Generative AI and Trade in Africa: Opportunities and Challenges

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Abstract: Generative artificial intelligence (AI) is poised to revolutionise Africa's trade sector, offering unprecedented opportunities to transform processes, spark innovation, and tackle enduring challenges. This paper delves into the profound impacts of generative AI on trade in Africa, analysing its potential to enhance efficiency, transparency, and competitiveness. With its remarkable ability to create content, predict trends, and automate complex tasks, generative AI promises to optimise supply chain management, improve logistics and inventory control, enhance predictive analytics for better demand forecasting, and streamline customs and regulatory compliance. Additionally, AI-driven solutions can revolutionise trade financing by offering more accurate risk assessments and facilitating faster, more secure transactions. One of the most compelling benefits of generative AI in trade is its potential to democratise access to global markets for African businesses, especially small and medium-sized enterprises (SMEs) and informal traders. These groups often face significant barriers to entry, such as limited access to market information, financing, and efficient logistics. Generative AI can level the playing field by providing data-driven insights, enabling better decision-making, and offering cost-effective digital tools for market access. This not only boosts the competitiveness of African businesses but also promotes inclusive economic growth. However, the journey to fully leveraging generative AI in African trade is fraught with challenges. Technological infrastructure remains a significant hurdle, with many regions lacking digital connectivity and data processing capabilities.

Furthermore, data privacy, security, and ethical considerations must be addressed to ensure responsible AI deployment. Developing robust regulatory and policy frameworks is essential to support AI integration while safeguarding against potential risks. Additionally, the skills gap poses a challenge, necessitating substantial investment in digital literacy and capacity-building programs to equip the workforce with the necessary skills to leverage AI technologies. The policy implications of generative AI in trade are profound. Governments and stakeholders must collaborate to develop supportive regulatory frameworks that encourage AI innovation while protecting against misuse. Investment in digital infrastructure and connectivity is crucial to bridge the digital divide and ensure equitable access to AI technologies. Public-private partnerships can drive AI innovation and implementation, fostering a collaborative ecosystem that supports sustainable development. Enhancing digital literacy and providing targeted training programs are essential to build a skilled workforce capable of utilising AI tools effectively. By embracing the transformative potential of generative AI, Africa stands on the brink of unprecedented advancements in trade efficiency, innovation, and inclusivity. Realising this vision requires coordinated efforts across technological, regulatory, and educational domains. A collaborative approach involving governments, businesses, and civil society can drive the continent towards deeper integration into the global economy, fostering development and prosperity for all. The strategic implementation of AI technologies, supported by robust infrastructure and policy frameworks, will be key to unlocking these opportunities and ensuring sustainable growth.

Keywords: Generative artificial intelligence (AI), infrastructure, innovation, policy, trade

Introduction

The transformative nature of generative AI and its ability to drive progressive and positive change in the contemporary era cannot be overlooked. The powerful machine-language (ML) tool encodes information and generates new knowledge from existing artefacts such as audio, texts and simulations (Epstein et al., 2.023). General AI is also referred to as Strong AI due to its cognitive abilities that emulate human intelligence, making it capable of performing tasks that human beings perform. Using these capabilities, the tool has continued to transform the global economic landscape, fostering job creation and innovation opportunities that, in turn, drive stability and economic growth.

Demonstrably, generative AI continues to play a significant role in the global economic and trade landscape. Its impacts span from job creation to risk management, supply chain optimisation, forecasting, customer insights, and automation. Research by McKinsey & Co (2023) reported that generative AI has led to a shift in knowledge worker jobs, including the skills required and output produced. According to the research report, through 2040, AI will increase global productivity by 0.6% a year (McKinsey & Company, 2023). Overall, the tool is set to increase the efficiency of diverse economic sectors, driving innovation and contributing to more informed global trade practices, particularly in industries such as education, health and climate change.

