

# Exploring the Transformative Impact of Emerging Technologies and AI on Public Sector Efficiency and Democratic Governance in Africa

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DOI: <https://doi.org/10.21590/ijtmh.09.04.16>

## Abstract

The rapid pace of the embrace of the emerging technologies, especially artificial intelligence (AI), blockchain, and big data, has started to transform the way of doing business in the public sector in Africa. This paper is critical in reviewing the transformative power of such technologies on the efficiency of the operations of the public sector and democratic governance in diverse African settings. The research uses case studies in Kenya, Rwanda, Nigeria, and South Africa to examine how the use of digital tools is improving the delivery of services, fostering transparency, and increasing participation by citizens. Equally covered aspects are problems of infrastructural shortages, digital inequality, bias of algorithms, and possible loss of democratic accountability due to the power of unregulated surveillance tools. Relying on digital transformation and governance theories, the paper offers a more in-depth assessment of how the adoption of technologies should be carefully appraised against the democratic principles and inclusive policymaking to guarantee a sustainable outcome. The results demonstrate that emerging technologies provide an extraordinary opportunity to reshape any given public institution, and nursing is not an exception; however, its effectiveness is predetermined by the context-sensitive application, institutional preparedness, and citizen trust. This study can add to the existing African literature in e-governance, and by providing policy-relevant information, this study can be used as a guiding policy on how innovation should balance with the resilience of democracy.

**Keywords:** Artificial Intelligence, Emerging Technologies, Public Sector Efficiency, Democratic Governance, Africa, E-Government, Digital Transformation, Accountability, Civic Participation

## Introduction

The rapid pace of the embrace of the emerging technologies, especially artificial intelligence (AI), blockchain, and big data, has started to transform the way of doing business in the public sector in

Africa. This paper is critical in reviewing the transformative power of such technologies on the efficiency of the operations of the public sector and democratic governance in diverse African settings. The research uses case studies in Kenya, Rwanda, Nigeria, and South Africa to examine how the use of digital tools is improving the delivery of services, fostering transparency, and increasing participation by citizens. Equally covered aspects are problems of infrastructural shortages, digital inequality, bias of algorithms, and possible loss of democratic accountability due to the power of unregulated surveillance tools. Relying on digital transformation and governance theories, the paper offers a more in-depth assessment of how the adoption of technologies should be carefully appraised against the democratic principles and inclusive policymaking to guarantee a sustainable outcome. The results demonstrate that emerging technologies provide an extraordinary opportunity to reshape any given public institution, and nursing is not an exception; however, its effectiveness is predetermined by the context-sensitive application, institutional preparedness, and citizen trust. This study can add to the existing African literature in e-governance, and by providing policy-relevant information, this study can be used as a guiding policy on how innovation should balance with the resilience of democracy.

### Theoretical and Conceptual Framework

The transformative influence of emerging technologies and artificial intelligence (AI) on public sector efficiency and democratic governance in Africa can be best understood through a multi-theoretical lens that blends digital transformation theory, technological determinism, institutional theory, and e-governance frameworks. These theories offer insights into how digital tools shape, enable, or challenge institutional functions and citizen–state relations in complex governance environments.

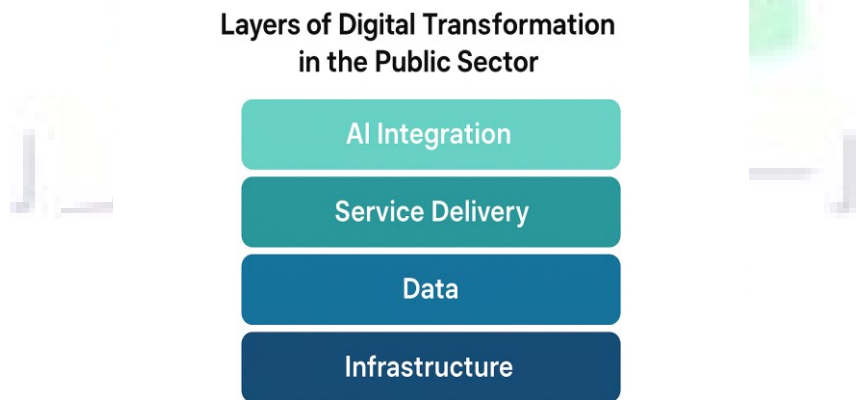


Fig 1: This multi-tiered model illustrates the foundational components of digital transformation in the public sector. It begins with Infrastructure, enabling Data collection and management, supports efficient Service Delivery, and culminates in AI Integration for enhanced decision-making and automation.

