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Digital Africa:
Tales of Transformation

Edited by

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DIGITAL AFRICA:

TALES OF TRANSFORMATION

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Introduction

Digital transformation in Africa is at a critical crossroads. Connectivity continues to expand, and new technologies are gaining ground as ambition soars. Yet, persistent structural challenges remain, including uneven access, high costs, fragile infrastructure, policy gaps, and concerns about inclusion and sustainability. These are no longer peripheral issues; they are central to understanding Africa's digital future and demand sustained scholarly and policy attention. Any meaningful discussion of digital transformation in Africa must therefore move beyond celebratory narratives and confront these realities.

Africa's digital shift is undeniably real and accelerating. Countries such as South Africa, Kenya, Nigeria, and Ghana are advancing ambitious national strategies, while investments in artificial intelligence, cloud computing, and digital infrastructure continue to grow. However, this transformation does not follow a linear path defined by global benchmarks. Instead, it reflects a more grounded story shaped by adaptation, local innovation, diaspora engagement, and increasing political commitment. Across sectors, digital tools are reshaping governance, markets, and everyday life, while efforts to expand access and counter misinformation signal a continent actively shaping its own technological trajectory.

To be sure, this digital transformation is more urgent than generally considered. Africa's digital transformation needs to be faster, more affordable, more inclusive, and more effective. As the continent moves from policy formulation to implementation, there is a pressing need to examine how the digital transformation is unfolding. What works, what fails, and why—these questions are best answered not through broad generalisations but through close, context-specific analysis. At a time when Africa is often viewed through an overly optimistic or critical lens, it is necessary to focus on grassroots voices to develop evidence-based policy tools.

This volume, *Digital Africa: Tales of Transformation*, seeks to present a balanced, evidence-based account by identifying opportunities and risks, thereby contributing to a more nuanced understanding of Africa's digital trajectory. It brings together grounded experiences, case

studies, and practitioner insights to illuminate the realities of digital transformation. It aims to highlight practical challenges and identify pathways for more effective and inclusive digital development.

Building on *Powering Africa's Digital Transformation: The Policy Landscape,* a 2024 compendium examining the policy landscape of Africa's digital trajectory, this volume shifts the focus to the grassroots. This granular lens is useful in identifying what is working, diagnosing what is not, and better understanding what is needed to bridge the gap between ambition and reality. Ultimately, this volume aims to encourage policymakers, practitioners, and scholars to prioritise impact over technology. Indeed, it is essential to focus not only on the tools being deployed, but on the outcomes they deliver. This shift is also necessary to adopt a more thoughtful, responsible, and human-centred approach, apt for Africa's digital future. The groundwork for Africa's digital future has already been laid. The challenge now is to translate strategy into meaningful, inclusive, and sustainable action.

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The 12 essays in this volume present case studies from Egypt, Ethiopia, Kenya, Rwanda, Tanzania, Nigeria, Zimbabwe, and the African Union. They explore how different political, legal, and social contexts shape digital transformation outcomes, offering complementary, grounded insights into Africa's digital transformation.

In the first chapter, Hebatallah Adam traces Egypt's digital journey from early e-governance efforts to a comprehensive national strategy under 'Digital Egypt', highlighting key drivers, measurable achievements, and sectoral impacts to show how digitalisation is linked to economic growth and governance reform. At the same time, she offers a balanced assessment by identifying persistent challenges and outlining future policy directions.

Next, Wegene Mengistu presents Ethiopia's digital transformation as a policy-driven case study, centred on the 'Digital Ethiopia 2025' strategy and subsequent reforms that liberalised the digital finance ecosystem. The essay uses sectoral data and institutional analysis to show how regulatory changes, market entry, and infrastructure expansion are driving financial inclusion and economic modernisation.

Sizo Nkala links digital adoption in Zimbabwe to broader economic modernisation goals under its 'Vision 2030' policy. The essay combines data-driven analysis with policy review to highlight both progress in connectivity and persistent gaps in access, affordability, and infrastructure.

In his essay, Jason Nkyabonaki presents Tanzania's digital transformation through a grassroots governance lens, focusing on how digital tools such as WhatsApp are reshaping public expenditure tracking and accountability. It combines empirical survey data with institutional context to show how digitalisation enhances citizen participation where traditional mechanisms have struggled.

In the second case study on Tanzania, Ezra Nnko explores how digital tools are reshaping agriculture. The essay highlights the role of concrete platforms and data systems to show how digitalisation improves productivity, market access, financial inclusion, and policy planning. Grounding the analysis in farmer-level impacts, he demonstrates how digital transformation in Tanzania is both practical and development-oriented, addressing real challenges in rural livelihoods.

Anashia Nancy Ong'onda also uses a societal and grassroots lens to analyse how Kenyan youth are using new media and social platforms to build digital literacy outside formal systems. According to her, digital transformation is an everyday, user-driven process shaped by language, access, and informal learning practices. By combining socio-economic context with behavioural insights, she shows digital tools are not just technological enablers but also instruments of empowerment, inclusion, and self-driven skill development.

In his essay, Aluko Ahmad presents Nigeria's digital transformation through the use of mediatech in elections, showing how digital tools have enhanced transparency and citizen participation. However, this transformation comes with challenges: these technologies also enabled misinformation, deepened divisions, and exposed institutional weaknesses.

In the second case study on Nigeria, Abayomi Odukudu uses a gender-inclusion lens to examine how the country's national policies and programmes are shaping women's participation in the digital economy.

Dorcas Tsebee presents digital transformation through a legal and regulatory lens, examining how the rise of digital photography and data protection frameworks is reshaping rights over images in Africa. She uses comparative case studies from Kenya and Nigeria to show how digitalisation creates new tensions between copyright and privacy.

Next, Anthony Luvanda examines how grassroots initiatives shape outcomes in Kenya and Rwanda alongside national policies. He highlights how different governance models, decentralised in Kenya and state-led in Rwanda, interact with local innovation to drive inclusion. The comparison between the two countries shows that successful digital transformation in Africa hinges strongly on community participation and locally grounded solutions.

S. Boinmale Jean-Baptiste Sebgo uses a regional governance lens to focus on the African Union's Digital Transformation Strategy and its implementation across diverse national and sub-regional contexts. He analyses the gap between ambitious continental policy frameworks and ground realities, including fragmentation, unequal capacities, and funding constraints. By examining these challenges, he foregrounds coordination and governance problems and suggests more adaptive, bottom-up approaches for effective implementation.

In the final chapter, Harun Abubakar Siddique examines how internet reliability underpins the success of the African Continental Free Trade Area's Digital Trade Protocol, linking digital connectivity to economic outcomes, and demonstrating how outages and throttling disrupt productivity, trade, and financial systems. Siddique notes that Africa's digital transformation requires resilient digital infrastructure to sustain continental integration.

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Egypt's Digital Transformation: Progress, Achievements, and Prospects

Hebatallah Adam

Over the past decade, Egypt has undergone a substantial digital transformation aimed at modernising government services and strengthening the economy through information and communication technology (ICT). Egypt's e-governance efforts began in 2001 with the introduction of the first online services (1). Since then, these projects have grown from simple service portals to complex platforms that combine mobile government, cloud computing, and big data analytics (2). The Ministry of Communications and Information Technology (MCIT) launched the 'Digital Egypt' strategy in 2023, which aims to promote digital infrastructure, make e-government services more accessible, and expand Egypt's role in the global digital economy (3).

ICT is Egypt's fastest-growing economic sector in recent years, with a growth rate of 16.3 percent in 2022/23 and revenues of EGP 315 billion (US$6.624 billion), a 75 percent increase from the previous year (4). Advancements in the ICT sector have resulted in Egypt ranking third in the Cross-Border Outsourcing Services Trust Index 2023 and 79th in the GSMA Mobile Connectivity Index 2023, up from 95th in 2022 (5). These accomplishments highlight the interconnectedness of the digital transformation agenda and national economic growth.

Key Drivers of Egypt's Digital Transformation

The recent acceleration of Egypt's digital transformation is attributable to three factors:

- **Strong political will translated into institutional coordination:** The MCIT has positioned digitalisation at the frontline of Egypt's national modernisation strategy, which connects it with the 'Vision 2030' education, health, and economic diversification objectives (6).

- **Mega infrastructure investments:** Egypt's digital connectivity projects aim to connect 32,000 government buildings with fibre (thousands of them are already connected) (7). Related projects include the Knowledge City in the New Administrative Capital, which currently comprises 11 advanced research laboratories, the National Academy of ICT and Disability Inclusion, and the Egypt University of Informatics, the first in Africa focused on ICT.

- **Global demand and market shocks:** The COVID-19 pandemic hastened the use of online services. Meanwhile, Egypt established itself as a global outsourcing centre. Since 2022, it has signed agreements with 74 companies to create or develop 85 outsourcing centres, with plans to hire 60,000 specialists over three years (8).

Main Achievements of Egypt's Digital Transformation Strategy

The Egyptian government has successfully achieved many notable milestones in its endeavour to implement the promising 'Digital Egypt' strategy:

- **Advancements in e-government services**: By 2023, Egypt had more than 100 online government services, including services like civil status, licensing, and court cases (9). The Digital Egypt portal brings together access to many government services. Studies show that frameworks such as the Technology Acceptance Model have increased people's trust in these services, and online identification systems have enabled people to interact with one another (10). These kinds of measures turn citizens from passive consumers into active participants in governance (11).

- **ICT industry performance, in numbers**: The ICT sector is now Egypt's fastest growing, with a growth rate of 16.3 percent (2022/23). In 2023, ICT revenues accounted for EGP 315 billion (US$6.624 billion) (12). In 2023, Egypt ranked third globally in outsourcing trust indexes and was the top-ranked country in Africa for fixed internet connections (64.5 Mbps in late 2023) (13).

- **Cloud computing, big data, and AI readiness**: In 2023, Egypt ranked 62nd on the Government AI Readiness Index (14). Big data can be used to personalise interactions

with citizens and to maximise the resources governments distribute (15). These capabilities are consistent with the goals of Egypt Vision 2030, which underlines data-driven governance as a source of transparency and efficiency (16).

- **Human capital development as a pillar of 'Digital Egypt':** In 2023/24, the MCIT has provided training programmes to 400,000 beneficiaries with a budget of EGP 1.7 billion (US$35.7 million). The Digital Egypt Generations initiatives have covered schoolchildren (Digital Egypt buds and cubs) to graduates (pioneers and builders). About 60,000 trainees have benefited from the programme, and 369 graduates have been awarded advanced qualifications, including professional master's degrees in AI, fintech, robotics, and cybersecurity, in partnership with Canadian, Irish, and Malaysian universities (17).