In Africa, the instrumental role of AI in driving innovation in digital production, science and information analysis is being felt across all sectors. The tool has been vital in collecting the evidence needed to identify and analyse opportunities specifically for the African population while mitigating harms and risks unique to the region. From the regional perspective, generative AI is intertwined with data colonialism, exploitation practices and inaccessible and insufficient global technology ecosystems, which have affected the continent for years (Friederici, Wahome & Graham, 2020). In trade, the tool has the potential of increasing and democratising access to the global market for all businesses, regardless of their size. Particularly, small and medium-sized enterprises (SMEs) encounter challenges and risks in entry and access to international markets, challenges that generative AI could solve. The global playing field can be levelled through increased access to valuable data-driven insights, informed decisions and practices, and cost-efficient digital tools through this tool. Therefore, the SMEs will enjoy increased competitiveness and inclusive development. However, diverse challenges and risks still need to be improved by this potential, including inadequate connectivity, slow data processing capabilities, lack of robust infrastructure, poor regulatory landscape, and prevailing data security issues (Wakunuma & Eke, 2024). Against this backdrop, this study explores generative AI in Africa, its opportunities and challenges, and how it can be leveraged to enhance economic growth in the African context.

Problem Statement

Generative AI presents the African continent with the potential to transform its work environment, increasing accessibility to an inclusive market and opportunities for innovation and job creation. The tool will facilitate economic growth and development by driving innovation and efficiency. It also demonstrates the potential of enhancing accessibility to quality education, advancing the agricultural sector and improving healthcare quality (Wakunuma & Eke, 2024). The continent benefits from the diverse opportunities associated with generative AI, which extends beyond innovation to include democratised access to information, increased productivity, and city and advanced financial inclusion. Overall, the tool would play a significant role in boosting the overall African economy, whose growth has been stagnated by the shortage of specialised skills, among other challenges.

However, generative AI adoption faces significant hurdles that slow down or prevent its adoption. Limited digital infrastructure to support generative AI adoption limits its use and maintenance. In addition, the region lacks adequate access to fast internet connectivity and high-quality real-time and relevant data, which are crucial for the effectiveness of AI applications (Okolo, 2023). The region is also characterised by limited financial resources vital for adopting and implementing AI. It is an endeavour that requires vast and continuous investment to achieve maximum output. The weak and inadequate regulatory and policy landscape across the continent further makes it difficult to address AI-related issues, such as data privacy and ethical concerns (Okolo, 2023). Addressing these challenges and opportunities is vital in increasing the adoption of technology tools in the region to effectively harness Africa's development potential while mitigating the associated risks.

Objectives

       i. To analyse the impact of generative AI on Africa's trade sector
      ii. To identify opportunities provided by AI in trade
     iii. To explore the challenges of implementing AI in Africa

iv. To recommend strategies for maximising the benefits of AI in trade

Research Questions

i. How can generative AI enhance efficiency, transparency, and competitiveness in Africa's trade sector?
ii. What are the key opportunities provided by generative AI for African businesses, especially SMEs and informal traders?
iii. What are the major challenges in implementing generative AI in Africa's trade sector?
iv. What strategies can be adopted to overcome these challenges and maximise the benefits of AI in trade?

Literature Review

Numerous studies have been undertaken to analyse generative AI and its impacts in many African countries. With the paradigm shift in technology and the impact of Artificial intelligence in numerous industries, there is a need to explore further past studies, publications, and reports to establish more about generative AI, its impacts on the community in varying sectors, and the opportunities and challenges presented about Generative AI.

Overview of generative AI technologies

Generative AI (Gen AI) is an umbrella term for different machine learning models that produce output based on different sets of input provided (Saetra, 2023). These tools, mainly used for streamlining workflow, have been used by scientists, engineers, researchers, creatives and business people, among others. They can turn inputs such as written instructions into different outputs, including video, text, images, audio and code (Gupta et al., 2024; Saetra, 2023). For instance, Generative AI models such as Midjourney can turn text inputs into images (Saetra, 2024). A major reason behind the growing interest in generative AI is because of the simplicity of new user interfaces for creating high-quality videos, images, graphics, texts, and more, all in a matter of seconds. In research conducted by Lawton (2024), as much as the technology was released in the 1960s in chatbots, it was not until 2014 that there was the introduction of generative adversarial networks, commonly known as GANs. This involves a machine learning algorithm that makes it easier for the generative AI to create authentically convincing images, videos, and audio of real-looking people.

The newly found capability of generative AI has opened up numerous opportunities, including movie dubbing and rich educational context. Nevertheless, there have been numerous concerns about deep fakes and harmful cybersecurity attacks using the new technology. Other unlocked concerns include individuals using nefarious requests that realistically mimic voices, a move that can harm a company or an individual whose voice has been used.

