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Government AI readiness in the ESARBICA community: findings from the Oxford Insights AI Readiness Index 2022

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Abstract

This paper investigates the readiness of the Eastern and Southern African Regional Branch of the International Council on Archives (ESARBICA) governments to implement Artificial intelligence (AI) solutions to improve public services. The study employed a desktop research approach, analysing quantitative data from the Oxford Insights Government AI Readiness Index (AIRI) 2022. The findings revealed that South Africa, Botswana and Kenya have demonstrated dedication in harnessing the power of AI for their advancement and progress. Interestingly, the ESARBICA countries perform well in the data and infrastructure pillar, especially on the data representativeness dimension. The region's readiness for AI adoption is below average due to numerous factors such as the technology sector not being mature enough for AI deployment, lack of human capital, lack of innovation and digital capacity and governments not having an AI strategy in place. This may impact economic competitiveness, innovation, job market, technological divide, public service improvements, global collaboration, social and ethical considerations, and resilience to future challenges. The study recommends investing in education and training programmes, allocating resources and investing in critical infrastructure, and promoting innovation ecosystems to foster AI development in the region. Additionally, policymakers should focus on developing comprehensive policies and regulatory frameworks, prioritise mapping a vision for AI deployment in African governments, and invest in public awareness campaigns to inform the public about the benefits and challenges of AI. By addressing gaps in infrastructure, human capital and strategic governance, ESARBICA member states can not only modernize their archival practices but also position records and archives management as a key contributor to the digital transformation and socio-economic development of the region.

Keywords: Africa, artificial intelligence, digital transformation; ESARBICA, fourth industrial revolution, 4IR

Introduction

Artificial intelligence (AI) refers to systems designed to simulate human intelligence in tasks such as visual perception, speech recognition, decision-making and problem-solving (Frankenfield, 2023). Frankenfield states that, by mimicking human cognitive functions, AI perform tasks ranging from simple to complex, driving innovations in various sectors, including governance. In the 21st century, the integration of AI technologies into governmental processes has become a key factor in fostering innovation, economic growth and sustainable development. Developed countries, such as those in Europe and North America, have already started to capitalise on the benefits of AI, including improved efficiency, cost reductions, enhanced citizen engagement and better crime prediction and prevention (Nzobonimpa & Savard, 2023; Van Noordt & Misuraca, 2022). In Germany, Lorenz et al. (2021) discovered that a predictive policing system known as KrimPro outperforms traditional officials.

However, while AI adoption flourishes in developed countries, the situation in many developing nations, especially in Africa, remains more challenging (Gwagwa et al., 2021). The gap between developed and developing nations in terms of digital infrastructure, human capital and access to technology exacerbates existing inequalities. These disparities are particularly evident in the African context, where there is a growing concern that without careful integration, AI could further entrench social and economic divides (Gwagwa et al., 2020). The introduction of AI in African countries must be approached with caution, as the technology's impact on governance, job markets and public services could vary greatly depending on how it is adopted, implemented and integrated into existing systems. As the African community navigates its developmental trajectory, the challenges and opportunities presented by AI underscore the need for a comprehensive evaluation of each nation's preparedness (Baguma et al., 2023). Consequently, this study sought to assess the AI readiness of selected African countries based on the statistics extracted from the Oxford Insights Government AIRI 2022.

This study focused on the member countries of the Eastern and Southern Africa Regional Branch of the International Council on Archives (ESARBICA), which serves as a collaborative platform addressing challenges in archives and records management across the region. ESARBICA's mission extends beyond records preservation to foster digital transformation, improve governance and support knowledge-based economic development. Leveraging knowledge and intellectual capital to drive economic growth requires AI integration in government processes to sustain the knowledge economy era. Given the importance of AI in advancing digital governance and evaluating the AI readiness of ESARBICA member countries are essential for identifying the strengths and potential barriers to AI adoption.

The ESARBICA community including Angola, Botswana, Kenya, Lesotho, Malawi, Mozambique, Namibia, Tanzania, South Africa, Swaziland, Zambia, Zanzibar, and Zimbabwe; is composed of nations with diverse socio-economic backgrounds and technological landscapes. Despite some progress, the region continues to face a significant digital divide, accentuating the urgency for strategic investments and focused initiatives to propel these nations into the digital age (Arakpogun et al., 2021). The assessment of AI readiness is not merely a benchmarking exercise, but a strategic initiative to identify existing gaps and cultivate an environment conducive to technological advancement and enhanced records and archives management. The assessment seeks to answer pressing questions about the region's capacity to harness AI for socio-economic development, improve public services and participate effectively in the global digital economy. By evaluating the readiness of ESARBICA

governments, the study aimed to provide actionable insights that contribute to informed decision-making, policy formulation and resource allocation. The specific objectives were to:

- Assess the current state of AI readiness within ESARBICA member countries, based on the three pillars identified by the Oxford Insights Government AI Readiness Index.
- Identify key limitations and gaps in the AI readiness and adoption landscape within the region's public sector.
- Establish the implications of AI government readiness on records and archives management within ESARBICA member states.