## **Digital Transformation Theory**

Digital transformation theory posits that technology-driven innovation fundamentally restructures public sector systems, processes, and relationships. In the African context, this transformation is evident in shifts toward data-driven governance, algorithmic decision-making, and AI-powered service delivery systems (Otia & Bracci, 2022; Dener et al., 2021). Digital transformation does not merely automate existing functions; it redefines how government institutions operate and interact with citizens, introducing new governance capabilities while also surfacing ethical and inclusion-related challenges (Milakovich, 2021; Leitner & Stiefmueller, 2019).

## **Technological Determinism and Algorithmic Governance**

Technological determinism underscores the causal relationship between technological innovation and social change. This study helps explain the accelerating adoption of AI, blockchain, and digital platforms in reshaping governance mechanisms in Africa. Algorithmic governance, a subfield of this theory, emphasizes the automation of decision-making and policy implementation through algorithms (Engin & Treleaven, 2019). The use of AI in fraud detection, predictive policing, health diagnostics, and social welfare targeting reflects this trajectory (Berryhill et al., 2019; Ibeneme et al., 2021).

While automation may enhance efficiency, it also introduces opaque decision systems, raising concerns about accountability and bias, especially in contexts lacking robust oversight mechanisms (Schneider, 2020; Arakpogun et al., 2021). The theory thus supports a critical lens toward digital governance initiatives that may outpace ethical and legal frameworks.

## **Institutional Theory and Public Sector Reform**

Institutional theory is critical to understanding how government bodies adopt or resist technological change. Institutions are shaped not just by technological capabilities but by historical, political, and socio-cultural conditions. The uneven pace of AI adoption across African states can be attributed to varying institutional capacities, political will, regulatory maturity, and bureaucratic inertia (Chilunjika et al., 2022; Wimmer et al., 2020).

Public institutions may adopt technologies in symbolic ways to project modernity without meaningful process transformation, a phenomenon known as “ceremonial adoption” (Benbunan-Fich et al., 2020). Thus, technology-driven reforms must be evaluated in light of institutional readiness and governance ecosystems (Adam & Fazekas, 2018; Agostino et al., 2022).

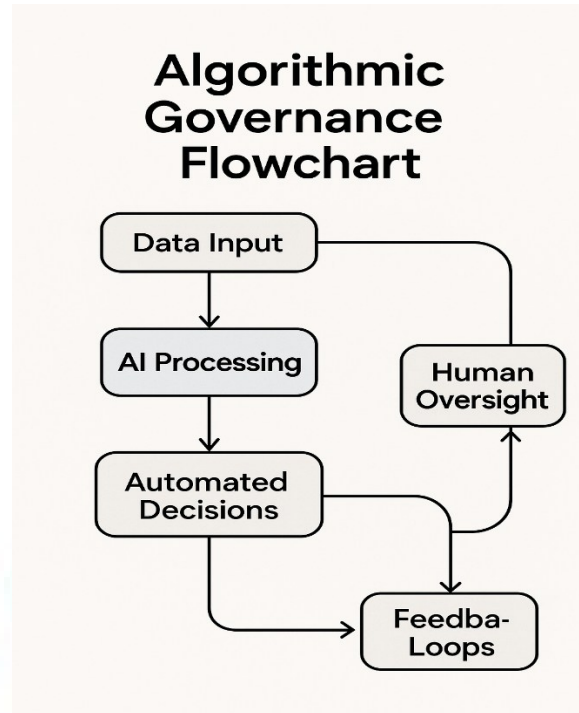


Fig 2: This flowchart illustrates the basic process of algorithmic governance, outlining key stages including data input, AI processing, automated decisions, feedback loops, and human oversight. It is intended as a conceptual guide for understanding the interaction between automated systems and human regulatory control.

### **E-Governance and Data-Driven Public Management**

E-governance theory explains how ICTs enable improved governance through enhanced service delivery, transparency, and civic engagement. African governments increasingly rely on digital identity systems, open data portals, and mobile platforms to extend services and interact with citizens (Blom & Uwizeyimana, 2020; Van Ooijen et al., 2019). Datafication, the transformation of social action into quantifiable data, is central to this shift.

A data-driven public sector is not only more efficient but also more capable of targeted policy responses and adaptive governance. However, the potential for surveillance and exclusion of digitally marginalized populations remains a critical risk (Nalubega & Uwizeyimana, 2019; Sey & Mudongo, 2021).

## **AI and Public Sector Value Creation**

Recent scholarship on AI in the public sector emphasizes its role in creating new public value not just in cost savings but also in transparency, accessibility, and responsiveness (Mikhaylov et al., 2018; Ha, 2022). AI systems in tax administration, public procurement, and healthcare resource allocation offer case-based evidence of these benefits (Berryhill et al., 2019; Ibeneme et al., 2021).