- **Electronics localisation and innovation:** Samsung and Xiaomi started assembling mobile units in Egypt under the Egypt Makes Electronics scheme. There are currently two factories that produce smart devices and accessories. Egypt was also the first in the region to build an advanced innovation centre with Siemens and to host the region's first semiconductor industry conference. By 2023, the electronics design industry had grown by 20 percent, with exports totalling US$490 million. Additionally, 15 AI- and smart-system-based startups were incubated, and 4,850 students registered at electronics and IT training centres (18).

- **Expansion of entrepreneurship and innovation centres**: By 2023, the MCIT established 20 creative innovation hubs across the different governorates. These hubs expanded their support to 164 startups, 14,690 trainees, and 6,369 freelancers (19). Such hubs provide decentralised access to entrepreneurship resources and link talent and labour market demand.

Challenges to Egypt's Digitalisation Process

Despite the remarkable achievements, there are still various challenges to Egypt's digitalisation journey, which could restrain its inclusiveness and sustainability:

- Some government personnel are unfamiliar with the digitisation process, expressing concerns regarding workload and job security, which hinders the adoption of e-government and compliance with new technologies. Additionally, some citizens have expressed scepticism about the reliability of e-government services, distrust of government IT services, and a lack of knowledge about how to use e-government services efficiently (20).

- There is still a significant digital divide between rural and urban regions. Issues of affordability and access can slow the transfer of knowledge in rural governorates with high poverty levels (21).

- Moreover, despite improved regulatory performance (Egypt ranked fifth in the Telecom Regulatory Performance Index in 2023), there are still significant gaps in terms of data governance, privacy, and cybersecurity resilience (22).

These challenges underscore the imperative for Egypt to enhance its technology framework through institutional and regulatory reforms and comprehensive capacity development, thereby transforming digitalisation into a catalyst for inclusive and sustainable development.

Conclusion

Egypt's digital transformation is set to advance through the adoption of emerging technologies and the strengthening of institutional frameworks. Big data applications, smart city projects, and green IT projects are widely acknowledged as important instruments for improving governance efficiency, personalising citizen services, and fostering environmental sustainability (23). These developments align with the 'Egypt Vision 2030', which emphasises technology as a catalyst for transparency, competitiveness, and inclusive progress (24). Simultaneously, public-private partnerships are essential, not just for mobilising investment but also for integrating technical skills and best practices, especially in domains such as outsourcing, electronics localisation, and higher education cooperation (25). Enhancing digital literacy and capacity development across all demographics is crucial to closing existing gaps and equipping the workforce to support Egypt's digital transformation. These proactive initiatives are essential for Egypt to strengthen the ICT sector as a catalyst for economic growth and a basis for more inclusive, innovative, and resilient governance.

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Ethiopia's Digital Transformation: Aspirations, Strategies, and Challenges

Wegene Mengistu

Ethiopia is currently in the process of swapping its traditional, closed system for a more digitised, open, and modern one, remodelling the entire economy. This shift is based on the 'Digital Ethiopia 2025' strategy, a roadmap guiding the nation's infrastructure. These shifts in policy and regulatory mechanisms aim to liberalise the digital landscape while fostering inclusion, increasing system efficiency, and advancing Ethiopia's aspiration to become a middle-income country. As the changes are based on legal and regulatory reforms that have challenged the stronghold of state-owned institutions, they have paved the way for private and non-bank actors to participate in the digital financial services market.

These changes were instigated by the revision of the National Payment System Proclamation around 2019, which led to the issuance of Proclamation No. 1159/2019, officially recognising and providing a licensing framework for non-bank digital financial service providers, the first in the country's history. This new proclamation brought visible market growth. A notable milestone was when the National Bank of Ethiopia granted the first non-bank mobile money licence to Ethio Telecom for its Telebirr platform in 2021. This was a well-thought-out move, leveraging Ethio Telecom's well-established network to expand its reach into even the most remote areas of the country, thereby driving mass adoption of the technology. Moreover, the legal adjustments backed by the new policies in 2023 and 2024 paved the way for the entry of foreign investment into payment service providers (PSPs), notably increasing competition, introducing global actors to the market, and enabling market competition and investment (1,2).

Implications and Direction of Policy Changes

As a result of the policy overhauls, the digital finance market has emerged as one of the fastest-growing areas of the country's business landscape. Data indicates the economy is in digital acceleration mode. The number of digital accounts has surged past 102.8 million (3), a notable increase compared to a few years ago. This change can be credited to the mobile money sector, which, over the three years after the issuance of non-bank licenses, increased the number of accounts by nearly fourfold. The magnitude of use tells a bigger story: the annual value of digital transactions processed across the entire payment system, encompassing mobile money, agent banking, and point-of-sale (POS) systems, reached a staggering ETB 4.7 trillion (approximately US$82 billion) in 2023, representing an impressive 35 percent year-on-year growth (4).

The main catalyst for these changes is the expansion of access points, which have enabled cash-in/cash-out services and last-mile adoption. The network of these access points (bank agents, mobile money agents, and POS terminals) has surpassed 238,000. Notably, these have also enabled the adoption of systems needed to replace cash transactions, such as EthSwitch, which provides integration between banks, giving bank users the ability to transact with customers and terminals of other institutions, an essential service in the current fragmented banking market in the country.

Inclusivity in the Digital Space and Socioeconomic Impact

The main aim of this change is to bring about financial inclusion. These services primarily reach underprivileged, rural, and remote areas that lacked access to bank window services and were neglected by the previous system. The expansion of financial technologies is vital for strengthening the domestic economy and improving per capita income (5).

Moreover, these changes also provide a multi-dimensional increase in productivity and development at the macro level. It encourages small and medium-sized enterprises (SMEs), which are the backbone of job creation, to adopt digital payment acceptance mechanisms. This allows them to reduce costs associated with handling and securing physical cash, improve operational efficiency, and maintain digital transaction records (6). This record is essential for establishing creditworthiness and qualifying for formal lending and working capital—a key bottleneck in traditional financial systems (7). Additionally, the digitalisation of government-to-person payments, such as social safety payouts, and person-to-government payments, including taxes and fines, reduces administrative costs for the state, minimises leakage and fraud, and increases the overall transparency of public finance management (8). The deliberate replacement of cash with a digital alternative will spur economic development, formalise the often-opaque informal economy, and build the auditable financial identity necessary for a modern, competitive, and diversified national economy (9).

Stakeholder Dynamics and Administrative Oversight

This new digital landscape operates among the five main stakeholders operating within the rapidly changing regulatory framework of the National Bank of Ethiopia (NBE). It is taking the country from a state-owned and -governed system to a market with various actors, even as it remains under the control of the NBE, the main authority for managing the national digital payments strategy, and provides gradual access to the market in the new liberalised landscape. Several key players anchor this ecosystem: as Ethio Telecom had an already existing consumer base, it holds the lion's share of the market through its Telebirr service, and EthSwitch is the vital framework for managing the national switch (including RTGS, ACH, and instant payments), ensuring full interoperability among all participating entities (10). Local banks aid these efforts by adopting and integrating the new infrastructure into their ecosystems, while fintechs target developing consumer applications such as e-commerce and lending platforms. The entry of international firms such as Safaricom/M-Pesa into the Ethiopian market is expected to change the environment by introducing best practices and injecting crucial foreign capital, provoking domestic companies to innovate. The NBE's ability to manage this new ecosystem effectively, encourage technological advances, and maintain financial stability will determine the system's effectiveness and longevity.

Fundamental Limitations and Proposed Solutions

Nevertheless, the digital transformation must confront three crucial issues. First, the gap between the magnitude of digital need and the available infrastructure to fulfil it is severe. This is evident in the rural-urban imbalance, unreliable power, weak 4G coverage, and a lack of fibre-optic access in remote areas, which hinders the necessary expansion of agent networks and reliable digital commerce (11). Second, the lack of knowledge and trust reduces the number of new users; low digital and financial literacy, mostly in remote areas and among senior citizens, still brings a need for physical cash. The lack of trust in new digital alternatives aggravates consumers' already existing reluctance to store value digitally. Finally, contextual and operational constraints pose major risks, as geopolitical instability and regional conflicts can damage essential infrastructure and erode public trust, proving that context matters more than technology (12). Furthermore, complex regulatory implementation and challenges related to forex controls and liquidity impede the scalability of cross-border digital services and deter foreign direct investment.

Following this, the government and partners took specific measures to alleviate these issues, including the rollout of new 4G and 5G networks, continued improvements to the country's infrastructure, and the introduction of secure, local data processing centres. For instance, the Fayda Digital ID aims to establish a dependable know-your-customer database as a base for customised and secure financial services.

In December 2025, building on the foundations and lessons learned from the 'Digital Ethiopia 2025' strategy, the country launched a more intricate regulatory framework, 'Digital Ethiopia 2030'. This new initiative aims "to accelerate Ethiopia's digital transformation by strengthening infrastructure, fostering innovation, and building the institutions and partnerships needed for a thriving, indigenous digital economy". Moreover, it dives into various lessons from other digital economies, such as China's massive-scale infrastructure deployment frameworks that prioritise open standards, governance, and interoperability (13). Indeed, this is a great opportunity to utilise expertise from other countries. The Digital Ethiopia 2030 strategy is fundamentally structured to eliminate transactional gaps and vacuums by enforcing EthSwitch to all licensed PSPs, banks, and networks; encourage competition and investment by strengthening infrastructure, giving affordable services, and broadening the liberalisation market; acknowledging that building trust in the digital economy and strengthening security and human resource development is critical for a durable system. By adhering to this comprehensive restructuring, Digital Ethiopia 2030 aims to transform the country into an inclusive, robust digital economy powerhouse.

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The Pathway to Digital Transformation in Zimbabwe

Sizo Nkala

The ongoing fourth industrial revolution is gaining steam, and small countries like Zimbabwe are eager not to be left behind. New-age technologies like the internet, artificial intelligence, robotics, and quantum computing, among others, are rapidly changing many aspects of everyday life, including education, health services, banking, production, security, and communication, with far-reaching implications for socio-economic development and geopolitical dynamics. The development prospects of each country will be determined by how well they harness digital technologies. According to the International Telecommunications Union, a 10 percent increase in the country's rate of digitisation, driven by expanded infrastructure and access, could boost its GDP per capita by 0.75 percent (1). As a country whose economy is largely based on agriculture, mining, and informal commerce, the adoption of digital technology at scale in Zimbabwe is likely to increase productivity, expedite environmental management, draw more people into the mainstream economy, and also improve the quality of public services. Zimbabwe has made some progress in digital transformation and is now expediting the adoption of digital technology across its society. However, much remains to be done, as the country is still among the least digitised in the world.

