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# Artificial Intelligence Governance Readiness for Sustainable Development in Africa: A Multidimensional Index Approach Towards Sustainable Development

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**Abstract:** Artificial Intelligence (AI) is increasingly transforming how governments design, manage, and deliver public services, with expanding applications across healthcare, taxation, and social protection systems. In African contexts, the rapid growth of digital infrastructure and e-government platforms has created new opportunities for AI-driven governance. However, progress remains uneven and is frequently constrained by institutional weaknesses, limited regulatory capacity, and gaps in data governance frameworks. This paper introduces the Artificial Intelligence Governance Readiness Index (AGRI), a multidimensional framework designed to assess national preparedness for the responsible and effective adoption of AI in public administration. The index integrates key dimensions including digital infrastructure, e-government maturity, data capability, policy frameworks, institutional capacity, and data governance. By linking technological readiness with institutional and regulatory conditions, the AGRI provides a comprehensive tool for evaluating AI governance ecosystems. The paper argues that without coordinated development across these interdependent domains, AI adoption risks reinforcing existing inequalities, undermining accountability, and limiting inclusive development outcomes. Conversely, strengthening governance readiness can support more transparent, efficient, and equitable public sector transformation. The study contributes to emerging debates on AI governance and sustainable development by offering a structured framework for assessing how countries can harness AI to advance inclusive, accountable governance systems.

**Keywords:** Artificial Intelligence, Administration, Governance, Index, Public Services

## Introduction

Artificial Intelligence (AI) is increasingly influencing the transformation of public governance systems, offering new pathways to improve efficiency, policy targeting, and service delivery across sectors such as healthcare, taxation, and social protection (Wirtz et al., 2019; Sun & Medaglia, 2019; Anshari et al., 2025). In many African countries, the expansion of digital infrastructure, particularly mobile technologies and digital identification systems, has created an enabling environment for the gradual integration of AI into public administration (Aiken et al., 2022; Foster et al., 2018; Plantinga 2024). These developments present an opportunity to address persistent governance challenges, including administrative inefficiencies, weak service delivery systems, and limited policy responsiveness (Berryhill et al., 2020; OECD, 2020; Plantinga 2024). At the same time, the adoption of AI in governance raises complex institutional and ethical concerns that extend beyond technological capability (Cath 2018; Taeihagh 2021). Existing research demonstrates that algorithmic systems may reproduce or amplify social inequalities when trained on incomplete or biased datasets, particularly in contexts characterised by structural exclusion (Eubanks, 2018; Kitchin, 2019; Mhlanga, 2026). This challenge is especially relevant in African settings, where significant

portions of the population remain outside formal data systems, increasing the risk that AI-enabled governance may exclude vulnerable groups from public services (World Bank, 2023; Mhlanga, 2026). In addition, the growing reliance on data-intensive technologies raises concerns regarding privacy, surveillance, and the adequacy of regulatory frameworks to safeguard citizens' rights (UNESCO, 2022; Zuboff, 2019; Mhlanga, 2026).

Further challenges relate to institutional capacity and technological dependency because the development and deployment of advanced AI systems are often dominated by external actors, which may limit domestic control over critical governance technologies and constrain policy autonomy (Couldry & Mejias, 2019; UNCTAD, 2021). Moreover, effective AI adoption requires skilled human capital, organisational readiness, and coherent policy frameworks, without which digital transformation efforts risk fragmentation and ineffectiveness (Wirtz et al., 2019; OECD, 2024; Plantinga 2024). As highlighted in this study, AI governance readiness is not determined solely by technology but by the interaction among infrastructure, institutional capacity, regulatory systems, and data governance mechanisms operating in an integrated manner. Despite growing interest in leveraging AI for public-sector transformation, there remains limited conceptual clarity on how to assess African countries' readiness to adopt and govern these technologies effectively (Janowski, 2015; Erkut, 2020). Existing studies tend to examine isolated components such as digital infrastructure or e-government development, often neglecting the broader governance ecosystem required for responsible AI deployment (Janowski, 2015; Erkut, 2020; Omweri, 2024). This creates a gap in understanding how technological adoption can be aligned with institutional capacity, regulatory preparedness, and socio-economic inclusion.

This paper addresses this gap by arguing that the absence of an integrated framework for AI governance readiness risks fragmented, potentially exclusionary implementation of AI systems in African public administration. Without a comprehensive approach, AI adoption may reinforce existing inequalities, weaken accountability mechanisms, and increase dependency on external technological systems rather than strengthening governance outcomes (Eubanks, 2018; Couldry & Mejias, 2019). Therefore, this perspective paper seeks to advance a more holistic understanding of AI governance readiness by linking technological capability with institutional and regulatory capacity, thereby contributing to the emerging discourse on responsible and inclusive digital governance in Africa.

## Methodology

### Research Design

This study adopts a qualitative conceptual research design supported by a structured literature review and comparative analysis to develop the Artificial Intelligence Governance Readiness Index (AGRI). Conceptual research is appropriate where the objective is to synthesise fragmented knowledge, integrate theoretical perspectives, and develop new analytical frameworks rather than test causal relationships using primary empirical data. Such an approach enables researchers to generate novel conceptual contributions by systematically organising and interpreting existing knowledge (Jaakkola, 2020; Defossé & Mullier 2019). Accordingly, the AGRI proposed in this study is presented as a multidimensional conceptual framework for assessing countries' readiness to adopt AI in public administration rather than as a statistically estimated index. The study integrates evidence from the literature on AI governance, digital government, public administration, institutional theory, digital transformation, and sustainable development in Africa. The conceptual framework was informed by contemporary policy guidance from international organisations, including the OECD Digital Government Index (OECD, 2024), UNESCO's guidance on AI governance (UNESCO, 2023), and the World Bank's GovTech Maturity Index (World Bank, 2024), which collectively emphasise that successful AI adoption depends upon technological infrastructure, institutional capacity, regulatory governance, human capital, and trustworthy data ecosystems.

### Literature Search Strategy

A structured literature review was undertaken following established guidance for evidence synthesis (Defossé & Mullier 2019). Booth et al., 2021). Structured literature reviews improve transparency, reduce selection bias, and facilitate the systematic identification of relevant evidence while supporting conceptual framework development (Booth et al., 2021). Literature searches were conducted across major academic databases, including Scopus, Web of Science, ScienceDirect, SpringerLink, Taylor & Francis Online, Emerald Insight, IEEE Xplore, and Google Scholar. These databases were selected because they index high-quality multidisciplinary research covering public administration, artificial intelligence, information systems, computer science, economics, development studies, and governance. Searches employed combinations of keywords, including Artificial Intelligence governance;AI readiness; AI governance; Digital government; E-government; Public administration; Digital transformation; Institutional capacity; Data governance; Sustainable development; Africa. Boolean operators (AND, OR) were used to combine

search terms and maximise retrieval. The review primarily focused on literature published between 2015 and 2025, capturing the rapid evolution of AI governance in response to advances in machine learning, digital government, and generative AI technologies.

**Study Selection and Sample**

The database search initially identified approximately 243 publications. After removing duplicate records and screening titles, abstracts, and full texts against predefined inclusion criteria, 54 publications were retained for detailed review. The final sample is outlined in the flow diagram below.

