From Innovation to Implementation: A Governance Framework for Africa's Digital Transformation

Stella Gichuhi-Karau[1]

{sgichuhi@renellelabs.org [1]}

Consultant to the Ministry of Information Communication and Digital Economy, Nairobi, Kenya [1]

Abstract. Digital innovations associated with the Fourth Industrial Revolution (4IR), including Artificial Intelligence, Big Data, Cloud Computing, and the Internet of Things (IoT), have significantly transformed societies and economies. These technologies offer opportunities for economic diversification, job creation, digital transformation, local value addition, and reduced inequality. This paper argues that Africa's effective participation in the 4IR depends not only on adopting technology but also on strong governance, sound regulatory frameworks, strategic policy implementation, cross-sector collaboration, targeted investment, and skills development. Drawing on professional experience within Kenya's Ministry of Information, Communication, and Digital Economy, including involvement in national ICT and AI strategy working groups, the study examines key drivers of digital innovation. The findings reveal that while advocacy and policy development are important, they are insufficient without context-specific and adaptive implementation frameworks. The paper highlights the importance of evidence-based approaches to assess the impact of emerging technologies. It concludes that scalable innovation, effective governance, and practical implementation mechanisms are essential for positioning Africa as a competitive and sustainable digital economy.

Keywords: Digital Innovation, Strategic Governance Framework, Strategy Implementation, Fourth Industrial Revolution, Digital Transformation

1 Introduction

Across Africa, the digital revolution is no longer a distant promise. It is already reshaping how people live, work, and connect. The continent is making notable strides, as highlighted in the *2024 GSMA report, "Driving Digital Transformation of African Economies*," which presents clear evidence that African countries are progressing in their digital adoption, driven by advancements in telecommunications infrastructure and mobile networks[1]. Digital innovations create new pathways for economic growth, job creation, and diversification. Between 2019 and 2022, 160 million Africans gained access to broadband internet. Additionally, there was a 115% increase in internet users in Sub-Saharan Africa between 2016 and 2021, and 191 million more individuals made or received a digital payment between 2014 and 2021. The

[1] **GSMA** (2024) *Driving Digital Transformation of African Economies: Evidence and methodology*. London: GSMA. Available at: https://www.gsma.com (Accessed: 22 April 2025).

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increased access to digital technologies creates new pathways for growth, job creation, and economic diversification**.** [2]

Furthermore, the internet economy was projected to contribute 5.2% to Africa's GDP by 2025[3], and digital ecosystems were estimated to add 1.9% to GDP per capita in sub-Saharan Africa[4]. To clarify, all quantitative indicators cited in this paper are drawn from the most recent institutional reports available and are standardised to ensure consistency across sections. The economic case for digital transformation is compelling. At the centre of this shift is the Fourth Industrial Revolution (4IR), marked by a powerful convergence of AI, Big Data, the Internet of Things (IoT), and Cloud Computing. These technologies are transforming traditional economic models and governance structures worldwide. For Africa, the Fourth Industrial Revolution (4IR) presents a unique opportunity to leapfrog outdated systems and address long-standing development gaps, utilising smart sensors to increase agricultural yields, leveraging data to enhance public service delivery, or expanding access to diagnostics in underserved healthcare systems. With a growing tech-savvy youth population and increasing mobile connectivity, the continent is well-placed to benefit from these innovations.[5] However, while the potential is undeniable, the reality is more complicated.

Many of these technologies either remain trapped in pilot programs or suffer from uneven rollout due to weak infrastructure, fragmented policies, funding issues, and a lack of political will. Despite global enthusiasm for innovation, Africa risks becoming a passive consumer rather than an active architect of its digital future. This paper argues that it is time to move beyond the rhetoric of innovation toward the work of implementation. Africa's digital transformation must be intentional and built on strong governance, inclusive strategies, and a clear understanding of the country's political realities. It is essential to note that transformative change rarely emerges solely from market forces. States must do more than correct market failures; they must actively shape markets and direct innovation towards long-term, inclusive goals.[6]. In the context of African states, the role may be slightly more foundational, not correcting market failures like those in the global north, but rather building and shaping markets where they do not function effectively. This includes investing in digital infrastructure, regulatory clarity and fostering ecosystems that enable inclusive technological growth.

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[2] **World Bank** (2024) *Digital transformation drives development in AFE & AFW Africa*. Available at: https://www.worldbank.org/en/results/2024/01/18/digital-transformation-drives-development-in-afe-afw-africa (Accessed: 23 April 2025).

[3] **IFC and Google** *e-conomy Africa 2020: Africa's $180 billion internet economy future*. Washington, DC: International Finance Corporation and Google. Available at: https://www.ifc.org (Accessed: 22 April 2025)

[4] **World Bank** *World Development Report 2021: Data for better lives*. Washington, DC: World Bank. Available at: https://www.worldbank.org (Accessed: 22 April 2025).

[5] **Banga, K. and te Velde, D. W.** (2018) *The Fourth Industrial Revolution and digitization will transform Africa into a global powerhouse*. Brookings. Available at: https://www.brookings.edu/articles/the-fourth-industrial-revolution-and-digitization-will-transform-africa-into-a-global-powerhouse/ (Accessed: 23 April 2025).