Zimbabwe's Digital Landscape

Zimbabwe ranks 149 out of 190 member states in the UN's 2024 E-Government Development Index, which measures the provision of online services, telecommunications connectivity, and human capital (2). Zimbabwe has a fibre-optic network of about 25,000 km, reaching about 43 percent of the population within a 5km radius, and only 38 percent of the country's population reportedly uses the internet (3). Most of these users are concentrated in the major cities, reflecting the digital divide between rural and urban areas. A 2020

survey revealed that only 28 percent of rural dwellers had mobile phones with internet access, compared to 64 percent in urban areas, while regular internet usage stood at 49 percent among urban residents, compared to only 11 percent among rural counterparts (4). This divide is a result of unequal access to infrastructure and the inability to afford both smart devices and data costs in impoverished rural areas where most households depend on subsistence farming. With close to 70 percent of the country's population residing in rural areas, Zimbabwe will not make significant inroads into digital transformation unless it addresses the widespread digital poverty there. However, Zimbabwe's internet usage is higher than the Sub-Saharan African average of 25 percent (5).

Further, while Zimbabwe has a 97.5 percent mobile penetration rate, smartphone penetration is lagging at 55 percent. This means that almost half of cellular network users in the country are using phones without internet capabilities. Even then, only 10 percent of mobile phone users have an internet data subscription plan due to exorbitant data costs, which many, especially in rural areas, cannot afford (6). The government's decision to impose a digital services withholding tax on payments for digital services supplied by foreign companies will only add to the data costs of Zimbabwean users, as they will ultimately have to pay higher prices for digital services (7). The Network Readiness Index (NRI), which measures the application and impact of information and communication technologies (ICTs) in 133 countries, ranked Zimbabwe at number 121 in its 2024 report. In terms of the impact of ICTs on the economy, quality of life, and contributions to sustainable development goals, the NRI ranked Zimbabwe 133, indicating that ICTs have had the least impact on society (8). Thus, if Zimbabwe is to avoid missing the digital transformation train and capture the opportunities it brings, urgent and comprehensive interventions are needed to get the country back on track.

Government Policy and Interventions

The Zimbabwean government has identified digital transformation as a strategic priority and a pillar of the broader socio-economic transformation strategy, the goal of which is to transform the country into an upper-middle-income economy, as espoused in the 'Vision 2030' policy document (9). The document lists several commitments, including achieving universal internet access by 2030 through the expansion of fibre-optic and last-mile connectivity, digitising public service delivery, and establishing special economic zones to expedite the production and development of ICT products and software. In late 2025, the government released the 'Smart Zimbabwe 2030 Masterplan', which enumerates eight digital transformation goals to be realised between 2026 and 2030. These goals include improving well-being through the adoption of ICT products, achieving universal access to ICT, increasing digital literacy, establishing effective regulatory regimes, and developing a vibrant ICT industry with strong local participation (10).

The demand for digital services in the country is increasing rapidly. Mobile internet data traffic increased by over 24 percent between the third and fourth quarters of 2024, while data usage soared from 78.38 petabytes to 97.19 petabytes. While this indicates increased and intensified internet use, it underscores the urgent need for the government and private sector players to expand infrastructure to meet the demand (11). In terms of key infrastructure, Zimbabwe still faces major challenges. The country has only three data centres, located in Harare and Bulawayo, to serve the entire population (12). This makes it difficult for the government and businesses to realise their digital transformation plans, even as it increases the costs of using internet services since people and organisations have to rely on servers located outside the country. The notoriously erratic power supplies and an unstable macro-economic environment have made it difficult to attract investment into Zimbabwe's data centre market.

The oligarchic structure of Zimbabwe's ICT industry, which is dominated by three main mobile network operators (Econet Wireless, Netone, and Telecel) and a few fibre internet providers such as Liquid Telecom, Zimbabwe Online, Afrihost, and Telone, further compounds the situation. Having a few dominant players reduces competition, which is detrimental to service quality and costs. Most current players in the industry do not have the capacity to roll out infrastructure at sufficient scale to reach marginalised areas due to low returns on investment. This will perpetuate the daunting digital divide between the urban and rural areas. As such, the government needs to create an environment that enables more players to enter the ICT sector. In 2024, global internet service provider (ISP) Starlink was permitted to begin operations in the country. Relying on cutting-edge satellite technology, Starlink can reach even the most marginalised areas at competitive rates (for instance, unlimited data packages at about US$30), which will force competitors to reduce their charges (13).

Rural Community Networks

In 2020, the Zimbabwean government introduced community networks (CNs) to extend internet access to areas that lack digital infrastructure, as these areas are deemed economically unviable by the main ISPs. CNs refer to telecommunication network infrastructure built and managed by groups of individuals or communities. CNs can be a viable alternative for addressing digital poverty in rural areas. Zimbabwe's first CN was launched in 2021 in Murambinda, a rural district in the east. This CN is based on an internet cafe owned and run by a community organisation known as Murambinda Works. The cafe became the only reliable point of information and communication for the people of the area. Murambinda Works partnered with the Internet Society in 2018 to build a network spanning a 40-km radius, connecting critical public infrastructure, including clinics, government offices, schools, and village farms. Over 100,000 people residing in and around

the area are now connected to a reliable and affordable internet service. Murambinda Works also developed an e-learning platform to help improve the quality of education and impart digital skills to community members. In 2022, following the success of this CN, the Postal and Telecommunications Regulatory Authority of Zimbabwe, the telecoms regulator, unveiled a plan to support the nationwide rollout of CNs. Consequently, CNs have sprung up across the country, including in the Masvingo and Matabeleland provinces, where these interventions have enhanced internet access.

Conclusion

Zimbabwe has made significant headway in its digital transformation journey. Boasting a young population and with about 70 percent of its population living in rural areas, digitisation is a strategic imperative for the country's socioeconomic future. However, despite the government's policies aimed at accelerating infrastructure rollout and increasing access to ICT services, a glaring digital divide persists, especially between rural and urban areas. The lack of critical infrastructure, such as data centres, fibre-optic cables, and 4G and 5G base stations, undermines the country's digital transformation ambitions. The government must create a favourable environment for potential investors to invest in Zimbabwe's ICT sector, thereby enhancing both the reach and quality of services. The focus should be on rural areas where most people survive on subsistence agriculture and small-scale mining. Access to and adoption of digital technology in these critical economic sectors will increase productivity, boost income generation, and enable optimum environmental management.

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Enhancing Accountability: Public Expenditure Tracking Surveys in the Digital Era in Tanzania

Jason Nkyabonaki

The mismanagement of public financial resources is a major practical and policy concern in developing countries (1). To address the challenge of financial mismanagement, many countries adopted the Public Expenditure Tracking Surveys (PETS) tool (Uganda was the first in 1996). PETS refers to quantitative exercises that aim to track the flow of public resources across various layers of the administrative hierarchy, from the allocating agency to the intended beneficiary, and determine inefficiencies in the system (2).

Tanzania adopted the PETS methodology in 1999 to track non-wage recurrent expenditure in the education and health sectors. The survey found that only 43 percent of education funds were transferred to schools, while only 12 percent of health funds reached health centres, dispensaries, or hospitals (3).

The experiences of Uganda and Tanzania with PETS showcase that the surveys were not a silver bullet for financial management and accountability. Unlike in Uganda, the first two PETS in Tanzania did not stimulate or inform a sustained debate on transparency and accountability in local financial flows (4). In Tanzania, to address the above obstacles to PETS, decentralisation through devolution was reinforced to increase interaction between principals and agents in governance (5).

According to the Local Government Finance Act No. 9 of 1982 and the Local Authority Financial Memorandum of 1997, local government authorities are obliged to disseminate information on revenues and expenditures to citizens, including the signed audited

accounts. Councils use different ways to distribute information, including organising meetings by the Mtaas (village councils), the lowest levels of governance in Tanzania, and displaying information on notice boards (6). However, several scholars argue that proximity and accessibility are important considerations if notice boards are to be used to inform the public (7). This essay, based on a 2023 field study conducted in the Toangoma Ward in Temeke municipality involving 200 respondents, links devolution to the role of digital technology in tracking public expenditures at the facility level.

Community Voice and Enhanced Accountability

Enhancing citizens' voice in a digitalised era is crucial to promoting accountability. For this essay, voice is understood to mean the opportunities for communities to express their views on the funds allocated at the facility level and to influence governance processes. Community voice is known to: (i) increase pressure on local government to become participatory and responsive; (ii) generate social capital (trust, norms, networks, and communication), bridging and bonding; (iii) increase the capacity of local collective action; (iv) improve the living conditions of beneficiaries (the poor, disadvantaged, and marginalised); and (iv) improve matches between services and beneficiary preferences (8).

During the field study, in response to a question about whether they had attended public meetings convened by the Mtaa authority, 57 percent of the 200 respondents said they had never attended such meetings, 21 percent said they had attended once or twice, and 22 percent said they had attended a few times. The implication of this situation is that participation to foster accountability is a lower priority for communities, despite Article 103(2) of the LGA Act No. 7 of 1982, which requires the Mtaa leadership to summon the Mtaa assembly once every three months (9). Individuals may find it challenging to attend in-person meetings due to their busy schedules. Indeed, income levels can help gauge community participation, particularly in urban areas. Those in urban areas are likely busier with livelihood commitments than those in rural areas, where the lifestyle is more homogeneous, enabling increased community participation. The community's inability to participate in such meetings makes it difficult for them to hold the government accountable for its management of public funds.

Additionally, 38 percent of respondents said they had never visited school noticeboards to read financial statements; 30 percent said they had, but only a few times; 22 percent said they had many times; and 10 percent said they had visited the notice boards often.

Notably, the 2003 education policy stipulates that it is the obligation of councils and schools to furnish the information on funds that have been received and how these have been spent through displays on noticeboards and other public spaces, and the obligation of each individual to learn about how much money has been received by the council or

school and how this has been spent (10). As such, the trend of citizens not following up on the funds does not make PETS a strong tool for public financial management or for improving accountability.

However, digital platforms such as WhatsApp have proven more effective for following up on community issues. Ninety percent of respondents said they were members of a WhatsApp group focused on community issues, while the remaining 10 percent said they were not. Indeed, some respondents said such digital groups enabled them to "criticise" their leaders when they are lacking and "applaud" them when they do well.