Literature review

Poor service delivery and low productivity are often attributed to human factors and manual information management systems. However, the advances in technology have begun to provide a solution to these challenges (Australian Government, 2023). Developed nations are saving a lot of money through automation where repetitive and manual tasks are performed by machines or robots (Aung et al., 2021). AI also helps humans to perform intelligent tasks such as decision-making. AI can improve service delivery through different techniques such as robotics, machine learning (ML), natural language processing (NLP), optical character recognition (OCR) and voice recognition, enabling access to e-government service platforms (Neumann et al., 2022). For instance, smart self-service technologies (SSTs) offer new possibilities for governments to enhance public services and engage with citizens (Chen et al., 2021). NLP can enable the provision of services in local languages and eliminate the sole reliance on a dominant language like English for official forms. This language customisation improves usability and user experience. However, it is important to note that AI tools cannot eliminate the human factors that contribute to service delays, as their effectiveness depends on the individuals deploying them (Ahmad et al., 2023).

The state of AI readiness in different regions varies, with factors such as economic metrics, technological expertise and socio-political commitment playing a significant role (Montoya & Rivas, 2019). Because of the expected benefits, governments are implementing AI strategies and investing in AI. For instance, in 2017, the Canadian federal government committed \$125 million to the Canadian Institute for Advanced Research (CIFAR) to develop a pan-Canadian AI plan, while the United Arab Emirates (UAE) established a Ministry of State for Artificial Intelligence (Nzobonimpa & Savard, 2023). A scan of government-based AI strategies and initiatives adopted in 10 proactive OECD (Organization for Economic Co-operation and Development) countries, revealed that most nations are in the emerging stage (Level 2) of AI in health maturity (Castonguay et al., 2023). Castonguay et al. (2023), noted that, despite significant financing and a diversity of approaches to the development of AI in the health ecosystem, only the United Kingdom and the United States have achieved the maximum level of maturity (Level 3). In the Vietnamese healthcare sector, the following challenges are eminent; inadequate funding, information infrastructure and psycho-cultural elements (Vuong et al., 2019). The PwC report also revealed that Asian countries are estimated to benefit more from AI than African countries in the field of AI by the year 2030 (PwC, 2018).

Notwithstanding a legacy of under-development, African countries are increasingly recognising the strategic importance of AI, with national strategies outlining its potential for economic development (Wakunuma et al., 2022). For instance, in November 2020, Nigeria established the Centre for Artificial Intelligence and Robotics (NCAIR), a research facility focused on AI, robotics, drones, the Internet of Things (IoT) and other emerging technologies

to transform the Nigerian digital economy (Oyelere et al., 2022). Researchers are also escalating investigations into the government preparedness landscape and developing an AIRI tailored for Africa (Baguma et al., 2023; Joubert et al., 2023). According to the Oxford Insights Government AIRI 2022, the average score of the 46 Sub-Saharan African countries included in the index was 29.38 - the lowest globally (Rogerson et al., 2022). Mauritius ranks top in the region at 57th globally. It is the only country in the region to have released a national AI strategy (Rogerson et al., 2022). Several studies have enumerated government efforts in integrating AI technology in different sectors such as healthcare (Sukums et al., 2023), journalism (Kothari & Cruikshank, 2022), education, real estate market (Odunfa et al., 2021) and agriculture (Foster et al., 2023; Jellason et al. 2021). In Senegal, the government purchased a 537.6 teraflop supercomputer with 1.2 petabytes of distributed memory and 8064 computing nodes (Heng et al., 2022). In terms of processing power, this public infrastructure ranks third in Africa, after Morocco and South Africa. The study by Tapo et al. (2024) explored the evolution and potential of Machine Intelligence (MI) in Africa, focusing on how large audio datasets in local languages present significant opportunities for socio-economic development.

Despite the efforts to integrate AI into government processes, the continent faces significant challenges in AI readiness (Ade-Ibijola & Okonkwo, 2023; Kiemde & Kora, 2020; Singh, 2023). One of the major challenges to AI deployment is the lack of readily available big data (Tjebane et al., 2022). This poses a constraint to utilising AI, such as ML, to analyse real-time data (Joubert et al., 2023). Many sub-Saharan African countries are unprepared to manage potential disruptions or capitalise on the opportunities presented by ML due to a lack of data availability, data quality, computer capacity and technical expertise (van-Biljon, 2022). A study by Manson et al. (2023) assessed the readiness of Africa for the integration of AI in radiotherapy services delivery. Their findings established that insufficient data for training and validation of AI models, a lack of educational curriculum for AI radiotherapy-related courses, none or limited AI teaching specialists, funding and a lack of AI technology and resources are the primary difficulties. Additionally, constraints such as, network capacity, educational institution readiness and digital data availability heighten the ethical difficulties (Oubibi et al., 2022). These obstacles pose as barriers to the successful incorporation of AI technology into government practices.

The literature review indicated that AI applications in Africa, including ESARBICA member states, shows promise and significant challenges. In Kenya, blockchain and AI are enhancing cybersecurity and financial services, with approximately 45% of companies utilising AI for anomaly detection and real-time monitoring (Nibigira et al., 2024). South Africa has integrated AI into public service delivery but faces regulatory fragmentation that hinders broader adoption (Svärd et al., 2024). In Tanzania, the Dr Elsa Health Assistant, an AI-powered healthcare tool offers symptom assessment, diagnostic support and disease outbreak prediction, consequently improving service delivery in rural areas (Azaroual, 2024). Eswatini and South Africa's records management sectors are exploring AI adoption, but inadequate regulatory framework and a lack of awareness and training among professionals remain a barrier (Modiba, 2023; Modiba et al., 2023; Tsabedze, 2023). Across Anglophone Africa, the adoption of responsible AI faces challenges related to low technological literacy, inadequate policies and limited infrastructure, but successful applications in sectors like agriculture and healthcare offer valuable lessons (Sinde et al., 2023). These case studies highlight the transformative potential of AI in addressing regional development challenges, though infrastructure, expertise and regulatory frameworks must be strengthened to enable widespread adoption (Shonhe & Kolobe, 2023).