[6] **Ibid**

According to renowned scholar Carlota Perez, steering the states towards new technological and development pathways requires proactive governments willing to tilt the playing field in ways that are a win-win for business and society.[7] Critical, such proactivity must translate vision into execution. Without implementation, even the most well-written policies remain obsolete. Evidence from institution assessments consistently points to implementation failure as a core constraint. Reports by the World Bank and national audit institutions across Africa highlight persistent gaps between policy formulation and execution, often driven by weak coordination mechanisms, limited delivery capacity and fragmented accountability structures. In Kenya, public performance audits have repeatedly noted delays, cost overruns, and stalled projects despite the existence of ambitious policy frameworks.[8] This paper argues for a shift in rhetoric to implementation reality.

Building on professional experience at Kenya's Ministry of Information and Digital Economy, this paper outlines a strategic framework that aligns politics, policy, and technology to address the challenges of Africa's digital transformation. It advances a central argument: that Africa's primary digital constraint has shifted from technological innovation to governance and institutional reform. While digital tools and platforms are increasingly accessible, their transformative impact depends on the political, institutional, and implementation frameworks that enable their practical use.

The paper's core contribution lies in reframing digital transformation as a governance challenge and proposing a multi-level strategy to address it. Although African countries have demonstrated significant capacity to develop and adopt digital technologies, persistent implementation gaps continue to limit their economic and social returns.[9] Governance structures, institutional coordination, and execution capacity now represent the principal bottlenecks, and addressing these constraints is as critical as continued technological advancement. To situate this argument within existing scholarship, the following section reviews key literature on digital innovation and governance, providing the theoretical foundation for the proposed framework.

2 Literature Review

Nylen and Holmström conceptualise digital innovation as a strategic process through which organisations deliberately leverage digital technologies to create new forms of value. Rather than focusing solely on technology adoption, they emphasise the need for organisational awareness, leadership alignment, and the capacity to adapt structures and processes in response to digital opportunities. This perspective is particularly relevant in public sector

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[7] **Perez, C.** (2020) *The Fourth Industrial Revolution: Challenges and opportunities*. IIPP Blog, Medium. Available at: https://medium.com/iipp-blog/carlota-perez-the-fourth-industrial-revolution-challenges-and-opportunities-8b695b42379b (Accessed: 23 April 2025).

[8] ***Office of the Auditor-General (Kenya)**, n.d. 2022–2025 Performance Audit Reports. [online] Available at: https://www.oagkenya.go.ke/2022-2025-performance-audit-reports/ [Accessed 4 Aug. 2025].*

[9] **Kala, E.** (2023) Challenges of Technology in African Countries: A Case Study of Zambia. *Open Journal of Safety Science and Technology*, **13**, 202-230. doi: 10.4236/ojsst.2023.134011. (Accessed 5th January 2026)

contexts, where bureaucratic complexity and fragmented authority often constrain agility.[10] Kohli and Melville further extend this view by distinguishing between different forms of digital innovation. They identify incremental IT-enabled improvements, the diffusion of digital technologies across organisational boundaries and more profound structural transformations that reshape institutional arrangements and service delivery models. Together, these perspectives highlight that digital innovation is not a single event, but a multi-layered process shaped by organisational capabilities and governance contexts.[11] Literature on Open Innovation (OI) expands on these insights by emphasising that institutions require dynamic capabilities. These capabilities involve sensing emerging opportunities, sizing them through strategic action, and reconfiguring resources in response to both internal needs and external developments. While such 'sense and respond' capabilities are well documented in private-sector organisations, their application in government settings is considerably more complex due to the multiplicity of stakeholders, rigid institutional structures, and political constraints. Consequently, successful public sector digital innovation depends not only on access to external technologies, but also on internal absorptive capacity, that is, the ability of public organisations to integrate, adapt and scale innovations within bureaucratic systems that are often resistant to change.[12]

While much of the digital transformation discourse has focused on tools and platforms, Kane et al. argue in *The Technology Fallacy: How People are the Real Key to Digital Transformation that* the real challenge is not technological but human. They emphasise that organisational culture, leadership mindset, and internal capacity are more critical than technology.[13] In the context of government, "people" refers to both civil servants and elected officials, including politicians. Civil Servants are central to interpreting and implementing new digital systems, while politicians shape strategic direction and manage the political stakes involved in the transformation. This dual human layer, often overlooked, is key to whether innovation efforts succeed or fail. Kane et al.'s insights reinforce this paper's core argument: Africa's digital transformation cannot be achieved solely through technological procurement; it requires deliberate investment in institutional coherence, leadership alignment, and public sector capability.

It is crucial to clarify that, in this paper, 'politics' refers not to partisan struggles but to the interactions among governance actors that influence digital outcomes. These include elected officials who set strategic priorities, civil servants who implement policies, private-sector technology providers, civil society groups advocating for accountability and inclusion, and academia that informs evidence-based decisions. Digital transformation results from the

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[10] **Nylen, D., & Holmström, J.** (2015). *Digital Innovation Strategy: A Framework for Diagnosing and Improving Digital Product and Service Innovation*. *Business Horizons*, 58(1), 57–67. (Accessed:25th April 2025)

[11] **Kohli, R., & Melville, N. P. (2018).** Digital Innovation: A Review and Synthesis. *Information Systems Journal*, 29(1), 200–223. https://doi.org/10.1111/isj.12193 (Accessed:25th April 2025)

[12] **Bogers, M. et al. (2017)** 'The open innovation research landscape: established perspectives and emerging themes across different levels of analysis', *Industry and Innovation*, 24(1), pp. 8–40. doi: 10.1080/13662716.2016.1240068. (Accessed 29th April 2025)

Ibid

[13] **Kane, G.C., Palmer, D., Phillips, A.N. and Kiron, D. (2019)** *The technology fallacy: How people are the real key to digital transformation*. Cambridge, MA: MIT Press.

alignment or misalignment of these actors, rather than technology itself. Acknowledging these diverse participants highlights the political complexity embedded in digital transformation processes. This broader conceptualisation aligns with Kane et al.'s assertion that successful digital transformation is fundamentally driven by human actors rather than technology alone. Thus, any practical governance framework must navigate the interconnected interests, incentives, and power dynamics among these varied stakeholders. Despite growing global attention and the current conversation around Artificial Intelligence (AI), progress remains uneven.

