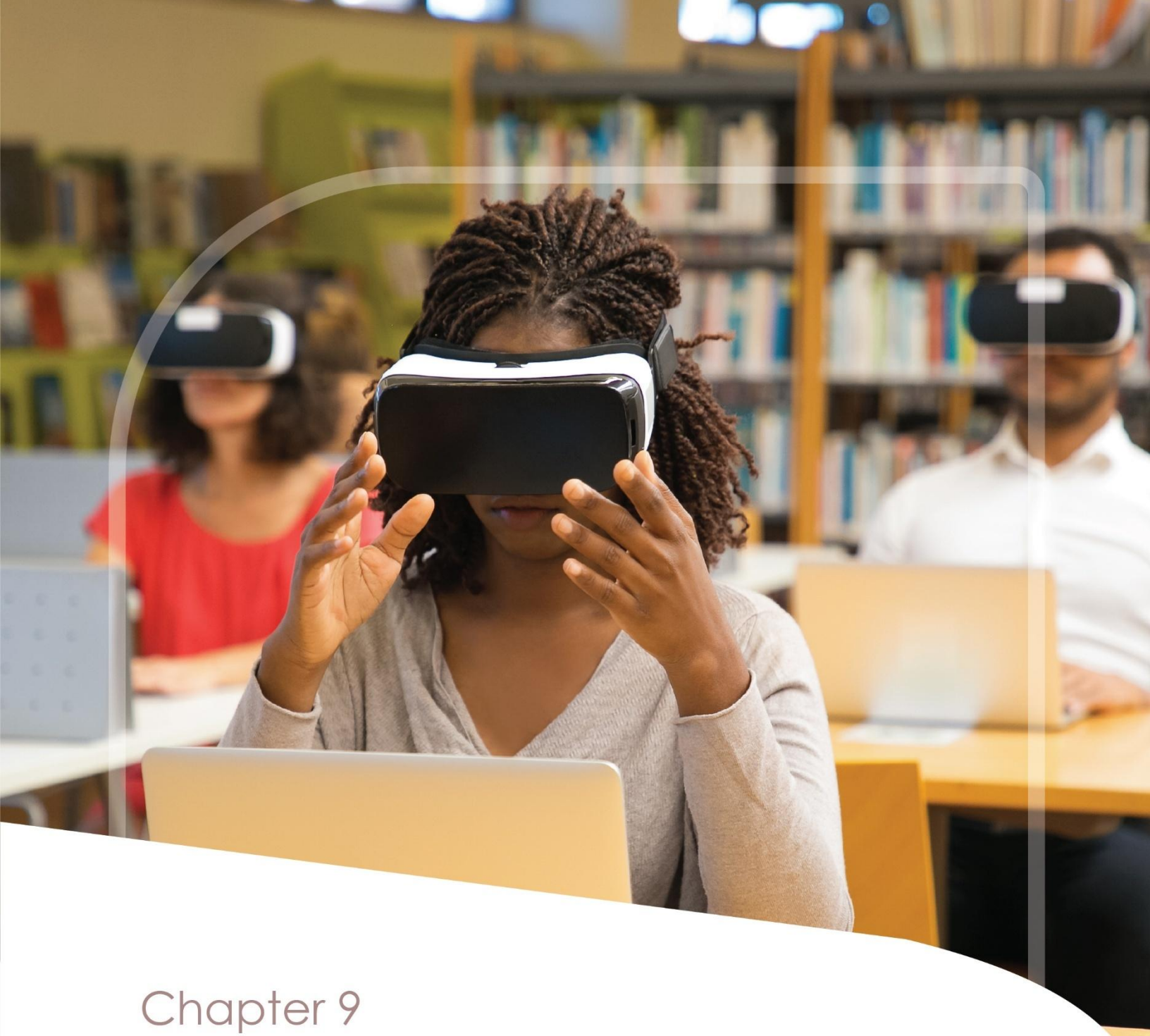
The chapter identifies several benefits of GenAI-enabled mental health tools: expanding coverage where professionals are scarce, offering culturally sensitive self-help resources, and providing early detection of distress through voice and text analysis. AI-driven platforms can support neurodiverse users by personalizing content and pacing interactions according to user ability and comfort.

