

# AT2030

## Report

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# Report on three roundtable discussions exploring the challenges of AI for Inclusive Development in Africa



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## Executive Summary

The Global Disability Innovation Hub (GDI Hub) hosted three online roundtables from February to April 2024 to explore the use of AI for Disability inclusion in Africa, at the request of the Foreign, Commonwealth, and Development Office (FCDO). These brought together AI, disability and development experts to share their knowledge and experiences. The discussions identified opportunities, challenges, and enablers for ethical and disability-inclusive AI in Africa.

## 1 Opportunities

### Untapped potential for developing AI-driven assistive technology (AT) and other applications

The current situation in Africa represents significant untapped potential. The presence of local AI labs and labs run by technology giants (e.g. Google and IBM) in several countries provides a foundation for AI development. Around 100 AI startups have emerged on the continent, but deployment and funding of AI is very limited and distribution is patchy, posing challenges for its sustainable growth. Overall, AI technology is developing unevenly and relatively slowly in Africa, representing a significant development and investment opportunity.

### Increasing access to digital and AI-driven AT

There is a lot of potential for the application of AI in assistive technology (AT) for disabled people, such as visual recognition technologies, automated wheelchairs, real-time transcription, special speech recognition, etc. There is an opportunity to increase access to life-changing AT through investment in local development of digital and AI-driven AT, digital infrastructure, affordable internet access, smartphones and accompanying data-plans.

## Mainstreaming inclusion of disabled people

Some of the biggest potential gains for disabled people from the growth of AI lie in the mainstreaming of disability inclusion, ensuring that *all* AI is developed in a way that includes the rights of disabled people and doesn't diminish or exclude them.

## 2 Challenges

### Infrastructure and affordability

Unreliable Internet and electricity supplies hinder the development and use of all digital technologies. Only around 37% of Africans have Internet access (estimates vary), so the reach of AI technology is severely limited. There is an urban-rural divide which compounds the exclusion of disabled people in rural areas, particularly disabled women. No matter how potentially liberating AI-driven ATs or other AI-driven tools and services may be, they are of no use to people who cannot afford to use them. There is a significant risk that AI technologies will worsen existing disadvantages for those who can't access them.

### Education

Many Africans do not have access to the education and training they need to develop the skills to use or develop AI-driven or other digital products and services. The 'brain drain' of technology talent seeking funding and other opportunities abroad exacerbates the skills gap and hinders local AI development. Disabled people face additional educational and employment challenges, such as inaccessible built environments, further limiting their access to digital skills training. Furthermore, digital environments can be inaccessible.

### Data

Datasets for training AI-based applications are often biased: they do not represent Africans, African languages, disabled people or other disadvantaged groups. Biased datasets can lead to AI-driven products that do not meet people's needs, further exclude



or disadvantage marginalised people, and further advantage those already advantaged, increasing inequalities. Developing bespoke datasets is unaffordable for most researchers and innovators.

## Governance and policy

Good governance can mediate conflicting interests around data and should involve all legitimate actors. Few African countries have AI strategies in place. Still, there are risks to adopting the ‘blueprints’ being developed by big technology companies, and an over-reliance on inputs from foreign governments and NGOs without appropriate national input and ownership. Educating policymakers and the legal system about AI's opportunities and risks – both generally and specifically for disability inclusion – could help ensure regulation does not stifle innovation, while still addressing data privacy and other concerns. Policies across multiple domains must be aligned to support local development and use of ethical AI, and digital accessibility. Implementation of existing digital accessibility policies is inconsistent, limiting potential positive impacts for disabled people.

## Support for AI start-ups

African AT and AI entrepreneurs face significant funding challenges, exacerbated by a belief amongst foreign investors that all the real talent is in Silicon Valley. This results in, and is reinforced by, the ‘brain drain’ of innovators to the US, Europe and elsewhere to seek opportunities and funding to develop and scale their ideas. The brain drain further diminishes a limited talent pipeline arising from a lack of educational and training opportunities. Technology infrastructure challenges impede AI technology developers, in particular, inconsistent electricity supplies; lack of access to reliable, fast, affordable Internet; lack of access to other key elements of an AI infrastructure: servers, data centres, cloud services, and the computing power needed to train AI models.



### 3 Enablers of inclusive and ethical AI in Africa

There is a need for the following enablers:

#### Technology infrastructure

Investment in digital and specialist AI technology infrastructure not only in urban areas but also in rural areas and the provision of high-quality, affordable digital access for all, are necessary foundations for developing and using AI-driven and other digital products and services in Africa.