According to a study by Hall (2023), there are more recent advantages that have played a huge part in AI going mainstream. They include transformers and breakthrough language models. Gupta et al. (2024) posits that transformers entail machine learning which enables researchers to train even larger models without needing to label all the data in advance. Additionally, transformers could also use their ability to track connections to analyse code, proteins, chemicals, and DNA. Other advancements in generative AI include the Variational Autoencoders (VAEs), designed to encode input into a compressed form and decode it to become new but similar data (Gupta et al, 2024). Further, diffusion models, according to Hall (2023), are used to generate high-quality images. Through such technologies, images become clearer with refined noises and better quality. Based on these emerging generative AI trends, it is manifest that these technologies have had major impacts in various fields by ensuring that high-quality content and innovative solutions are created across industries.

Applications of AI in Global Trade

AI is set to heavily impact global trade, with different applications emerging over the past few years. From productivity increase to enhanced decision-making, predictive capabilities, and problem-solving ability, it holds unprecedented opportunities in the global trade arena (Cazzaniga et al, 2024). Furthermore, as Meltzer (2024) posits, specific applications in numerous areas, including data analytics and translation services, have been greatly impacted by the emergence of AI.

A key application of AI in global trade is supply chain optimisation. According to Hofman (2024) and Soleimani (2018), AI models can help in inventory management, transportation, logistics optimisation and demand prediction, resulting in more efficient supply chains. Helo & Hao (2021) give the example of NEC. This Japanese company uses AI image recognition technology to improve its inspection work by judging whether the products to be shipped

match those on the shipment list. Machine learning algorithms can also analyse historical data and aid in forecasting trends and adjust supply strategies accordingly (Hofman, 2024).

AI is used in Trade Facilitation and Compliance. Nina and Nina (2023) state that AI-driven tools are designed to automate customs documentation and aid in risk assessment and regulatory compliance. Such models are vital in that they aid in navigating complex trade regulations and ensuring that there are reduced delays, especially in the events of cross-border transactions. AI models have also been used in translation, aiding in cross-cultural communications and negotiations, and access to important trade information (Liu et al, 2024) reducing language barriers and facilitating cross-border trade.

Market analysis and forecasting present another front for AI applications in global trade. This is done by analysing the market data, identifying the changing trends, assessing the risks, and forecasting future market conditions (Nina & Nina, 2023). Eventually, they aid businesses in making informed trade decisions. Beyond market forecasting, analysis of current markets also enables personalised trade recommendations. The AI systems are essential in providing personalised trends in the market and identifying new consumer preferences. As a result, they help ensure that businesses have tailored offerings that meet the needs of their prospective consumers Meltzer (2018). Walmart, a multi-channel retailer, uses AI to process large volumes of customer data such as customer online activity to gain insight into customer behaviour and preferences, providing personalised experiences to its clientele (Helo & Hao, 2021).

Lastly, AI models have prominently aided in fraud detection. Meltzer (2018) states that AI algorithms easily detect anomalies, which helps enhance security, detect likely financial crimes, and ensure integrity in trade transactions.

Case Studies of AI in African Trade

Africa has not been left behind while the world picks up AI in different capacities. AI has made great inroads in various sectors of the African continent, with multiple organisations claiming the use of AI in some shape or form in their daily operations. According to Eke et al. (2023), one of the areas in which artificial intelligence is vital in the continent is agriculture. In nations like Kenya and Nigeria, there are different platforms already in place that have aided in enhancing agricultural trade through the optimisation of crop yields (C & C, 2024). This is through having predictive analytics and improving supply chain efficiency. Kenya's Twiga Foods, for instance, uses AI to connect farmers to the markets Cavan (2021). As a result of integrating AI into its process, Twiga Foods has managed to reduce waste and ultimately increase farmers' incomes.

Trade logistics in South Africa have also benefitted from AI applications. Companies in this country have, in recent years, utilised AI technologies to streamline port operations and logistics. The South African Revenue Service (SARS) employs AI solutions to ensure more effective customs processing Mzekandaba (2024). As a result, the clearance times are at high speeds and help reduce bottlenecks.