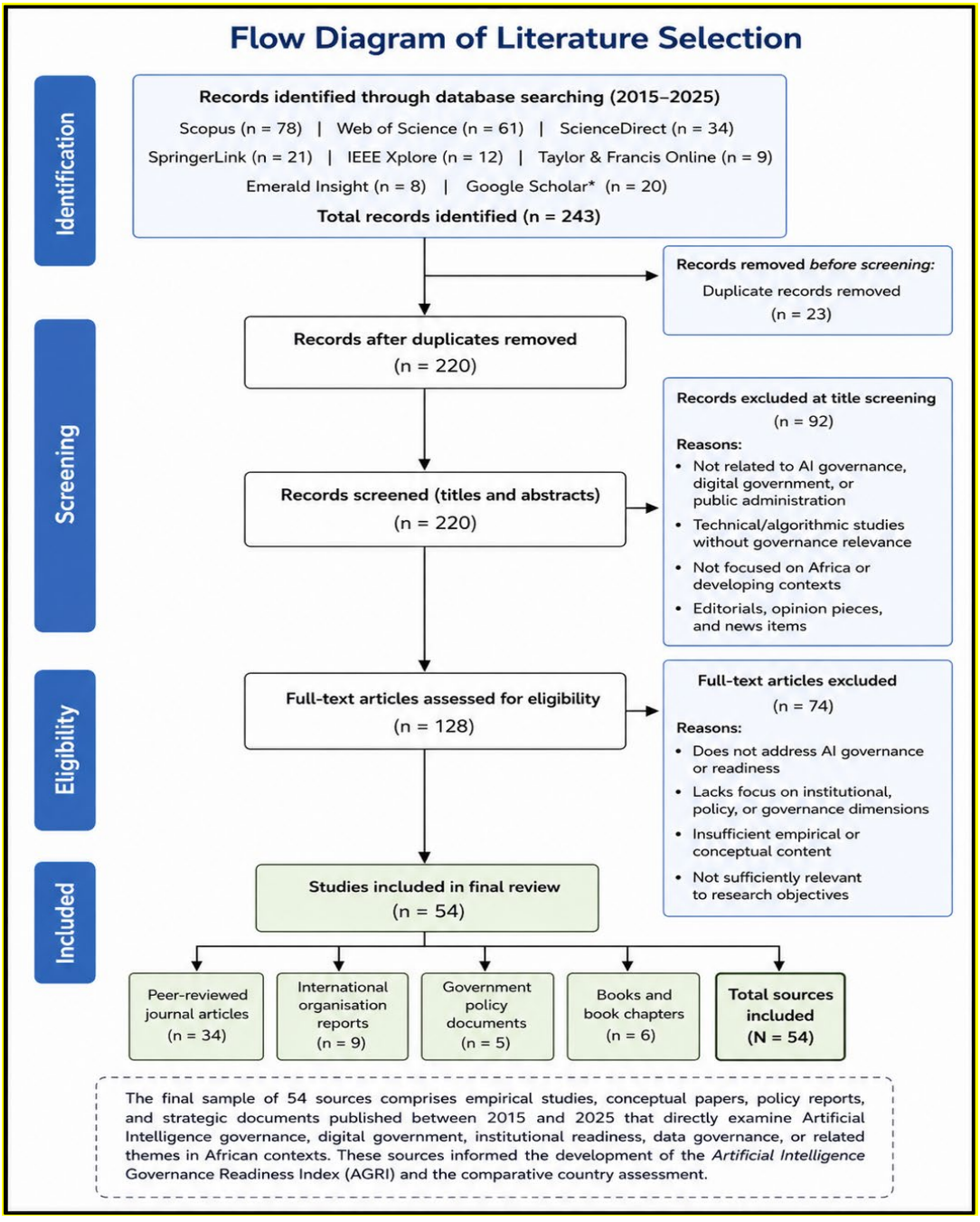



Figure 1: Flow Diagram of Literature Selection

The flow diagram illustrates the systematic process for identifying, screening, assessing, and selecting the literature included in this study. It summarises the number of records identified through database searches, the removal of duplicate records, the screening of titles and abstracts, the assessment of full-text articles for eligibility, and the final inclusion of 54 sources. The selected publications comprised peer-reviewed journal articles, international organisation reports, government policy documents, and books/book chapters, which collectively informed the development of the Artificial Intelligence Governance AGRI) and the comparative analysis of AI governance readiness across selected African countries.

Studies were included if they examined AI governance; investigated digital government or public administration; discussed institutional readiness; analysed digital infrastructure; explored AI ethics or data governance; or examined sustainable development, particularly within African contexts. Publications focusing exclusively on technical algorithm development without governance implications, conference abstracts lacking methodological detail, duplicate publications, and non-scholarly opinion pieces were excluded. The final sample size was considered appropriate because conceptual saturation was achieved, whereby additional publications produced limited new insights beyond the governance dimensions identified. This approach is consistent with the conceptual review methodology, in which the objective is theoretical completeness rather than statistical representativeness (Jaakkola, 2020; Defossé & Mullier 2019).

**Data Extraction and Thematic Analysis**

Information extracted from each publication included study objectives, methodology, governance dimensions examined, principal findings, and policy implications. Data were organised using a structured evidence matrix and analysed through thematic synthesis (Thomas & Harden, 2008), enabling recurring concepts to be grouped into broader analytical categories. Six recurring governance dimensions consistently emerged across the reviewed literature: Digital Infrastructure; E-Government Capacity; Data Capability; AI Policy and Strategy; Institutional Capacity; and Data Governance. These six dimensions subsequently formed the conceptual foundation of the Artificial Intelligence Governance Readiness Index (AGRI). The thematic synthesis also informed the comparative assessment of selected African countries by identifying observable indicators associated with AI governance readiness.

**Comparative Country Selection**

Nine African countries, Rwanda, Kenya, South Africa, Ghana, Nigeria, Ethiopia, Egypt, Morocco, and Senegal, were purposively selected because they represent diverse regional contexts, varying levels of digital infrastructure, institutional development, and AI policy maturity. Purposeful sampling is widely used in qualitative research to ensure that selected cases provide information-rich examples that illustrate variation within the phenomenon under investigation (Patton, 2014). Country assessments were informed by multiple authoritative sources, including reports published by the OECD (2024), UNESCO (2023), the World Bank (2024), the International Telecommunication Union (2024), the African Development Bank, and relevant national digital transformation strategies. Using multiple independent sources strengthened the reliability of the comparative assessment while reducing dependence on any single institutional perspective.

**Ensuring Rigour and Mitigating Internal Bias**

Because this study relies exclusively on secondary evidence, several strategies were implemented to minimise internal bias and enhance the credibility of the findings. First, data triangulation was employed by integrating evidence from peer-reviewed journal articles, international organisation reports, government policy documents, and scholarly books. Triangulating multiple sources reduces publication bias and improves the robustness of conceptual synthesis (Patton, 2014). Second, source triangulation enabled cross-validation of governance assessments using independent evidence from the OECD, UNESCO, the World Bank, the International Telecommunication Union, and the African Development Bank. This reduced institutional bias and improved confidence in the consistency of the findings. Third, contradictory evidence was deliberately retained and critically examined rather than excluded. Considering competing perspectives reduced confirmation bias and allowed the study to present a balanced interpretation of AI governance readiness across different African contexts. Fourth, transparent inclusion and exclusion criteria were consistently applied throughout the literature review, thereby limiting researcher selection bias and improving methodological transparency (Booth et al., 2021). Finally, the AGRI is explicitly presented as a conceptual assessment framework rather than a predictive quantitative model. Consequently, country classifications are intended to facilitate comparative policy analysis rather than produce definitive numerical rankings. This interpretive approach enhances the

trustworthiness, credibility, dependability, and transferability of the findings, which are recognised criteria for ensuring rigour in qualitative research (Lincoln & Guba, 1985).