#### Education and training

Inclusive education and training to support greater access to the use of digital technologies, address the educational disadvantages and skills gaps experienced by disabled people and other marginalised groups, and build technology development and entrepreneurial skills tailored to the African context. There is also a need for disability awareness and inclusivity training, through the curriculum and short courses, and courses that focus on policy formulation and implementation, as well as degree programmes to advance research in assistive technologies.

#### Representative datasets

Public investment in the safe sharing of available data and the development of representative training datasets which can be shared and open-sourced, including financial support for collaborations with and between governments, African academic and other research institutions, and NGOs to achieve this.

#### Governance

Appropriate governance of AI developed with the involvement and engagement of citizens, which includes a range of (dis)abilities and other legitimate actors, to create an enabling

environment for the development, deployment and use of ethical AI in Africa, ensuring safety, accessibility and fairness while not stifling innovation.

## Policy alignment

Policy development and alignment across all the domains necessary to support the delivery of ethical AI and other digital technology ambitions, including inclusivity and accessibility for disabled people, combined with measures to monitor and ensure implementation of digital accessibility and ethical AI policies.

## Support for AI entrepreneurs

Introduce mechanisms to increase financial investment in African digital ventures and entrepreneurs who are committed to disability inclusion, including fostering international partnerships for these ventures. Develop and promote a new narrative to support this, challenging the assumptions about African talent often held by US, European, and other financiers and potential partners.

## 4 Research questions

Several research questions related to the themes outlined above were raised during the roundtables. These are listed at the end of the report.

## 5 A note on terminology

We use the term ‘disabled people’ rather than ‘people with disabilities’ or ‘differently-abled people’, which are preferred by some. Our rationale is as follows, articulated by [Disability Rights UK](#):

‘The Social Model of Disability states that people have impairments; they do not have disabilities. A disability is caused by society’s unwillingness to meet the needs of people with impairments. As a result, the term ‘disabled people’ is used to describe people with impairments who are disabled by barriers constructed by society.





## Introduction

This report summarises the opportunities, challenges and enablers for disability-inclusive AI in Africa and key research questions that were identified in three online roundtables held in February, March and April 2024. The roundtables were convened and hosted by UCL's Global Disability Innovation Hub (GDI Hub) at the request of the Foreign, Commonwealth and Development Office (FCDO).

The roundtables brought together AI, disability, and development experts to share their knowledge and experiences. (See Appendix 1 for a full list of participants.) The discussions underscored the need for AI to be developed ethically in ways that respect and include the rights of disabled people in Africa and the challenges to achieving this, including ongoing development challenges that are not specific to AI but remain pertinent if AI is to fulfil its potential as a tool for good, and not compound existing disadvantages and inequalities.

This report aims to represent the participants' views and should not be read as a statement of GDI Hub's views or position on any particular issue. However, GDI Hub believes that any initiatives by, or supported by, the UK Government that may arise from, or be informed by, these roundtable discussions should be led by Africans in Africa. This position was also expressed during the roundtables.

**Roundtable #1 was held on 8 February 2024. Theme: AI and Disability inclusion in Africa.** The discussion focused on examples of African AI-powered assisted technologies, the potential and opportunities for AI to enhance the lives of disabled people in Africa, and the risks it may pose [1][2][3].

**Roundtable #2 was held on 7<sup>th</sup> March 2024. Theme: How do we ensure AI increases access to justice and inclusion for disabled people? A legal and policy perspective.**

This focused on the challenges relating to digital access, inequalities, social inclusion, and the role of governance and policy in guiding the development of ethical and inclusive AI



that helps to address these issues rather than compounding intersectional disadvantages [4][5][6].

**Roundtable #3 was held on 11<sup>th</sup> April 2024. Theme: Innovation perspective on AI for development and Disability inclusion in Africa.** This focused on the key strategic issues and challenges that need to be addressed to enable the AI sector in Africa to grow in a way that will help to realise its potential to enhance the lives of disabled people in Africa and address the risks [7][8][9].

## Opportunities

### Labs, hubs and research institutes

Local AI research labs and hubs such as the [NITDA](#) (National Information Technology Development Agency) IT Hubs in Nigeria; [Data Science Africa](#); [Women in Machine Learning & Data Science](#) are involved in skills training and AI development across the continent. There is also the [Multidisciplinary Labs](#) project, and [RAIL](#), the Responsible Artificial Intelligence Lab at Kwame Nkrumah University of Science and Technology (KNUST) in Ghana, both supported by [AI4D](#) which supports policy, innovations and leadership development to spur responsible AI development in Africa. [IBM Research](#) and [Google](#) have opened AI labs in Nairobi, Johannesburg, and Accra. These kinds of initiatives (this is not an exhaustive list) encourage AI development in Africa [13]. However, AI technology is developing in Africa unevenly and at a slower pace than globally, representing a significant development and investment opportunity.