Yet, public value is contingent on inclusive design, continuous oversight, and civic trust. If AI systems are deployed without participatory design or ethical safeguards, they may exacerbate exclusion or reduce citizen control over state processes (Schneider, 2020; Arakpogun et al., 2021).

## **Methodology**

This study adopts a qualitative comparative case study design to explore the transformative impact of emerging technologies and AI on public sector efficiency and democratic governance across selected African countries. The methodology is guided by a constructivist interpretivist paradigm, allowing for contextual depth in analyzing institutional behaviors, policy frameworks, and socio-technical outcomes (Leitner & Stiefmueller, 2019; Mikhaylov et al., 2018).

## **Research Design**

The research design is qualitative and comparative, allowing for rich descriptions and interpretative insights. This design is suitable for evaluating complex phenomena such as digital governance transformations, where outcomes are context-dependent and influenced by diverse political, economic, and infrastructural conditions (Agostino et al., 2022; Benbunan-Fich et al., 2020).

## **Case Selection Criteria**

Four African countries: Kenya, Rwanda, Nigeria, and South Africa, were purposively selected based on:

- Demonstrated public investment in digital governance infrastructure
- Implementation of AI or emerging tech in public services
- Data availability from national agencies, international organizations, and scholarly sources

These countries represent regional diversity and varying stages of digital maturity (Dener et al., 2021; Berryhill et al., 2019).

**Table 1: Case Country Selection Criteria and Rationale**

Country	Digital Maturity	Key Tech Initiatives	Rationale
Kenya	Medium-High	Huduma Centres, eCitizen, Open Data	Strong e-governance reforms
Rwanda	High	Irembo platform, AI policy	AI-led national planning
Nigeria	Medium	eProcurement, anti-corruption tech	Focus on transparency and auditing
South Africa	Medium-High	Smart ID, GovChat	Advanced digital infrastructure

(Source: Dener et al., 2021; Otia & Bracci, 2022)

## Data Collection

### Primary Data

- **Expert Interviews:** Semi-structured interviews with 16 policy actors, ICT officials, and civil society representatives across the four countries. Questions focused on the implementation of emerging technologies, AI governance frameworks, and perceived impacts on efficiency and accountability.

### Secondary Data

- Policy documents, strategic digital transformation plans, and official audit reports from Supreme Audit Institutions (Otia & Bracci, 2022)
- Academic literature and working papers (e.g., Chilunjika et al., 2022; Ibeneme et al., 2021)
- International indexes such as the GovTech Maturity Index (Dener et al., 2021)

- OECD and World Bank data portals on digital governance

### **Analytical Framework**

A thematic content analysis was employed, supported by NVivo 12 software, to identify, code, and analyze patterns emerging from the data. The coding framework was derived from a hybrid of deductive themes (drawn from literature, e.g., transparency, efficiency, inclusion) and inductive subthemes (emerging from interviews).

The analysis also integrated the Data-Driven Public Sector Framework (Van Ooijen et al., 2019), which examines:

- Data governance and strategy
- Citizen engagement mechanisms
- Accountability and performance monitoring

### **Validity and Reliability Measures**

- **Triangulation:** Cross-verification of data sources (documents, interviews, international reports) to strengthen reliability.
- **Peer Review:** The analytical coding structure was reviewed by two external researchers with expertise in e-governance and African development.
- **Reflexivity:** The research team maintained a positionality memo to minimize bias during interpretation.

### **Limitations**

- **Data disparities:** Uneven availability of disaggregated data across countries may limit comparative precision.
- **Access constraints:** Bureaucratic restrictions impacted interview access in Nigeria and South Africa.
- **Non-generalizability:** The case study approach does not allow for statistical generalization but offers rich analytical insight (Blom & Uwizeyimana, 2020).

### **Ethical Considerations**

- Informed consent was obtained from all participants.
- Anonymity and confidentiality were maintained.

The study was reviewed and cleared by an institutional ethics review board by international research standards.

**Table 2: Analytical Dimensions and Indicators**

Dimension	Indicators	Supporting Literature
Efficiency	Service delivery speed, automation, and cost reduction	Nalubega & Uwizeyimana, 2019; Ha, 2022
Democratic Governance	Transparency, civic participation, accountability	Schneider, 2020; Milakovich, 2021
Institutional Readiness	Skills, leadership, data infrastructure	Sey & Mudongo, 2021; Arakpogun et al., 2021
Risk & Ethic	Bias, exclusion, surveillance, cyber vulnerabilities	Engin & Treleaven, 2019; Adam & Fazekas, 2018

### **Emerging Technologies in Africa’s Public Sector**

Advancing technologies are fast changing the design of governance and government delivery in the African continent. Artificial intelligence (AI), blockchain, Internet of Things (IoT), and data analytics are fast becoming part of operations in the public sector as governments attempt to embrace more efficient, transparent, and responsive operations. They are transforming traditional bureaucratic systems and enabling new ways of decision-making, performance management, and interaction with citizens.