Risks and Ethical Concerns

Despite their promise, GenAI mental health tools pose serious risks if not properly regulated. These include the potential for misinformation, data breaches, and the absence of human oversight in crisis situations. Bias in AI training data could lead to culturally inappropriate or harmful advice, particularly for marginalized groups. The chapter calls for robust ethical frameworks, including user consent, transparency, and integration of AI systems within existing human-led care structures.

Strategies for Safe and Inclusive Deployment

To ensure safety and inclusion, the report recommends participatory design involving PWDs, caregivers, and mental health experts; localization of language and content; and establishment of regulatory oversight mechanisms. Hybrid human-AI service models—where AI assists but does not replace human professionals—are identified as best practice for building trust and ensuring quality of care.



Chapter 9

AI for Inclusive Learning: Improving Education for Youth with Disabilities in Africa

Introduction

Chapter 9 explores how AI can advance inclusive education for Youth with Disabilities (YWDs) in Africa. It highlights the transformative potential of AI to personalize learning, remove communication barriers, and address long-standing inequities in access to quality education. Despite these opportunities, the chapter underscores the persistent challenges of cost, infrastructure, and cultural attitudes that hinder full inclusion in education systems across the continent.

Education Challenges for Youth with Disabilities

Across Sub-Saharan Africa, YWDs face major obstacles to education, including inaccessible classrooms, a shortage of trained teachers, and widespread stigma. YWDs are significantly less likely to complete their education compared to their peers without disabilities. Even where inclusive education policies exist, implementation is inconsistent and often underfunded. The digital divide further excludes learners who lack access to devices or reliable internet.

Promise of AI for Inclusive Learning

AI presents new opportunities to improve learning outcomes by adapting content and pedagogy to individual learner needs. Adaptive learning systems can assess student performance in real time and adjust lessons accordingly, helping students with disabilities progress at their own pace. Natural language processing, speech-to-text, and text-to-speech technologies can make educational content accessible to learners who are blind, deaf, or have cognitive impairments. AI tools can also translate materials into local languages and facilitate communication between students and teachers.

Opportunities and Applications

AI-powered educational tools, such as intelligent tutoring systems, captioning software, and sign-language translation apps, are already emerging in Africa. These innovations demonstrate how localized AI design can bridge communication gaps and promote equity. Additionally, AI can help policymakers identify inclusion gaps by analyzing education data to target resources effectively.

Barriers and Considerations

The chapter cautions that scaling AI in education faces multiple barriers: limited infrastructure, high technology costs, and a shortage of inclusive digital content. AI systems trained on non-African data often fail to reflect the linguistic and cultural contexts of African learners. There are also ethical concerns regarding data privacy, especially for children and persons with disabilities. The report stresses the importance of data governance, inclusive policy frameworks, and capacity-building to ensure responsible deployment.

Chapter 10

AI and Disability-Inclusive Employment in sub-Saharan Africa

Introduction

Chapter 10 explores how AI can transform employment opportunities for PWDs in Sub-Saharan Africa. It identifies the systemic barriers that limit access to work, the challenges employers face in achieving inclusion, and the potential of AI-driven tools to promote equitable participation in the labor market. The chapter argues that while AI offers powerful tools for inclusion, it also poses risks of reinforcing existing biases if not carefully designed and governed.

Barriers to Employment

PWDs across Africa remain underrepresented in formal and informal employment due to multiple intersecting barriers—educational disadvantages, inaccessible workplaces, and social stigma. In Kenya, for instance, only about 3.5% of PWDs are employed despite a 5% government quota. Women with Disabilities face particularly high rates of unemployment and underemployment. Physical, digital, and transportation barriers compound these inequities, while weak enforcement of disability laws limits progress. The chapter stresses that without intentional inclusion, economic growth will continue to bypass millions of capable individuals with disabilities.