This implies that community members can now express their concerns more openly and hold leaders accountable through social media, particularly the WhatsApp community group. According to the Mtaa chairperson, "Some people are harsh and use abusive words when addressing some issues. However, some issues raised are critical to good governance, such as asking about the Mtaa's income and expenditure and seeking Mtaa meetings to deliberate on matters related to security, education, health, and water. This is putting us leaders under pressure, as we are obliged to respond to questions and offer solutions. The WhatsApp group has improved our interface with our community, unlike the times of using noticeboards or physical meetings".

This shows that digitising governance is crucial for achieving accountability on both the supply and demand sides.

The digitisation of governance platforms promotes accountability, enhances transparency, and increases openness. WhatsApp has not only increased the flow of information but also enhanced inclusivity, as everyone in a group can access it. This promotes inclusive governance and leaves no one behind, as set out in the Sustainable Development Goals and the Africa Agenda 2063.

Conclusion and Recommendations

The digitisation of governance has increased the space for community participation in tracking the funds allocated at the facility level. WhatsApp communication has increased the frequency and depth of engagement between those in power and the community at large. The community is more aware of the issues in their locality through WhatsApp, and it is easier for them to question and hold their leaders accountable. The field study revealed that community members actively use social media platforms to engage with the grassroots leadership. As such, decentralisation through devolution is seen to have accorded community members some powers to discuss issues related to their governance. The field study also found that other social media platforms were less commonly used to track public expenditure at the facility level.

PETS conducted online will ensure easier tracking of public expenditure and enhance accountability. As such, the government must lower internet prices to promote the use of digital platforms for community members, particularly the poor and marginalised. Also, community members must learn to use the virtual public platform effectively without underrating anyone in an online group. Additionally, using other social media platforms alongside WhatsApp will promote accountability in service delivery. Importantly, grassroots leaders and civil society organisations that undertake PETS should support and integrate communities in using digital platforms to enhance accountability in service delivery.

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Digital Transformations: A Case Study of Tanzania's Agricultural Sector

Ezra Nnko

Tanzania's agricultural sector accounts for 28 percent of the country's GDP, and employs 65 percent of the total population of approximately 68 million (1). Sixty-three percent of the Tanzanian population lives in rural areas, and most work on farms. Eighty-five percent of these farmers are considered small-scale farmers who work on less than 2.5 hectares of land and rely primarily on annual rainfall and government subsidies for essential inputs such as fertilisers, seeds, and farming equipment (2).

Tanzania is among the few African countries that are food self-sufficient (3). In 2024, Tanzania had achieved a self-sufficiency ratio of 128, up from 124 in 2022-2023, enabling the country to export a surplus to the neighbouring states (4). This increment has been in place for four consecutive years since 2021.

Digital Transformation

In recent years, Tanzania has embraced several digital mechanisation and modernisation measures in its agricultural sector:

Farmers Digital Information System

In 2023, the Ministry of Agriculture initiated the Farmers Digital Information System (FDIS), which aims to consolidate all services useful for farmers into a comprehensive digital framework. FDIS provides fundamental services to farmers, including agro-finance, agro-dealer services, subsidies, logistics, harvesting, and market management (5).

In agro-finance services, FDIS serves as a bridge between farmers and the financial system, such as banks, while also providing financial institutions with data-driven insights into farmers' agricultural and financial status. This data includes personal information, contact details, location details, farm and field data, financial and credit information, insurance, production data, and business information.

Tanzania Mercantile Exchange

The Tanzania Mercantile Exchange (TMX), a commodity exchange platform, was established in 2018. TMX enables farmers, traders, exporters, and other key players in the agricultural market to access both domestic and global markets, thereby obtaining fair prices for buying and selling commodities online (6).

The platform advanced the Warehouse Receipt System (WRS), where farmers had to transport and store their products in designated warehouses or Cooperative Collection Centres, waiting for a better market price (7).

The TMX system has modernised the WRS and the broader agricultural market, with the bidding and pricing process now conducted more transparently, with farmers directly involved in the market. Through the system, local farmers have direct access to the market and can negotiate better prices for their products, as it provides daily updates on price fluctuations (8).

Currently, cashew nuts, coffee, sesame oil, rice, sunflowers, maize, green gram, and pigeon peas are traded through the TMX platform.

Agriculture Routine Data Systems

In 2008, with support from the Japan International Cooperation Agency, Tanzania launched the Agricultural Routine Data System (ARDS), a digital web portal platform that collects, reports, analyses, and disseminates agricultural data from the local to the national level (9).

The local data collected includes weather conditions, the availability of basic agricultural resources (such as fertilisers and seeds), crops planted, yields, production, market prices, challenges, and achievements. The information is then converted into reports and presented at the national level for policy review, monitoring, and evaluation.

Through the ARDS reports, the government has been tracking agricultural health and development from the grassroots level by assessing gaps and progress through government officials and agriculture extension officers in the field. This type of information provides government policymakers and agricultural stakeholders with reliable data for planning,

budgeting, and administration. It also provides the government with a clear picture of the fundamental challenges facing local farmers, enabling them to develop an actual solution for the sector.

Digital Fertilizer Subsidy and Distribution System

In 2024, the Ministry of Agriculture launched the Digital Fertilizer Subsidy and Distribution System (DFSDS), designed to manage and regulate the country's entire fertiliser distribution. This system accurately identifies and verifies recipients of government fertiliser subsidies, enhancing the traceability of fertilisers to specific locations and beneficiaries (10).

Through this system, farmers can obtain fertilisers in real-time at minimal cost, as the government coordinates supply to nearby fertiliser distribution centres. The system also manages data on demand, usage, and distribution of fertilisers in specific locations for planning and budgeting.

The digital tracking system minimises corruption and ensures the farmer receives the intended fertiliser in the specified quality and quantity.

Through DFSDS, between 2022 and 2025, the number of fertiliser distribution centres increased from 2,000 to 7,000 while fertiliser usage rose from 3,068,000 to 5,015,000 (11).

Challenges in Agricultural Digital Transformation

Despite the government's achievements in digitalising the agricultural sector, the transformation faces challenges that hinder the adoption and effective use of digital technologies. These challenges include infrastructure, digital literacy levels, the high cost of digital tools and services, awareness of digital systems, and institutional capacity gaps.

Conclusion

Digitalisation has become a crucial tool for promoting agrarian transformation in Tanzania, equipping farmers and policymakers with accurate information, from modernising farming practices to effective marketing. Digital innovation and initiatives have become a solution to many of the challenges confronting the agricultural sector in Tanzania, including vulnerability to climate change, low productivity, limited access to financial services, and market inefficiencies.

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Language, New Media, and the Rise of Digital Literacy Among Kenyan Youth

Anashia Nancy Ong'onda

For the last two decades, enhancing internet connectivity and access has been a priority in Africa. The continent has been at the forefront of adopting technology, improving internet penetration, and increasing investment in internet infrastructure (1). Despite significant efforts to improve internet penetration, considerable challenges persist in the digital divide between regions and countries in Africa. Several factors, such as low digital literacy, the cost of internet connectivity, limited access to digital devices, and intermittent internet supply, have been identified as key hindrances to internet access across Africa (2). Many African countries are hampered by these factors, particularly in economically disadvantaged areas that may be rural and marginalised (3).

However, Africa's internet penetration and connectivity challenges are compounded by the region's unique socio-economic conditions (4). Some African countries face complex challenges, including alarming population growth, poor economic policies, high foreign debt, depleted natural resources, and increased dependence on donor agencies. These factors bear on the projects and policies adopted by individual countries, which, in turn, affect digital connectivity on the continent (5). The gaps are most prevalent in rural and peri-urban areas across Africa, where internet and digital literacy levels are low. Some of the countries with low internet usage in rural areas are Ethiopia (12 percent), Malawi (14 percent), Uganda (15 percent), Burkina Faso (16 percent), Niger (17 percent), and Tanzania (19 percent) (6).

Digital literacy has become a basic requirement for individuals in the twenty-first century (7). Advancements in technology have shaped everyday interactions and access to information. However, a widening digital gap persists, with a large percentage of the population lacking the skills and competencies to navigate digital technologies (8). Low digital proficiency, limited access to digital tools across various levels, and a lack of technical support towards the uptake of emerging digital technologies are among the key factors contributing to the widening digital divide in the country (9). The need to address digital inadequacies is crucial not only to narrow the digital literacy gap but also to ensure that marginalised and disadvantaged groups have equal access to digital technologies and the Internet. It is instructive to note that inadequate skills and competencies limit people's capacity, particularly the youth, to use diverse digital tools and networks to access services, information, and online opportunities.

Using New Media to Address Digital Literacy Among Kenyan People

Kenyan youth use digital media spaces to articulate their views, register their displeasure on various issues, and mobilise themselves to undertake a particular action (10). The youth comprise 70 percent of the population (11), yet Kenya faces acute unemployment and restricted freedom of expression and assembly (12). Consequently, digital sites and new media spaces have emerged as spaces for the youth to air their views, register their dissent, and access civic information (13). Additionally, youth are using social media to learn and improve their digital literacy.

Kenya grapples with a severe shortage of teachers and other professionals with digital skills (14). Consequently, the youth have resorted to social media videos on platforms such as YouTube, TikTok, Instagram, and Facebook to learn and improve their digital skills. About 77 percent of youth use social media platforms for education and to access information information, with YouTube accounting for 59 percent of that use (15). Youth are also accessing digital courses through social media, offering essential lessons on managing their online identities, data protection, creating and maintaining a digital brand, making social media work professionally and privately, safe digital practices, and digital ethics, among others. More importantly, they are bridging the language barrier by using artificial intelligence tools, such as Simba AI, to translate courses into local languages like Kiswahili, making them more accessible and easier to learn at their own convenience (16). Many of these online courses award 'badges' on completion that demonstrate the individual's work and achievement, which they share with friends and on social media to show their achievement and motivate others to take up the courses. Acquiring the badge is a testimony to the skills gained and improves self-confidence. Doing so fosters a strong sense of digital community and culture and encourages more youth to participate in the online courses.

Notably, efforts to improve digital literacy are hampered by prevailing gender inequalities in Kenya. Women are lagging in digital literacy due to a lack of internet connectivity and requisite digital infrastructure, and often encounter limited access to digital resources, including technology and the internet. Additionally, tradition, cultural norms, and religious inclinations limit women's access and use of digital platforms (17). These disparities prevent women from actively engaging in civic affairs (18). Through digital civic advocacy campaigns on podcasts and blogs, young women are addressing the digital divide. They have formed groups on Facebook, X, LinkedIn, and WhatsApp to rally and motivate each other and enhance their digital skills.