### African Innovators

Around 100 AI startups have emerged in Africa, with significant seed funding in Nigeria. Kenya, South Africa, and Nigeria have the highest numbers of AI startups out of all the African countries [13]. Funding and deployment of AI are unevenly distributed across the

continent, posing challenges to its sustainable growth [15]. While some African technology startups may receive limited initial funding from international donors or government grants, most lack access to early-stage seed funding. There is a lack of venture capital investment, which hinders initial development and exacerbates sustainability issues, so many potentially valuable projects cannot mitigate market risks and cannot develop and scale [8][15]. This situation represents significant untapped potential. An opportunity exists here to grow this market further and link future investments to ventures which commit to ethical AI and disability inclusion.

## Potential for Inclusive AI in Africa

Speakers at the roundtables mentioned the potential of AI for the healthcare sector and assistive technology for disabled people, for example, visual recognition technologies, automated wheelchairs, real-time transcription, special speech recognition, etc. Several innovative ATs have been developed in Egypt, Ghana, Kenya, and South Africa, but local development of AI-based ATs is not widespread across Africa. Large technology companies outside Africa have developed most AI-based ATs used on the continent. These are accessed through smartphones [15]. However, disabled people are less likely to own smartphones or have the necessary digital skills [15]. Hence, AI-based ATs (including locally developed ones) are not widespread. There is an opportunity to increase access to life-changing AT through investment in the local development of digital and AI-driven AT, digital infrastructure, affordable Internet access, smartphones and accompanying data-plans.

AI for disability inclusion is not just about developing AI-driven ATs. While there is great potential benefit from the development of targeted initiatives to develop innovative ATs tailored to different needs, some of the biggest potential gains for disabled people that



could come from the growth of AI lie in the mainstreaming of disability inclusion: ensuring that *all* AI is developed in a way that includes the rights of disabled people and doesn't diminish or exclude this important group.

## Challenges and strategic issues

### The digital divide: infrastructure challenges, access to technology and digital skills

Many participants mentioned challenges related to African infrastructure. There was a clear consensus that addressing these infrastructure issues is a fundamental enabler and a precondition for enabling AI to develop in Africa in a way that benefits everyone.

### Unreliable and unstable internet connection and electricity supply

These are significant barriers to developing and adopting AI or any digital technologies in Africa [4][8]. In 2023, the Internet penetration rate in Africa was 37% (though estimates vary), significantly lower than any other region [16]. A fast, stable internet connection is necessary to access AI-driven services and is simply unavailable to most of the population.

### Lack of accessible services

Online services in many African countries still lack accessibility features necessary for some disabled people to use them [5]. This lack of accessibility helps to perpetuate the digital divide.

### Poverty, inequality, disability and digital access

There is an intersection between poverty, equality of access and disability. Lower-income individuals are less able to afford access to digital tools and services. The situation is

worse for disabled people (who are more economically excluded), worse still for disabled people in rural areas, and worst of all for disabled women in rural areas. Not many people can afford a smart mobile phone in Africa or the data to use it [8]. The gap in mobile internet use for persons with and without disabilities is around 70% in Algeria, 85% in Kenya, and 11% in Nigeria [4]. There is a risk that the growth in digital content and services will further marginalise people who can't access them and compound existing inequalities and intersectional disadvantages unless they are explicitly addressed [2]. Several specific points were raised about the impact of AI technologies on disabled and economically marginalised people: 1) People with higher socioeconomic status will soon have 'exponentially increased opportunities thanks to AI' compared to people who can't access devices or have not been included in datasets. 2) AI technologies are already being deployed without consideration of the impact of those technologies on the lives of disabled people, so rather than giving capacity to people, they are broadening the divide even further, e.g. through enhanced productivity. 3) AI (and AT) solutions do not benefit people who can't access them. 4) The datasets that power AI cannot be representative while whole sections of the population remain offline and unrepresented or inappropriately and stereotypically represented.

## **Inaccessible built environment**

Lack of accessibility and accommodation for disabilities in the built environment makes it harder for disabled people to access general educational, vocational, and digital skills training. This compounds their exclusion as users of digital services and as creators in the emerging AI sector, as well as their general economic exclusion. They are more likely to remain economically marginalised and excluded [9].