Challenges for Employers

Employers often cite lack of awareness, training, and perceived costs of accommodation as reasons for not hiring PWDs. Many are unaware of existing disability rights laws or tax incentives for inclusive hiring. Stereotypes about productivity and competence further marginalize candidates with disabilities. The report emphasizes that these challenges can be overcome through stronger enforcement of accessibility policies, capacity building for employers, and clearer guidance on workplace adaptations, all of which can be facilitated via AI.

AI and GenAI as Enablers of Inclusion

AI and GenAI technologies can enhance inclusion by personalizing job searches, automating accessibility features, and improving task matching. Accessible job platforms can use AI to offer voice, text, or video-based application processes, while intelligent algorithms can connect PWDs to disability-friendly employers. Generative AI tools can help applicants draft resumes and cover letters or simulate interviews. For employers, AI can support inclusive hiring practices by identifying ableist language in job descriptions and modeling workplace accommodations. These innovations make employment systems more inclusive when implemented responsibly.

Risks and Policy Considerations

The chapter cautions that AI can also perpetuate exclusion if training data lacks representation of PWDs. For example, hiring algorithms may misinterpret disability-related gaps in work history as performance issues. Bias in facial or speech recognition can lead to unfair screening outcomes. To mitigate these risks, the chapter calls for auditing AI recruitment systems, enforcing disability-inclusive data standards, and involving PWDs in technology design and testing.

Chapter 11

Supporting Caregivers of Children with Disabilities in Sub-Saharan Africa: Challenges, Stigma, and the Promise of AI Tools

Introduction

Chapter 11 explores the experiences of parents and caregivers of Children with Disabilities (CWDs) in Sub-Saharan Africa and examines how AI can help alleviate their daily burdens. The chapter highlights how cultural stigma, economic hardship, and lack of institutional support combine to create significant stress and mental health challenges for caregivers. It also presents AI-based solutions that could provide emotional support, improve coordination of care, and enhance access to information and services.

Challenges Faced by Caregivers

Caregivers—predominantly mothers—often face stigma, discrimination, and social isolation due to cultural beliefs that associate disability with curses or misfortune. In addition to emotional distress, they experience severe economic pressures caused by high medical and educational expenses and loss of income opportunities. Physical exhaustion is common, particularly when caring for children with mobility or cognitive impairments in homes lacking basic accessibility features. Access to healthcare, assistive devices, and educational opportunities for their children is limited, especially in rural and low-income communities.

Psychological and Social Impacts

The chapter notes that chronic stress, anxiety, and depression are widespread among caregivers, exacerbated by stigma and the absence of mental health services. In many cases, caregivers conceal their child's disability to avoid discrimination, which further isolates them. The lack of community and institutional support contributes to long-term psychological strain, affecting both caregivers' well-being and their ability to provide effective care.

The Promise of AI Tools

AI technologies can play a transformative role in supporting caregivers. Chatbots and voice-based applications can provide mental health support, caregiving advice, and reminders for daily routines. AI-powered translation tools can bridge communication gaps between caregivers, teachers, and healthcare providers. Machine learning systems can analyze caregiver stress patterns through speech or text data, helping identify when intervention is needed. These tools offer accessible, round-the-clock assistance and can be localized into African languages to ensure cultural relevance.

Opportunities for Empowerment

AI-driven platforms can connect caregivers through digital self-help groups, creating peer support networks that reduce isolation and promote resilience. Voice-enabled training tools can deliver accessible education on financial literacy, healthcare navigation, and parenting strategies, even for those with limited literacy. By

leveraging data analytics, policymakers and NGOs can better identify areas of greatest caregiver need and allocate resources more efficiently.

Chapter 12

Bridging the Data Gap: Disability Representation in AI Datasets

Introduction

Chapter 12 addresses one of the most pressing challenges in developing inclusive AI systems—the lack of disability representation in datasets. It explains how data gaps and biases systematically exclude PWDs from AI tools and decision-making systems, resulting in technologies that fail to recognize or serve their needs. The chapter highlights ongoing efforts to close this 'disability data desert' and offers recommendations for building equitable and representative AI ecosystems in Africa.