**Methodological Limitations**

Several methodological limitations should be acknowledged. First, the study relies exclusively on secondary evidence and is therefore dependent on the quality, availability, and reporting standards of existing publications. Second, differences in institutional reporting across African countries may influence the comparability of governance indicators. Third, although equal weighting was assigned to each AGRI dimension to reflect their interdependent contribution to AI governance readiness, this weighting remains theoretically rather than empirically derived. Future studies should validate the AGRI using quantitative methods such as factor analysis, structural equation modelling, or multi-criteria decision analysis to determine the relative contribution of each governance dimension. In addition, longitudinal analyses could evaluate how AI governance readiness evolves over time as African countries continue to invest in digital transformation and AI policy development.

**Risks and Governance Challenges of Artificial Intelligence Adoption**

While Artificial Intelligence offers substantial opportunities to improve governance and public service delivery, its adoption in African public institutions introduces complex institutional, ethical, and developmental risks. One of the most significant concerns is algorithmic bias embedded in AI systems trained on incomplete or historically uneven datasets (Ntoutsi et al. 2020; Nishant et al.2024). As Barocas, Hardt, and Narayanan (2019) demonstrate, algorithmic decision-making systems frequently reproduce existing social inequalities when underlying data reflects structural exclusion. In African contexts, where large segments of the population operate within informal economies or remain digitally undocumented, AI-driven governance systems risk excluding precisely those citizens most dependent on public services (UNESCO, 2022; World Bank, 2023). Consequently, automated welfare allocation, taxation monitoring, or predictive policing systems may unintentionally reinforce inequality rather than reduce it.

Data governance and privacy protection pose an additional challenge because effective AI systems depend on extensive data collection across health, financial, mobility, and demographic domains, raising legitimate concerns about surveillance and the misuse of personal information (Ntoutsi et al. 2020; Nishant et al.2024; Mhlanga 2026). Many African countries are still developing comprehensive data protection frameworks, creating regulatory gaps that may expose citizens to excessive state or commercial monitoring (Ntoutsi et al. 2020; Nishant et al.2024; UNESCO, 2022). Scholars such as Zuboff (2019) warn that data-driven governance can evolve into forms of "surveillance administration" if transparency and accountability mechanisms remain weak. The expansion of digital identification and biometric systems across Africa, therefore, necessitates clear legal safeguards governing data ownership, consent, and institutional accountability (Zuboff, 2019; Ntoutsi et al. 2020; Nishant et al.2024; UNESCO, 2022).

A further governance risk arises from technological dependency and limited domestic capacity to design or audit complex AI systems. Much of the advanced AI infrastructure deployed globally is developed by multinational technology firms headquartered outside Africa, raising concerns about digital sovereignty and long-term policy autonomy (Couldry & Mejias, 2019; UNCTAD, 2021). Where governments lack the technical expertise to interpret algorithmic outputs, decision-making authority may shift from public institutions to proprietary technological systems (Couldry & Mejias, 2019; UNCTAD, 2021). This dependency risks constraining national policy flexibility and reinforcing asymmetric technological relationships between Africa and advanced digital economies (Couldry & Mejias, 2019; UNCTAD, 2021). Institutional readiness also remains uneven across the continent. Successful AI adoption requires skilled public servants who can manage digital systems, interpret analytical outputs, and exercise informed oversight. Without adequate investment in human capital and organisational reform, technological adoption may produce fragmented digital initiatives rather than systemic governance transformation (OECD, 2024; Ntoutsi et al. 2020; Nishant et al.2024; UNESCO, 2022). Moreover, public trust represents a critical yet often overlooked factor; citizens may resist AI-enabled governance where decision-making processes appear opaque or unaccountable. Building legitimacy, therefore, requires participatory governance models that incorporate transparency, explainability, and accessible grievance mechanisms. Ultimately, the governance challenge facing African states is not whether Artificial Intelligence should be adopted, but how it can be integrated responsibly to enhance public value while safeguarding democratic accountability (Ntoutsi et al. 2020; Nishant et al.2024; UNESCO, 2022; Mhlanga 2026). Managing risks associated with bias, surveillance, dependency, and institutional capacity will determine whether AI strengthens governance systems or generates new forms of exclusion within digitally mediated public administration. Given the increasing integration of Artificial Intelligence into public administration, Table 1 identifies key governance risks associated with AI adoption and corresponding mitigation strategies.

**Table 1: Risks of AI Adoption in Governance**

| Risk Category | Description | Governance Threat | Mitigation Strategy |
|---|---|---|---|
| Algorithmic bias | Unequal datasets | Social exclusion | Inclusive data |
| Privacy risks | Mass data collection | Surveillance governance | Data protection laws |
| Technological dependency | Foreign AI systems | Loss of sovereignty | Local capacity building |
| Institutional readiness | Skills shortage | Implementation failure | Public sector training |

Source: Author's Analysis

Table 1. Risks of AI Adoption in Governance. This table identifies the principal institutional, ethical, and developmental risks associated with the adoption of Artificial Intelligence in public governance systems. It categorises risks related to algorithmic bias, privacy concerns, technological dependency, and institutional readiness, and outlines potential mitigation strategies. The table reinforces the argument that responsible AI governance requires regulatory safeguards, human oversight, and inclusive data practices to prevent digital transformation from reinforcing existing inequalities.

**Policy Framework for Responsible AI Governance in Africa**

To translate the study's conceptual and empirical insights into actionable policy guidance, Table 2 proposes a multidimensional governance framework for the responsible deployment of Artificial Intelligence in African public administration. The framework highlights the interconnected roles of governments, regulatory authorities, academic institutions, and private-sector actors in establishing ethical standards, strengthening institutional readiness, promoting locally grounded innovation, and ensuring that AI-enabled governance advances inclusive socio-economic development outcomes.

**Table 2: Proposes a policy-oriented framework for the responsible integration of Artificial Intelligence into governance systems across Africa**

| Policy Dimension | Required Action | Responsible Actor |
|---|---|---|
| Digital infrastructure | Expand broadband & electricity | Governments |
| Regulation | AI ethics frameworks | Regulators |
| Human capital | AI skills training | Universities |
| Innovation | Local AI ecosystems | Public–private partnerships |
| Governance | Transparency mechanisms | State institutions |

Source: Author's Analysis

Table 2 proposes a policy-oriented framework for the responsible integration of Artificial Intelligence into governance systems across Africa. The table outlines key policy dimensions, required interventions, and responsible institutional actors necessary for sustainable implementation. It serves as a strategic roadmap linking technological innovation with institutional development, regulatory governance, and human capital investment required to support inclusive digital transformation. The integrated governance framework outlined in Table 8, therefore, provides a practical foundation for translating Artificial Intelligence adoption into sustainable public-sector transformation, informing the concluding reflections on the policy priorities required to advance accountable, efficient, and citizen-centred governance across African states.

**Comparative Country Analysis**

To understand the variation in Artificial Intelligence (AI) governance readiness across Africa, this study conducts a comparative analysis of selected African countries that have initiated digital governance reforms or AI-related policy initiatives. The selected countries include Rwanda, Kenya, South Africa, Ghana, Nigeria, Ethiopia, Egypt, Morocco, and Senegal. These countries represent diverse regional contexts, levels of digital infrastructure development, institutional capacity, and policy maturity, making them well-suited to examining differences in AI adoption across

public administration systems. The selection of these countries reflects both leaders and emerging adopters of digital governance across the African continent. Countries such as Rwanda, Kenya, South Africa, and Egypt have made significant progress in digital government initiatives, including the development of national digital identity systems, e-government platforms, and early-stage Artificial Intelligence strategies. Rwanda, for example, has implemented extensive digital governance reforms through integrated online public service platforms, while Kenya's mobile financial ecosystem and digital identity initiatives have built a strong data infrastructure to support AI-enabled public services. Similarly, South Africa possesses a relatively advanced information and communication technology (ICT) infrastructure and strong research institutions that support AI innovation within public administration.