In 2024, Kenya's information and communications technology sector grew exponentially, with internet penetration and access at 40.8 percent, internet use at 57.5 percent, and social media usage at 41.5 percent (19). While digital technologies are driving the growth of Kenyan's economy, the youth are finding it difficult to access digital jobs due to limited digital skills. The youth are not only lacking basic digital skills but also intermediate and advanced skills that enable them to use digital tools to create content, especially in digital marketing. As such, they have turned to social media podcasts and videos to learn the much-needed digital skills to access online jobs.

To address the digital skills gap, the Kenyan government has adopted a pragmatic approach that includes developing digital education policies, private-sector initiatives, and educational reforms to align skills development with the evolving demands of the modern economy. Besides setting up digital hubs across the country, the government has established a smart academy with the overall objective of ensuring that every citizen, regardless of their economic and social background, can acquire the requisite digital skills to access online job opportunities and work online (20).

Conclusion

Digital literacy is a key pillar to economic development in Kenya. The Kenyan youth have recognised the need to equip themselves with digital skills to improve their productivity in the digital economy, access online work opportunities, and enhance their global competitiveness. To address the digital skills gap, youth have turned to social media and other digital platforms to learn skills such as content creation, digital marketing, data protection, safe digital practices, and digital ethics. As such, social media and digital platforms contribute significantly as pedagogical tools for Kenyan youth.

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Mediatech, Election Monitoring, and Information Disorder in the 2023 Nigerian Election

Aluko Ahmad

The 2023 Nigerian general election is among the most consequential democratic contests in Africa and the most technologically mediated. With over 93 million registered voters, the election took place in an information environment shaped by innovations on digital platforms, fact-checking, and civic tech tools. Unlike previous elections, in which traditional and digital media were the primary arenas for political engagement, the 2023 election saw heightened social media engagement. Staying ahead of this political engagement and narrative requires real-time monitoring via dashboards and prompt verification of facts and figures by fact-checking outlets to safeguard electoral integrity. Yet, these mediatech tools also amplified information disorder, deepened societal divides, and strained institutional trust.

This dual reality underscores the paradox of mediatech in fragile democracies: it is both a tool for strengthening accountability and a vector for new vulnerabilities. Drawing on Nigeria's 2023 election as a case study, where there were 122.5 million internet users and 31.6 million social media users compared to the 93 million registered voters (1), this essay argues that mediatech has indeed improved electoral monitoring and transparency; however, its uneven adoption, weak safeguards, and susceptibility to manipulation reveal critical gaps. Understanding this paradox is crucial for shaping the future of democracy in Nigeria and the Global South.

Mediatech and Democracy: Theoretical Context

Mediatech, broadly understood, refers to the convergence of media, digital platforms, and information technologies that shape the production, circulation, and verification of information. In electoral contexts, mediatech encompasses citizen-reporting platforms, fact-checking initiatives, artificial intelligence (AI)-driven social listening, and official digital reporting tools.

Scholars argue that mediatech offers opportunities to improve electoral integrity by enhancing transparency, broadening citizen participation, and holding institutions accountable (2). Some also caution that these same platforms can be weaponised to spread misinformation, manipulate identities, and erode trust (3).

Both arguments came into play during the 2023 general election in Nigeria, with many sections of the country, including the Independent National Electoral Commission (INEC), relying on technological deployment.

Mediatech Use in Nigeria's Election

A major highlight of the election was the concerted efforts by think tanks like the Centre for Democracy (CDD West Africa) and media organisations like Dubawa, Fact Check Africa, and FactCheckHub to deploy mediatech and showcase an unprecedented level of fact-checking and verification. To maintain electoral integrity, these organisations ran live debunking operations and produced real-time responses to viral claims. For example, a video allegedly showing ballot box snatching in Lagos, which was widely circulated on X and WhatsApp, was traced to footage from 2019 unrelated to the incident (4). By verifying such claims, fact-checkers protected public discourse from being overwhelmed by falsehoods and provided independent verification channels, especially for social media users.

The electoral body piloted the INEC Result Viewing Portal (IReV), which allowed polling unit results to be uploaded directly from the field. This marked a major shift in electoral transparency, enabling citizens and parties alike to cross-check official tallies. However, technical glitches in transmission and delays in uploading undermined trust, with critics framing these failures as evidence of manipulation rather than as system inefficiencies. As such, the mediatech tool, initially viewed as a significant milestone, later became a disappointment.

Similarly, civil society groups and concerned citizens created independent tech-based monitoring and analysis platforms where citizens could crowdsource reports of voter suppression, violence, and logistical failures. The 'Nigeria Elections Situation Room'

aggregated thousands of entries, providing granular insights into electoral challenges. While this bolstered monitoring, it also inundated observers with unverifiable or duplicated data, highlighting the limitations of scale without effective verification mechanisms.

At the centre of these concerted efforts were AI-powered tools. However, their use cases and deployment had not yet gained traction and taken centre stage as they have today. Essentially, what was deployed were tools with AI capabilities for monitoring online narratives in real-time, flagging disinformation campaigns targeting candidates, and analysing the contexts of trends and narratives. These mediatech tools, equipped with AI features, helped aggregate fabricated election results and identify smear campaigns amplified by political influencers and diaspora networks. Such innovations provided early warning systems, but their reach was primarily limited to digitally literate urban populations on social media platforms.

With these tools, the issues of contention in the general election became clear. At the top of the list was the growing patterns of information disorder. Disinformation and deepfakes, including fabricated videos and AI-generated audio clips (such as an unverified concession speech by Peter Obi, the Labour Party's presidential candidate, and manipulated audio clips of Atiku Abubakar, Aminu Tambuwal, and Ifeanyi Okowa from the Peoples Democratic Party), were used to mislead voters and shape perceptions.

Ethnic and religious polarisation took centre stage as false claims portraying the election as an ethnic contest, particularly among the Yoruba and Igbo in Lagos, were amplified online, fueling voter intimidation and post-election violence (5). Unfortunately, this ethnic polarisation, which has now become a permanent feature of the nation's polity, was not as widely visible until the election, where it became a focal point.

Similarly, attacks on institutions were at their highest tempo, with edited images and screenshots purporting to show manipulated tallies on the IReV portal circulated widely, eroding confidence in the INEC.

These dynamics highlight how mediatech, while enhancing oversight, also created new vectors for electoral manipulation. Therefore, while mediatech undeniably improved aspects of Nigeria's elections, it also exposed fragilities in electoral institutions and digital governance.

At the same time, mediatech also had other significant impacts. First, it strengthened citizens' participation and democratic governance. Crucially, it increased transparency during an electoral process.

The deployment of mediatech during the election also enabled citizens to participate actively in the electoral process. For instance, several independent and crowdsourced platforms showcased on-the-ground situation reports across the country. However, since these tools were online-based, the country's significant digital divide became apparent; there were more reports from urban centres such as Lagos, while states like Zamfara and Taraba had few incident reports and coverage.

Additionally, politicians and partisan actors weaponised digital tools to spread disinformation, exploiting gaps in platform moderation. This trend has outlived the electoral process and now appears to characterise every facet of the country.

Conclusion

Nigeria's experience is emblematic of wider dilemmas in the Global South. Kenya's use of mediatech in its 2017 and 2022 elections demonstrated similar tensions: digital tools increased transparency but also fuelled disinformation campaigns (6). South Africa and Ghana have likewise experimented with civic-tech monitoring but remain vulnerable to organised manipulation.

Although Nigeria is distinctive in its demographic scale and political intensity, these are also significant challenges. The 2023 election demonstrated that mediatech is neither a panacea nor a poison. Instead, it is both a driver of electoral progress and a source of new vulnerabilities. Fact-checking initiatives, civic-tech platforms, and digital transparency tools improved electoral integrity, while disinformation, technical failures, and uneven access revealed profound lapses.

The lesson is clear: mediatech must be embedded within robust safeguards, institutional reliability, and inclusive access. Only then can it bridge rather than widen divides, strengthen rather than undermine trust, and help strengthen rather than destabilise democracy.

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Bridging the Gender Digital Divide in Nigeria: Policy Approaches to Women's Empowerment

Abayomi Odukudu

The digital economy is considered a wonder of the modern world, shaping countries' socioeconomic landscapes. Nigeria, too, is experiencing this modern evolution and is currently seeking to create an inclusive and competitive economy. To achieve this dream, Nigeria rolled out the National Broadband Plan (2020–2025) and the National Digital Economy Policy and Strategy (2020–2030) to use technology to promote social inclusion and economic progress. However, the gender divide persists in the digital space as it does in other aspects of life. The gender divide in this context prevents women from participating equitably in the digital economy, despite their crucial role in achieving Nigeria's development goals.

Nigeria's Digital Transformation and Gender Gaps

Nigeria's investment in digital growth is beginning to yield results. In March 2024, broadband penetration reached 43.5 percent (1). Initiatives such as the '3 Million Technical Talent' (3MTT) programme, launched in 2023, aim to train Nigerians in emerging digital fields, including artificial intelligence, data analytics, and cybersecurity, by 2027 (2).

However, despite this progress, Nigeria has yet to achieve gender balance. Indeed, significant gender disparities persist in mobile technology access and usage: 92 percent of men own mobile phones, compared to only 88 percent of women; 54 percent of men use mobile internet compared to just 34 percent of women; 93 percent of men report having autonomy over handset selection and payment, compared to only 62 percent of women; while 68 percent of women still do not own a smartphone (3). Further findings reveal that in rural communities, only 14.8 percent of women have internet access, compared

to 37.8 percent in urban areas. Regionally, the South-South has the highest access rate (39.5 percent), while the Northwest has the lowest (13.6 percent). These differences show that geography is one of the obstacles that hinder the digital inclusion plan (4). The affordability of smartphones and data plans remains a significant barrier in Nigeria. Nigerians must work nearly five times as long as the average European to afford mobile internet, as it takes nearly 3 hours of labour to afford the cheapest mobile internet plan and over 10 hours to afford the cheapest fixed broadband plan (5). Additionally, a 2016 study revealed that 55 percent of men in Northern Nigeria restricted their wives' internet use due to cultural and religious beliefs (6). This highlights socio-cultural factors as key determinants of women's digital participation.

What Worked: Targeted Training and Inclusive Delivery Models

In 2023, the World Bank launched the 'Fasaha' and 'Gina Mata, Gina Al-Umma' digital skills development programmes, in partnership with Natview Technology and Nigeria's National Information Technology Development Agency, to assist underprivileged girls and young women in Northern Nigeria. Over 1,000 women from six states have received training through the programme; according to a 2025 report, 27 percent of participants used digital marketing to boost their income (7). This became possible through Gina Mata's community-driven strategy, which involves employing local digital hubs, known as cyber cafes, and collaborating closely with traditional and religious leaders.