Disability Bias and Underrepresentation

AI models are only as inclusive as the data used to train them. Yet, most datasets lack disability-related data or misrepresent disabled individuals through stereotypes. Common problems include underrepresentation of PWDs in training datasets, inconsistent definitions of disability, and mislabeling of assistive devices as anomalies. As a result, AI systems often fail to detect wheelchairs, sign language, or atypical speech patterns—leading to exclusion in services such as hiring, healthcare, and education. Bias also appears in language models, where disability-related terms are frequently associated with negative sentiment.

African Context and the 'Data Desert'

In Africa, these data challenges are intensified by systemic underreporting and limited infrastructure for data collection. Cultural stigma and lack of standardized survey instruments cause disability to be vastly undercounted in national statistics. AI developers across the continent often rely on imported datasets from the Global North, which fail to capture African languages, cultural nuances, or local assistive technologies. This dependence reinforces digital inequality and constrains the development of locally relevant solutions for PWDs.

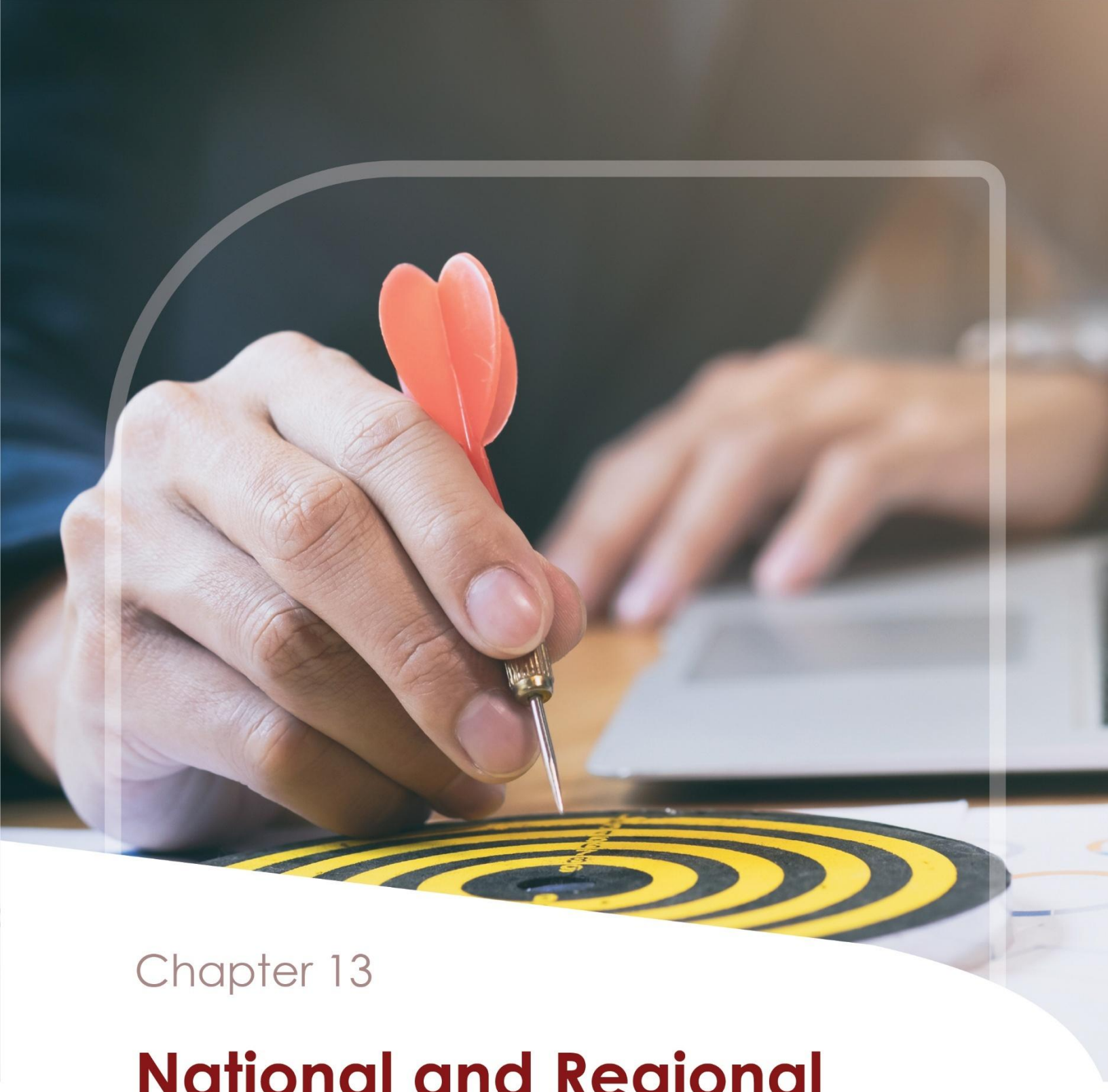
Efforts to Create Inclusive Datasets

Global technology companies and NGOs have begun addressing these issues by collecting more inclusive data. For example, Microsoft's collaboration with Be My Eyes gathers video data from blind users to improve computer vision models, while Google's Project Euphonia works to make speech recognition more accurate for people with atypical speech. In Africa, universities and local innovators are starting to build datasets that include disability diversity—such as speech samples from speakers with impairments and sign language video corpora. These initiatives demonstrate that inclusive AI begins with participatory data practices involving PWDs directly.

Policy and Ethical Considerations

The chapter calls for stronger data governance frameworks that balance inclusion with privacy and consent. It advocates for open, representative datasets developed under ethical standards that respect PWDs' autonomy and ensure transparency in data use. Governments, civil society, and research institutions must collaborate to

establish national disability data strategies and ensure PWDs are co-creators in these processes.



Chapter 13

National and Regional AI Strategies

Introduction

Chapter 13 provides an overview of emerging national and regional AI strategies across Africa, focusing on how these frameworks integrate—or overlook—disability inclusion. The chapter reviews the African Union's (AU) Continental AI Strategy alongside national initiatives in Ghana, Kenya, and Rwanda, identifying promising developments and persistent gaps. It emphasizes that while Africa's AI momentum is accelerating, explicit commitments to accessibility and disability representation remain limited.