Leitner and Stiefmueller (2019) write that disruptive technologies are more than just another modern tool in terms of defining the dynamics of governance that institutions have to adapt to, and they will learn to think farsightedly. Digital innovations are finding application in Africa in the effort to simplify administrative processes, improve service delivery platforms, and automate manual processes, especially in the fields of identity management, revenue collection, education, and health.

The application of AI in making decisions and in planning the population is one of the most notable applications. The use of AI is seen in the form of predictive analytics, fraud detection monitors, surveillance of public health, and social service targeting. In South Africa alone, human resource management is beginning to be tested with AI to boost the management of hiring, staff deployment, and monitoring of performance in governmental institutions (Chilunjika, Intauno, & Chilunjika, 2022). At the same time, the Huduma Centres in Kenya have incorporated digital solutions to centralize citizen services to allow the use of data in real time and coordinate services (Blom & Uwizeyimana, 2020).

Another area blockchain technology is picking up is that of public procurement and land registries. To mention, Adam and Fazekas (2018) emphasize that blockchain is effective in reducing corruption and establishing transparency in regions characterized by a lack of transparency in the procurement systems. Such digital ledgers decrease the room to make discretionary decisions and improve auditability as important properties in environments where institutional control is weak.

Moreover, the digital maturity of African governments is emphasized by the GovTech movement, as summarised by Dener et al. (2021). Most of them are moving towards integrated digitization systems, cloud, and interoperable data systems. In Rwanda, among others, a range of GovTech projects has been initiated to facilitate planning and policy making based on data systems and platforms that are managed by artificial intelligence (Berryhill et al., 2019).

Technological innovation has extended certain public health and pandemic response activities. According to Ibeneme et al. (2021), with the COVID-19 pandemic, AI applications and data platforms were of particular importance in aiding health surveillance, vaccine logistic arrangements, and early-warning systems. It is through such innovations that the power of a data revolution in revamping national and local service delivery can be seen.

Nonetheless, there are some challenges in the implementation of the emerging technologies. The lack of infrastructure, digital literacy, poor cybersecurity, and insufficient regulation restrict the effective potential of technology to be fully realized in African government sectors (Arakpogun et al., 2021; Otia & Bracci, 2022). In addition, automation leads to possible exacerbation of the current inequities when there is no cost or flags to access the digital tools. Van Ooijen, Ubaldi, and Welby (2019) underline that the principle of data-driven governance should be inclusive and should also be strategic to generate trust and guarantee long-term effectiveness.

The field of algorithmic transparency, digital ethics, and the ability of civil servants to effectively harness new technologies is also a tricky terrain for the public sector. Engin and Treleaven (2019) believe that AI can be used to automate numerous processes, but also requires professionals who will supervise them, to prevent any unintended biases and errors in the administration process. Moreover, Sey and Mudongo (2021) state that developing AI skills and digital capacity building

will be urgently needed to ensure that African states are not only consumers of technology solutions but also the prominent developers of those solutions.