The e-commerce and market access in Africa has also utilised AI-powered solutions to make the involved companies competitive globally and. Some AI-powered solutions used by e-commerce firms include chatbots and recommendation engines, which have been vital for African SMEs to enter the global market by providing better customer experience and targeted marketing (Selamat & Windasari, 2021). Jumia, for instance, has been leveraging AI to ensure enhanced user experience and optimised logistics.

The growth of AI has also impacted financial inclusion. According to Cohen (2024), AI is being used to provide financial services in Africa, especially for underprivileged populations. Many banks and fintechs have incorporated AI in developing credit scoring systems to use alternative data sources to evaluate individuals' creditworthiness in the informal economy. Tala, a digital lender, uses AI to make quick lending decisions, determining individuals' creditworthiness through data points such as cell phone data, device type, and behavioural data (Tala, n.d.). As a result of utilising Artificial Intelligence in these systems, individuals and businesses can easily access loans and participate more actively in trade.

Theoretical Frameworks on Technology Adoption and Innovation in Trade

Some key theoretical frameworks provide useful insights when exploring technology adoption and innovation in trade, especially concerning Artificial intelligence. One of the key theories, according to Yasir et al. (2022), is the Technology Acceptance Model (TAM). The model expounds on the perceived ease of use and apparent usefulness as the key factors that contribute to the adoption of new technologies. According to the theory, businesses are more likely to adopt new technology, especially if they perceive the technologies to add value to their business, be user-friendly, and have overall benefits to both them and their consumers.

A second framework that provides useful insights is the Diffusion of Innovations Theory. The theory proposed by Everett Rogers scrutinises the why, how, and at what rate new ideas, more so technology spread (Sydle, 2023). Some key focus areas for the Diffusion of Innovations theory include complexity and compatibility with the existing systems. It also focuses on why such factors may adopt Artificial intelligence in trade. A third theory that explores AI and modern technology in trade is the Resource-Based View (RBV). The framework suggests that firms can be competitive with strategic social capabilities and resources (Chen, 2022). Chen further states that firms that effectively utilize AI now have a strategic resource, making them more competitive in the market.

Based on the literature review, further research needs to be undertaken to explore more generative AI, and how it continues to influence trade in Africa. Hence, this study will focus on the transformative potential of AI technologies. Additionally, the research needs to focus on further challenges and theoretical considerations that influence the adoption and impact of Artificial intelligence within the continent.

Research Methods

A descriptive research design was employed in the study, with data collected from secondary sources. This research design is concerned with identifying and observing the traits of a phenomenon, in this case, generative AI, without exploiting or manipulating the associated variables (Siedlecki, 2020). Qualitative secondary data was derived from diverse publications that were easily accessible over the Internet, including industry reports, academic journals, government reports, company websites, and news and media articles. The two database engines from which the secondary publications were derived included Google Scholar and SciELO. A set of keywords was used in the search for the above secondary publications to ensure that only relevant and accurate findings were derived, including "Generative AI", "Opportunities and Challenges of Generative AI", "Generative AI in African Trade", and "AI Policies and Concerns in Africa".

AI is a relatively new concept; therefore, only real-time data needed to be used during the study. Thus, all secondary publications included in the study were required to meet the eligibility criteria for them to be considered for use in this report. The inclusion and exclusion criteria used in selecting the study's secondary publications are highlighted in the table below.

Table 1: Inclusion and Exclusion Criteria

Inclusion Criteria	Exclusion Criteria
Published after 2017	Published before 2017
Written in English Language	Written in languages other than English
Focused on AI, opportunities and challenges	Focused on other issues regarding AI

A comparative analysis was consequently employed to analyse and compare the findings collected from the above publications. This analysis technique was vital in identifying common trends and diverging perspectives regarding Generative AI and its opportunities and challenges in trade within the African continent.