African Union Continental AI Strategy (2025–2030)

The AU Continental AI Strategy, endorsed in 2024, offers a unified roadmap for Africa's 55 member states to leverage AI for sustainable and inclusive development. The strategy prioritizes ethical governance, data sovereignty, capacity building, and regional collaboration. Importantly, it explicitly recognizes PWDs as a key group requiring inclusion in AI systems, calling for AI solutions that understand local languages, promote accessibility, and reflect Africa's social diversity. Implementation plans include developing national AI strategies, building open datasets, and investing in AI infrastructure and education.

National AI Strategies

Several African countries have launched national AI strategies to harness innovation for development. Ghana's National Artificial Intelligence Strategy (NAIS) for 2023–2033 focuses on digital infrastructure, open data, and youth empowerment, though disability inclusion is not explicitly addressed. Kenya's Artificial Intelligence Strategy 2025-2030 emphasizes innovation, data governance, and digital transformation, while Rwanda's National AI Policy supports AI adoption in public services, health, and education. However, across all three countries, dedicated measures for PWD inclusion remain limited to general references to digital equity. The chapter argues that without explicit disability provisions—such as accessibility standards, funding for assistive AI, and inclusive training—PWDs risk being left out of national innovation ecosystems.

Regional Cooperation and Policy Alignment

The chapter highlights the importance of harmonizing AI policies across Africa to promote shared standards, ethical guidelines, and data-sharing protocols. Organizations such as the AU Development Agency (AUDA-NEPAD) are leading efforts to coordinate research, skills development, and ethical AI frameworks. The report stresses that regional collaboration can accelerate inclusion if disability stakeholders are actively engaged in policy design and monitoring.

Challenges and Opportunities for Inclusion

Key challenges identified include the lack of disaggregated data, limited participation of disability organizations in policymaking, and low funding for inclusive AI research. Yet opportunities abound: Africa's AI policymaking phase presents a rare chance to embed accessibility principles from the outset. Incorporating universal design, disability representation in datasets, and funding for localized assistive technologies can ensure no one is left behind in the AI revolution.