## **Access to digital skills**

There is also a wider issue about access to digital skills. Most people have limited access to education, resulting in a comparatively low level of digital skills at all levels, from understanding how to use IT to a shortage of AI and machine learning experts.

## Data

Data is at the heart of AI. Issues around the data on which AI is trained - such as representation, ownership and privacy - are fundamental to inclusivity, fairness and ethics.

### Lack of representative datasets

It is widely acknowledged that the datasets used to train AI are inherently biased. People who are marginalised are under-represented or incorrectly represented. For example, 80% of photos in large training datasets are of white males. This has wide-ranging implications, from how likely someone is to be screened in or out in a job selection process, to the accuracy of facial recognition, to how relevant services are to their needs [12]. There is a lack of representative and inclusive African datasets. They do not adequately represent Africa's ethnic and linguistic diversity, women, disabled people, or other marginalised groups. This partly reflects the digital divide: people who cannot participate in the digital economy will not be included in datasets sourced from such activity (which further underlines the importance of addressing fundamental digital infrastructure and skills issues). It also reflects the cost of developing alternative or bespoke datasets for particular applications in the African context and the lack of resources to do this [4]. The story of Abena AI, a voice assistant in the Twi language (which is not supported by Alexa, Siri, etc.), is a good example of this: the developer, Nana Ghartey, quickly ran out of money to fund translations from English to Twi, which limited the functionality he was able to develop [1].

Governments and NGOs hold a lot of potentially usable data. Kenya has made certain data freely available to download through the Kenya Open Data Initiative, but most African countries lack mechanisms to make data available ethically [19]. Also, research institutions and companies tend to be relatively isolated, making creating a shared, more representative dataset challenging. There is a need for a collaborative project to develop more inclusive, open-source datasets to help drive R&D.

## Data ownership

The need for funding is another barrier to developing a more inclusive, open-source dataset: commercial partners and investors want to retain ownership of the IP (intellectual property) [10]. A range of questions and challenges were posed regarding data ownership, including whether people understand the value of their data when they give it up, whether and how they are compensated for giving up data, whether they may be more vulnerable to giving up data in exchange for financial compensation when their basic needs are not being properly met, whether disabled people can get access to any datasets they contribute to and use them for their own ends, or whether the data is simply for others to do 'to' and 'for' them. There is also the question of whether the person whose data is being collected has given informed consent and whether they can withdraw their data anytime, at will [2].

## Data privacy, security and safety

Large quantities of data would need to be collected to create more representative datasets capable of enabling services that treat people fairly. Still, many questions remain about how this data would be used and protected, giving rise to concerns about privacy (especially for people with cognitive impairments who may not fully understand the risks and implications of what they are consenting to), and whether people's data might be used against them, for example, to downgrade credit ratings.



## Policy and governance

### What is governance and who should do it?

Governance can be defined as the practice of collective decision-making. It's the mechanism by which the various interests around data, its value and applications can be mediated.

Good governance is developed through the involvement of all legitimate actors, including citizens with a range of (dis)abilities, at all stages of the policy-making process (local, national, and global). This includes participation in and alignment with global governance forums to address issues relating to technology giants and other global companies. There needs to be deliberate and intentional action: good solutions will not just emerge alone and without effort.

It is pertinent to ask how the disabled community is being empowered to set the agenda and make decisions that work to increase their Human Rights and societal inclusion (whether at the policy development level or technology design) rather than the decisions being made solely by 'experts'.

It was noted that in many African countries, there is a lack of disability-specific policies to increase access to digital technologies. Accessibility policies tend to be very generalised, simply stating the need for 'accessible services' and are often not directed at implementing solutions that meet the specific needs of particular groups. Such regulatory frameworks may be improved through the close involvement of disabled people themselves. Similarly, there needs to be an intentional strategic objective to have inclusion at the level of product

design and to re-engineer certain technologies that are already in place so that disabled people can benefit from what already exists.

## **Lack of regulation & lack of implementation**

Policy and governance frameworks are essential for managing the risks of AI and optimising its potential. However, in the 2019 Government AI Readiness Index by Oxford Insights, Africa is the lowest-ranked region, with no countries in the top 50 and only 12 in the top 100. Although that data is from 5 years ago, the situation has not significantly changed since then. There is, therefore, a tendency for Africa to depend on international partners in AI development. While this may enable access (at a country level) to AI technology and implementation, it is less likely to foster ethical policy development [13].