According to the *International Telecommunications Union's 2023 Digital Innovation Profile Report: Global Overview,* at least half of all countries have adopted digital strategies that cover multiple economic factors. However, the development of digital policy, legal and governance frameworks across and within regions is inconsistent.[14] The report found that only nine countries, which are fewer than 5 per cent globally, currently possess mature frameworks designed for the transformational development of digital economies and societies. In addition, approximately 30 per cent of countries have progressed toward more advanced frameworks. As a result, countries now fall into four broad categories of digital readiness: limited, transitioning, advanced and leading.[15] These layers highlight a key challenge: while the vision for digital transformation is widespread, the capacity to implement and execute it is highly variable. For many governments, particularly in Africa, digital transformation must go beyond isolated technology deployments and become an integrated governance structure. It requires political leadership, institutional alignment and sustained investment. This paper builds on these insights by proposing a Strategic Governance Framework tailored to the African context, where balancing policy, politics and technology across global, regional, and local levels is essential for moving from rhetoric to reality. While the literature provides conceptual grounding, real-world implementation often veers from theoretical models. To bridge this gap, the next section draws on grounded professional experiences and practical engagements within Kenya's digital governance ecosystem to offer context-specific insights.

3 Case study analysis informed by practitioner reflection

This study employs a qualitative, practitioner-informed approach based on case study analysis and participant observation within Kenya's digital governance ecosystem. The research benefits from the author's involvement in national digital policy and strategy development, along with secondary analysis of policy documents, regional strategies, institutional reports, and relevant literature.This method aligns with well-established qualitative research practices, especially practitioner-informed case studies and participant observation, which are commonly used to analyse complex governance and policy processes where the researcher possesses embedded professional experience.[16]

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[14] **International Telecommunication Union (ITU) (2023)** *Digital innovation profiles: Global overview 2023*. Geneva: ITU. Available at: https://www.itu.int/en/ITU-D/Innovation/Pages/Digital-Innovation-Profiles.aspx

[15] **Ibid**

[16] **Flyvbjerg, B. (2006)** 'Five misunderstandings about case-study research', *Qualitative Inquiry*, 12(2), pp. 219–245. https://doi.org/10.1177/1077800405284363.

The empirical insights draw primarily from the author's participation in the Ministry of Information, Communication, and Digital Economy Sector working Group (SWG), which was mandated to support policy, legislative, regulatory and institutional reforms in response to rapid technological change, including developments in Artificial Intelligence and digital employment. The author's role in contributing to the implementation-focused components of this work provided direct exposure to the institutional, political and coordination challenges that shape digital policy execution in practice. Additional insights are drawn from the author's involvement in the Technical Working Group for Kenya's National Artificial Intelligence Strategy. While this initiative focused on articulating a strategic roadmap for AI adoption, deliberations consistently highlighted issues of institutional alignment, governance capacity and power dynamics among public, private and civil society actors.

These experiences reinforced the observation that technical expertise alone is insufficient for effective digital transformation, and that successful implementation requires navigating complex political and organisational environments. Instead of viewing these engagements as isolated cases, the study uses them analytically to uncover recurring patterns and structural constraints that influence digital implementation in government. Its goal is not to make broad cause-and-effect claims but to generate contextually grounded insights that link theory and practice. These insights directly support the Strategic Governance Framework introduced in the paper, which aims to close the persistent gap between digital ambitions and their realisation in African public sectors. The inductive, theme-focused analytical approach aligns with grounded qualitative methods, emphasising pattern recognition and theory development from practice-based evidence rather than hypothesis testing.[17]

4 The African Digital Transformation Landscape

Africa's digital innovation capacity is evident across multiple sectors; however, the extent to which these innovations translate into sustained impact depends largely on governance and institutional readiness. Rwanda's deployment of Zipline's medical drone delivery system illustrates how strong state coordination and regulatory alignment can enable digital solutions to scale effectively in public service delivery. [18] In contrast, Nigeria's fintech ecosystem demonstrates how private-sector innovation can flourish when regulatory frameworks evolve to accommodate market-led experimentation. At the policy level, Kenya's National Artificial Intelligence Strategy reflects growing ambition to govern emerging technologies, yet its success will hinge on institutional coordination and implementation capacity beyond strategy formulation.

[19]Large-scale investments, such as Microsoft's and G42's data centre development in Kenya, further underscore how global partnerships are reshaping Africa's digital infrastructure, while

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[17] **Charmaz, K.** (2014). *Constructing Grounded Theory*. 2nd edn. London: SAGE

[18] **Zipline (2021)** *How Rwanda became the world leader in drone delivery*. Available at: https://flyzipline.com/news/rwanda-drone-delivery (Accessed: 30 July 2025).