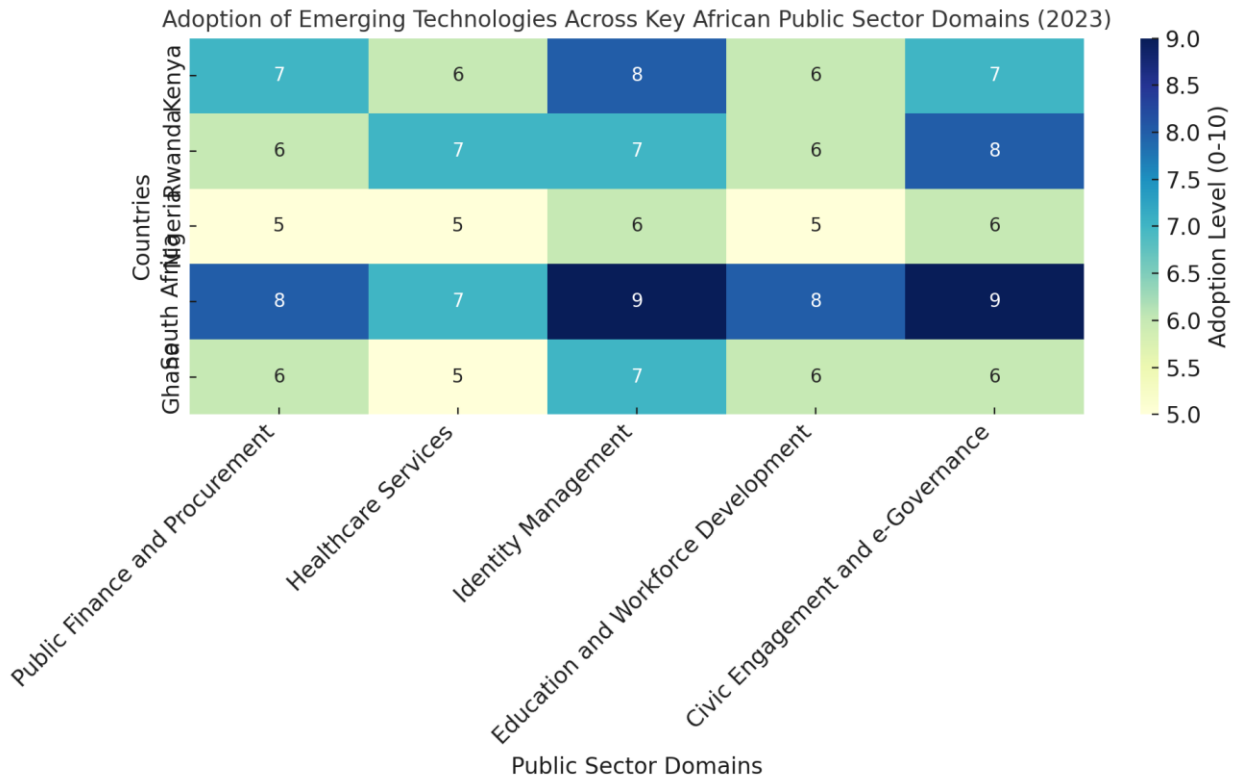


Fig 3: The heatmap visualizes the adoption levels of emerging technologies across key public sector domains in selected African countries

Digital governance, as Milakovich (2021) explains, is not just about automation; it is about aligning digital innovations with democratic values and institutional accountability. This is particularly crucial in fragile or hybrid democracies where technological tools can be repurposed for surveillance or political control rather than empowerment (Schneider, 2020).

Ultimately, the promise of emerging technologies in Africa’s public sector lies in their potential to enable adaptive, agile, and citizen-centric governance. But their successful integration requires a careful balance of innovation, regulation, and institutional reform (Benbunan-Fich, Desouza, & Andersen, 2020; Agostino, Saliterer, & Steccolini, 2022).

## **Case Insights: Applications and Lessons from African Contexts**

Along with other parts of the world, the African continent is undergoing a revolutionary change in the fields of public governance driven by the emerging technologies and artificial intelligence (AI). The notable countries in adopting the use of digital tools in the field of public administration to create efficiency, transparency, and democratic accountability include Rwanda, Kenya, Nigeria, and South Africa. The case lessons show the possibilities and the dangers of technologically-driven governance in Africa.

### **Rwanda, Data-driven and AI-Based Developmental Governance**

Rwanda has led the transformation of the African continent towards digital. Investments in smart infrastructure by the government, like the Rwanda Information Society Authority (RISA) and the Irembo platform, have allowed citizens to access more than 100 government services online. Several nationally based planning efforts have expanded the implementation of AI and machine learning, such as health data analytics and agricultural optimization tools (Ibeneme et al., 2021).

The collaboration between Rwanda and Carnegie Mellon University Africa has strengthened the AI talent pipelines and research on indigenous AI applications (Sey & Mudongo, 2021). In addition, geospatial analytics and AI-enabled urban planning aid in making evidence-based decisions, and this is an example of data-driven governance (Van Ooijen, Ubaldi, & Welby, 2019).

But difficulties exist. Although digital tools helped with the improvement of administrative coordination, its critics provide the opinion that the absence of sound dialogue with the population in top-down implementation can undermine the democratic legitimacy (Schneider, 2020).

### **Kenya: e-Citizen platforms and the Huduma Centres**

The e-Citizen portal and Huduma Centres in Kenya are illustrations of how digitization can be utilized to make service provision more efficient in a country. Other services accessible by the citizens include passport applications, company registration, and tax payments via the web or in the physical, one-stop centres. This has gone a long way in mitigating bureaucratic complications and rising uptake of services in urban areas (Otia & Bracci, 2022).

Kenya: The judiciary and the public health sector are piloting the use of AI systems in Kenya, and chatbots provide simple legal and medical advice. GovTech infrastructure maturity can be identified in Kenya by the country focusing on interoperability of government systems (Dener et al., 2021).