Fewer than ten African countries have AI strategies or national AI policies in place, and the full implementation of existing policies remains a challenge [20]. In Kenya, for example, the Kenya Accessibility Standards are very good but not fully implemented. Rwanda has very good policies that 'tick all the boxes' but some of the lowest access to digital technologies. This lack of regulation and implementation means that AI-based solutions are being created and deployed in a largely unregulated environment; privacy risks and algorithmic bias, for example, are not being appropriately managed, and people who may be harmed as a result have no legal remedy.

## **Lack of knowledge of emerging technology by policymakers**

Some participants shared their experience of interacting with government sectors. This revealed a need to educate legislators and policymakers about AI and its implications, as there is a widespread lack of awareness about how this technology is developing and its implications: the significant potential for good, the risks that need to be managed and the need to prioritise development and revision of policies and legislative instruments so that they are fit for the AI era [7] [9]. This informed understanding is essential to ensure that



policy and governance address the need for enablers and safeguards so that regulation is not driven by fear and does not stifle innovation.

‘AI blueprints’ are being created by the private sector as a ‘short-cut’ route to creating or defining the scope of regulatory frameworks. See, for example, Microsoft’s ‘Governing AI: a Blueprint for the Future [21]’. Such frameworks developed in other countries or regions that are not rooted in the context of the individual country may not be appropriate to any given African context. Furthermore, policymakers may not currently be equipped to evaluate them. In February 2024, the African Union Development Agency published its own draft policy that lays out a blueprint of AI regulations for African nations. However, this has been criticised for ignoring the critical components of AI IT infrastructure, such as computing power [22].

There can be tensions between funding initiatives to develop in-country policy and governance, and the eventual forms that the policies and governance take: governments need to resource the policy process if they want to own the process and the outcomes.

Working with policymakers and disabled people will be essential to establishing workable governance in each African country and across the continent.

## **Policy implementation barrier**

Even when a policy has been made to protect the rights of disabled people in relation to digital accessibility and inclusion, there is often a gap between the policy and practical implementation. In one situation, for example, a new government minister disbanded the organisation whose responsibilities included monitoring the implementation of disability inclusion policies. This may have been an unintended consequence but it led to a complete lack of enforcement and monitoring.

## **Regulation not fit for purpose & the need for policy alignment**



Current regulatory frameworks in various sectors may be out of step with what is needed in the AI era. For example, suppose the AI underlying a product classified as a ‘medical device’ can change the product's functionality depending on the user. In that case, it may not be possible to specify the product definitively, so then it can't be certified. Alternatively, you may get it certified based on a particular specification; then, once AI tools are activated, the product you put out to market may not function like the product that has been certified, and the certification is invalidated.

Hence some of the barriers to implementation may lie in existing governance structures developed in the pre-digital and/or pre-AI era. Policy alignment across all the domains required to achieve the desired outcomes is needed to ensure they are all saying the same thing. For example, if you want to develop more locally manufactured AT, government procurement policies must be aligned with that ambition.

## Challenges faced by technology companies and AI start-ups

The technology giants and big companies are focused on developing corporate AI solutions. This is largely profit-driven, although many are developing technologies which would benefit disabled people, indeed do benefit disabled people. New applications such as Google's AI-driven AT product, Google Relate, for example, have been expertly developed and are slowly being rolled out in Africa. Still, as they are not central to the overall company business, there are challenges in supporting scale. This is acknowledged by Google, who appreciate that knowledge about where users are, especially those who would benefit most, is often only accessible when working ‘on the ground’ within disabled peoples’ communities. Mainstream marketing might not be the solution. One route to scaling Google Relate could be to open source the product for local entrepreneurs to develop further. This route presents its own challenges, but the challenge of scaling



products is not confined to smaller ventures and can be seen more broadly, with many technology giants having smaller projects which don't scale. Those that do tend to be inclusive solutions rather than assistive technologies, for example, automated captions in meetings. However, such technologies are limited by the available datasets, which often means African language options are not yet possible.

Whilst innovation is happening within large technology companies, there are also several AI-driven start-ups in Africa looking to tackle problems disabled people face. However, there are significant challenges currently faced by African innovators in the AI space, which serve to reinforce one another and mitigate against the development of responsible and inclusive AI that meets the needs of local people in the African context. These challenges are compounded for those working in disability inclusion as these ventures also have all of the challenges of a nascent market. In many places, there is a challenge in funding the demand, leaving only need.

## Developing the talent pipeline

The lack of AI expertise in Africa impedes both technology development on the continent and further development of AI skills and other digital skills.