[19] **Government of Kenya (2023)** *Kenya National Artificial Intelligence Strategy*. Global Partnership for Sustainable Development Data. Available at: https://www.data4sdgs.org/resources/kenya-national-ai-strategy (Accessed: 30 July 2025).

also raising questions about data governance, sovereignty, and long-term national capability. Taken together, these cases demonstrate that innovation is not the binding constraint. Rather, differences in governance arrangements, leadership coherence, and execution capacity largely determine whether digital initiatives are institutionalised, scaled, or stalled.

As of 2024, a growing wave of National AI strategies has emerged across the continent, with countries such as Nigeria, Ghana, Rwanda, and South Africa developing frameworks that align with the African Union's Continental AI Strategy. [20]These policies reflect a shared commitment to responsible, inclusive and sovereign AI development. Furthermore, they prioritise ethical safeguards, support local-language technologies, and aim to bridge existing digital divides. However, challenges such as uneven infrastructure, regulatory gaps and AI skill talent retention continue to hinder the implementation of these policies. Across multiple sectors, AI applications are being tailored to Africa's development needs. For example, AI-powered platforms in agriculture are helping farmers predict droughts and manage resources more efficiently, while health start-ups are using voice-to-text tools adapted for local languages and accents The development of these technology solutions and policies demonstrates the willingness of African governments to adopt frameworks that support the use of emerging technologies such as Artificial Intelligence, whilst exposing a core truth, innovation is not the missing piece. What is elusive is a myriad of structural, institutional and governance issues that need to be addressed if the continent is to scale and sustain these successes.

Institutional readiness from the outset appears uneven when viewed through the lens of external rankings and measurements; however, as Assefa et al. argue, these externalities do not capture the fundamental, continent-specific readiness gaps. Their research shows that most African countries fall below global digital readiness benchmarks, with only Tunisia slightly exceeding the average. They contend that global assessment tools often fail to reflect the lived realities of African institutions, such as limited connectivity, weak infrastructure and skills shortages.[21] Without localised assessment frameworks, African governments risk crafting policies misaligned with their actual digital capabilities. This, therefore, emphasises the need to develop country-specific frameworks for African countries to better guide investments, prioritisation, and sustainable implementation. Building on this, the need for clearly defined leadership roles, such as Chief Digital Officers (CDOs), remains largely unmet, with Rwanda and South Africa the only African countries with government-specific CDOs. Almost all African countries have ministries and/or departments responsible for technology, as well as

[20] **CIPIT (2023)** *The State of AI in Africa Report*. Nairobi: Centre for Intellectual Property and Information Technology Law. Available at: https://aiconference.cipit.org/documents/the-state-of-ai-in-africa-report.pdf (Accessed: 30 July 2025).

[21] **Assefa, S.G., Rorissa, A. and Alemneh, D.G. (2021)** 'Digital Readiness Assessment of Countries in Africa: A Case Study Research', *Proceedings of the Association for Information Science and Technology*, 58(1), pp. 400–404. Available at: https://doi.org/10.1002/pra2.467 (Accessed: 13 May 2025).

various national authorities and regulatory bodies that oversee data protection, innovation and telecommunications.[22]

Kenya, for instance, appointed a Special Envoy for Technology to promote digital diplomacy and investment. However, while important, these structures often operate at the level of high-level policy direction or regulation. What is still usually lacking is a dedicated digital leadership role within institutions, which hinders the translation of strategic visions into operational realities in many contexts. CDOS are uniquely positioned to manage the cross-cutting nature of digital transformation, bridging gaps among technical teams, policymakers, civil servants, and political leadership.

Their role is critical in ensuring coherence, continuity, and accountability in digital execution across government.[23] However, Institutional leadership and structure alone are not enough. As Manda et al. argue, digital transformation in the public sector is deeply shaped by power dynamics, political legitimacy, and institutional behaviour. In South Africa, agencies like the National Treasury exercise outsized influence due to their control over financial resources, whilst ICT-focused institutions lack enforcement power and institutional weight. Manda applies Scott's institutional theory to demonstrate that successful transformation requires alignment across three pillars: regulative structures (laws and policies), normative frameworks (shared values), and cultural cognitive systems (beliefs and leadership practices). Where these elements are misaligned and where politics prioritise short-term visibility over systemic change, implementation fails. These findings confirm that Africa's digital transformation must be approached not just as a technical upgrade, but as a deep institutional reform process rooted in political economy.[24] Infrastructure and financial barriers further complicate this landscape. High costs associated with technology adoption, limited access to reliable electricity and internet, and fragmented digital infrastructure significantly impede scalable transformation efforts.

The experience of South Africa's State Information Technology Agency (SITA) highlights challenges in government coordination and resource allocation, underscoring the necessity for coherent institutional frameworks. [25] Human capital development (HCD) is recognised as a crucial factor influencing Africa's digital transformation. Research by Awode et al emphasises

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[22] **DiploFoundation (2023).** *Stronger Digital Voices from Africa: The Role of International Representation in Digital Strategies*. Available at: https://www.diplomacy.edu/resource/report-stronger-digital-voices-from-africa/international-in-digital-strategies-africa/ (Accessed: 13 May 2025).

[23] **Schachtner, Christian. (2024).** CDOs in the Public Sector: Perspectives on Chief Digital Officers and Digital Transformation Strategies.

[24] **Manda, M.I. (2022)** 'Power, politics, and the institutionalisation of information systems for promoting digital transformation in the public sector: A case of South Africa's government digital transformation journey', Information Polity, 27(3), pp. 311–329. Available at: https://doi.org/10.3233/IP-200233 (Accessed: 13 May 2025).