Other countries included in the analysis represent emerging digital governance environments where governments are progressively building foundational infrastructure for AI adoption. Ghana and Nigeria have expanded their national digital identification systems and e-government platforms, enabling improved administrative coordination and service delivery. Ethiopia and Senegal are currently implementing digital governance reforms to improve public sector efficiency, including expanding national digital identity programmes and digital public services. Morocco has also undertaken major digital transformation initiatives through its national digital development strategy, focusing on expanding connectivity and promoting digital innovation across public institutions.

These countries were selected because they collectively illustrate the heterogeneity of digital governance development across Africa. While some countries have already implemented advanced digital government systems and begun exploring AI policy frameworks, others remain in the early stages of expanding digital infrastructure and reforming institutions. This variation provides an opportunity to examine how differences in digital infrastructure, policy development, institutional capacity, and regulatory frameworks influence national readiness for AI-enabled governance. The comparative approach adopted in this study, therefore, enables a systematic evaluation of how Artificial Intelligence governance capacity varies across African states. By examining these countries through the dimensions of digital infrastructure, e-government development, institutional capacity, national AI strategies, and data governance frameworks, the analysis highlights the structural conditions necessary for successful AI adoption within public administration systems. The following table summarises the comparative readiness of the selected countries across key dimensions of AI governance capacity and the AI Governance Readiness Index.

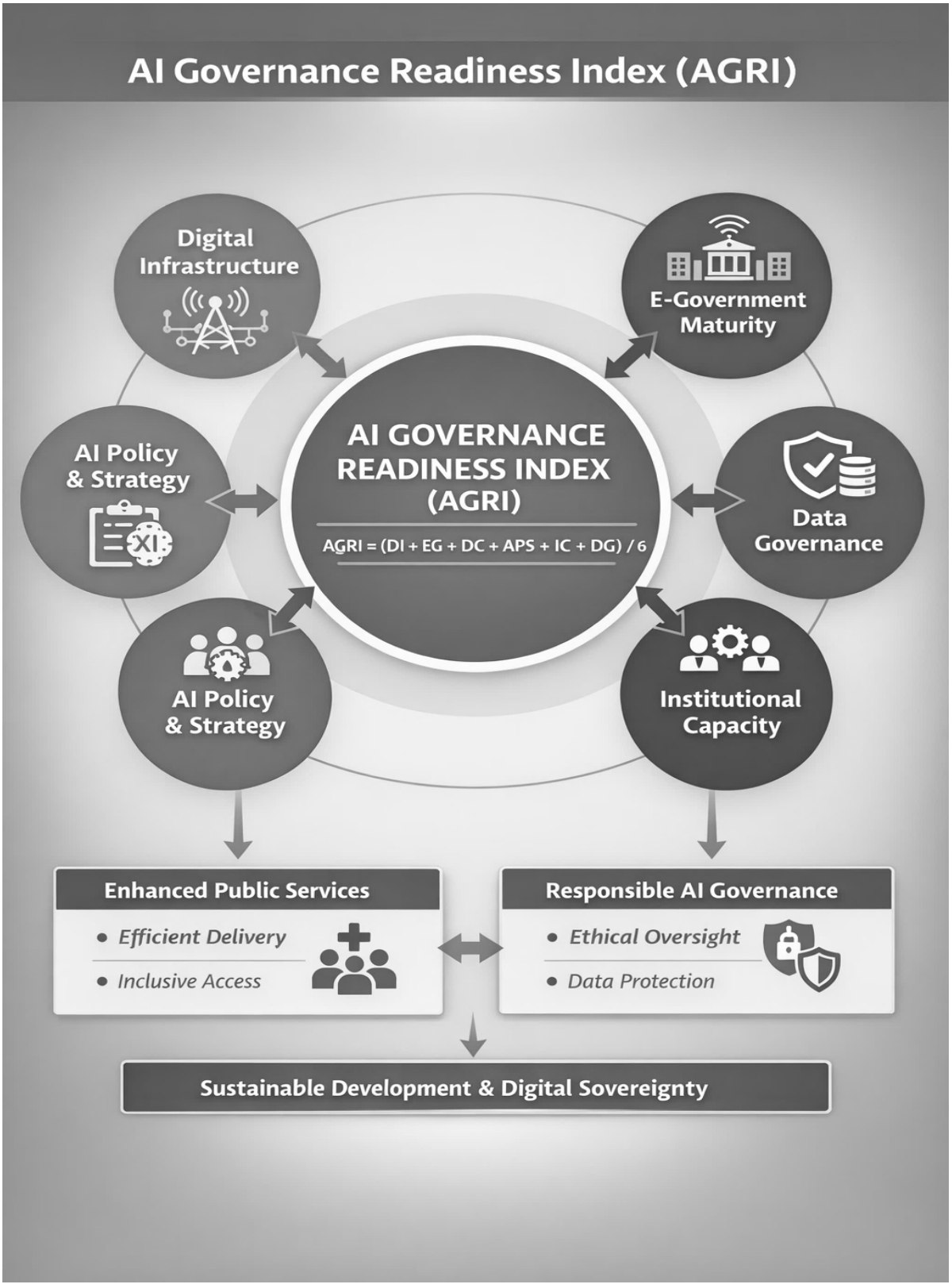
**AI Governance Readiness Index**

The AI Governance Readiness Index (AGRI) is defined as:

$$AGRI = \frac{DI + EG + DC + APS + IC + DG}{6}$$

AGRI Components
DI – Digital Infrastructure
EG – E-Government Capacity
DC – Data Capability
APS – AI Policy and Strategy
IC – Institutional Capacity
DG – Data Governance

Where each component is normalised on a scale from 0 to 1. Equal weighting is applied to reflect the interdependent nature of digital infrastructure, institutional capacity, and regulatory systems in enabling AI adoption (Wirtz et al., 2019; Berryhill et al., 2019). In this study, the index is used as a conceptual framework to compare governance readiness across countries rather than as a fully econometric measure.




**Source: Author's Analysis**

To assess variations in African countries' capacity to adopt Artificial Intelligence within public administration, this study proposes an Artificial Intelligence Governance Readiness Index (AGRI). The index provides a conceptual framework for evaluating the institutional, technological, and regulatory conditions required for effective AI-enabled governance. The AGRI aggregates six core dimensions of digital governance preparedness: digital infrastructure ($DI$), e-government maturity ($EG$), data capacity ($DC$), national AI strategy development ($AI$), institutional capacity ($IC$), and data governance and regulatory frameworks ($DG$). Each dimension reflects a critical component of the broader digital governance ecosystem necessary for the successful deployment of AI technologies within public sector institutions.

The first component, digital infrastructure ($DI$), refers to the availability and reliability of foundational technological systems such as broadband connectivity, data centres, cloud computing infrastructure, and electricity supply. Robust digital infrastructure enables governments to collect, store, and process large volumes of administrative data required for AI analytics (ITU, 2023; Adenuga et al.2024; Androutsopoulou et al. 2025). In many African countries, uneven connectivity and energy supply continue to constrain the large-scale deployment of data-intensive technologies, making infrastructure investment a critical prerequisite for AI-enabled governance (ITU, 2023; Adenuga et al.2024; Androutsopoulou et al. 2025).