Analysis and Discussion

As evidenced by the findings collected from the above secondary publications, Generative AI demonstrates a high potential to transform the trade and economic landscape of Africa in diverse financial sectors. Some of the key areas likely to be impacted by this technological tool include;

Supply Chain Management, Logistics, and Inventory Control

The advent of generative AI demonstrates the potential for solving the prevailing challenges facing the intricate and interconnected modern marketplace. The AI offers solutions such as efficient inventory management, proper scheduling and flawless coordination throughout the supply value chain, easing the flow of goods and services across the continent. By 2022, the market size of AI in the field of supply chain and logistics was valued at US $301. 83 Million. It is projected that by 2030, this value will have increased by $6102.82 which mirrors a positive and dramatic 46.50% compound annual growth (CAGR) (Precedence Research, 2024).
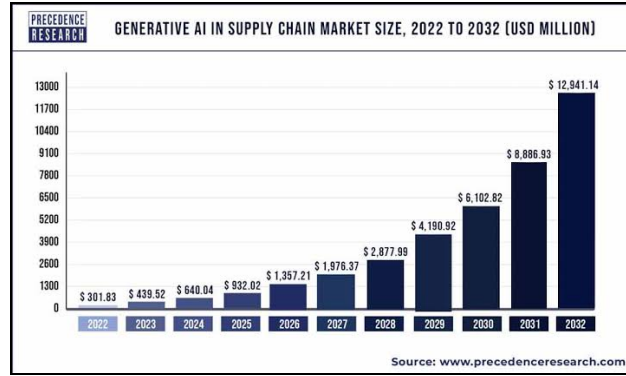
Figure 1: Projected Growth of Generative AI in the Global Supply Chain Market (Precedence Research, 2024))

By harnessing the power of generative AI, businesses can make more informed decisions regarding production plans, warehousing, material procurement, logistics among other related supply chain and logistics plans. A quintessential example is the United States Cold Storage which has automated its scheduling system to predict and estimate the arrival time of carriers and the time needed for servicing.

AI-Driven Predictive Analytics for Demand Forecasting

A McKinsey (2023) report revealed that 75% of businesses globally, particularly in developing nations such as Africa, depend on manual methods for demand forecasting and planning their supply. Primarily, they rely on Excel spreadsheets, which are marred with inaccuracies and irregularities. These methods are also tedious and time-consuming.
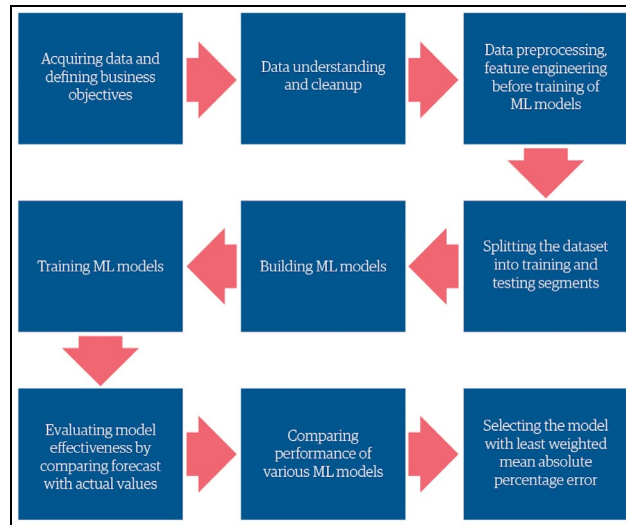

Figure 2: The Forecasting Process by Generative AI (Hassani & Silva, 2024)

Key findings reveal that Generative AI has the potential to improve the accuracy and efficiency of supply chain operations and demand forecasting for many businesses in the region. AI models take into account 100% of data and process it immediately allowing it to make real time predictions. With a higher level of accuracy in forecasting, businesses can make informed decisions, increasing their competitiveness in the marketplace.

Enhancements in Customs and regulatory compliance through AI

The application of Generative AI extends to the customs and immigration field. By using the technology, businesses can mitigate potential damages and avoid dealing with regulatory issues.

The use of AI has also been associated with high predictive capabilities and can, therefore, be used in planning for future potential risks using historical data and prevailing patterns. Thus, businesses are able to plan and strategize rather than have reactive responses.

A study by Hassani and Silva (2024) reveals that the shift to AI has proven to be beneficial in cutting down costs associated with a large compliance team. Using AI-driven compliance tools, businesses are able to identify and manage risks through analysing historical patterns and making accurate predictions. In addition, the prediction made by AI applications is accurate and reliable.
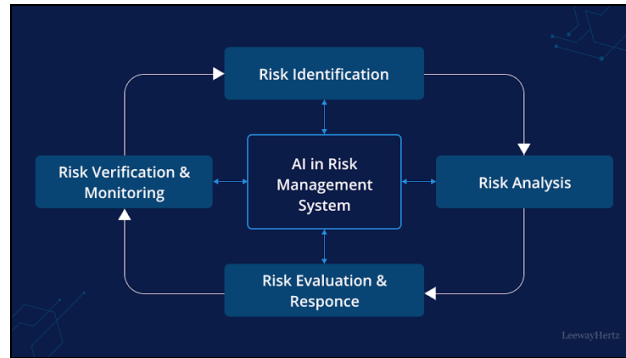

Figure 3: The Risk Analysis Process by Generative AI at Customs (Hassani & Silva 2024).