[25] **Komna, L., Mpungose, S. (2024)** Investigating the challenges to digital transformation in the public sector, a case study of the State Information Technology Agency (SITA), South Africa, Holistica Journal of Business and Public Administration, Vol. 13, Iss. 2, pp.15-37

that robust human capital significantly reduces productivity disruptions associated with the adoption of new technologies. Investments in education,skills development and workforce adaptability thus emerge as fundamental prerequisites for fully leveraging technological advancements. [26] Moreover, cybersecurity and effective data governance remain critical but under-addressed components of the digital transformation agenda. Persistent cybersecurity vulnerabilities and weak regulatory frameworks expose digital economies to risks that could undermine trust and adoption, as demonstrated in various African contexts, including South Africa.[27] Despite these challenges, the continent presents substantial opportunities for digital transformation, particularly given its youthful, digitally savvy demographic. SMEs across the continent have effectively utilised Fourth Industrial Revolution (4IR) technologies such as AI, IoT and Big Data. The utilisation of these technologies has created substantive productivity improvements and competitive advantages.[28] Regional economic integration, notably the African Continental Free Trade area (AfCTA), further amplifies opportunities for digital innovation, cross-border trade and regulatory harmonisation. Strategic alignment of policies at regional and continental levels promises substantial growth and scalability of digital solutions.[29] Furthermore, global technology giants are increasingly shaping Africa's digital landscape. In 2021, Google joined the Smart Africa Alliance as a Platinum member, reflecting its commitment to supporting the continent's digital transformation efforts.

The Smart Africa Alliance, tasked with defining and coordinating digital strategies across member countries, aims to synchronise socio-economic development objectives with the strategic visions of major tech companies. Google's involvement signifies the increasing importance of public-private collaboration in developing comprehensive digital governance frameworks that integrate technological advancements with sustainable and inclusive socio-economic development.[30] In light of this view, the evidence points towards the need for comprehensive policy initiatives, including enhanced public-private partnerships, systematic infrastructure investments, robust cybersecurity measures and targeted human capacity developments. These elements, if effectively coordinated, can bridge existing gaps and unlock Africa's digital potential. In conclusion, Africa's digital transformation landscape illustrates significant promise alongside complexity. To achieve sustainable, inclusive growth,

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[26] **Awode, S.S. and Oduola, M.O., 2024.** *The interplay between technological innovation and human capital development in driving industrial productivity and competitiveness in Africa*. Nigerian Institute of Social and Economic Research, Ibadan, and Olabisi Onabanjo University, Ago Iwoye. Available at: [https://www.emerald.com/jed/article/27/1/56/1239739/The-interplay-between-technological-innovation-and] [Accessed 13 May 2025].

[27] **Komna, L., Mpungose, S. (2024)** Investigating the challenges to digital transformation in the public sector, a case study of the State Information Technology Agency (SITA), South Africa, Holistica Journal of Business and Public Administration, Vol. 13, Iss. 2, pp.15-37

[28] **Saah, P., & Mbohwa, C. (2025).** The Role of Fourth Industrial Revolution on Small and Medium Size Enterprises in South Africa. *International Journal of Entrepreneurship, Business and Creative Economy*, *5*(1), 91–107. https://doi.org/10.31098/ijebce.v5i1.2794

[29] **UNCTAD (2024)** *Harnessing Africa's digital economy for regional integration and shared prosperity*. Available at: https://unctad.org/news/harnessing-africas-digital-economy-regional-integration-and-shared-prosperity (Accessed: Accessed 7th June 2025)

[30] **Google SSA Economic Impact Report** (2021) *Google's Economic Impact in Sub-Saharan Africa*. Available at: https://googlessa.publicfirst.co.uk/ (Accessed: 13 May 2025).

technology alone cannot cut it. There needs to be a balanced integration of policy, coherence, political alignment, robust human capital, strategic partnerships, and coherent institutional governance at both national and regional levels.

5 From Promise to Practice

The analysis of Africa's digital transformation landscape uncovers recurring interrelated constraints that hinder turning innovation into lasting impact. These include weak institutional capacity, fragmented digital leadership, misaligned political priorities and implementation mechanisms, poor coordination among regional actors, and inconsistent engagement with global digital governance. Although these issues vary across countries, they reflect systemic rather than technological problems. The proposed Strategic Governance framework is therefore specifically problem-focused. Each pillar directly addresses the governance and implementation gaps identified earlier. Instead of a generic template, it translates diagnoses into targeted actions at local, regional, and global governance levels. As noted, sustainable and inclusive digital transformation in Africa depends not only on technology but also on institutional coherence, political alignment, and continued investments in human and infrastructure resources. Despite more national strategies and innovation initiatives, a significant implementation gap persists. The challenge is not a shortage of ideas but a misalignment between visionary policies, political priorities, and practical implementation. To bridge this divide, Africa's digital agenda must shift from rhetoric and complaints to concrete, measurable results. Governance issues such as fragmented leadership, weak implementation, misaligned incentives, and poor coordination shape the framework's structure. Each element tackles a specific obstacle: enhancing local institutional readiness, fostering regional coordination, and increasing global engagement to strengthen Africa's negotiating power and knowledge access. This framework should be viewed as a targeted, problem-solving approach to overcoming current implementation hurdles, rather than a universal model. This section presents a Strategic Governance Framework aimed at realigning policy, politics, and technology. Most importantly, this framework is not a one-size-fits-all solution. Instead, it is layered to function at three interdependent levels:

5.1 Local level- Institutional readiness and Community level-led implementation

5.1.1 Public Sector official skilling and Digital leadership

This pillar directly addresses the implementation gap identified in the landscape analysis, in which ambitious digital strategies frequently stall due to weak institutional capacity, fragmented leadership, and limited public-sector delivery mechanisms. At the local (national and subnational) level, African governments need to strengthen institutional capacities to design and implement digital initiatives. This involves establishing dedicated leadership roles and processes as well as skilling public sector workers in digital skills to drive digital agendas across sectors and communities. For example, Kenya's government launched a Regional Centre of Competence for Digital and Artificial Intelligence Skilling at the Kenya School of

Government.[31] The initiative aims to strengthen public sector efficiency by equipping government institutions with the tools and skills necessary to harness emerging technologies. This paper distinguishes between two leadership roles that are often conflated: the Chief Digital Officer (CDO) and the Chief Data Officer (CDO). The Chief Digital Officer role focuses on enterprise-wide digital transformation, while the CDO is responsible for data governance, analytics and value creation from public data assets. In the age of AI and as African governments are pushed to become more data-driven, the role of the Chief Data Officer becomes increasingly vital in transforming how public institutions serve their citizens.[32] Whilst African governments do have their respective bureaus of statistics tasked with collecting and disseminating data, these entities are often limited to statistical functions and do not have strategic mandates to govern data use, drive digital transformation, or align technology with public service outcomes. This creates a structural gap in how data and digital capabilities are harnessed for decision-making and citizen-facing services.[33] Establishing the Chief Data Officer within government institutions, working on coordination with existing ones, is then complementary, as it would operate at the intersection of technology, policy, and public value creation.[34]

5.1.2 Strengthening Project Management Offices

The effective delivery of digital projects is crucial to digital transformation, yet many African countries have historically faced challenges in project implementation due to weak project management processes. Studies highlight that failure to embrace formal project management standards in government leads to wasted resources and stalled projects.[35] Strengthening PMO functions ensures that digital projects (such as public user platform rollouts or infrastructure builds) are completed on time and on budget, thus building trust in government capacity. [36]

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[31] **Ministry of Information, Communications and the Digital Economy (MoICDE),** 2024. *Kenya to operationalise Regional Centre for AI and Digital Skilling at KSG*. [press release] 2 August. Available at: https://ict.go.ke/kenya-to-operationalise-regional-centre-for-ai-and-digital-skilling-at-ksg [Accessed 30th July 2025].

[32] **Amos, A., 2024**. *A dream come true: From Chief Data Officer Ambassador to Chief Data Officer for the Africa*. [online] *Medium*. Available at: https://medium.com/@programos.amos/a-dream-come-true-from-chief-data-officer-ambassador-to-chief-data-officer-for-the-africa-0a6af9779e80 [Accessed 4 Aug. 2025].

[33] **United Nations Economic Commission for Africa (UNECA),** 2023. *Road map for the transformation and modernisation of official statistics in Africa, 2023–2030*. [pdf] Addis Ababa: UNECA. Available at: https://yas.uneca.org/sites/default/files/2024-09/roadmap_for_the_transformation_and_modernization_of_official_statistics_2023_2030.pdf [Accessed 5th July. 2025].

[34] **United Nations World Data Forum, 2021**. *The crucial role of government Chief Data Officers (CDOs)*. [online] UN Stats. Available at: https://unstats.un.org/unsd/undataforum/blog/crucial-role-of-government-cdo/ [Accessed 5th July. 2025].

[35] **Ogunbukola, Matthew. (2024).** The Impact of Digital Transformation on Project Management. Available at: https://www.researchgate.net/publication/379075855_The_Impact_of_Digital_Transformation_on_Project_Management (Accessed 12th July 2025)

[36] **Deloitte, 2024.** *Major projects: the new government's opportunity to build trust in its delivery*. [blog] Deloitte UK, 10 July. Available at:

A 2022 PMI/PWC report on Sub-Saharan Africa found that successful PMOs tailor global best practices to local realities, combining structured methodologies with culturally aligned leadership.[37] This contextual approach enables African PMOs to balance global standards with local needs, thereby improving public-sector delivery. For example, the South African government, in their 2025-2030 Digital Transformation roadmap, proposed the creation of an Inter-Departmental Working Group PMO and Digital Service Unit within the office of the president to drive priority digital projects. In addition, the DSU's priorities include accelerating key digital initiatives and developing reusable tools for departments, demonstrating how an empowered PMO can institutionalise agile delivery and knowledge sharing. [38] Ultimately, a robust PMO function can provide the discipline to turn digital strategies into on-the-ground results.

5.1.3 Localising Digital Readiness Assessments

Amongst other things, global technology readiness indices often fail to capture on-the-ground challenges in Africa. Research shows that existing digital readiness metrics can't be used as is for African countries because they overlook factors such as last-mile connectivity, infrastructure gaps, and local skills deficits.[39] For example, a study by Assefa et al found that nearly all African nations scored below the global average on a digital readiness index, and it called for new assessment frameworks that include availability of adequate infrastructure, affordable access, last-mile connectivity and digital skills gaps. [40]

Localising assessments means developing measurement capabilities that capture what matters for a specific country or community, for example, digital literacy rates, internet coverage, or access to technology tools. By institutionalising periodic Digital Readiness Assessments through partnerships and collaborations where possible, governments can set realistic, relevant baselines and targets. In May 2025, Malawi launched a tailored digital readiness assessment to identify local gaps and guide investments. [41] Locally adapted assessments, such as the one in Malawi, ensure that digital strategies are grounded in data and can be prioritised to address critical barriers to digital transformation in that country.