The second dimension, e-government maturity ($EG$), captures the extent to which public services are digitally integrated across government institutions. E-government systems enable citizens to access public services online, generating valuable administrative data that can support predictive analytics and automated service delivery (Engin & Treleaven 2019; OECD, 2020; Al-Mushayt 2019). Countries with more advanced digital government platforms often possess stronger foundations for AI adoption because administrative datasets are already digitised and interconnected. The third component, data capacity ($DC$), refers to the ability of governments to collect, manage, and analyse large-scale datasets. Data capacity includes national statistical systems, digital identification programmes, open data initiatives, and data interoperability frameworks across ministries and agencies. High-quality datasets are essential for training machine learning models used in welfare targeting, healthcare planning, taxation systems, and urban governance (Kitchin, 2019, Mhlanga 2026).

The fourth dimension, national AI policy frameworks ($AI$), evaluates whether governments have developed strategic policies guiding the adoption and regulation of Artificial Intelligence technologies. National AI strategies typically outline governance principles, research priorities, ethical guidelines, and institutional responsibilities associated with AI deployment (UNESCO, 2022; Gianni et al. 2022). Such strategies help ensure that technological adoption aligns with national development priorities and regulatory standards. The fifth dimension, institutional capacity ($IC$), reflects the ability of public institutions to manage digital governance systems effectively. Institutional capacity includes the availability of technical expertise within government agencies, organisational coordination mechanisms, and administrative procedures that enable the integration of AI analytics into policymaking processes. Without adequate institutional capacity, governments may struggle to interpret algorithmic outputs or regulate AI systems responsibly (Wirtz, Weyerer, & Geyer, 2019, Mhlanga 2026).

Finally, data governance and regulatory frameworks ($DG$) refer to the legal and ethical safeguards governing the collection, processing, and use of digital data. Data protection laws, privacy regulations, and algorithmic accountability mechanisms are essential to ensuring that AI systems operate transparently and respect citizens' rights (UNESCO, 2022; Gianni et al. 2022; Wirtz, Weyerer, & Geyer, 2019, Mhlanga 2026). Weak regulatory frameworks may expose governments to risks associated with data misuse, surveillance practices, and algorithmic bias. By aggregating these six dimensions, the AI Governance Readiness Index provides a conceptual measure of a country's preparedness to integrate Artificial Intelligence into public administration systems. Higher AGRI values indicate stronger digital governance ecosystems capable of supporting advanced AI applications in welfare targeting healthcare management, taxation systems, and smart city governance. Conversely, lower index values reflect structural constraints such as weak infrastructure, limited institutional capacity, or underdeveloped regulatory frameworks. In the context of this study, the AGRI framework supports the comparative assessment of AI governance readiness across selected African countries, enabling systematic analysis of differences in digital infrastructure, institutional capacity, and regulatory preparedness. This approach highlights that successful AI adoption depends not only on technological availability but also on coordinated progress across governance institutions, policy frameworks, and digital ecosystems. Consequently, strengthening AI governance readiness requires integrated policy interventions that simultaneously address infrastructure development, institutional capability, regulatory oversight, and human capital formation.

The comparative assessment presented in Table 9 is based on a structured qualitative evaluation of Artificial Intelligence (AI) governance readiness across selected African countries, guided by the conceptual dimensions of the Artificial Intelligence Governance Readiness Index (AGRI). The analysis draws on secondary data sources, including international policy reports and existing literature on digital governance and AI adoption (OECD, 2020; World Bank, 2023; UNESCO, 2022). Each country is assessed across six core dimensions—digital infrastructure, e-government capacity, data capability, AI policy and strategy, institutional capacity, and data governance, using observable indicators such as the presence of digital identification systems, the maturity of e-government platforms, and the development of regulatory frameworks (Wirtz et al., 2019; Gianni et al., 2022). To ensure consistency, countries are categorised into overall readiness levels (High, Moderate–High, Moderate, and Emerging) based on their relative performance across these dimensions. These classifications reflect comparative judgement rather than precise numerical aggregation, recognising data limitations and variation across African contexts (Janowski, 2015; Erkut, 2020).

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**Table 3. Comparative Readiness for AI Governance in Selected African Countries**

| Country | Digital Identification System Coverage | E-Government Development Level | Digital Infrastructure Readiness | AI Policy / National Strategy | Institutional Capacity | Data Governance & Regulation | Public Sector AI Adoption Areas | Key Governance Strength | Major Constraint | Overall, AI Governance Readiness |
|---|---|---|---|---|---|---|---|---|---|---|
| **Rwanda** | High national biometric ID coverage integrated with public services | Advanced | Strong broadband expansion and national fibre backbone | National AI and Digital Transformation Strategy | Strong centralised governance coordination | Emerging data protection frameworks | Smart governance, digital services, health analytics | Strong political commitment to digital governance | Limited domestic AI research base | **High** |
| **Kenya** | High coverage through Huduma Namba & mobile identity ecosystems | Advanced | Extensive mobile penetration and fintech ecosystem | Draft AI Strategy under development | Moderate–High institutional innovation capacity | Improving data protection legislation | Digital payments, taxation, welfare delivery | Strong private-sector innovation ecosystem | Regulatory fragmentation | **High–Moderate** |
| **South Africa** | Moderate digital ID integration | Advanced | Well-developed ICT infrastructure | AI policy discussions underway | Strong technical expertise and universities | Established POPIA data protection law | Revenue administration, smart cities, healthcare analytics | Advanced research institutions | Inequality and digital divide | **Moderate–High** |
| **Ghana** | Expanding Ghana Card national ID system | Moderate–Advanced | Improving connectivity infrastructure | Digitalisation and AI initiatives emerging | Growing institutional capability | Developing regulatory environment | Public administration digitisation, tax systems | Rapid digital public sector reform | Infrastructure gaps outside cities | **Moderate** |
| **Nigeria** | Expanding National Identity Number system | Moderate | Large mobile ecosystem but uneven connectivity | Emerging national AI discussions | Institutional fragmentation across agencies | Weak enforcement capacity | Welfare targeting, financial monitoring | Large digital economy | Governance coordination challenges | **Moderate** |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Ethiopia** | Growing Fayda digital ID programme | Emerging | Improving telecom infrastructure | Early-stage AI policy exploration | Developing institutional capability | Limited regulatory maturity | Agriculture analytics, public administration | Strong state-led reform initiatives | Connectivity limitations | **Emerging** |
| **Egypt** | High digital government investment | Advanced | Strong urban digital infrastructure | National AI Strategy adopted (2019) | Strong technical and administrative capacity | Developing AI governance frameworks | Smart cities, healthcare, security systems | Government-led AI investment | Rural digital inequality | **High** |
| **Morocco** | Expanding digital identity initiatives | Moderate–Advanced | Strong urban connectivity | National Digital Development Strategy | Growing institutional readiness | Strengthening cybersecurity regulation | Urban governance, taxation, logistics | Regional digital leadership | Skills shortages | **Moderate–High** |
| **Senegal** | Expanding digital governance reforms | Moderate | Improving infrastructure | Digital Senegal Strategy | Moderate institutional readiness | Emerging legal frameworks | E-government services | Strong regional digital ambition | Financing constraints | **Moderate** |

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This table provides a comparative assessment of Artificial Intelligence (AI) governance readiness across selected African countries, examining the institutional, technological, and regulatory dimensions necessary for effective AI adoption in public administration. The comparison incorporates indicators including digital identification coverage, e-government maturity, digital infrastructure development, national AI policy frameworks, institutional capacity, and data governance preparedness. The analysis demonstrates substantial heterogeneity in AI readiness across the continent. Countries such as Rwanda, Kenya, Egypt, and South Africa exhibit relatively advanced readiness due to sustained investments in digital public infrastructure, strong political commitment to digital transformation, and expanding regulatory frameworks governing data protection and electronic governance. In contrast, emerging adopters, including Ethiopia and Senegal, are progressing through foundational stages characterised by infrastructure expansion and early institutional reforms. Importantly, the table highlights that AI governance readiness extends beyond technological availability.