The existing research on AI readiness in the ESARBICA community highlights a critical gap, given its potential role in improving information accessibility and building knowledge-based economies. Most studies/reports primarily focus on broader continental perspectives. The challenges identified, including inadequate funding, information infrastructure and psychocultural elements (Cirera et al., 2021; Maswana, 2024; Tapo et al., 2024), highlight the need for a nuanced understanding of the region's readiness landscape. The dearth of localised studies assessing the preparedness of African governments, especially within the ESARBICA context using the metrics from the Oxford Insights AIRI, creates a considerable gap. This gap necessitates targeted investigations to inform tailored strategies and initiatives.

Methodology

The study employed a desktop research approach, utilising secondary quantitative data from the Oxford Insights Government AIRI 2022. The AIRI-2022 measures AI readiness across 39 indicators distributed over 10 dimensions, which are categorised into three overarching pillars (see Table 1). The main goal of this AIRI is to answer the question of how governments can position themselves to take advantage of this AI-powered transformation in the delivery of public services (Rogerson et al., 2022). This index serves as a structured guide, allowing for the systematic evaluation of government preparedness to adopt and implement AI technologies.

Table 1: The Government AIRI 2022 Framework

Pillar	Dimensions	Indicators
Government	Vision	AI Strategy
	Government & ethics	Data protection & privacy laws, cybersecurity, legal frameworks' adaptability to digital business models, ethical principles, accountability.
	Digital capacity	Online services, foundational IT infrastructure, government promotion on investment in emerging technologies.
	Adaptability	Government effectiveness, government responsiveness to change, procurement data.
Technology sector	Maturity	Number of AI Unicorns, number of non-AI Unicorns, value of trade in ICT services, computer software spending.
	Innovation capacity	Business administrative requirements, VC availability, R&D spending, company investment in emerging technology, AI research papers.
	Human capital	Graduates in STEM or computer science, GitHub activity, quality of engineering and technology higher education, digital skills
Data & infrastructure	Infrastructure	Telecommunications infrastructure, cloud providers, broadband quality, 5G infrastructure, adoption of emerging technologies.
	Data availability	Open data, data governance, mobile cellular telephone subscriptions, households with internet access, statistical capacity.
	Data representativeness	Cost of cheapest internet-enabled device, gender gap in internet access.

Source: Adapted from Oxford Insights (Rogerson et al., 2022).

In this paper, AI readiness in the ESARBICA community is discussed at the pillar and dimension level only. Quantitative data was extracted from the Oxford Insights AIRI 2022 website and analysed using Microsoft Excel. The analysis involved calculating scores for each dimension and comparing these scores across ESARBICA member states. visualisation such as bar charts and scatter plots are employed to represent the findings.

Results

This section provides an overview of AI-readiness status in the ESARBICA community. First, we present the global ranking, followed by results categorised according to the dimensions under each pillar. Table 2 below presents the ESARBICA member countries which were included in the AI-readiness survey by Oxford Insights and their ranking. As can be seen in Table 2, none of the ESARBICA member countries scored above 50%, hence, indicating a below-average level of readiness in the region. South Africa (47.74), Kenya (40.36), Botswana (38.36), Namibia (34.57) and the United Republic of Tanzania (32.50) are faring better than their counterparts in this region.

Table 2: ESARBICA government AI readiness index scores

Country	2022		Global Rank		
	Total Score	Rank in Sub-Saharan Region	2020 (n=172)	2021 (n=160)	2022 (n=181)
South Africa	47.74	2	59	68	68
Kenya	40.36	3	71	78	90
Botswana	38.36	7	121	109	98
Namibia	34.57	10	96	120	115
Tanzania	32.50	14	124	121	125
Zambia	29.63	19	129	133	146
Zimbabwe	29.26	20	154	144	148
Lesotho	26.13	29	106	139	160
Eswatini	25.46	30	152	140	161
Angola	24.77	32	169	158	163
Malawi	24.46	34	156	153	165
Mozambique	22.54	39	161	150	170

Source: Data adapted from Oxford Insights Government AI Readiness Index.