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https://www.deloitte.com/uk/en/services/consulting/blogs/2024/major-projects-the-new-governments-opportunity-to-build-trust-in-its-delivery.html [Accessed 4th July. 2025].

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[38] **Genesis Analytics, 2025.** *Watch: South Africa unveils Digital Transformation Roadmap to modernise government services*. [online] Available at: https://www.genesis-analytics.com/news/2025/watch-south-africa-unveils-digital-transformation-roadmap-to-modernise-government-services [Accessed July 5th. 2025].

[39] **Assefa, S., 2021.** *Short Paper: Digital Readiness in Africa*. [pdf] University of North Texas Libraries. Available at: https://digital.library.unt.edu/ark:/67531/metadc2143870/m2/1/high_res_d/Assefa,S_AM21ShortPaper.pdf [Accessed July 10th. 2025].

[40] **Ibid**

[41] **United Nations Development Programme (UNDP), 2025**. *Malawi launches first-ever digital readiness assessment guide for inclusive digital transformation*. [online] UNDP Malawi. Available at: https://www.undp.org/malawi/press-releases/malawi-launches-first-ever-digital-readiness-assessment-guide-inclusive-digital-transformation [Accessed 12th July. 2025].

5.2 Regional Level Governance

The regional governance pillar addresses the fragmentation and duplication of digital initiatives across African countries, where limited coordination among continental bodies and varying regulatory regimes hinder scale, interoperability, and collective bargaining. Digital transformation extends beyond national borders, especially in Africa, where market shifts can have profound positive or negative impacts. Regional governance mechanisms should promote cooperation among nations. Therefore, the proposal is to:

5.2.1 Establish Regional Digital Governance Institutions

Creating or strengthening regional institutions and coordination bodies dedicated to digital governance that coordinate digital policy implementation, set continental standards, and share best practices can work. For example, a cohesive regional approach would help avoid duplication of efforts and ensure that all African states move forward together. One weakness identified by the African Union's 2020-2030 Digital Transformation Strategy for Africa is "weak coordination amongst continental institutions pursuing the digitisation agenda, which leads to fragmented efforts.[42] Multiple bodies, such as the African Union Commission, Smart Africa, AUDA-NEPAD, the African Telecommunications Union (ATU), and UNECA, are involved, but without a clear coordination framework, resources remain underutilised. Establishing a dedicated digital governance coordination working group would address this gap.

In addition, the AU Digital Transformation Strategy identifies the opportunity to establish a "*continental framework for the digital agenda for Africa"*. Such an institution would then unify efforts on continental digital infrastructure systems, cybersecurity responses and present a unified front at international forums. The institution if set up could replicate those of other domains like the Africa Centres for Disease Control. The alternative would be to formalise the Smart Africa Alliance. Robust regional governance mechanisms would then allow the continent to leverage its collective strength, negotiate technology transfers and possibly develop shared digital public goods whilst managing cross-border digital issues more effectively.

5.2.2 Harmonising Digital Policies and Regulations

To become an integrated digital market, harmonised policies play a pivotal role. If every African country has extremely different rules and regulations on e-commerce, data localisation, or fintechs, it can slow down cross-border digital services and investments. Coordinated policy frameworks enable seamless digital interactions across jurisdictions and increase the continent's leverage in the global digital economy.[43] The AU's strategy highlights the importance of policy coherence, calling for "harmonisation of laws and

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[42] **African Union, 2020.** *Digital Transformation Strategy for Africa (2020–2030)*. [online] Available at: https://au.int/en/documents/20200518/digital-transformation-strategy-africa-2020-2030 [Accessed 11th July. 2025].

[43] **Chisiza, T., 2025**. *Robust Digital Governance Frameworks in Africa*. [online] Centre for International Governance Innovation (CIGI). Available at: https://www.cigionline.org/publications/robust-digital-governance-frameworks-in-africa/ [Accessed 10th July 2025].

regulations" at the regional and national levels.[44] Some initiative, such as the African Union Data Policy Framework 2022, aims to provide the continent with a blueprint for data governance for member states. [45] By adopting shared guidelines, countries can support innovation and reduce compliance burdens on businesses operating across multiple African markets. Efforts to establish the African Continental Free Trade (AfCFTA) e-commerce protocols, which push for region-wide rules on digital trade and consumer protection, serve as practical examples of policy harmonisation.[46]

5.3 Global level governance

The global governance pillar tackles the imbalance seen in Africa's participation in international digital governance, where limited diplomatic capacity and fragmented representation hinder the continent's influence over global technology standards, data governance, and AI regulation. At the international level, Africa's digital transformation intersects with global technology governance, foreign policy, and cross-border partnerships. To maximise benefits and exert influence within the global digital ecosystem, African nations and institutions require strategies for effective diplomacy and collaboration.