Effective adoption depends on coordinated institutional capacity, regulatory oversight mechanisms, domestic technical expertise, and inclusive digital ecosystems that integrate informal populations into data-driven governance systems (Gianni, R., Lehtinen, S., & Nieminen, 2022; Mhlanga, 2025, Mhlanga, 2026). Persistent constraints, including digital inequality, fragmented governance structures, and limited human capital, continue to shape national adoption trajectories. The comparative framework underscores that successful AI-enabled governance in Africa requires balanced progress across infrastructure development, policy formulation, institutional strengthening, and socio-economic inclusion rather than isolated technological implementation. The following table groups the core themes identified in the literature, providing a structured overview of the critical dimensions required for a robust AI Governance Readiness Index (AGRI).

**Table 4: Thematic Grouping of AI Governance Literature**

| Theme | Core Concept | Key Focus Areas | Supporting References |
|---|---|---|---|
| Institutional & Strategic Readiness | The Top-Down framework is essential for transitioning from traditional e-government to AI-driven governance. | National AI roadmaps, regulatory flexibility, and political leadership for digital transformation. | Wirtz et al. (2019); Taeihagh (2021); United Nations (2022) |
| Ethical & Algorithmic Governance | Managing the risks of automated injustice and ensuring public trust. | Bias mitigation, transparency (explainability), and maintaining human-in-the-loop oversight. | Nishant et al. (2024); Sun & Medaglia (2019); UNESCO (2022) |
| Data Infrastructure & Sovereignty | The technical and legal fuel required to power AI systems at the national level. | Open Government Data (OGD), cross-border data flows, and localised data storage/privacy. | Androutsopoulou et al. (2025); Plantinga (2024); UNCTAD (2021) |
| Human Capital & Social Inclusion | Ensuring the workforce can manage AI and that the benefits reach the entire population. | Public sector upskilling, bridging the urban-rural digital divide, and inclusive service delivery. | Anshari et al. (2025); Omweri (2024); Adenuga et al. (2024) |

**Source: Author's Analysis**

As shown in Table 4, the intersection of these themes suggests that for an African-centred index, the weight should shift toward Infrastructure and Human Capital. While Western frameworks often prioritise ethics, current research indicates that without the basic building blocks of high-quality data and a digitally literate civil service, ethical frameworks remain theoretical rather than functional (Omweri, 2024; Plantinga, 2024). This is further supported by the assertion that the formal rationality of AI systems cannot be safely integrated into public policy without addressing the underlying institutional capacity and rural-urban digital divides (Nishant et al., 2024; Omweri, 2024). Consequently, for the Global South, the scalability of AI-driven enterprise transformation remains contingent on secure, scalable data infrastructure (Adenuga et al., 2024).

**Artificial Intelligence Governance Readiness as a Driver of Sustainable Development**

The findings of this study demonstrate that Artificial Intelligence (AI) governance readiness extends beyond technological preparedness and constitutes a critical determinant of sustainable development in African public administration. Contemporary scholarship increasingly recognises that the successful adoption of AI depends not

only on technological innovation but also on the interaction of institutional, regulatory, and governance capacities (Wirtz et al., 2019). Similarly, the OECD (2024) argues that digital transformation initiatives generate sustainable public value only when supported by effective governance structures, institutional coordination, and regulatory oversight. The Artificial Intelligence Governance Readiness Index (AGRI) developed in this study reflects this multidimensional perspective by integrating digital infrastructure, e-government capacity, data capability, AI policy frameworks, institutional capacity, and data governance into a unified analytical framework.

The comparative assessment further demonstrates that AI governance readiness varies considerably across African countries owing to differences in institutional development, digital infrastructure, and policy maturity. Rwanda and Egypt, for example, exhibit relatively higher levels of readiness because of sustained investment in digital public infrastructure, national digital transformation programmes, and government-led AI initiatives. UNESCO (2023) notes that countries with coherent national AI strategies are generally better positioned to integrate AI responsibly into public administration while safeguarding transparency and accountability. Similarly, the World Bank (2025) emphasises that investments in GovTech and digital public infrastructure strengthen governments' ability to improve service delivery and enhance citizen engagement. These observations are consistent with the findings of the present study, which indicate that countries with stronger institutional ecosystems are more capable of deploying AI across healthcare, taxation, education, agriculture, and social protection systems.

Conversely, the findings reveal that countries exhibiting lower AI governance readiness continue to face significant structural constraints that may hinder sustainable development. Limited broadband infrastructure, fragmented regulatory systems, shortages of skilled personnel, and underdeveloped data governance frameworks constrain governments' capacity to implement AI effectively. According to the International Telecommunication Union (2024), persistent digital infrastructure deficits remain one of the principal barriers to digital transformation across many developing economies. Likewise, Omweri (2024) argues that institutional weaknesses and disparities between urban and rural digital development continue to impede the implementation of e-government initiatives in many African countries. These challenges suggest that technological adoption alone is insufficient to generate meaningful governance transformation unless accompanied by institutional reforms and investments in human capital.

The study also demonstrates that AI governance readiness has important implications for the achievement of the Sustainable Development Goals (SDGs). Strengthening digital infrastructure enhances innovation capacity and supports SDG 9 (Industry, Innovation and Infrastructure) by expanding access to digital technologies and improving public-sector efficiency. Improvements in institutional capacity, regulatory quality, and transparent governance contribute directly to SDG 16 (Peace, Justice and Strong Institutions) by promoting accountability, reducing administrative inefficiencies, and strengthening public trust in government institutions (OECD, 2024). Furthermore, responsible AI applications in healthcare planning, educational management, agricultural advisory services, and social protection programmes have the potential to contribute to SDGs 3 (Good Health and Well-being), 4 (Quality Education), 2 (Zero Hunger), and 1 (No Poverty) through improved resource allocation, evidence-based policymaking, and more targeted public service delivery (UNESCO, 2023; Gwagwa & Mollema 2024).

An important contribution of the AGRI is that it demonstrates the interconnected nature of AI governance. Rather than treating digital infrastructure, institutional capacity, and regulatory frameworks as independent variables, the framework conceptualises them as mutually reinforcing components of an integrated governance ecosystem. This systems perspective aligns with Janowski's (2015) argument that digital government evolves through progressive institutional transformation rather than isolated technological investments. Similarly, Gianni et al. (2022) contend that responsible AI governance requires coordinated ethical, legal, and organisational arrangements capable of ensuring transparency, explainability, and accountability throughout the AI lifecycle. The findings of this study therefore suggest that countries possessing advanced digital infrastructure but weak governance institutions remain vulnerable to algorithmic bias, privacy violations, and implementation failures, while countries with ambitious AI strategies but limited institutional capability may struggle to translate policy aspirations into practical governance outcomes.