Weakness observed in the AIRI tool

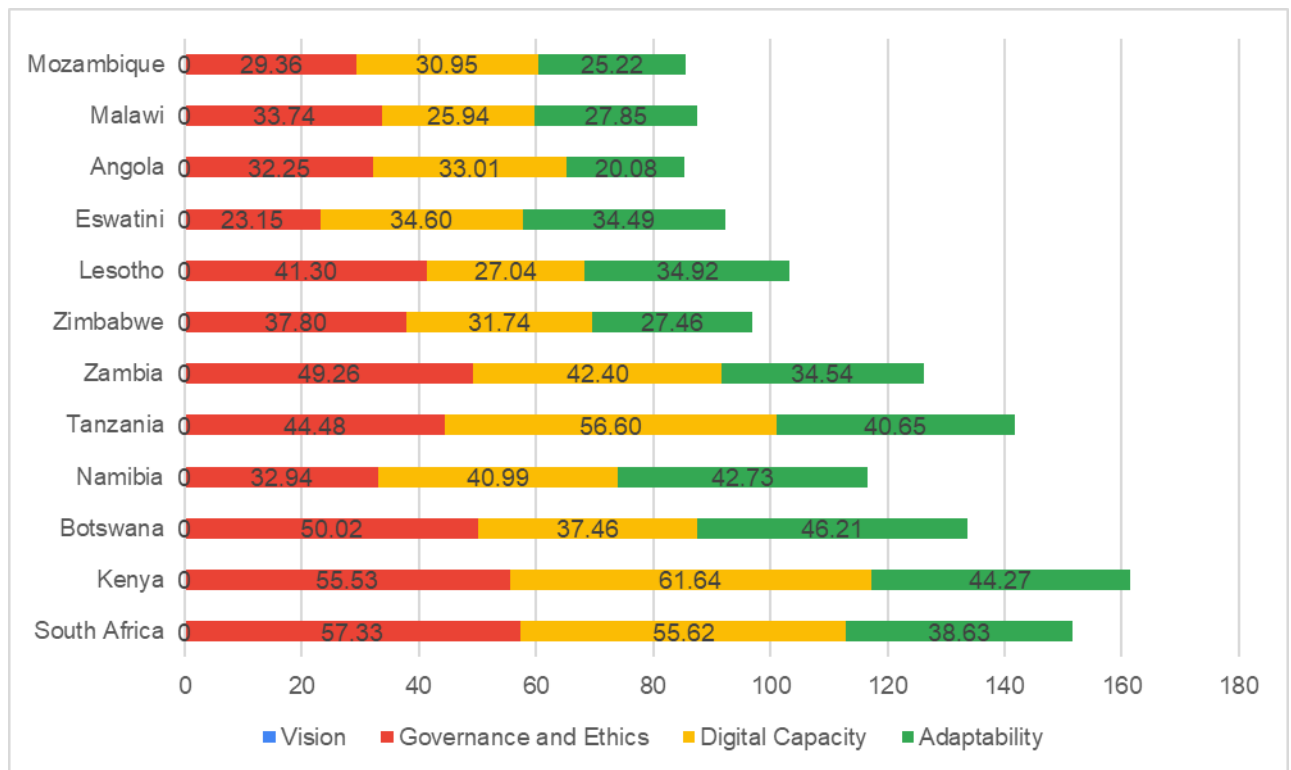
As can be seen in Table 2, the number of countries included in the evaluation over three years is inconsistent. This inconsistency leads to difficulties in accurately gauging the progress or decline of specific nations in AI readiness. A country's ranking could be influenced not only by its own performance but also by the addition or exclusion of other countries in the index. Despite this, Botswana has demonstrated improvement in its global ranking.

The following subsections present the findings according to the 10 dimensions under each pillar.

Government pillar

“A government should have a strategic vision for how it develops and manages AI, supported by appropriate regulation and attention to ethical problems (governance & ethics). Moreover, it needs to have a strong internal digital capacity, including the skills and practices that support its adaptability in the face of new technologies” (Rogerson et al., 2022, p.6). The results in Figure 1, are categorised into four dimensions—Vision, Governance and Ethics, Digital Capacity, and Adaptability.