5.3.1 Enhancing Digital Diplomacy and Foreign Policy Capacity

Global technology decisions have a significant impact on Africa. Ensuring these decisions reflect African interests requires skilled negotiators and a coordinated strategy. The African Union's Agenda 2063 aspires to make Africa a strong and influential global player, calling for greater African participation in international affairs and multilateral institutions. [47]

In the digital arena, many African countries currently have limited influence due to capacity constraints. Enhancing digital diplomacy means equipping foreign service staff with expertise in cyber policy, AI Governance, data protection and other emerging issues so they can effectively advocate for negotiations. Kenya launched their Diplomats AI playbook in 2024 for its foreign service staff and to also enhance the country's role on the global diplomatic stage. [48] Research has shown that digital issues cut across boundaries, and thus the continent

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[44] **African Union, 2020.** *Digital Transformation Strategy for Africa (2020–2030)*. [online] Available at: https://au.int/en/documents/20200518/digital-transformation-strategy-africa-2020-2030 [Accessed 11th July 2025].

[45] **CIPESA, 2022**. *Key takeaways from the 2022 African Union Data Policy Framework*. [online] Collaboration on International ICT Policy for East and Southern Africa (CIPESA). Available at: https://cipesa.org/2022/11/key-takeaways-from-the-2022-african-union-data-policy-framework/ (Accessed 11th July 2025)

46 Kouty, M. Boosting 2024 The intra-African digital trade in the AfCFTA context: does regulatory framework matter?. DESD 2, **https://doi.org/10.1007/s44265-024-00036-3**

[47] **DiploFoundation, 2023**. *Digital Governance in African Continental and Regional Organisations*. [online] In: *Report: Stronger Digital Voices from Africa*. Available at: https://www.diplomacy.edu/resource/report-stronger-digital-voices-from-africa/digital-governance-in-african-continental-and-regional-organisations/ (Accessed 11th July. 2025).

[48] **Africa Science News, 2024.** *Kenya takes bold step in AI governance, setting the standard for Africa and strengthening diplomatic ties*. [online] Available at: https://africasciencenews.org/kenya-takes-bold-

needs multilateral coordination and collaboration, and by speaking with one voice, African states gain bargaining power in setting global tech rules.

5.3.2 Building Global Technology Partnerships and Knowledge Exchange

There have also been continued efforts by Kenya's Ministry of Foreign Affairs in its foreign policy capacity-building initiative. In mid July 2025, the Techplomacy initiative was launched to bring governments, innovators, civil society, and academia together to create inclusive digital futures.

Countries cannot digitally transform in isolation. Global partnerships provide access to knowledge and resources. African governments continuously pursue technology partnerships to fill gaps in expertise and infrastructure. For example, the government of Benin partnered with Estonia to learn from their e-government successes, building long-term capacity in digital public services.[49] Likewise, countries like Senegal have partnered with China under the Digital Silk Road initiative to develop critical digital infrastructure.[50]

Development institutions also continue to support Africa's digital journey. Germany's Digital Transformation Centre under the German Corporation for International Cooperation, the World Bank's Digital Economy for Africa, amongst other initiatives and programmes, are examples of partnerships aimed at mobilising funding, expertise and support for the continent's connectivity, digital skills, climate change and innovation agenda, amongst other themes.[51] Similarly, there have also been continued efforts by Kenya's Ministry of Foreign Affairs in its partnership-building agenda. In mid-July 2025, the Techplomacy initiative was launched to bring governments, innovators, civil society, and academia together to create inclusive digital futures.[52] By entering global technology alliances and partnership frameworks, Africa can accelerate its digital transformation through knowledge exchange and innovation ecosystems. Knowledge exchange works in two parts. The continent also contributes innovations like mobile money and payment gateways that other regions learn from. [53] A strategic approach to global partnerships ensures that technology transfer and capacity building are in alignment with Africa's development priorities, rather than passive consumption of foreign technologies.

6 Conclusion

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step-in-ai-governance-setting-the-standard-for-africa-and-strengthening-diplomatic-ties/ [Accessed 13th July. 2025].

49 **Gonsalves, T., 2023.** *Navigating Africa's Digital Partnerships in a Context of Global Rivalry*. [online] Centre for International Governance Innovation (CIGI). Available at: https://www.cigionline.org/publications/navigating-africas-digital-partnerships-in-a-context-of-global-rivalry/ [Accessed 29th July. 2025].

[50] **Ibid**

[51] **Digital Development Partnership (DDP), n.d. *Partners*.** [online] Available at: https://www.digitaldevelopmentpartnership.org/partners [Accessed July 29th . 2025].

[52] **Citizen Digital, 2024.** *Kenya unveils TechPlomacy Connective to lead global AI governance*. [online] Available at: https://www.citizen.digital/news/kenya-unveils-techplomacy-connective-to-lead-global-ai-governance-n366431 [Accessed July 29th 2025].

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By linking specific implementation and governance issues directly to targeted institutional actions, the framework offers a clear pathway from identifying problems to taking action. At local, regional, and global levels, these pillars form an integrated Strategic Governance Framework to support Africa's digital transformation. Local institutions establish a solid in-country base, ensuring readiness and effective implementation of digital initiatives. Regional mechanisms foster a unified African digital market and voice, preventing fragmentation and enhancing collective strength. Global engagements connect Africa to the worldwide digital ecosystem on its own terms, leveraging opportunities for resources and influence. Each pillar is interconnected; for example, local CDOS feed into regional networks, and regional policies enhance global negotiations. This framework aligns institutional structures with Africa's digital priorities, including inclusive connectivity, skills development, innovation, and data governance. Implementing these measures will help African nations coordinate efforts, share knowledge, and speak with a unified voice in shaping the digital future.

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