



Blended webinar

Community of Practice on Digital Skills and Jobs in Kenya

► Fourth Thematic Discussion: Digital Infrastructure, Inclusion & Access in the Era of AI



EXTENDED REPORT

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Thematic Area: Digital infrastructure, inclusion and access in the era of Artificial Intelligence

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Objective

The 4th Thematic Session of the Community of Practice (CoP) on Digital Skills and Jobs in Kenya discussed recent developments around Artificial Intelligence (AI) as a frontier technology with the potential to help close the digital divide leading to disparities in access to ICT services, digital learning opportunities, and digitally enabled jobs. Participants touched on the main infrastructural and access and utilization obstacles on the rolling out of AI-enabled technologies as part of Kenya's digital transformation and on the expansion of the digital economy as a source of new jobs and improved sources of livelihood.

The session also served to announce the launch of the new ILO PROSPECTS [podcast series](#), with its [first episode](#), which focuses on Kenya, entitled 'Bringing digital skills and jobs for youth in rural areas and refugees in Turkana, Kenya.'

Key points discussed

Digital infrastructure for digital AI-enabled solutions

- **Artificial intelligence (AI) and other frontier digital technologies are emerging in Kenya**, calling for the coordination of policies, regulations, investment plans, and skills development efforts of different actors, not only across the ICT sector, but also other sectors driving forward Kenya's digital transformation.
- **Kenya stands to leverage AI as part of its structural transformation and digitalization plans**, especially since AI is one of the emerging technologies already driving innovative business solutions and job creation in the wider global digital economy. A few developing countries, however, have the capacities needed to take advantage of these developments.
- **AI has the potential to fast track enhanced, inclusive connectivity**, as long as public-private partnerships work together to help bridge digital and urban-rural divides.
- **Efforts at expanding ICT and digital infrastructure in Kenya is sometimes hindered by lack of protections of physical infrastructure against vandalism and misuse.** The rise of AI calls for additional infrastructural developments, which may also face similar challenges in the absence of more robust policies and regulations that protect essential digital infrastructure.
- **Leveraging AI-driven solutions for job creation and socioeconomic wellbeing** need enhanced digital infrastructure, optimized existing ICT networks, and improved access to affordable and modern connected

devices. In the absence of these mutually-dependent efforts, the adoption of AI may exacerbate existing inequalities, including digital divides.

Inclusive access to AI-enabled technologies

- **Ensuring inclusivity and equity in the digital economy is vital**, especially as AI-enabled technologies can foster economic growth opportunities and improved wellbeing and quality of life outcomes. Questions remain about the readiness of the Kenyan workforce, under the current policy-regulatory-investment ecosystem, to adopt and reap the full benefits of AI-enabled technologies.
- **The rise of AI has shed light on a digital divide across regions and population groups.** The democratization of AI and its uses must be prioritized in order to ensure a growing digital is not only an engine of job creation, but also of decent work opportunities and sources of livelihood for all.
- **AI-enabled skills training programmes should be designed from an inclusivity lens**, especially looking at how these frontier technologies can help support women, people with disabilities, and refugees and marginalized host communities for a more just distribution of technological dividends.
- **There are cybersecurity concerns around AI technologies**, especially on how they may be misused or abused by hackers or scammers looking to defraud or harass employers and workers in the digital space.

Summary of the discussion

Setting the scene

- **Lucas Omollo, Manager of ICT & Smart City Solutions, Konza Technopolis**
 - *AI is part of the frontier technologies helping drive forward the rise of the digital economy in Kenya*, including innovations around green technologies, which AI is also helping integrate into the production and consumption ends of value chains, as part of both traditional and digital labour markets.
 - *Frontier technologies like AI show enormous potential in generating new economic activity and of higher value added.* Estimates show global investments in these types of frontier technologies amounted to \$1.5 trillion in 2020, but by 2030 the market size of these technologies is expected to reach \$9.5 trillion.
 - *Access to these frontier or emerging technologies remains a challenge*, especially among traditionally underserved groups of the population – youth, women, rural communities, people with disabilities, the elderly and forcibly displaced people.

Panel discussion 1

Kenya's digital future: Accelerating the roll out of digital infrastructure in the era of AI

Moderated by Lucille Aveva, Director, Customer Obsession, Safaricom

- **Loyford Murithi, Director of Infrastructure, Ministry of Information, Communication and Digital Economy of Kenya**

- *Working for enhanced broadband connectivity infrastructure includes guaranteeing network reliability and actively promoting the adoption of AI for innovative business solutions.* The Ministry has been working with the private sector in areas where the government alone would not have invested, especially in the more marginalized areas. The Kenyan government is expanding fiber optic networks by 100,000 km, for example.
- *ICT Investments are capital intensive, especially around building and maintaining the national optic fibre backbone infrastructure.* The Ministry is looking at alternative technologies to help roll out Internet connectivity in a more cost-effective way. Bringing ICT services to rural areas includes investments in ICT Hubs as channels for e-learning and innovation and e-commerce.
- *Last-mile connectivity and affordability of connected devices requires business solutions with the private sector.* The Universal Service Fund has been able to mobilize investments. Working with the private sector, including Safaricom, has also facilitate enhanced connectivity and affordable devices.
- *When digitizing government services, there are ethical considerations when handling data through automation processes.* It is necessary to navigate this closely with the private sector, ensuring AI benefited are used for the wider collective benefit of the population.
- *Given that AI is still a new area in Kenya, there is room to design from the ground up the necessary governance mechanisms* around data protection and management and the uses of machine learning using Big Data.
- *Kenya is already starting to experiment with AI modalities linked to weather forecasting, crop monitoring, and market information among rural and agricultural communities.* This example is one that can be used as a benchmark to outline the scope of AI as part of Kenya's ongoing digital transformation.