Figure 1: Government pillar dimensions



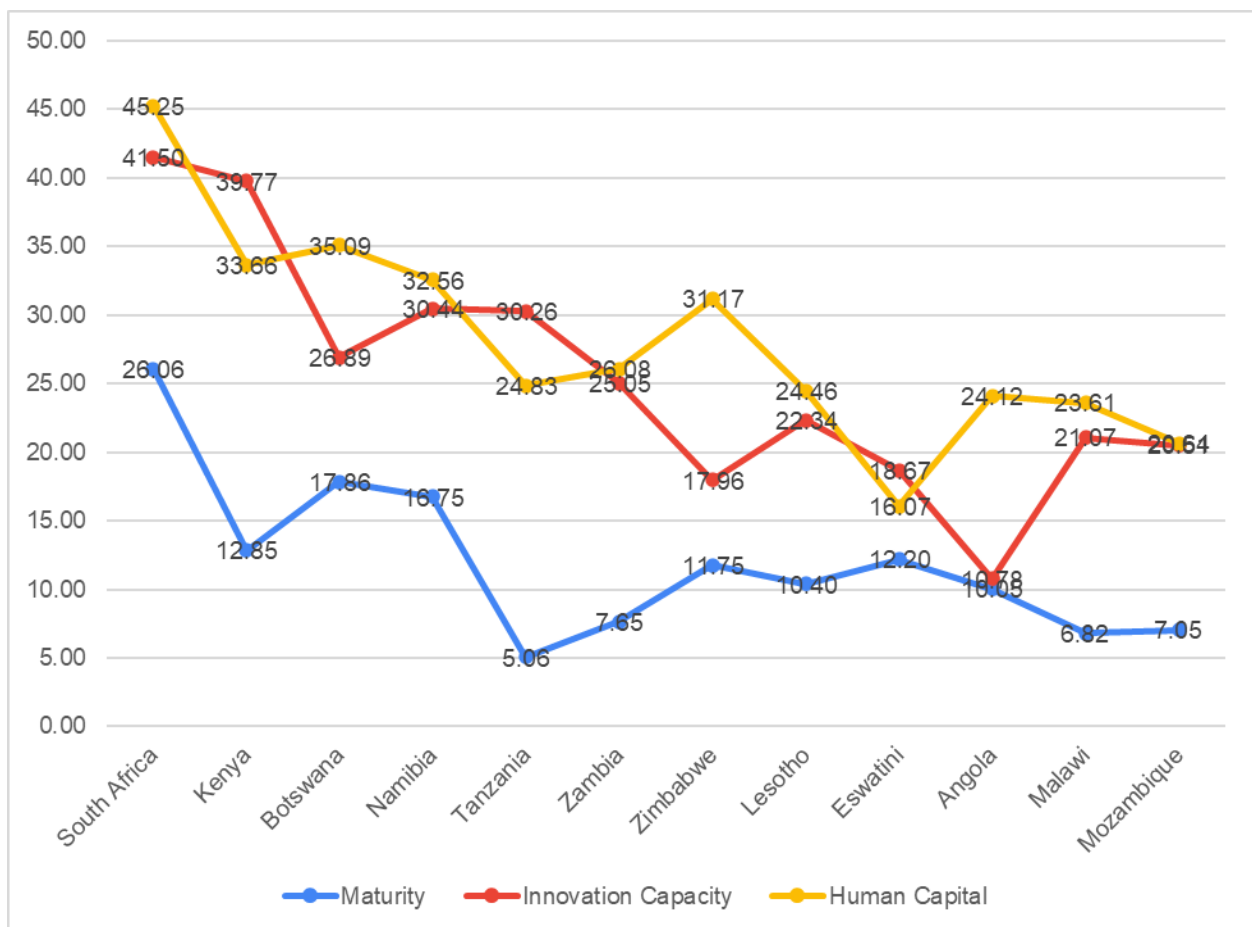
Source: Data adapted from Oxford Insights Government AI Readiness Index 2022.

As shown in Figure 1, all countries received a score of 0 in the vision dimension. On governance and ethics dimension: South Africa (57.33), Kenya (55.53) and Botswana (50.02) are in the lead, showcasing a stronger commitment to ethical considerations and effective governance in AI initiatives. While Eswatini (23.15) and Mozambique (29.36) exhibit poor performances in this dimension, suggesting a foundational emphasis on ethical practices. Regarding Digital Capacity: Kenya (61.64), Tanzania (56.60) and South Africa (55.62) excel in this dimension, indicating a robust digital infrastructure and capacity to implement AI technologies effectively. Lesotho (27.04) and Malawi (25.94) exhibit comparatively lower scores in this dimension, indicating areas where enhancements in digital infrastructure and capacity for implementing AI technologies could contribute to bolstering their overall AI readiness. Lastly, in the adaptability dimension, none of the countries obtained a score above average in this dimension. This indicates a lower capacity for adaptation to changing circumstances and emerging trends in AI.

Technology pillar

“A government depends on a good supply of AI tools from the country’s technology sector, which needs to be mature enough to supply the government. The sector should have high innovation capacity, underpinned by a business environment that supports entrepreneurship and a good flow of research and development spending. Good levels of human capital—the skills and education of the people working in this sector—are also crucial” (Rogerson et al., 2022, p.6). The technology pillar assesses three dimensions: maturity, innovation capacity and human capital.

Figure 2: Technology Sector Dimensions



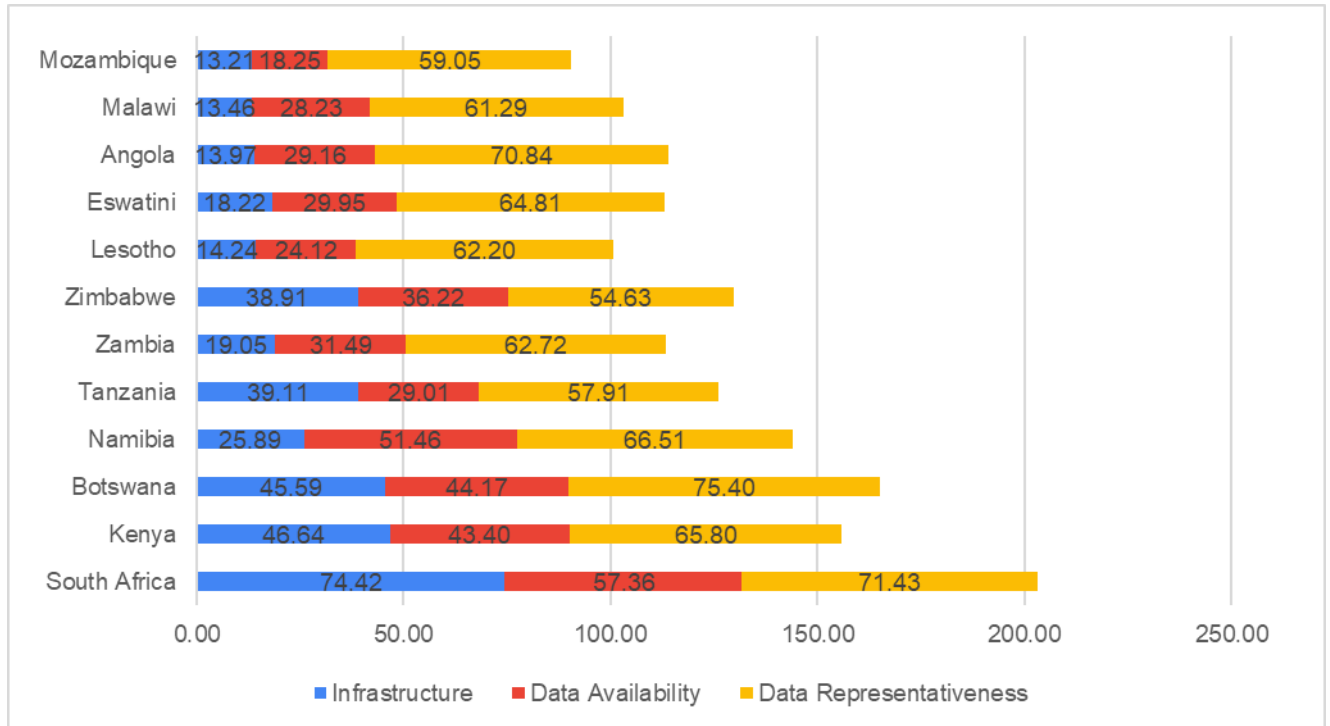
Source: Data adapted from Oxford Insights Government AI Readiness Index 2022.