The AGRI further contributes to the growing literature by providing a context-specific framework for evaluating AI governance readiness within African public administration. Existing international indices often prioritise technological capability while paying comparatively less attention to governance quality, institutional readiness, and socio-economic inclusion (Erkut, 2020). By integrating these dimensions into a single conceptual framework, the AGRI offers policymakers a practical tool for identifying governance gaps, prioritising strategic investments, and monitoring national progress towards responsible AI adoption. This broader conceptualisation supports recent calls by UNCTAD (2025) and the African Union (2024) for governance frameworks that promote digital sovereignty, ethical AI, institutional resilience, and inclusive innovation across Africa.

Overall, the findings demonstrate that AI governance readiness should be understood not merely as a measure of technological preparedness but as an essential component of sustainable development. The ability of governments to deploy AI responsibly depends upon balanced progress across digital infrastructure, institutional capacity, regulatory governance, human capital, and data ecosystems. Consequently, strengthening these interconnected dimensions will enable African countries to harness AI more effectively in support of inclusive economic growth, improved public service delivery, stronger institutions, and long-term sustainable development.

### 5.2 Challenges and Contradictions in AI Governance for Sustainable Development

Despite the considerable potential of Artificial Intelligence (AI) to accelerate sustainable development, this study finds that African countries continue to face significant governance, institutional, and socio-economic challenges that constrain the effective deployment of AI in public administration. The comparative analysis demonstrates that AI governance readiness is characterised by substantial heterogeneity across the continent, reflecting differences in digital infrastructure, institutional capacity, regulatory maturity, and human capital development. These disparities suggest that AI adoption should not be viewed as a purely technological undertaking but rather as a complex governance challenge requiring coordinated policy interventions across multiple sectors (Wirtz et al., 2019). As emphasised by the OECD (2024), the success of digital government initiatives depends on the alignment of technology with institutional reform, organisational capacity, and effective governance arrangements.

One of the most persistent challenges identified in this study is the uneven distribution of digital infrastructure across African countries. Reliable broadband connectivity, stable electricity supply, cloud computing infrastructure, and secure data centres constitute the foundational infrastructure required for AI-enabled public administration. However, many African countries continue to experience significant infrastructure deficits, particularly in rural and underserved regions, limiting governments' ability to deploy AI applications at scale. According to the International Telecommunication Union (2024), substantial disparities in internet access and digital connectivity remain across developing economies, constraining digital transformation and limiting equitable access to AI-enabled public services. Similarly, the World Bank (2025) argues that digital public infrastructure has become a prerequisite for effective digital governance and inclusive public service delivery. Consequently, inadequate infrastructure not only restricts technological innovation but also reinforces existing socio-economic inequalities, thereby limiting progress towards sustainable development.

The findings also highlight persistent institutional and regulatory weaknesses that undermine AI governance readiness. While several countries have introduced national digital transformation strategies and AI policy initiatives, the implementation of these policies frequently remains constrained by limited institutional capacity, fragmented governance structures, and shortages of specialised technical expertise. Gianni et al. (2022) argue that responsible AI governance requires coherent institutional arrangements capable of ensuring accountability, transparency, and regulatory oversight throughout the AI lifecycle. Similarly, Janowski (2015) observes that digital government evolves through continuous institutional transformation rather than technological investment alone. The comparative analysis undertaken in this study supports these observations by demonstrating that countries with emerging AI strategies often lack the administrative capacity and governance mechanisms required to operationalise policy objectives effectively. Consequently, policy ambition does not necessarily translate into governance readiness.

Ethical and data governance challenges represent an additional constraint to sustainable AI adoption across Africa. AI systems rely extensively on large volumes of digital data for algorithm development, predictive analytics, and automated decision-making. Where data governance frameworks remain underdeveloped, AI implementation may expose governments to risks associated with algorithmic bias, privacy violations, cybersecurity threats, and excessive surveillance. UNESCO (2023) emphasises that trustworthy AI requires transparent governance, human oversight, and robust mechanisms for protecting individual rights throughout the AI lifecycle. Likewise, Ntoutsi et al. (2020) demonstrate that biased datasets can reinforce historical inequalities, particularly where vulnerable populations remain underrepresented within digital information systems. In many African countries, incomplete civil registration systems, informal economic activity, and uneven digital participation increase the likelihood that AI-driven governance may unintentionally exclude disadvantaged communities from public services. These findings suggest that strengthening data governance should be regarded as an essential component of sustainable AI governance rather than merely a technical consideration.

A further challenge emerging from the analysis concerns the shortage of human capital required to support AI-enabled governance. The successful adoption of AI depends not only on technological infrastructure but also on the availability of skilled professionals to design, implement, regulate, and evaluate AI systems. However, many African governments continue to experience shortages of data scientists, AI specialists, cybersecurity professionals, and digitally skilled public administrators. Omweri (2024) notes that institutional capacity remains one of the principal determinants of successful digital government implementation within developing countries. Similarly, the African Union (2024) identifies digital skills development and research capacity as strategic

priorities for strengthening Africa's AI ecosystem. Without sustained investment in education, professional training, and institutional learning, governments may struggle to derive long-term developmental benefits from AI technologies despite improvements in digital infrastructure.

The comparative analysis also reveals several important contradictions that contribute to the growing debate surrounding AI governance and sustainable development. First, higher levels of digital infrastructure do not necessarily correspond to stronger AI governance. Some countries have invested substantially in broadband connectivity, digital identification systems, and e-government platforms, yet continue to experience regulatory fragmentation, institutional weaknesses, and limited AI-specific governance frameworks. Conversely, other countries have articulated ambitious national AI strategies despite possessing relatively limited technological infrastructure and implementation capacity. These contrasting patterns indicate that technological readiness and governance readiness are related but conceptually distinct dimensions of AI adoption. The findings therefore reinforce Erkut's (2020) argument that digital transformation should be understood as a process of institutional evolution rather than merely technological modernisation.

A second contradiction concerns the relationship between AI innovation and sustainable development. Although AI offers significant opportunities to improve public service delivery, healthcare, education, taxation, and environmental management, these benefits are unlikely to be realised where governance systems fail to ensure fairness, accountability, and inclusion. UNCTAD (2025) argues that the developmental benefits of AI depend upon countries' ability to establish appropriate governance arrangements that promote ethical innovation while protecting citizens' rights. Similarly, UNESCO (2023) cautions that AI systems may exacerbate existing inequalities if governance frameworks fail to address issues of bias, transparency, and accountability. The findings of this study therefore demonstrate that technological innovation alone cannot guarantee sustainable development outcomes. Instead, sustainable AI adoption requires integrated governance systems that simultaneously strengthen digital infrastructure, institutional capacity, regulatory quality, data governance, and human capital development. These findings demonstrate that the principal barriers to AI governance readiness in Africa are institutional rather than technological. While continued investment in digital infrastructure remains essential, sustainable AI governance will ultimately depend upon governments' ability to strengthen institutions, develop comprehensive regulatory frameworks, invest in human capital, and establish trustworthy data governance systems. Addressing these interconnected challenges will enhance African countries' capacity to harness AI responsibly while advancing inclusive, equitable, and sustainable development.

### 5.3 Policy Implications for AI Governance and Sustainable Development in Africa

The findings of this study have important policy implications for governments, regional organisations, development partners, and public institutions seeking to harness Artificial Intelligence (AI) to accelerate sustainable development across Africa. The Artificial Intelligence Governance Readiness Index (AGRI) demonstrates that successful AI adoption depends on coordinated investments in digital infrastructure, institutional capacity, regulatory governance, human capital, and data ecosystems. Consequently, policymakers should adopt integrated governance strategies that address these dimensions simultaneously rather than implementing fragmented technological initiatives. As emphasised by the OECD (2024), digital transformation creates sustainable public value only when technological innovation is supported by institutional reform, effective leadership, and citizen-centred governance.