The talent development pipeline starts with basic education. Hence issues around general educational provision and access to education must be addressed for African countries to develop more home-grown AI talent. Support for local talent at all educational system levels will support the pipeline of people coming through with the necessary skills and talents.

As noted before, disabled people are even more likely than others to be excluded from education and employment. They lack the opportunities to develop the knowledge and skills to use many digital and AI-driven technologies, let alone participate as developers, innovators and creators of AI-driven solutions.



AI training resources are largely developed in the Global North and are not necessarily applicable to African contexts. They are mainly in English, so access to AI education requires mastering English, which presents a significant barrier: only around 13% of Africa's population speaks English fluently [17]. Africa has over 3000 languages, so translating these resources into people's first language is not a simple or easy solution [18].

## Infrastructure challenges

Technology infrastructure challenges impede AI technology developers, in particular, a consistent electricity supply and lack of access to reliable, fast, affordable internet, servers, data centres, cloud services, and the computing power needed to train AI models.

## Financing

Startups create at least 43% of ATs in LMICs, but they lack sustainable funding to develop their innovations beyond the first stage. The capital invested in African start-ups is minimal: all start-ups combined last year (2023) in the entire continent of Africa raised about \$3.8 billion, while one US-based AI start-up company, Anthropic, raised \$4 billion, and this year they already have raised an additional \$2 billion, which is more than African start-ups have been able to access this year so far [8].

In the absence of strong support for startups in terms of funding and high-quality skills training, the continent's top technology talent is drawn to lucrative opportunities abroad, resulting in a brain drain that stifles local development of AI [8].

This reinforces a widespread belief and narrative based on the erroneous preconception that all the talent is in Silicon Valley and that Africa does not have the necessary talent.

This belief is further fuelled by the observation that African technology companies are not seen to be 'exiting' from Africa (scaling sufficiently to be bought-out by investors or float on



the stock market). African entrepreneurs are trapped in a negative cycle, unable to attract funding as easily as entrepreneurs from other regions.

This is exacerbated by a lack of understanding of the African context in the private finance sector, especially by foreign investors. This means they cannot fully grasp opportunities, such as the huge market in Africa for money transfer apps, which doesn't exist in the USA.

## **Policy support for innovators and entrepreneurs**

Policies could be developed in several areas to better support African tech entrepreneurs.

These are detailed in section 5.6.

## **Enablers for inclusive AI in Africa**

To enable a disability-inclusive future fuelled by AI-driven solutions, there is a need to apply consistent effort to implement the following enablers:

### **Investment in technology infrastructure and provision**

Investment in technology infrastructure, in urban and rural areas, and provision of high-quality, affordable digital access for all. This foundation is necessary to enable development and use of African, AI-driven AT and other digital products and services, and to create African markets for them.

### **Inclusive education and training**

Investment in inclusive education and training tailored to the African context will support greater access to digital technologies, address the educational disadvantages and skills gaps experienced by disabled people and other marginalised groups, and build technology-development and entrepreneurial skills.

### **Representative datasets**

Public investment in the safe sharing of available data and development of representative training datasets which can be shared and open-sourced, including financial support for

collaborations with and between governments, African academic and other research institutions, and NGOs to achieve this.

## **Appropriate governance of AI**

Appropriate governance of AI, developed with the involvement and engagement of citizens, including citizens with a range of (dis)abilities, and other legitimate actors, which aims create an enabling environment for the development, deployment and use of ethical AI in Africa, ensuring safety, accessibility and fairness while not stifling innovation.

## **Policy alignment**

Policy development and alignment across all the domains necessary to support the delivery of ethical AI and other digital technology ambitions, including inclusivity and accessibility for disabled people, combined with measures to monitor and ensure implementation of digital accessibility and ethical AI policies.

## **Support for African AI entrepreneurs**

Introduction of mechanisms aimed at increasing financial investment in African digital entrepreneurs and fostering international partnerships, and a new narrative to support this, challenging the assumptions about African talent often held by US, European and other financiers and potential partners. Policies should focus on supporting the following areas:

1. Support for local talent at all levels of the educational system so that there is a proper pipeline of people coming through with the necessary skills and talents.
2. Initiatives to create and support international collaborations to carry out underlying research.
3. Funding for the development of African-centric datasets.
4. Funding to develop and scale initial ideas and designs, and for accelerators to help innovators develop the requisite skills.

5. Incentives and supportive legal structures to enable bigger foreign companies to work with smaller, local start-ups in Africa.
6. Subsidies to enable appropriate quality and affordability trade-offs in AT products so that products are high quality while being affordable for the people they are aimed at.
7. Communications programmes and diplomatic efforts to raise international awareness of African technology talent and understanding of the African context, in support of creating a new narrative that will help to open financial and market opportunities.