The results presented in Figure 2 indicate that none of the countries scored above average in all three dimensions. However, South Africa has made promising progress in terms of human capital (45.25) and innovation capacity (41.50). Followed by Kenya with 39.77 in the innovation capacity dimension and 33.66 for human capital. Nonetheless, Botswana seems to be faring better than Kenya in the human capital dimension (35.09). Overall, all countries within the sample are performing poorly in the maturity dimension.

Data and infrastructure pillar

“AI tools need lots of high-quality data (data availability) which, to avoid bias and error, should also be representative of the citizens in each country (data representativeness). Finally, this data’s potential cannot be realized without the infrastructure necessary to power AI tools and deliver them to citizens” (Rogerson et al., 2022, p.6). The data and infrastructure pillar examines three dimensions: infrastructure, data availability and data representativeness. The results are shown on Figure 3.

Figure 3: Data and infrastructure dimensions



Source: Data adapted from Oxford Insights Government AI Readiness Index 2022.

As indicated on Figure 3, the nations leading in this pillar are South Africa (67.73), Botswana (55.05) and Kenya (51.95). The data representativeness dimension scored above average for all ESARBICA countries; with Botswana (75.40), South Africa (71.43) and Angola (70.84) in the lead, followed by Namibia (66.51), Kenya (65.80), Eswatini (64.81), Zambia (62.72), Lesotho (62.20) and Malawi (61.29). With regard to digital infrastructure, only South Africa (74.42) is doing well, with Kenya (46.64) and Botswana (45.59) following behind. Regarding data availability dimension, South Africa (57.36) and Namibia (51.46) are performing better than their counterparts, while Mozambique (18.25) and Lesotho (24.12) have the least scores.

Discussion

Government pillar

The findings revealed that the leading countries in the government pillar are: Kenya (40.36) and South Africa (37.90). All countries received a score of 0 in the vision dimension, indicating a lack of specific vision or strategy dedicated to AI implementation. Most countries in the

sample, lack national policies and regulations for AI adoption such as Tanzania's health sector (Sukumus et al., 2023). Townsend et al. (2023) examined the regulatory landscape of AI in healthcare across 12 African countries, highlighting the lack of specific AI regulations while noting the presence of related frameworks in data protection, digital health and intellectual property. The study revealed a fragmented regulatory environment, with no dedicated AI laws, but some countries such as South Africa, Kenya and Uganda, have developed regulations for software as a medical device (Townsend et al., 2023). These findings corroborate the data from the OECD AI Policy Observatory repository, which revealed that most African nations lack a governance structure for AI deployment (Wakunuma et al., 2022). Yet, to address potential societal issues, AI should be based on socially oriented values like equity, justice, inclusiveness and impartiality (Chen et al., 2023). These values should be addressed through a well-developed regulatory framework that can be used to guide the development and deployment of AI-assisted public service delivery.

Furthermore, the delivery of public services mediated with AI should be done in an environment that is in compliance with information security policies. Recent technological flaws have led to data breaches and potential cyber-attacks and research has demonstrated potential uses of AI to engineer more powerful cyber-attacks (Nibigira et al., 2024; Olofinbiyi, 2022). In the public space where ESARBICA advocates for proper records management and improved public service; there is a need to inculcate strong regulatory framework as part of AI readiness (Modiba, 2023), because there is a paucity of policies that would make the adoption of AI public-value friendly (Gwagwa et al., 2020). Strong performances in governance and ethics are crucial to fostering an environment conducive to responsible and effective AI development. However, the absence of scores in the vision dimension and below-average scores in the digital capacity dimension underscore the need for countries to articulate clear objectives and strategic directions for AI implementation. Adaptability is a key factor, emphasising the necessity for countries to remain agile and responsive to the evolving dynamics of the AI landscape. The deployment of AI in Africa presents both benefits and challenges, with a need for policy responses that consider gender equity, cultural and linguistic diversity, and labour market shifts (Gwagwa et al., 2020).