Similarly, the 3MTT initiative has recorded incremental progress in closing gender gaps. As of early 2025, 48 percent of 3MTT fellows are female, reflecting the programme's significant focus on gender inclusivity (8). Consequently, women in Nigeria's digital space now have increased access to mentorship, certification, and job placement opportunities. Collectively, these programmes show that gender-targeted interventions, when embedded in community institutions and supported by cross-sectoral collaboration, can hasten women's entry into the digital economy.

What Did Not Work: Structural Barriers and Uneven Access

Despite these positive outcomes, there are still structural and cultural barriers that hinder growth, most especially towards rural broadband. According to the National Bureau of Statistics' (NBS) Nigeria General Household Survey, 86 percent of people aged 10 or older in the Northwest region did not have internet access, while only 14 percent reported using it. Notably, the majority of Nigeria's female population resides in these locations, and so the lack of infrastructure directly contributes to digital exclusion (9).

According to the World Bank, only 21 percent of women use the internet, compared to 38 percent of men (10). Furthermore, women face online gender-based violence, limiting

digital engagement, and often lack the digital confidence seen among men, which in turn affects participation in the tech sector (11).

Learnings from India's Digital Sakhi Initiative

Nigeria can draw important lessons from India's 'Digital Sakhi' initiative. Launched in 2019, the initiative trains rural women to serve as 'digital enablers' in their communities by offering digital literacy, financial inclusion services, and entrepreneurship training. The programme has trained 1,370 rural women across seven Indian states to serve as community-level educators in digital and financial literacy (12).

The success of Digital Sakhi is dependent on three interconnected components: a community-driven structure, policy coherence, and subsidised access to digital tools. The model's emphasis on peer learning, in which women train other women, fosters trust and promotes commitment. Its integration with the 'Digital India' framework ensures institutional coherence and financing assistance, while subsidised internet and devices remove cost barriers. Adapting this strategy to Nigeria could increase community ownership of digital activities and promote the inclusion of women in the digital economy.

Recommendations for Nigeria

Nigeria should consider the following measures to achieve inclusive digital transformation:

- **Gender-responsive subsidies:** Provide data and smartphone subsidies that are especially aimed at low-income and rural women.

- **Community-based digital hubs:** Grow the Fasaha and Gina Mata, Gina Al-Umma programmes to serve as models for the Federal Capital Territory and all 36 states.

- **Clear gender goals:** Incorporate quantifiable goals for gender inclusion into current national frameworks, such as ensuring that, by 2027, half of all 3MTT participants are female.

- **Institutional coordination:** To monitor, assess, and coordinate actions in the public and private sectors, the Ministry of Communications and Digital Economy should form a Gender Digital Inclusion Task Force.

- **Cross-learning partnerships:** Encourage cooperation between Nigeria and India to modify aspects of the Digital Sakhi model, emphasising initiatives for inexpensive access and community-driven learning.

Conclusion

It is both a developmental and equality need to close Nigeria's gender digital divide. Closing the gender digital divide in Nigeria has significant economic benefits in addition to moral ones. Increasing the number of women who access and use digital tools can result in GDP growth of US$13 billion over the next decade (13). Increasing the number of women working in Nigeria's ICT sector, which contributes 18.44 percent to the country's GDP, will greatly boost productivity and the talent pool. Stronger women-led micro, small, and medium-sized enterprises are another benefit of greater inclusion. When women have access to digital banking services, e-commerce technologies, and the internet, they can grow their businesses, generate jobs, and formalise more of the informal economy.

While programmes such as Fasaha, Gina Mata, Gina Al-Umma, and 3MTT show the promise of targeted interventions, structural disparities, infrastructural limitations, and socio-cultural impediments continue to limit women's participation. Drawing on India's Digital Sakhi experience and incorporating gender-responsive policies into Nigeria's broader digital agenda can help create a more inclusive ecosystem. A deliberate focus on subsidies, community hubs, institutional coordination, and measurable gender targets will enable Nigeria to unlock the transformative power of digitalisation for all its citizens and align with the aspirations of the African Union's 'Agenda 2063' for a digitally empowered and inclusive continent.

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Balancing Copyright and Privacy Rights in Photography: Analysing Judicial Decisions in Kenya and Nigeria

Dorcas Tsebee

The rise of digital photography in Africa has sparked complex issues related to balancing copyright ownership and data protection rights (1). Copyright laws grant photographers ownership of their images unless an agreement states otherwise, while data protection laws offer data subjects a reasonable expectation of privacy. With growing awareness of privacy and data subject rights across multiple jurisdictions in Africa, concerns have arisen about the use of images that constitute personal data without consent. This essay explores the balance between a photograph's copyright and the privacy of the person depicted, focusing on judicial decisions in Kenya and Nigeria. While these countries share a relatively similar legal system, Kenya's more robust enforcement of image rights and privacy laws provides valuable lessons for Nigeria and other African countries, where enforcement in this area is still developing.

Copyright Ownership and Privacy Rights Across Africa

Across Africa, copyright laws are designed to protect the rights of creators, including photographers (2). These laws grant photographers the exclusive right to use and distribute their images, emphasising the importance of protecting artists' intellectual property (IP). These laws define the author of photographic works as the person who took the photograph (3). However, under privacy laws, the unauthorised use of photographs can constitute a privacy violation, especially when images are taken without consent in private settings. The data protection laws in Kenya and Nigeria (4) provide a framework for protecting personal data. The broad definition of personal data includes information such as photos, which can be used to identify a person (5). Thus, the laws mandate strict compliance when processing personal data, including its dissemination or making it available.

In Kenya, the Copyright Act 2001 provides for the protection of copyright and related rights and defines ownership of copyright (6). The Act establishes the Kenya Copyright Board to enforce the law (7). In relation to photographs, the Act provides that the author of a photograph is the person responsible for the "composition" of the photograph (8). Similarly, in Nigeria, the Copyright Act 2022 establishes rights to artistic works, including photographs. The Act creates the Nigerian Copyright Commission as the regulator. Like in Kenya, the author of a photographic work is the person who took the photograph (9).

While copyright laws are explicit on the IP rights of a photographer, they do not provide "image rights" or "publicity rights," which relate to the person captured in a photograph (10). Image or publicity right is the right to control the public's commercial exploitation of a person's image (11). Unlike the US, where the law provides for "publicity rights," there are no specific laws providing for image or publicity rights in Nigeria (12) or many other African countries. This means that a breach of these rights will not constitute a cause of action in Nigeria. However, with the advancement of data protection regimes in Africa, courts are entertaining claims for the unauthorised use of photographs under the law, including the constitution. For example, the Nigerian Constitution provides for the right to privacy (13). This provision was interpreted in *Amudat Adeleke v Bukola Saraki & 3 ors* (14), where the court defined the term 'privacy of citizens' to mean where a person's image is used without permission. The court awarded the claimant five million naira (approximately US$3550) in damages for the breach of her privacy rights. The implication is that using an image taken without a photographer's consent violates privacy rights, regardless of the photographer's copyright.

Case Studies: Examining Judicial Decisions from Kenya and Nigeria

Kenya has a relatively well-developed legal framework for copyright and privacy rights, and is the most proactive in enforcing image and privacy rights claims in Africa. In *Cyrus Nwaniki Ndungu v. Moja Expressway Company* (2024) (15), a former employee complained that the company used his videos without consent and misrepresented his affiliation after his departure. The company argued that the employment contract authorised the use of the videos. However, the Office of Data Protection Commissioner (ODPC) ruled that the company needed further consent to use the videos after the employee left, as the original lawful basis no longer applied. Additionally, the ODPC emphasised that the commercial use of a photograph requires the data subject's explicit consent, in line with data protection laws. In 2017, the High Court of Kenya decided a privacy claim under the Constitution (16), holding that the use of a minor's image violated their fundamental rights and freedoms. The ODPC issued a similar decision in 2023, fining a school KES 4,550,000 (approximately US$35,295) for using a minor's pictures on social media without parental consent (17). In

2022, the High Court held in Shimlon Mwangi Kuria v. University of Kabianga (2022) (18) that the publication of the petitioner's photographs without his express consent violated his fundamental rights to privacy and human dignity.

In Nigeria, while the courts have held that the right to privacy extends to data protection, including the protection of photographs, decisions on image rights have not favoured the data subject. For example, in *Banire V. NTA-Star TV Network Ltd* (2021) (19), the court stated that image rights are not recognised in the Nigerian legal system, and any issue arising from the wrong use of an image will be treated as a copyright issue. Although the case primarily concerned image rights, it raised some privacy issues. The appellant filed a suit at the Federal High Court, Abuja, against NTA-Star TV Network Ltd. for using her images and photographs on billboards for promotional purposes without her authorisation, which amounted to a violation or infringement of her image and intellectual property rights. The court ruled that the copyright of the images belonged to the photographer, not the appellant. The court did not address the appellant's right to privacy. Despite the appellant's claim that she did not consent to the use of her image, the court inferred consent from her participation in the photo shoot, even though she was unaware of the agreement between the photographer and the employer.

The experiences of Kenya and Nigeria demonstrate the need for comprehensive legal frameworks and enforcement mechanisms. The instances reveal several key lessons. In Kenya, a country with a more proactive enforcement landscape, the role of a dedicated body like the ODPC and a judiciary willing to interpret fundamental rights broadly are crucial for protecting individuals from the unauthorised use of their images. This is evident in successful claims where courts ruled that an individual's right to privacy and human dignity must prevail, even when a photographer holds the copyright.

Conversely, the Nigerian (Banire v. NTA-Star TV Network Ltd) provides a cautionary lesson. It highlights the challenges of a legal system that lacks a clear framework for image rights, where courts may narrowly focus on copyright law and imply consent, leaving the data subject with little recourse. This discrepancy underscores the need for clear, national legislation that explicitly recognises and protects an individual's right to privacy in their image, distinct from the photographer's copyright.

Challenges and Recommendations

The primary challenge in balancing African copyright ownership and privacy rights stems from conflicting legal frameworks and judicial interpretations. Copyright laws across African countries generally grant photographers ownership of their images, yet data protection laws emphasise the privacy rights of individuals captured in those images. This makes the commercialisation of copyright difficult.

To address these challenges at the national level, regulators must implement clear consent guidelines, especially for taking pictures where there is a reasonable expectation of privacy. Legal reforms should ensure that copyright laws protect photographers without overriding privacy rights and provide a clear framework for resolving conflicts. Photographers should also consider the ethical implications of their work, particularly with vulnerable individuals.