► **Lucas Omollo, Manager, ICT & Smart City Solutions, Konza Technopolis**

- *Over the past two decades, frontier technologies like AI, blockchain, drones and nanotechnology have witnessed exponential growth.* Their adoption, however, are now calling for inclusive access and utilization, especially in a context of existing digital and socioeconomic divides among the labour force.
- *By 2030, over half of the world will live in cities, so governments stand to identify best practices of urban digital spaces that can be replicated in Kenya.* Smart cities can respond to key public services and quality of life of citizens. Konza Technopolis has developed best practices and guidelines around ICT-related services in smart cities to help incubate innovation and e-commerce.
- *It is important that policymaking response to the digital economy and the rise of AI considers the standardization of compliance processes,* as many different sectors will be called to harmonize their digital processes and practices, in close collaboration with the ICT sector. Konza Technopolis works on policy and regulation to ensure actors are compliant with key normatives, including around ICT services, essential backbone infrastructure, and services oriented to improving quality of life of citizens.
- *Together with TVET institutions and other partners, Konza Technopolis is working to give start-ups platforms to pilot their innovations, incubate them, and bring them to larger scale and market.* Kenya has the potential to start exporting emerging technologies, as opposed to importing them only.
- *AI opens up opportunities for socially impactful innovations.* AI systems can be trained, such as cameras for traffic monitoring, to be used to detect criminal activity. AI can also be leveraged for waste management and recyclability programmes.

► **Fiona Asonga, Chief Executive Officer, Technology Service Providers of Kenya (TESPOK)**

- *Regulators across sectors continue to work in siloes, whereas ICT services are crosscutting and touch all the sectors. Service providers, contractors and regulators need to work closer together, including in efforts to prevent damage, vandalism and misuse of key infrastructure.*
- *ICT sector regulators must work together with regulators in other sectors, especially if the adoption of ICTs is meant to catalyze social and economic growth and inclusion. However, there is no existing policy framework in place that mandates collaboration and integration of actions between sector regulators. This prevents the country from developing its ICT infrastructure plans in a holistic manner.*
- *Connectivity disruptions due to poor practices between telecommunication service providers and contractors, in addition to vandalism of key ICT infrastructure hinders the already costly and very important efforts around providing last-mile connectivity to the most marginalized. As such, a policy for protecting infrastructure is necessary, given the many cases of vandalism on vital infrastructure that interrupts essential ICT services.*
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► **Kamau Maina- Head of Big Data & Customer Value Management, Safaricom**

- *Given that AI is relatively new in Kenya with no existing national initiatives to scale up or govern AI, it is important to invest in data analysis of Internet users and their needs, including around facilitating livelihood opportunities in the digital space.*
- *Safaricom is working on expanding its customer base and the services for that base, but is also investing in its internal capabilities to capture and analyze market and sector data in order to understand which of its services can benefit from AI modalities.*
- *Safaricom is also working on digital-twin technologies, a digital replica of physical objects, places, processes, and persons that can simulate real-life situations to facilitate experimentation, testing, and decision-making for business solutions.*

Panel discussion 2

Leveraging AI for digital inclusion and access

Moderated by Dr. John Masika, Assistant Director of ICT, TVET Authority

► **Robert Muita, Consultant Digital Skills Training & Job-Market Linkages**

- *AI stands to offer career opportunities for traditionally underserved or marginalized communities, including those looking to pursue careers in STEM and beyond. Leveraging AI helps break gender barriers, empowering women in sectors where the female workforce is underrepresented.*
- *It is important to offer marginalized groups with personalized learning experiences to prepare them for the digital economy. Training opportunities shall be tailored to their specific needs, based on their existing skills base and in response to any limited or lacking access to ICT services and emerging technologies. AI-assisted language apps, for instance, can support refugees in navigating the digital economy in a language other than their own.*
- *Dynamic and flexible pricing can help inclusivity to Internet and services, where those accessing it from low-income or underserved areas receive preferential pricing.*

- *There are concerns of a skills gap that may not be able to be bridged fast enough, considering that by the time the skills development programmes are completed, the in-demand skills might have changed and evolved. As a result, students and workers pursuing digital trainings may need sector validation that what they are learning will still be relevant once it is completed.*

► **Joseph De Durfort, Chief of Staff to CEO, Mawingu**

- *Poor last-mile connectivity infrastructure remains a challenge in certain rural and more isolated regions.* Mawingu, an Internet service provider in rural Kenya, has established a strong network of public-private partnerships and collaborations allowing for training opportunities to become more accessible to traditionally underserved or disconnected population groups.
- *It is through the leveraging of public-private partnerships that Mawingu has been able to help underserved groups access new markets and new forms of livelihoods.* Mawingu has partnered with Microsoft and Unilever, including in efforts to develop projects for the economic empowerment of rural women by ensuring their digital access.
- *Partnerships around data management and data collection are key, especially since AI can help collect and analyze market data to inform public policy.* Mawingu has been able to identify consumer trends among Internet users that point to seasonal rise and falls in demand for Internet, showing periods of the year during which households have less disposable income for Internet services. This information allows for more timely rollout of digital skills trainings that require an Internet connection to begin with.