Technology pillar

The ESARBICA community performed poorly in the technology sector compared to other pillars. Among the three dimensions, the maturity dimension is lagging behind innovation capacity and human capital (as shown in Figure 2). These findings suggest that the ESARBICA community is not yet ready for AI deployment. Nevertheless, South Africa, Kenya and Botswana have made promising progress in terms of human capital and innovation capacity. South Africa's leading scores, highlights the country's competitive innovation capabilities and a moderate pool of talent and expertise in the field of AI, which is comparatively better than its neighbouring countries in the region. Unfortunately, South Africa is facing a significant challenge in terms of its readiness and capacity to defend against various forms of cyber-attacks. The country has the third-highest number of cybercrime victims in the world. Additionally, the South African Banking Risk Information Centre (SABRIC) reportedly loses over R2, 2 billion annually due to cyber-attacks (Olofinbiyi, 2022).

The low scores in the technology sector can be attributed to various factors. Some of the main reasons for the lack of progress in AI development in Africa are the shortage of skilled human resources, insufficient integration of technology into educational curricula and inadequate funding (Shonhe & Kolobe, 2023). According to a study conducted by Isagah and Musabila,

out of a sample of 66 African participants consisting of AI researchers, data scientists and ML engineers, the following challenges were identified concerning domain expertise: (1) lack of experienced practitioners in the AI field (n=64) 97%, (2) lack of trained models in some domains (n=46) 70% and (3) lack of understanding of mathematics in ML (n=13) 20% (Isagah & Musabila, 2020). Specifically, a study conducted in South Africa revealed that a lack of skills in problem-solving, analysis, creativity, technology, conflict resolution, collaboration, AI, innovation and change management inhibits leaders' readiness for the fourth industrial revolution (4IR) era (Maponya & Naidoo, 2023). In Africa, the educational systems, particularly at the university level, do not place enough emphasis on the field of AI despite its significant gains (Omorogiuwa et al., 2023). With the lack of technology maturity and innovation capacity, Africa risks being a mere consumer rather than a contributor to the 4IR due to the low level of expertise in the workforce (Mamphiswana & Bekele, 2020). A systematic literature review study on African nations found that many governments rely heavily on outsourcing to the private sector for service delivery and has the advantage of bridging the skills gap. Low-income African countries rely on international donor financing and programming, which leads to dependence on external technical talents (Plantinga, 2022).

Data and infrastructure pillar

The findings reveal that South Africa, Botswana, Kenya, are leading respectively in this pillar. The data representativeness dimension scored above average for all ESARBICA countries; with Botswana, South Africa and Angola in the lead respectively, indicating that available data is reflective of diverse perspectives and contexts. This is crucial because AI applications require large datasets to uncover hidden relationships using statistical techniques (Lorenz et al., 2021), and data inclusiveness helps to prevent biases. About digital infrastructure, only South Africa is doing well. Indicating a well-developed and robust technological foundation, compared to its peers in the region who all scored below average (as seen on Figure 3). Countries with lower scores in digital infrastructure, such as Mozambique, Malawi, Angola, Lesotho, Eswatini and others may benefit from targeted investments to enhance digital foundations. Regarding data availability dimension, South Africa and Namibia are performing better than their counterparts. Mozambique and Lesotho score lower, indicating challenges in terms of data accessibility that may impact AI development. According to the Big Data Readiness Index (BDRI), South Africa is the second leading player in big data development in Africa, after Mauritius (Joubert et al., 2023). These findings provide further evidence of South Africa's growing influence in the world of AI and data analytics in the region.

Studies conducted in several sub-Saharan African countries, including Kenya, Lesotho, South Africa and Tanzania, revealed that there are several challenges to data availability and representativeness. These challenges include data inaccessibility, poor quality of data, insufficient amount of data, lack of data sets for the African context and a lack of data policy (Isagah & Musabila, 2020). It is important to note that the lack of data representativeness can have negative consequences in various areas such as healthcare, transportation and the justice system. This is because AI systems are often trained using data from developed economies, which can lead to biases and discrimination against certain groups. For example, facial recognition and language translation algorithms may be more likely to discriminate against people of African descent (Mamphiswana & Bekele, 2020).

Implications of AI government readiness on archives and records management

The findings of this study reveal both opportunities and challenges that have direct implications for archives and records management. The underdeveloped state of AI readiness in most ESARBICA countries, as demonstrated by their below-average scores in the Government AIRI, highlights a critical gap in leveraging AI to enhance the management of records and archives. However, the study also identifies specific strengths, such as relatively strong performance in the data representativeness dimension, which could serve as a foundation for improving records management through AI integration. Some of the study implications are:

Strengthening records infrastructure through AI

The findings indicate that countries like South Africa, Botswana, and Kenya have relatively advanced data and digital infrastructure. These strengths provide an opportunity to leverage AI tools to automate records-related processes, such as indexing, metadata generation, and classification. For instance, the ability to use AI in improving data availability and access aligns with the archival goal of ensuring efficient and reliable records retrieval.

Enabling better compliance with records governance frameworks

The governance and ethics dimension, where countries like South Africa and Kenya scored relatively well, highlights the potential for AI to enhance compliance with records governance frameworks. AI systems can monitor records management practices in real-time, flagging deviations from regulatory standards and ensuring adherence to data protection and privacy laws. This is especially relevant in improving trust and accountability in managing public records.