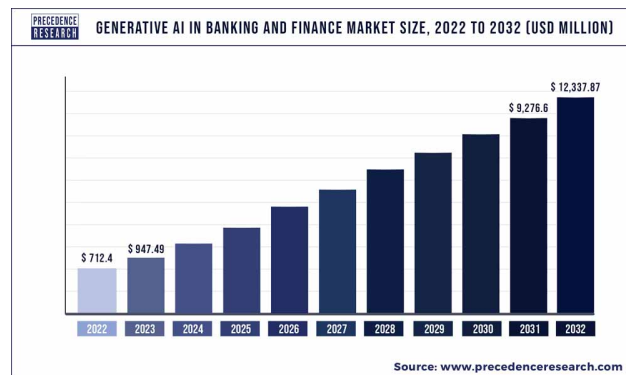**AI in Trade Financing: Risk Assessment and Transaction Security**

Figure 4: Growth of Generative AI in Banking and Finance (Precedence Research, 2024)

The financial services sector has greatly benefitted from the advent of AI, including fraud detection, risk assessment and planning and investment. The sector is expected to grow from $947.49 reported in 2023 to $12,337.87 in 2032 (Precedence Research, 2024). Through automatic analysis of data, AI can identify abnormalities that aid in fraud detection and risk analysis. This allows businesses to respond proactively, safeguarding capital that might otherwise be lost, and thereby increasing the value they create. According to Chui et al. (2023), banks worldwide could generate an additional $200 billion to $340 billion in value annually through AI. In addition, through these patterns, the AI can make accurate predictions, enabling businesses to make informed business decisions and policies. For example, leveraging the power of Blockchain and AI in trade finance enables companies to streamline workflows, including the management, storage, and accessibility of records

Democratisation of Market Access for SMEs and Informal Traders

Generative AI has demonstrated the potential of democratising market access and optimising trading strategies. Key findings reveal that by 2030, generative AI will contribute over $15.7 trillion, with $ 1.2 trillion being generated in Africa (Akintaro, 2024). The African trading landscape is presented with an opportunity to benefit from AI in diverse ways. Through AI-driven predictions, business owners and employers have an increased understanding of

the market and can, therefore, make informed decisions. They can easily monitor their portfolios and identify potential risks allowing for early response measures. Regarding trade execution, they can utilise trade algorithms to analyse market status and conditions, such as the stock exchange and make informed decisions on when to buy or sell stocks. Overall, generative AI, as evidenced by the above findings, has the potential to positively impact the African economy, increasing its stability and development.

Challenges

Unfortunately, the potential of AI is limited by significant, diverse, diverse hurdles that prevent businesses from fully leveraging its potential. Key findings reveal that limited infrastructure is one of the main barriers to the adoption of AI. Most African regions lack the necessary AI-supportive infrastructure, such as fast internet speed and reliable electricity energy, which are key in the deployment of AI applications (Okolo, 2023). Data Privacy and security persist as a prevailing challenge limiting the full integration of AI in the trading sector. AI is heavily dependent on data, a dependency that is threatened by the rising cases of data misuse, hoaxes, unauthorised access, gawking and other data-related threats. The complexities of data security also bring to light related ethical concerns. The lack of a reliable regulatory framework to govern the use of AI applications reinforces the challenges of data privacy and the potential of the applications, reinforcing existing biases (Okolo, 2023). A shortage of specialised skills has also been revealed as a primary hindrance to the adoption of AI technology. The African education system fails to offer adequate training programs related to AI applications. Skilled professionals are vital in the development, implementation and maintenance of AI systems.

Policy Implications

Diverse challenges hamper the proper and extensive adoption of generative AI. However, generative AI is a relatively new concept whose advent dates recently to the 21st century and, therefore, has not been covered extensively by scholars. The findings included in this study contribute to the existing body of literature and can be used by future researchers and policy makers. The information included in this study can guide policymakers during decision-making processes to introduce measures and place strategies and policies that will fuel the increased adoption of AI (Eke et al., 2023). Key policy areas include data protection and management, education and labor.