Chapter 14

Survey Findings and Implications

Introduction

Chapter 14 presents the empirical findings of surveys conducted in Ghana, Kenya, and Rwanda as part of the AI and Disability in Africa study. The surveys sought to understand awareness, usage, and perceptions of AI and AT among PWDs, caregivers, educators, and innovators. The chapter provides a nuanced look at how access, affordability, and local context shape the adoption of AI-enabled solutions for disability inclusion.

Purpose and Scope of the Surveys

The surveys were designed to complement the study's qualitative consultations and literature review, providing quantitative insights into the lived realities of PWDs across different environments. Participants included individuals with visual, hearing, mobility, and cognitive impairments, as well as caregivers and representatives of OPDs. The research team collected data on technology access, affordability, digital literacy, and perceptions of AI's potential to improve quality of life.

Awareness, Use, and Perceived Value of AI

Findings reveal that general awareness of AI remains low across all three countries, though there is growing interest in learning more about how it can be applied to accessibility. Respondents who had encountered AI—mainly through smartphones, social media algorithms, or voice assistants—recognized its potential for improving education, communication, and healthcare. However, most viewed AI as a distant or elite technology, reflecting both limited exposure and inadequate public education on its everyday applications. Among caregivers, there was strong enthusiasm for AI tools that could reduce their workload, such as scheduling apps, translation services, or emotion-detection systems for CWDs.

Accessibility and Affordability

The surveys found that access to digital devices and reliable internet remains uneven, with rural and low-income PWDs facing the greatest challenges. Cost emerged as the single most significant barrier to adopting AI and AT solutions. Many respondents reported difficulty affording smartphones, data plans, or assistive devices. Even when technologies existed, they were often not localized or were incompatible with local languages. The affordability gap is compounded by the lack of government subsidies or social protection programs for assistive technologies.

Localization, Language, and Design Fit

Participants emphasized the need for AI and AT tools to reflect African languages, cultures, and social norms. A lack of localized interfaces and content significantly reduced usability and adoption. For instance, visually impaired users noted that

screen readers often fail to interpret local dialects or accents, while deaf participants reported that available sign-language applications do not cover regional variations such as Rwandan or Ghanaian Sign Language. Respondents also pointed to accessibility issues in mobile app design, including small text, low contrast, and complex navigation.

Insights from Caregivers and Innovators

Caregivers expressed optimism about AI's potential to ease emotional and logistical burdens. They valued tools that could help coordinate appointments, manage therapies, and access reliable information. However, they cautioned that poorly designed AI systems could reinforce dependency or cause frustration if they were too complex to use. Innovators and developers identified similar barriers, including limited access to disability-specific datasets, high infrastructure costs, and lack of investment in inclusive technology startups. They advocated for partnerships between universities, OPDs, and governments to support user-centered design and testing of AI solutions.

Policy and Financing Gaps

Across all three countries, respondents identified weak policy frameworks and inadequate financing as key constraints on scaling disability-inclusive innovation. Although governments have adopted ICT or digital transformation strategies, few include specific measures for disability access. Public procurement processes rarely prioritize accessible technologies, and there is minimal coordination between ministries of technology, education, and social services. Respondents called for targeted funding programs, incentives for inclusive businesses, and national data systems that better capture disability statistics.

Country-Level Findings

In Ghana, respondents demonstrated relatively high levels of digital awareness but cited affordability and infrastructure as limiting factors. Kenya's tech ecosystem showed greater innovation and entrepreneurial engagement, yet most inclusive AI initiatives remained small-scale pilots. Rwanda reported strong policy alignment and government interest in AI, though disability representation in national innovation programs was limited. These findings underline the need for regional coordination to share lessons and harmonize inclusive technology standards.