Digitisation and preservation of records

The study points to gaps in digital capacity and infrastructure in several ESARBICA member states. Addressing these gaps by adopting AI-driven digitisation tools, such as optical recognition and machine learning, can modernize archival practices. These technologies not only accelerate the digitisation of physical records but also support long-term preservation strategies by identifying degradation risks and optimizing storage.

Improving records accessibility and equity

AI readiness in “data representativeness” presents an opportunity to create inclusive archival systems that reflect diverse perspectives. For example, AI tools can bridge language and accessibility barriers by using natural language processing to enable search and retrieval in local languages. This capability aligns with the ESARBICA region’s diverse linguistic and cultural heritage and supports the accessibility of archives for all citizens.

Fostering strategic decision-making through records analytics

The study emphasizes the role of AI in enhancing governance and decision-making. This aligns with the potential of AI to analyse archival data for trends, patterns, and insights that inform evidence-based policymaking. By integrating AI into records management systems, ESARBICA member states can elevate the strategic value of their archives, transforming them into tools for governance and development.

Addressing human capital and skill gaps in records management

The study emphasizes human capital as a major challenge across the region, with low scores in STEM education and technical expertise. This gap directly impacts the ability of records management professionals to adopt and leverage AI tools effectively. Investments in training and capacity building for archival staff are critical to addressing this challenge and ensuring the successful integration of AI technologies.

Mitigating cybersecurity risks in archives

The findings also underscore the region's vulnerabilities to cybersecurity risks. Archives, as repositories of sensitive and historically significant information, require robust AI-powered systems to safeguard against breaches and unauthorised access. Strengthening AI readiness in cybersecurity can ensure the integrity and confidentiality of archival data.

The study shows that while AI readiness in ESARBICA countries remains low, strategic investment in digital infrastructure, AI-focused education, and policy frameworks could transform the region's approach to archives and records management. Governments must prioritize integrating AI capabilities that align with the specific needs of records governance, such as automation, accessibility, and long-term preservation. Furthermore, the relatively high performance in the data representativeness dimension indicates that the region has a foundation upon which to build equitable, inclusive, and effective archival systems using AI. By addressing gaps in infrastructure, human capital and strategic governance, ESARBICA member states can not only modernize their archival practices but also position records and archives management as a key contributor to the digital transformation and socio-economic development of the region.

Study limitations and future research directions

The study employed a quantitative technique which offers a structured data-driven approach to evaluate government AI readiness within the region. This method has some limitations. The analysis of AI readiness at macro-level analysis may not capture regional variations or sector-specific insights, and it overlooks important local factors like cultural attitudes or policy challenges. Additionally, the absence of qualitative data limits the depth of understanding regarding the contextual barriers to AI adoption, such as institutional capacities or public trust. The focus on broad indicators may also miss critical issues like ethical concerns in AI deployment. These limitations suggest that while the study offers comparative insights, future research should incorporate qualitative data, explore regional or sectoral variations and consider additional frameworks to provide a more comprehensive view of AI readiness in the region. Despite these limitations, the study provides valuable insights based on an established structured framework, which allowed for a comparative assessment across key dimensions. The study's quantitative approach offers clear, objective data on government, technology sector maturity and infrastructure, making it a useful tool for policymakers and stakeholders seeking to understand regional AI capabilities.

This study also identified some gaps and suggests the following research directions based on the mandate of ESARBICA as an influential body in public service. Firstly, it is necessary to determine how the AI-readiness status of the ESARBICA community affects AI-augmented records management. Secondly, a SWOT analysis should be conducted within each

ESARBICA member country to establish the strategic goals and their AI-readiness status. The SWOT analysis may rely on qualitative insights from practitioners rather than international indicators, which may not be relevant to the needs of developing countries. Local languages and indigenous knowledge should be part of AI solutions for African contexts.

Conclusion

In conclusion, the study highlights the current state of AI readiness in the ESARBICA community, with a focus on governance and ethics, technology maturity and data and infrastructure. The results show that ESARBICA countries perform well in the data and infrastructure pillar, but poorly in the technology sector. This shows that the technological sector of these economies is not sufficiently developed to handle AI. Most disheartening, the region has no AI strategy implemented. This implies an area for improvement in terms of articulating clear goals and aspirations for AI development. The results depict that South Africa, Kenya, Botswana, Namibia and the United Republic of Tanzania stand a better chance to deploy AI. South Africa consistently emerges as a leader across multiple dimensions. While Kenya showcases notable strengths in governance and ethics and digital capacity, positioning itself as a key player in the AI landscape. The variations in scores across pillars highlight the multifaceted nature of AI readiness, with different countries excelling in specific domains. While some countries have made significant progress in certain areas, there is still a need for improvement in others. The study emphasises the importance of a holistic approach to AI readiness, with strong government support, advanced technology sectors and robust data and infrastructure collectively contributing to optimal AI readiness. Policymakers and stakeholders should prioritise investments in human capital development to ensure a skilled workforce capable of driving innovation and maturity in the AI landscape. Overall, the study provides valuable insights for policymakers, emphasising areas of strength and opportunities for improvement to foster a more comprehensive AI ecosystem within each country.

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