At the regional level, organisations such as the African Union are crucial for promoting a harmonised legal framework across the continent, using initiatives such as the Malabo Convention to address the complexities of cross-border data flows and to prevent legal loopholes.

Conclusion

Balancing copyright and privacy rights in photography is a complex but essential task. The judicial decisions in Kenya and Nigeria highlight the importance of protecting the photographer's rights and the subject's privacy. Through legal reforms and clear guidelines, African countries can create a legal environment that respects both interests, fostering a balanced approach to photography that safeguards creative freedom and individual privacy.

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Shaping Africa's Digital Transformation through Community-Driven Initiatives: Learnings from Kenya and Rwanda

Anthony Luvanda

The World Bank views digitalisation as a transformative opportunity (1). However, in a rapidly and dynamically evolving global digital economy, African countries are at risk of being left out of the benefits of digitalisation. While discourse has focused on the inadequate infrastructure that exacerbates this risk, community-based initiatives (CBIs) at the grassroots level, driven by locals, are working to find a sustainable solution to a problem that may not be adequately addressed by existing governance structures (2).

Kenya and Rwanda are considered among Africa's top digital technology countries due to their significant infrastructural development and strong government strategic visions. Both countries have also heavily invested their trust in their communities: Rwanda has a centrally structured community participation system, while the Kenyan system is highly devolved and almost entirely detached from the central government. These instances can help establish how community-led initiatives can shape digital transformation, identifying policy lessons that can be replicated in other African countries.

Conceptual and Policy Framework

Despite rapid technological advancements, millions of Africans continue to face systemic barriers that exclude marginalised communities from reaping the benefits of the digital revolution (3). The need to overcome these obstacles and ensure that the continent reaps the benefits of digital transformation has never been greater. At the global level, the United Nations has made several attempts in pushing for digital technology inclusivity through initiatives such as the global digital compact, which charts a roadmap for global

digital cooperation to harness the immense potential of digital technology while closing the digital divide (4), and the UNICEF Digital Education Strategy 2025-2030, which aims at improving digital skills by integrating digital technology into teaching (5). Through the Digital Transformation Strategy for Africa (6) and the African Digital Compact (7), the African Union aims to harness digital technologies and innovation to transform African societies and economies, while also leveraging their transformative power to drive sustainable development.

This essay employs a qualitative comparative case study approach. The data sources are four Kenyan and Rwandan government policy documents, two academic publications, and two grey literature publications.

The Kenyan Example

Kenya has several policies and frameworks aimed at fostering the adoption of digital technology at both the government and individual levels. The National Information, Communications and Technology (ICT) Policy of 2019 seeks to harness the potential of the digital economy by creating an enabling environment for all citizens and stakeholders (8). The Kenya National Digital Master Plan 2022-2032, on the other hand, aims to deploy ICT infrastructure to the underserved and unserved areas across the country (9). Factors such as inadequate infrastructure, insufficient staffing and training of digital technology personnel at learning institutions, the negative impact of gendered social norms, poor advocacy of digital technology careers, the absence of vocational counselling, and the lack of women role models have meant fewer women take up digital technology courses, consequently resulting in a lack of digital inclusivity for girls and young women (10). The Kenya Education Network defines digital exclusion as the lack of end-user access to affordable high-speed internet, and recognises the need to leverage its high-speed infrastructure to enhance research in rural, remote, and underserved areas (11). Kenya further complements government efforts through tech hubs, innovation spaces, and civil tech. This ecosystem steers efforts towards collating community data, fostering inclusivity, and addressing the digital technology needs of the local communities in which they operate. This is clearly exemplified through umbrella bodies such as the Association of Countrywide Innovation Hubs.

The Rwandan Example

Rwanda has in place the ICT Sector Strategic Plan (2024 – 2029), which provides the framework for transforming the country into a knowledge-based middle-income nation by 2035, with a specific focus on governance, business, and livelihoods (12). The strategic plan complements the National Broadband Policy and Strategy 2022, which aims to transform Rwanda into a competitive and innovative global digital economy through

accessible, high-quality broadband services (13). Data protection, cybersecurity, limited information infrastructure, the cost of broadband, digital literacy gaps, the exclusion of vulnerable social groups, gaps in governance and management, a lack of trust in the new system, and language barriers have been identified as the main challenges to Rwanda's policy commitment to the digital agenda (14). Despite indications that the government has prioritised connectivity and is committed to promoting gender equality and digital inclusion, Research ICT Africa ranks Rwanda as having among the lowest internet penetration rates in Africa (15). In Rwanda, the government drives digital inclusion efforts at the grassroots level through partnerships with the private sector and civil society organisations. However, the government is fully in charge of the national agenda and policy framework.

Lessons from Kenya and Rwanda

Key digital transformation enablers

Both countries exhibit similar traits about various digital transformation enablers that make them African success stories, chief among them being establishing policy and regulatory frameworks that support digital transformation, government efforts to continuously enhance ICT infrastructure, the adoption and implementation of ICT governance, a focus on innovation, the involvement of civil society and development partners, digital literacy/skills training and enhancement, and a concerted effort by the government to address energy gaps.

Key digital transformation challenges

Despite both countries making major digital transformation strides, there is a need to address existing challenges: the digital exclusion of vulnerable groups, such as rural populations, women, the elderly, and the disabled; increased risks of cybercrimes; inadequate skilled human capacity; poor grassroots policy implementation; and insufficient digital transformation support infrastructure, such as computing devices, reliable electricity and broadband coverage.

Recommendations for the Rest of Africa

Kenya and Rwanda provide valuable lessons on pathways to successful digital transformation, and African countries wishing to follow suit should:

- Establish policies and parallel implementation strategies that include the marginalised and underserved rural populations
- Deliberate attempts by government entities to support rural infrastructural development both in the energy and ICT sectors through budgetary allocations, collaboration with development partners, and public-private partnership agreements

- Fully integrate ICT into government operations and service delivery
- Foster partnerships between government entities, civil society, and development partners in the development and implementation of grassroots-level programmes
- Integrate ICT courses in the school curriculum from the lowest level.

Conclusion

Africa's digital transformation faces not only technical and transformational challenges but also governance and inclusion challenges, thus making it a social project. Kenya and Rwanda have proven that the fusion of technology development and community empowerment is key to successful digital transformation. Inclusive digital transformation in Africa will therefore continue to rely heavily on community-driven initiatives.

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The Challenges in Implementing the African Union's Digital Transformation Strategy

S. Boinmale Jean-Baptiste Sebgo

Since the 1980s, the African Union (AU) has initiated numerous initiatives to advance digitalisation across the continent. A significant initiative was the establishment of the Pan-African Documentation and Information System in 1980, intended to create a centralised database of development information derived from national databases collated by experts in the member states (1). In 1996, the African Information Society Initiative was established as a framework for action to integrate digital infrastructure and digital policy advancement into national development plans (2). Notably, the New Partnership for Africa's Development has identified bridging the infrastructure gap through measures to reduce the digital divide as its first sectoral priority, to facilitate economic growth and continental integration. Other projects include the Rwanda-led Smart Africa initiative, the Policy and Regulatory Initiative for a Digital Africa (PRIDA), the Programme for Infrastructure Development in Africa, the African Free Trade Area, and the Digital Single Market for Africa. These initiatives remain fragmented and have yet to achieve significant success. During the early 2000s, critics highlighted the lack of a unified vision and strategic approach among African countries in their efforts to drive the continent's digital transformation (3). Yet, technology has the potential to reduce poverty, enhance citizen participation in public affairs, improve service delivery, and foster prosperity.

Subsequently, in 2019, the AU launched the 'Digital Transformation Strategy for Africa' (DTS) (4) in line with the 'Agenda 2063 for Africa' and the Sustainable Development Goals. This policy aims to leverage digital technologies and innovation to transform African economies and foster integration by stimulating inclusive growth. African leaders have come to

recognise the potential of information and communication technologies to address poverty, enhance citizen participation in public affairs, improve the delivery of public services, and foster economic growth and prosperity for their people. The vision is "to harness digital technologies and innovation to transform African societies and economies to promote Africa's integration, generate inclusive economic growth, stimulate job creation, break digital divides, and eradicate poverty. As such, the strategy aims to support not only the continent's socio-economic development but to ensure Africa's ownership of modern tools of digital management" (5). The DTS includes objectives to strengthen infrastructure, improve internet access in terms of cost and speed, enhance digital skills, and protect personal data (6).

From Strategy to Reality: Navigating Regional Fragmentation and Implementation Barriers

Since 2020, the DTS has made headway through concerted regional and national efforts. Key progress includes aligning regional policies with the DTS, as exemplified by the 2022 'Southern African Development Community Digital Transformation Strategy' (7), and collaborative initiatives such as PRIDA, which are working towards a single digital market. On the ground, tangible infrastructure projects, such as World Bank-supported programmes in Mauritania, have expanded connectivity and made internet access more affordable (8). The continent has also seen a rise in internet users and a growing focus on data and artificial intelligence (AI) governance, highlighted by the AU's 2024 'Continental AI Strategy'. However, appropriation by the regional economic communities and the implementation of the policies remain challenging.

The first challenge to implementation is that DTS sets a broad and general vision of digital governance in Africa. The DTS provides guidance on digital governance covering the 2020-2030 period. However, it does not provide details of each stage of implementation, nor does it specify deadlines for achieving the final objective. As a result, implementation has been slow and remains undefined at the sub-regional level. Developments at the sub-regional level demonstrate that the lack of explicit planning means the strategy is still in its initial stage, namely, implementation. For example, the Economic Community of West African States (ECOWAS) held its first meeting on the implementation of the DTS several months after the strategy was announced, and met only at the end of 2023 to discuss the flagship Digital Transformation for Africa/Western Africa Regional Digital Integration Program (DTfA/WARDIP).

Furthermore, the ECOWAS countries exhibit disparate levels of digital governance, institutional capabilities, and digital divide. This hinders the development of effective region-specific policies. Indeed, there are significant disparities in digital coverage across Africa's various regions. For instance, Northern Africa and Southern Africa have significantly higher levels of digital readiness, the number of computers per household, and internet

users (between 76 percent and 81 percent) than the continental average (38 percent) (9) and far above that of the ECOWAS (ranging between 10 percent and 70 percent) (10). Additionally, the level of digital governance within subregional blocks varies considerably between countries. In West Africa, Ghana, São Tomé, and Senegal have made notable advancements in terms of internet penetration and digitalisation policies. At the same time, countries such as Niger and Mali have shown slower development in this regard (11). This has implications for the efficacy of standardisation policies adopted at the organisational level, which may prove challenging for some, but which others have already achieved.