## Research questions

Participants identified several research questions during the discussions:

### Infrastructure challenges:

- How can AI systems be more adaptive to individual capabilities, with less data, and without constant access to the Internet?

### The impact of AI and other technologies on disabled and other marginalised people:

- How do we assess the impact on society in general, and disabled or other disadvantaged people, to understand what technologies may be disadvantaging disabled people and help prevent that from happening? What could be a framework to achieve this?
- What should be our approach to developing AI technology services, platforms, etc.? Is universal design the right approach (designing technology usable by people in the widest range of situations and with the widest range of abilities)? What value does that approach have versus adapting existing technology for disabled people and specific



disabilities, versus designing from the outset specifically for different abilities and disabilities?

## Governance and policy issues:

- How do policies across different domains need to be aligned to create an enabling environment for responsible AI to flourish in a way that benefits everyone?
- What prevents and enables the implementation of good policies relating to digital accessibility, inclusion, etc.? Are existing legal and governance architectures causing bottlenecks to implementation in practice?
- What data governance do we need in the AI era? For example, can (and should) terms like 'privacy' mean the same thing as in the pre-AI era? How do we need to adapt our thinking around data governance to enable responsible AI to flourish? What are special data communities' needs, and what is governance required?

## Enabling AI start-ups in Africa

- Technology skills development: what must the educational curriculum include at all levels to build AI capacity?
- What business development support strategies and business models for AI technologies work in the African context?

## Other questions

- What are the particular challenges around using AI in the humanitarian context?
- What other questions need answering? What are the areas in the field of human-centric AI where big tech is not very interested? This is where public-funded research should focus so that we don't miss key questions about the future of AI that will be useful to humanity. Can we develop a research roadmap, as a collaboration between

researchers in academia, NGOs and big tech, to identify key questions and help funders understand what work needs to be done and funded?

## Sources and references (presentations made at the various roundtables)

Sources include presentations made at each roundtable and transcripts of the discussions.

References are as follows:

- [1] Josephine Kaaniru, Strathmore University: AI-based AT examples and potentials in Africa. 8<sup>th</sup> Feb 2024. Also
- [2] Cathy Holloway, GDI Hub: Emerging ideas and trends in AI technologies. 8<sup>th</sup> Feb 2024
- [3] Adwoa Amponsah-Fraley: User's perspective of Google Relate. 8<sup>th</sup> Feb 2024
- [4] Eleanor Sarpong: Digital access, gender equality, and social inclusion: challenges for AI. 7<sup>th</sup> Mar 2024
- [5] Mpho Moyo, Research ICT Africa: ICT access, accessibility and the use by persons with disabilities in South Africa: findings and implications. 7<sup>th</sup> Mar 2024
- [6] Julius Mugwagwa, Professor of Health Innovation and Public Policy at UCL, STEaPP: AI and development in Africa. A governance perspective. 7<sup>th</sup> Mar 2024
- [7] Jerry John Kponyo, Responsible AL Lab: Making a Case for AI-powered Assistive Devices for differently-abled Persons: Reflections from the Responsible AL Lab. 11<sup>th</sup> Apr 2023
- [8] Mutembei Kariuki, Fastagger Inc: The imperative for ethical and inclusive AI in Africa: Challenges, potential, barriers. 11<sup>th</sup> Apr 2023

- [9] Nhlanhla Lupahla, National Commission on Research, Science and Technology: A snapshot of Namibia's challenges and responses using AI to support people with disabilities. 11<sup>th</sup> Apr 2023
- [10] Brian Mwenda, Founder and CEO of Hope Tech Plus, Kenya.
- [11] Youngjun Cho, Associate Professor at UCL; co-founder of Kit AR, UK
- [12] Victoria Austin & Cathy Holloway, Innovation for a Fairer World: How AIs learn - bias in data sets. pptx
- [13] Damian Okaibedi Eke, Kutoma Wakunuma & Simisola Akintoye, Responsible AI in Africa: challenges and opportunities. 2023
- [14] Emmanuel Ogiemwonyi Arakpogun, Ziad Elsahn, Femi Olan & Farid Elsahn: Artificial intelligence in Africa: Challenges and opportunities. The fourth industrial revolution: Implementation of artificial intelligence for growing business success, pp.375-388. 2021
- [15] Josephine Kaaniru, Strathmore University: AI Assistive Technologies (ATS) For Persons With Disabilities (PWDS) In Africa. 30<sup>th</sup> Nov 2023
- [16] Statista: Global internet penetration rate from 2009 to 2023, by region. 21<sup>st</sup> May, 2023. Retrieved from <https://www.statista.com/statistics/265149/internet-penetration-rate-by-region/>
- [17] Victor Oluwole, Business Insider Africa: A comprehensive list of all the English-speaking countries in Africa. 12<sup>th</sup> Sep 2021. Retrieved from: <https://africa.businessinsider.com/local/lifestyle/a-comprehensive-list-of-all-the-english-speaking-countries-in-africa/hdp1610>
- [18] Wikipedia: Language of Africa. Retrieved from: [https://en.wikipedia.org/wiki/Languages\\_of\\_Africa](https://en.wikipedia.org/wiki/Languages_of_Africa)