► **Rachel Muthoga, Advocacy Consultant, Centre for International Private Enterprise (CIPE)**

- *There is need for policy frameworks to respond to existing and rapidly evolving needs of digital businesses, with frameworks that understand that access, skills, and cybersecurity concerns must be addressed together.*
- *While entrepreneurs and start-ups recognize the added value of leveraging AI-enabled solutions to scale up their businesses, many of them still lack the sufficient skills and awareness specific to AI in order to understand the needs and gaps that AI can respond to.*
- *The perceived high risk of a digital economy influenced by, or dependent on AI technologies, may make new clients and workers weary of joining the digital economy.*
- *Beyond the Ministry of ICT, other line ministries must be involved in the rollout of frontier technologies, including the Ministry of Trade on digital business and transnational transactions and the import and export of technologies and the Ministry of Labour on governing new labour modalities in the digital space.*

► **Mutembei Kariuki, Co-Founder and CEO Fastagger**

- *Skills development around AI must be tailored to different population groups, as there are different gender, age, and geographic-specific opportunities and challenges in accessing and using digital technologies among each group.*
- *Fastagger has been working to secure an increased participation of women in science, technology, engineering and math (STEM), including as part of two programmes spanning over 50 women-led MSMEs and supporting them with capacity building and business incubation and solutions guidance. Other examples include partnering with private sector companies to use machine learning and remote sensing satellite imagery to monitor climate and natural resource metrics to help farmers in their productions.*

Challenges identified and recommendations

Digital infrastructure for AI-enabled solutions

- **Challenge:** The backbone of the national digital infrastructure is capital intensive, which makes investing in this area high risk and represents significant up-front costs.

Recommendation: Continuing to build on the government's work with the private sector will help de-risk these high fixed-cost investments in critical infrastructure. This would allow for public-private partnerships to offer blended finance for key infrastructure projects and the digital innovation and AI initiatives that can stem from them.

- **Challenge:** Harnessing the potential of digital technologies and, specifically unlocking AI capabilities for economic growth and social inclusion, requires sustained, at-scale investments.

Recommendation: Blended finance and public-private partnerships are central to the sustainable financing of critical infrastructure projects, especially as the set-up fixed costs may be seen as high risk for any single investing actor.

- **Challenge:** AI is bound to influence different sectors in unique ways, with regulators in each sector not having a shared roadmap or set of guidelines on how to ensure compliance around data protection and other ethical concerns that would be overseen by ICT sector regulators.

Recommendation: The nascent stage of AI in Kenya offers an opportunity to design from the ground up an industry-wide collaboration framework, where ICT services are seen as crosscutting and therefore future ICT-related governance, regulatory and compliance instruments serve as a common reference point for the use of AI, as opposed to having each sector operate under ad hoc regulations with respect to AI.

Inclusive access to AI-enabled technologies

- **Challenge:** The wider population may find it difficult to afford modern connected devices with which to perform they increasingly specialized tasks expected in the digital economy. Even some ICT authorities who do have access to connected devices for their own work and as part of capacity building efforts in support of key target populations, are still unable to use them due to a lack of sufficiently trained personnel.

Recommendation: De-risking investments for local manufacturing of connected devices and capacity digital skills capacity development rely on making finance more accessible to start-ups and small-scale innovators. Public-private partnerships can make blended finance available to investors who may otherwise find it too risky or not profitable enough to invest in essential hardware development and training programmes.

- **Challenge:** The adoption of AI in the digital economy can lead to new cybersecurity concerns, in turn disincentivizing the pursuit of digitally enabled livelihoods for new employers and workers who see an AI-powered digital economy as too risky.

Recommendation: It is important to assess how existing online security frameworks and policies are robust enough already to adapt to the additional security pitfalls that may come from an at-scale adoption of AI technologies as part of Kenya's digital transformation. Cybersecurity protections, in the face of AI technologies, must be part of the enabling business environment if the digital economy is to expand without accentuating existing risks and inequalities.

- **Challenge:** There is a gap between existing policy frameworks that directly respond to the digital gig economy and the challenges and opportunities for digital businesses that are looking to leverage emerging technologies, including AI.

Recommendation: A holistic approach is necessary whereby policies are informed by direct market insights, trends, and first-hand experiences from employers and workers in the digital economy. This must also work together with digital skills development programmes and national academic and vocational training curricula that respond directly to the rapidly evolving digital labour market trends and needs.

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