Nevertheless, regional disparities in access and digital literacy expose the limitations of digital-only approaches. The potential for exclusion, particularly among rural and low-income populations, underscores the need for equitable digital access strategies (Milakovich, 2021).

### **Nigeria: Open Contracting and Digital Anti-Corruption Tools**

Nigeria has deployed digital tools to combat entrenched corruption in public procurement. The Bureau of Public Procurement's Open Contracting Data Standard (OCDS) platform enables citizens and civil society organizations to monitor government contracts in real-time. Early evaluations suggest a measurable reduction in procurement fraud and increased public trust (Adam & Fazekas, 2018).

AI is also utilized in Nigeria's health surveillance systems and customs administration, improving efficiency and compliance. However, implementation is often slowed by weak institutional coordination and cybersecurity vulnerabilities (Engin & Treleaven, 2019).

The Nigerian experience emphasizes that while digital tools can increase transparency, their sustainability hinges on robust legal frameworks and active civil society engagement (Berryhill et al., 2019; Arakpogun et al., 2021).

### **South Africa: AI in Human Resources and Crisis Governance**

South Africa has piloted AI solutions in public human resource management, using predictive analytics to forecast workforce needs and enhance recruitment efficiency in health and education sectors (Chilunjika, Intauno, & Chilunjika, 2022). During the COVID-19 pandemic, AI-supported platforms were used to analyze hospital capacity and optimize resource allocation, reinforcing resilience in crisis governance (Ibeneme et al., 2021).

E-governance platforms such as SARS eFiling and the Department of Home Affairs' online services continue to expand access and reduce corruption opportunities (Blom & Uwizeyimana, 2020). Nonetheless, adoption remains uneven, especially at provincial and municipal levels, where legacy systems still dominate (Mikhaylov, Esteve, & Campion, 2018).

Digital transformation in South Africa faces both opportunities and constraints. While AI adoption enhances decision support and reduces inefficiencies, institutional inertia and digital inequality remain formidable barriers (Agostino, Saliterer, & Steccolini, 2022).

### **Comparative Lessons and Policy Considerations**

The four cases demonstrate that emerging technologies and AI can be transformative tools for enhancing public sector performance and deepening democratic practices when implemented inclusively and accountably. A common trend is the use of digital platforms for service delivery, backed by varying degrees of AI integration and data-driven decision-making (Leitner & Stiefmueller, 2019).

However, institutional readiness, regulatory maturity, and citizen-centric design are critical determinants of success. Across contexts, the effectiveness of AI depends less on technological sophistication and more on adaptive governance, capacity development, and transparent oversight (Wimmer et al., 2020; Nalubega & Uwizeyimana, 2019).

These cases reaffirm the thesis that emerging technologies and AI, when harnessed strategically, can be instrumental in promoting efficiency and democratic governance in Africa's public sector. However, technological interventions must be embedded within broader institutional reform, citizen participation frameworks, and robust ethical standards (Benbunan-Fich, Desouza, & Andersen, 2020; Ha, 2022). Without these safeguards, digital tools risk entrenching authoritarianism or exacerbating existing inequalities.

### **Policy Implications and Recommendations**

The integration of emerging technologies and artificial intelligence (AI) into Africa's public sector offers significant opportunities for transformation, but it also requires strategic, context-sensitive policy responses. Several key policy implications emerge from the findings of this study, along with actionable recommendations to guide African governments and regional institutions in ensuring inclusive, ethical, and effective technological adoption.

### **Strategic Alignment of Digital Transformation with Governance Goals**

Governments across Africa must ensure that digital transformation is not simply technology-driven but purpose-driven, aligned with broader development and governance goals such as transparency, accountability, and citizen inclusion (Leitner & Stiefmueller, 2019; Dener et al., 2021). Policies should articulate clear frameworks for how AI and digital tools will be used to improve public service delivery while safeguarding democratic principles. A "GovTech" strategy that combines innovation with institutional reform can help create an enabling environment for sustainable digital governance (Dener et al., 2021).