Implications for Practice and Policy

The chapter concludes that inclusive AI adoption in Africa requires a multi-layered approach—strengthening infrastructure, improving digital literacy, and embedding accessibility in design and policy. Collaboration between disability organizations, governments, and private-sector actors is essential to bridge the divide between innovation and inclusion. The report recommends integrating disability indicators

into national AI policies, establishing inclusive innovation funds, and promoting public education to demystify AI for local communities.

Chapter 15

Conclusion and Recommendations

Introduction

Chapter 15 synthesizes the findings of the AI and Disability in Africa study, offering a forward-looking roadmap for building inclusive, ethical, and disability-centered AI ecosystems across the continent. It emphasizes that AI has the potential to radically improve education, healthcare, employment, and social participation for PWDs, but only if inclusion is built into every stage of design, data collection, and policy implementation. The chapter transitions from analysis to action, outlining practical recommendations for governments, donors, innovators, and civil society.

Key Insights and Cross-Cutting Themes

The study's core message is that disability inclusion is not an optional add-on but a prerequisite for responsible AI. The report demonstrates that exclusion often stems not from technology itself but from the data, policies, and attitudes surrounding it. PWDs remain invisible in datasets, underrepresented in AI development, and underserved by digital services. Bridging these gaps requires coordinated investment in data infrastructure, capacity building, and inclusive design.

Three cross-cutting lessons emerge: first, that AI's impact depends on representation—data must reflect Africa's diversity and include disability-related variables; second, that governance matters—national and regional AI strategies must integrate accessibility mandates and funding mechanisms; and third, that scaling innovation requires coordinated action from all stakeholders, especially PWDs.

Opportunities for the Next Decade

AI offers unprecedented opportunities to transform accessibility, expand education, improve healthcare delivery, and create new pathways for employment. In the next decade, AI could help achieve universal access to assistive technologies, automate translation for local sign languages, and enhance inclusive education through adaptive learning platforms. AI-enabled mental health tools, caregiver support systems, and data-driven employment platforms represent some of the most promising innovations. These applications can advance several SDGs, including those related to health, education, decent work, and reduced inequalities.

Policy and Governance Recommendations

The chapter calls on African governments to mainstream disability inclusion into all AI-related legislation and national strategies. Specific recommendations include adopting procurement policies that require accessibility compliance, developing open datasets that include disability demographics, and integrating disability indicators into national statistics systems. Governments should also create regulatory sandboxes for testing inclusive AI applications and expand digital literacy programs for PWDs and caregivers.

Data and Research Priorities

Closing the disability data gap is a prerequisite for equitable AI systems. The report urges the creation of regional data hubs and partnerships between universities, disability organizations, and technology firms to collect and curate representative datasets. These initiatives must uphold strong data governance principles—privacy, consent, transparency, and equity. Investing in participatory data collection and inclusive AI research will strengthen Africa's ability to design technologies that truly reflect its populations.

Scaling Innovation and Partnerships

To move from pilot projects to systemic impact, innovation ecosystems must be supported through financing, mentorship, and policy alignment. The chapter advocates for a Disability Innovation Fund to support startups developing AI-driven accessibility solutions. Public–private partnerships should incentivize co-design with OPDs, integrate disability considerations into entrepreneurship accelerators, and support local manufacturing of assistive technologies. International donors are encouraged to embed inclusion benchmarks into funding frameworks to ensure long-term sustainability.

Future Research Directions

The chapter highlights the need for continued interdisciplinary research to explore how AI can better serve marginalized populations. Future studies should examine the intersection of AI, disability, gender, and climate resilience, as well as the implications of generative AI and robotics for accessibility. There is also a call for longitudinal research to measure the real-world impacts of AI interventions on PWDs' livelihoods and well-being.

Conclusion

Chapter 15 concludes that Africa stands at a pivotal moment: the choices made now will determine whether AI becomes a driver of inclusion or exclusion. If designed and governed responsibly, AI can help dismantle systemic barriers, enhance independence, and promote full participation for PWDs. The report ends with a call to action—urging policymakers, technologists, and communities to collaborate in building an African AI ecosystem that reflects the continent's diversity, creativity, and commitment to human rights. Only through intentional inclusion can Africa shape an AI future that is truly for everyone.