A priority emerging from the findings is the need to strengthen digital public infrastructure across African countries. Reliable broadband connectivity, affordable internet access, secure cloud infrastructure, digital identity systems, and dependable electricity supply form the foundation upon which AI-enabled public services can be developed. The International Telecommunication Union (2024) identifies digital connectivity as a prerequisite for inclusive digital transformation, while the World Bank (2025) argues that digital public infrastructure has become a strategic asset for improving government efficiency and expanding citizen access to public services. Governments should therefore prioritise investments that reduce digital inequalities between urban and rural communities to ensure that AI-enabled public services are accessible to all citizens. The findings also highlight the importance of developing comprehensive AI governance frameworks supported by effective regulatory institutions. Many African countries have introduced national digital transformation strategies; however, relatively few possess comprehensive legal frameworks specifically governing the development, deployment, and oversight of AI technologies. UNESCO (2023) recommends that national AI governance frameworks should incorporate principles of transparency, accountability, fairness, human oversight, and respect for human rights throughout the AI lifecycle. Similarly, Gianni et al. (2022) argue that responsible AI governance requires coordinated ethical, legal, and institutional mechanisms to balance technological innovation with public accountability. Governments should therefore establish dedicated AI regulatory frameworks that provide clear guidance regarding algorithmic transparency, data protection, liability, and independent oversight.

Strengthening institutional capacity should constitute another major policy priority. The comparative analysis demonstrates that technological infrastructure alone cannot deliver sustainable governance outcomes unless public institutions possess the organisational capability to manage AI systems effectively. Public-sector organisations require skilled personnel capable of designing, implementing, monitoring, and evaluating AI-enabled public services. Wirtz et al. (2019) observe that organisational readiness represents one of the most significant determinants of successful AI adoption within government. Consequently, governments should invest in continuous professional development programmes that enhance AI literacy, data analytics capabilities, cybersecurity expertise, and digital leadership across the public sector. Universities and research institutions should also play a more prominent role by developing interdisciplinary curricula that integrate computer science, public administration, law, economics, and ethics to prepare future public servants for AI-enabled governance.

Another important implication concerns data governance and digital trust. AI systems depend upon high-quality, representative, and secure datasets to support evidence-based decision-making. However, weak data governance frameworks may expose governments to risks associated with privacy violations, algorithmic discrimination, cybersecurity breaches, and declining public confidence in digital government. UNESCO (2023) emphasises that trustworthy AI requires transparent governance, explainable algorithms, robust data protection measures, and meaningful human oversight. Likewise, Ntoutsi et al. (2020) demonstrate that poor-quality or biased datasets may reinforce existing inequalities and undermine the fairness of AI-enabled decision-making. Governments should therefore strengthen national data governance frameworks by modernising data protection legislation, establishing independent oversight authorities, promoting responsible data-sharing practices, and implementing regular algorithmic audits to ensure fairness and accountability.

The findings further underscore the importance of strengthening regional cooperation in AI governance. Many African countries face similar challenges, including limited technical expertise, fragmented regulatory environments, and resource constraints. Collaborative regional initiatives can facilitate knowledge sharing, harmonise regulatory standards, and promote the development of common ethical principles for AI governance. The African Union (2024) recognises regional cooperation as essential for strengthening Africa's digital sovereignty and promoting responsible AI innovation across the continent. Greater collaboration among governments, universities, private-sector organisations, and regional institutions could also support joint research initiatives, cross-border digital infrastructure projects, and coordinated capacity-building programmes. Such cooperation would help reduce duplication of effort while promoting greater policy coherence across African digital governance systems.

Finally, the AGRI provides policymakers with a practical decision-support framework for monitoring national progress towards responsible AI governance. Unlike existing digital government indicators that often focus primarily on technological readiness, the AGRI integrates technological, institutional, regulatory, and governance dimensions into a comprehensive assessment framework. Policymakers can therefore use the index to identify governance gaps, prioritise investment areas, benchmark progress against comparable countries, and evaluate the effectiveness of digital transformation strategies over time. The framework also offers development partners and international organisations a structured basis for designing technical assistance programmes that align AI investments with national sustainable development priorities. The policy implications of this study suggest that achieving sustainable AI-enabled governance requires more than technological investment. Governments must pursue coordinated reforms that strengthen institutions, develop robust regulatory frameworks, invest in human capital, enhance digital public infrastructure, and promote trustworthy data governance. By adopting a holistic governance approach, African countries will be better positioned to harness AI as a catalyst for inclusive economic development, improved public service delivery, stronger democratic institutions, and long-term sustainable development.

### 5.4 Theoretical and Practical Contributions of the Artificial Intelligence Governance Readiness Index (AGRI)

This study contributes to the growing literature on Artificial Intelligence (AI) governance by proposing the Artificial Intelligence Governance Readiness Index (AGRI), a multidimensional framework specifically designed to assess AI governance preparedness within African public administration. Unlike existing digital government assessment frameworks that primarily emphasise technological capability (Janowski, 2015; OECD, 2024), the AGRI integrates digital infrastructure, institutional capacity, AI policy, data capability, e-government maturity, and data governance into a comprehensive conceptual model. This integrated approach provides a more holistic understanding of the factors influencing the adoption of responsible AI in developing economies. From a practical perspective, the AGRI offers policymakers, development agencies, and public institutions a structured tool for identifying governance gaps, prioritising investments, and monitoring progress towards the responsible implementation of AI. The framework also provides a foundation for future empirical research by developing quantitative indicators to measure AI governance readiness across countries. Consequently, the AGRI contributes

to both academic scholarship and policy practice by advancing understanding of how AI can support inclusive governance and sustainable development across Africa.

**Conclusion**

Artificial Intelligence (AI) has significant potential to strengthen public administration and accelerate sustainable development across Africa. However, the findings of this study demonstrate that successful AI adoption depends not only on technological advancement but also on governance readiness. The proposed Artificial Intelligence Governance Readiness Index (AGRI) provides a multidimensional framework that integrates digital infrastructure, e-government capacity, data capability, AI policy, institutional capacity, and data governance to assess countries' preparedness for the responsible implementation of AI. The comparative analysis reveals substantial differences in governance readiness across African countries, highlighting that investments in technology alone are insufficient without complementary institutional reforms, regulatory frameworks, and human capital development. The study further demonstrates that AI governance readiness contributes to sustainable development by supporting more efficient public service delivery, improved transparency, evidence-based policymaking, and stronger institutional performance. At the same time, persistent challenges, including digital inequality, limited institutional capacity, fragmented regulatory environments, and weaknesses in data governance, continue to constrain AI adoption in many African countries. These findings emphasise the need for integrated policy approaches that align technological innovation with ethical governance and inclusive development. To enhance the credibility of the findings, the study employed a structured literature review supported by methodological triangulation, drawing on evidence from peer-reviewed publications, international organisations, and government policy documents to minimise bias and strengthen the conceptual framework. Although the AGRI is presented as a conceptual framework requiring future empirical validation, it provides policymakers and researchers with a practical tool for assessing AI governance readiness and guiding responsible AI adoption. Future research should empirically validate the framework across a broader range of countries and examine changes in AI governance readiness over time.

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