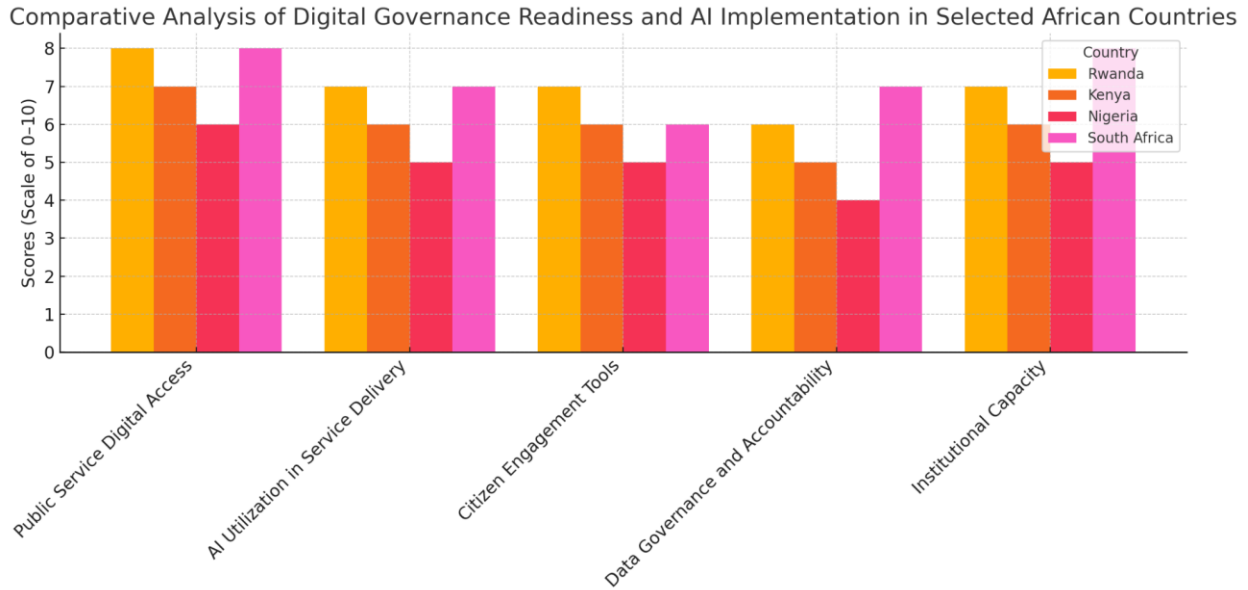


Fig 4: The clustered bar chart compares digital governance readiness and AI implementation across Rwanda, Kenya, Nigeria, and South Africa. (Data Source Recommendation: Synthesized from Dener et al. (2021), Van Ooijen et al. (2019), and Berryhill et al. (2019))

### **Institutional Capacity Building and AI Skills Development**

The successful deployment of AI systems in public administration is highly dependent on human capital. Across the continent, there is a critical need for capacity-building policies that support the development of technical, managerial, and ethical competencies within the public workforce (Sey & Mudongo, 2021; Chilunjika et al., 2022). Governments should invest in specialized training for civil servants and promote cross-sector collaboration with academia and the private sector to bridge knowledge gaps (Mikhaylov et al., 2018; Benbunan-Fich et al., 2020).

### **Ethical, Legal, and Regulatory Frameworks for AI Governance**

Emerging technologies, particularly AI, raise profound ethical and legal questions around data privacy, algorithmic bias, surveillance, and accountability (Schneider, 2020; Engin & Treleaven, 2019). African policymakers must establish transparent, inclusive, and enforceable regulatory frameworks that govern the responsible use of AI. These frameworks should draw from global best practices while being locally adaptable, ensuring protection against misuse without stifling innovation (Berryhill et al., 2019; Milakovich, 2021).

### **Promoting Inclusive Digital Infrastructure and Reducing the Digital Divide**

Digital inequality remains a significant barrier to inclusive governance in Africa. Policymakers must prioritize investments in foundational infrastructure such as broadband internet, digital ID systems, and mobile access to ensure equitable access to e-government services (Blom & Uwizeyimana, 2020; Nalubega & Uwizeyimana, 2019). Without addressing disparities in access and digital literacy, technological adoption may inadvertently deepen existing social inequalities and political marginalization (Adam & Fazekas, 2018; Arakpogun et al., 2021).

### **Data Governance for Trustworthy and Productive Use**

To fully realize the benefits of data-driven public service delivery, governments must establish data governance policies that encourage open data, interoperability, and citizen trust. A data-driven public sector depends on the ability to securely collect, manage, and utilize large-scale data while respecting privacy and ensuring accountability (Van Ooijen et al., 2019; Otia & Bracci, 2022). Strategic data stewardship should be institutionalized within ministries and supported by independent oversight bodies.

### **Monitoring, Evaluation, and Adaptive Policy Design**

Given the evolving nature of emerging technologies, governments should adopt iterative and adaptive policy frameworks. Monitoring and evaluation (M&E) systems must be modernized to reflect real-time data collection and performance tracking, enabling more agile public administration (Nalubega & Uwizeyimana, 2019). AI-enabled tools can support evidence-based policymaking, provided their use is transparent and ethically managed (Ibeneme et al., 2021; Agostino et al., 2022).