- [19] Bernard Chiira, Kenya Country Representative for Global Disability Innovation (GDI) Hub and Director of GDI Hub's Innovate Now African accelerator, Kenya.
- [20] <https://ecdpm.org/work/envisioning-africas-ai-governance-landscape-2024>
- [21] <https://www.microsoft.com/cms/api/am/binary/RW14Gtw>
- [22] <https://acetforafrica.org/research-and-analysis/insights-ideas/articles/the-missing-piece-in-africas-ai-blueprint-the-computing-conundrum/>
- [23] <https://www.gsma.com/solutions-and-impact/connectivity-for-good/mobile-for-development/wp-content/uploads/2021/11/Mobile-Disability-Gap-Report-2021.pdf>

## Appendix: roundtable participants who took part in one or more of the roundtables:

Adwoa Amponsah-Fraley, Human Rights Lawyer, Ghana

Alison Gillwald, Executive Director of Research ICT Africa (RIA) and Adjunct Professor at the Nelson Mandela School of Public Governance, University of Cape Town African Observatory on Responsible AI (AORAI)

Araba Sey (Dr), Deputy Director, Research ICT Africa

Bernard Chiira, Kenya Country Representative for Global Disability Innovation (GDI) Hub and Director of GDI Hub's Innovate Now African accelerator and Innovate Now

Brian Mwenda, Founder and CEO, Hope Tech Plus

Cathy Holloway (Prof), Co-founder, Academic Director of UCL's Global Disability Innovation (GDI) Hub, and Professor of Disability Innovation at UCL's Interaction Centre, UCL (University College London), Global Disability Innovation (GDI) Hub

Charise Johnson, Policy Adviser - Data and Digital Technologies, Royal Society

Christophe Lefevre, President of the Permanent Group on Disability Rights of the European Economic and Social Committee (EESC), EU

Davor Orlic, Chief Operating Officer at IRCAI, and Honorary Research Assistant at the UCL Centre for Artificial Intelligence, International Research Center on Artificial Intelligence under the auspices of UNESCO, and UCL (University College London)

Eleanor Sarpong, ICT and International Development Professional, Consultant

Elly Savatia, Innovator, CEO and Founder, SignVrse (Kenya)

Gifty Ayoka, Founder Talking Tipps Africa, Speech and Language Therapist, Disability and Inclusion Advocate, Talking Tipps Africa Foundation

Jerry John Kponyo (Prof), Professor and Scientific Director, Responsible Artificial Intelligence Lab (RAIL), Faculty of Electrical & Computer Engineering, KNUST, Ghana

John Shawe-Taylor (Prof), Director of the Centre for Computational Statistics and Machine Learning, UCL (University College London)

Josephine Kaaniru, Research Assistant, Centre for Intellectual Property and Information Technology Law (CIPIT), Strathmore University, Centre for Information Technology and Intellectual Property Law

Julius Mugwagwa (Prof), Associate Professor in Innovation and Development, UCL (University College London)

Loise Ochanda, Programme Officer, AI for Development (AI4D), International Development Research Centre (IDRC), Nairobi

Maria Kett (Prof), Professor of Humanitarianism and Social Inclusion at UCL, UCL (University College London)

Mpho Moyo, PhD Research Fellow, Research ICT Africa,

Mutembei Kariuki, Co-Founder and CEO, Fastagger

Nhlanhla Lupahla (Dr), General Manager: Research, Science, Technology and Innovation Coordination and Support, NCRST (National Commission on Research, Science and Technology, Namibia

Oladipupo A. Sennaike (Dr), Researcher and Lecturer, holder of AI4D grant to establish a research network for responsible AI for education innovation, Department of Computer Sciences, University of Lago

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