Another challenge to implementation is the involvement in multiple organisations or initiatives. Before the adoption of the DTS at the continental level, several countries were already members of several digitalisation initiatives and projects. Some countries had already enacted national digitisation policies. The DTS initiative has not supplanted existing initiatives but rather overlaid them. This poses challenges for harmonising and aligning existing policies with the DTS.

The lack of adequate funding and the shortage of human resources with the requisite IT training continue to hinder the successful implementation of the DTS at the national level. According to the AU, the DTS total funding is estimated at US$20 billion between 2020 and 2025, and US$50 billion between 2026 and 2030. To date, only a few programmes, such as the DTfA/WARDIP, have been funded by ECOWAS (12). At the same time, to meet the demand for digital services across the continent, 650 million individuals will need to be trained or retrained in digital skills by 2030 (13).

Conclusion

The DTS, while a necessary and ambitious vision for continental progress, is fundamentally undermined by a profound disconnect between its centralised design and the decentralised realities of its implementation. The DTS's top-down, comprehensive nature is poorly suited to address the continent’s entrenched challenges, which are rooted in a multi-layered digital divide, a fragmented and competing regulatory landscape, and a critical chasm in both financial and human capital. These impediments have plagued pan-African initiatives for decades. The path to a digitally empowered Africa lies in a coordinated, bottom-up effort that embraces the principles of agile governance. The AU should shift their focus from dictating a single roadmap to facilitating a network of national and sub-regional agile projects.

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Navigating the Shadows: Internet Outages, Throttling, Data Governance, and the AfCFTA Digital Trade Protocol

Harun Abubakar Siddique

The African Continental Free Trade Area (AfCFTA) represents the most ambitious integration project in Africa's postcolonial history. It seeks to merge 54 fragmented markets into a unified economic space, enabling the free flow of goods, services, and investments. Negotiations have produced protocols on investment, intellectual property, competition policy, and digital trade, laying the institutional foundation for a single continental market. A 2020 estimate suggests the AfCFTA could raise Africa's GDP by US$28 billion and US$44 billion (or between 0.35 percent and 0.54 percent) and boost exports by between US$40 billion and US$56 billion (or between 1.5 percent and 2.2 percent) by 2040, with intra-African trade projected to rise from 18 percent in 2022 to 50 percent by 2030 (1,2). The AfCFTA aims to boost intra-African trade, shifting some trade away from the rest of the world, which currently accounts for over 80 percent of the continent's trade.

The Digital Trade Protocol (DTP), adopted in February 2024, is a key component of this pioneering agenda. Establishing a legal standard for digital integration across the continent, the DTP's potential can only be attained if (a) inconsistencies in network provision (disrupted connections, subsea-cable frailties, and access inhibitions) are substantially mitigated, and (b) decentralised data regulation (multifarious laws, insufficient regulatory capacity, and conflicting localisation laws) is tackled using a pragmatically coordinated interoperability roadmap. Expected success from digital trade will otherwise be drastically diminished if either of these underpinnings fails. The DTP lays the foundation for continental principles guiding electronic transactions, international data transfers, user safeguarding, cybersecurity, and digital transactions. While technical augmentations and

collaborative recognizance mechanisms remain incomplete, the DTP crucially needs national implementation (personal data protection laws and cybersecurity configurations) to deter data localisation and tariffs on digital products, and encourage cross-border data flows. Unless countries agree on marginal practical regulations soon, that gap will turn legal foundations into functional ambiguity.

Why it Matters: Stakes and Scale

Africa already has extensive internet-enabled economic activity, concentrated in sectors central to AfCFTA objectives. Africa's internet economy was estimated to be worth between US$115 billion and US$180 billion in 2020, and the continent is expected to have projects worth US$712 billion by 2050 (3). These figures imply that even modest interruptions to connectivity will impose high economic costs. Moreover, mobile money is widely deployed across many markets (hundreds of millions of accounts region-wide), and the Pan-African Payment and Settlement System (PAPSS) is currently operational to settle intra-African transactions in local currencies. Both instances amplify the exposure of intra-AfCFTA commerce to connectivity and data-flow risks. Macroeconomic modelling of the AfCFTA shows positive but concentrated gains from liberalisation and regulatory harmonisation; the World Bank's modelling of tariff and non-tariff reforms finds measurable but modest continental GDP uplifts that rely on complementary reductions in trade costs and infrastructural improvements (4). Thus, for the DTP to magnify AfCFTA gains, both connectivity and legal trust must function in tandem.

Physical Fragility: Observed Impacts

Real events show the risk is material. For instance, on 14 March 2024, multiple submarine-cable faults caused widespread outages across West and Central Africa, affecting banking, payments, and commerce platforms and requiring weeks to fully repair in some markets (5). Monitoring groups and providers documented severe connectivity drops in affected countries and lengthy repair timelines (6). Quantitative estimates of economic sensitivity provide illustrative per-day GDP loss estimates from shutdowns and throttling: shutdowns in highly connected countries with a GDP per capita of around US$45,000 and significant broadband penetration could lead to an estimated GDP loss of approximately US$141 million per day, equivalent to 1.9 percent of daily GDP (7). The impact could be the equivalent of about US$20 million per day, representing 1 percent of daily GDP in relatively connected countries with a GDP per capita amounting to about US$25,000 and coupled with lower broadband penetration. The projected GDP impact in low connectivity countries with a GDP per capita of about US$6,000 and minimal broadband penetration is as high as US$3 million per day, which accounts for 0.4 percent of daily GDP (8). Considering digital transactions and high-usage platform services, these losses can trickle down through payments, supply chains, and service delivery.

Data Governance: A Structured, Operational Risk

A resilient data-governance structure must be treated as an unambiguous, not fortuitous, pillar of risk for the DTP. While the protocol's 'cross-border data' articles aim to enhance flows while requiring personal data safeguards, three fundamental frictions persist:

- **Coverage is restricted and heterogeneous**: By the end of 2023/2024, approximately 30 of the 54 African states have established data-protection regulations (while some assessments place the number between 34 and 39 countries). This regulatory inconsistency culminates in transaction costs for firms attempting to operate on a continental scale (9).

- **Inconsistent and scarce supervisory capacity**: Even where laws exist, data protection authorities (DPAs) operate distinctly in independence, staffing capacity, budgetary restraints, and enforcement responsibilities. Where DPAs are not yet completely functional, cross-border efficiency or recognition mechanisms lack trustworthy supervisory oversight, reducing counterparties' willingness to engage in data exchange without exorbitant contractual or technical resolutions. Scholarly surveys confirm substantial capacity and implementation gaps across countries (10).

- **Policy divergence raises functional hurdles**: Many states either uphold (or consider) data localisation or restrictive transfer requirements for security/tax purposes, while others rely on General Data Protection Regulation (GDPR)-style suitability, standard contractual clauses, or peremptory corporate regulations. This discrepancy compels platforms, payment processors, and banks to build repetitive data frameworks, use arduous legal instruments for transfers, or limit cross-border services, contrary to the DPT's intent.

These issues juxtaposed demonstrate that data governance is not an auxiliary compliance contention but a structural obstruction that directly impacts resilience (the capacity to reroute or share KYC/AML (11) and payment-related data under stress) and investment (firms' decision to expand interoperable services across borders).

How Vulnerabilities Interact and Amplify Risk

Two interaction channels are particularly important.

- Technical failures can spill over into legal risk. An outage that disrupts a payment rail at peak settlement, whether PAPSS or a major payment service provider (PSP), forces operators to fall back on rerouting or cached KYC data. If cross-border data transfer rules are unclear, for example, due to a lack of mutual adequacy or inconsistent

data protection positions, those fallback options become unreliable. What starts as a technical disruption quickly turns into a regulatory problem.

- When rules are unclear or do not align across countries, firms tend to hold back on investing in resilience. That includes upgrading digital infrastructure, building redundancy through backup networks, and strengthening cybersecurity systems. Regulatory fragmentation increases the marginal cost of building cross-border redundancy; platforms facing high compliance costs have weaker incentives to invest in alternative last-mile or regional caching architectures, reducing systemic resilience ex ante. Evidence shows that PAPSS integration is patchy, where regulatory or technical readiness is uneven (12).

Policy Recommendations

- **Public-private partnerships**: Governments, with support from the AfCFTA Secretariat, should focus on public-private partnerships to develop resilient internet infrastructure. This includes creating contingency plans to minimise the duration and effects of internet disruptions. As mobile money and digital trade are vital components of Africa's economy, robust infrastructure is essential.

- **Staged data-governance roadmap (legal interoperability)**: Converting the DTP data chapter into a three-phase roadmap: (a) immediate adoption of model contractual clauses and baseline interoperability standards; (b) mutual-adequacy pilots among willing states plus fast-track DPA accreditation; (c) mutually recognised emergency data-transfer protocols to maintain payment continuity during outages.

- **Capacity building for DPAs and regional supervisory cooperation**: There should be funds and technical assistance targeted towards the DPAs via the Regional Economic Communities. This will enhance enforcement credibility, particularly in countries with major clearing and settlement hubs.

- **Payment-rail resilience, mandatory fallback modes**: Countries participating in the PAPSS arrangement and major PSPs should be required to conduct offline/queueing fallback. There should also be enforcement of tested disaster recovery plans before scaling cross-border services.

- **Raising awareness**: The Committee on Digital Trade under the AfCFTA secretariat should prioritise raising awareness among governments on the severe impact of internet outages and throttling on their country's socio-economic landscape. Africa's digital economy is projected to increase its share of GDP from 4.5 percent in 2020 to 8.5 percent by 2050, making it essential to understand the risks posed by unreliable internet to economic stability (13).

Conclusion

The massive internet outages and throttling that affected several African countries in the first quarter of 2024 reveal significant economic risks for policymakers. The DTP provides a critical legal foundation for Africa's digital single market. Translating it into measurable trade and welfare gains requires parallel efforts on two fronts: (i) strengthening physical network infrastructure, and (ii) operationalising interoperable and credible data governance. Both are essential, and can be addressed through a staged, evidence-based programme that combines infrastructure financing, regulatory interoperability, and targeted capacity building.

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(11) Know Your Customer/Client (KYC) is a set of processes that financial institutions and regulated entities use to identify and verify customers, assess risk, obtain information on beneficial ownership, and continuously monitor the relationship. KYC is a core part of customer due diligence. Anti-Money Laundering (AML) is the legal, regulatory, and operational framework designed to detect, prevent, and report the conversion of proceeds from crime into funds that appear legitimate.

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