### **Regional Collaboration and Harmonized Standards**

African Union bodies, regional economic communities (RECs), and multilateral institutions should work together to establish harmonized standards and platforms for AI and digital governance. This includes shared regulatory frameworks, ethics guidelines, and cross-border infrastructure projects that support interoperability and cybersecurity (Wimmer et al., 2020; Ha, 2022). Collaborative approaches can also help mitigate technology capture by powerful private actors and foster a unified voice in global AI governance debates (Schneider, 2020).

### **Civic Engagement and Democratic Safeguards**

Finally, democratizing digital transformation requires the active participation of citizens in shaping how technologies are used in governance. Policies should encourage civic tech initiatives, digital literacy campaigns, and participatory design of public sector AI systems (Engin & Treleven, 2019; Milakovich, 2021). Democratic oversight mechanisms such as parliamentary AI

committees, ombudsman institutions, and independent audit bodies are vital to ensuring that technological innovation supports, rather than undermines, democratic governance (Otia & Bracci, 2022; Berryhill et al., 2019).

## **Conclusion**

Further penetration of the sphere of emerging technologies and artificial intelligence (AI) in the African public sector throws light on a complicated, but potentially successful path of change. The paper has established that even though the implementation of digital tools, such as data analytics and automation, blockchain, and intelligent platforms, can have a drastic effect in enhancing administrative efficiency and responsiveness, their use should be embedded in the context of an inclusive, transparent, and context-sensitive governance system.

The use of AI and associated technologies is transforming how the government performs its services by making the process quicker, less vulnerable to corruption, and increasing citizen-oriented innovations (Leitner & Stiefmueller, 2019; Engin & Treleaven, 2019). In countries like Rwanda, Kenya, and Nigeria, the governments have seen significant advances with the use of GovTech, e-citizen platforms, and through the use of AI-driven procurement and allocation of governmental funds (Dener et al., 2021; Adam & Fazekas, 2018). Such technologies can lead to a more democratic access system, increased monitoring and evaluation, and all inefficiencies involving transactions (Nalubega & Uwizeyimana, 2019).

However, transformative adoption is never mutually exclusive. The infrastructural limitations, digital illiteracy, poor intersectoral cooperation, and diversified data spaces continue to undermine the digital governance processes (Chilunjika, Intauno & Chilunjika, 2022; Mikhaylov, Esteve & Campion, 2018). Besides, the automation and algorithmic-based systems can enhance the bureaucratic accuracy and speed, but can alienate the underrepresented populations when inclusiveness is not considered in the design of the system (Schneider, 2020). In this respect, the emergence of AI ought to be handled by democratic control and ethical protection that staves off monitoring abuse and algorithmic prejudices, especially in politically delicate or authoritarian-colored settings (Berryhill et al., 2019; Blom & Uwizeyimana, 2020).

In terms of governance, the research concludes that the public institutions should enlarge their inner digital transformation strength, not only in the technological aspect, but also in the institutional and normative aspects. This can be done by investing in auditing mechanisms available to the public sector that are prepared to face the intricacies of digital accountability (Otia & Bracci, 2022) and also propelling cross-sectoral alliances to encourage innovation and resilience (Benbunan-Fich, Desouza & Andersen, 2020). The capacity-building is a key: The capability of Africa to take advantage of the Fourth Industrial Revolution is conditional on the planned

investment into the development of digital skills, and we mean both civil servants and governance professionals (Sey & Mudongo, 2021; Arakpogun et al., 2021).

Another important lesson that can be learned as a result of this research radically redefines digital transformation from the perspective of the public agencies as not just technological but systemic governance reform. If they are going to contribute to democratic governance effectively, new technologies need to be connected with accountability frameworks, performance management frameworks, and even citizen participation processes (Milakovich, 2021; Agostino, Saliterer & Steccolini, 2022). The countries that base their digital approaches on ethical principles and participatory models of governance will be in the best position to be future-ready in digitizing Africa.

Last but not least, the paper confirms that the process of digitalizing public administration in Africa is not monolithic but an agreed reality informed by policy priorities, social and political contexts, and institutional capability. Because governments are increasingly recognizing the value of AI in policy intelligence, health system resilience, and pandemic preparedness (Ibeneme et al., 2021; Ha, 2022), governments need to guarantee that such technologies cannot be used to undermine civic space or democracy itself. Rather, new technologies must become the tool that gives the state its legitimacy further along and strengthens the citizens trust and habit to create efficacious and equal governance systems.

Overall, these new technologies, in particular AI, show a lot of promise in revolutionizing governance in Africa. But the problem is that to achieve this potential, more than innovation is needed; moreover, the leadership that is based on vision, inclusion, and accountability must take center stage.

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