The rapid rise of AI has amplified concerns about data privacy, highlighting the urgent need for policies that protect data without stifling innovation—a challenging balance to achieve. Africa, a continent that has leapfrogged several technological milestones, such as mobile phone adoption and mobile money usage, occupies a unique position in the evolution of Generative AI. Implementing policies that safeguard consumers such as regulating data use, sharing and sourcing to protect intellectual property rights can build trust in AI technologies which is critical for enhancing trade within the continent and with global partners (Meltzer, 2018). Policies that encourage the development of inclusive AI models would also ensure that African voices are represented and strengthen Africa's position in the global market by making AI solutions more relevant and accessible. This inclusivity can drive innovation across various sectors, creating new opportunities for trade and economic collaboration.

Data governance and privacy policies are key to the future integration of AI in African commerce. The advent of digital technology has been marred with data privacy issues and ethical concerns which continue to accelerate with its evolution. Strengthening the data protection and governance and policy framework would be key to ensuring that the AI integration and use complies with local data protection standards (Eke et al., 2023). Alongside this emerging need, is the ethical AI Framework, which would offer the ethical guidelines to be followed in the development and deployment of AI. Through this framework, AI-related challenges such as data bias and transparency will be addressed to eliminate the issues of data privacy and AI ethical issues across the continent.

Leaders and policymakers in Africa have a primary responsibility of supporting and promoting the integration of AI in African commerce through supportive and relevant policies. For instance, the integration of AI and digital literacy in all educational levels will increase its adoption in future years. This includes promotion of STEM courses (Science, Technology, Engineering and Mathematics) and AI-targeted programs. This educational policies should also focus on upskilling and vocational training of the current workforce that lack digital literacy and awareness (Chen et al., 2021). These educational initiatives should be continuous in nature owing to the rapid evolution of technology that makes it imposible especially for those who are not digital natives to keep up.

Intellectual Property Protection and R&D Incentives are also policies that are key in the future integration of AI in enterprenuership and innovation. R& D policies would be vital in stimulating and supporting innovation (Okolo, 2023). Through these policies entreprenuers, particularly startups and incubators would receive funds and tax breaks

stimulating increased research and innovation. Strengthening IP policies will be key in protecting these innovations and boosting local talent.

Policies supporting a collaborative ecosystem between the public and private sectors are necessary to support the integration and implementation of generative AI in all industries. As mentioned above, the adoption and implementation of generative AI requires vast capital investment. This partnership will fuel and drive AI innovation, exacerbating adoption levels and supporting sustainable development in the region. In addition, this collaboration will be essential in fueling investment towards supportive infrastructure and data connectivity within the area that can enhance the adoption of generative AI (Okolo, 2023). Simply put, a collaborative approach between all stakeholders, including governments, business owners, civil society and learning institutions, among others, is vital in driving the region towards deeper integration of generative AI in its economy for sustainable regional growth and development. For instance a collaborative approach between states and financial istitutions to increase accessibility to funds particularly to SMEs and informal traders would accelerate the adoption of AI in businesses.

Based on the findings, it is possible that in the future, researchers and policymakers can integrate generative AI and enhance productivity through the automation of complex tasks. Such developments are key sectors such as agricultural manufacturing and services. Policymakers have the task of considering the incentives for businesses to adopt AI technologies. and ultimately aid in the stimulation of economic growth (Qin et al., 2023). Additionally, based on the findings, it is manifest that there is a need for educational programs to equip their workforce with AI-related skills. According to (Qin et al., 2023), this is to ensure that they are in line with the technological developments across the globe. Furthermore, policymakers need to focus on integrating AI and literacy into educational curricula and incorporating the technology in the training of the current workers. A major benefit of having the policies in place is to ensure that the widening inequality is prevented which is crucial for all demographics across nations. Moreover, Policymakers need to enact policies that ensure that businesses enjoy their intellectual property rights. Such a move is vital for innovation protection, given that the rise of AI technologies has raised numerous questions regarding these rights (Chen et al., 2021). The policies enacted need to update the existing IP rights, with the aim of addressing challenges associated with AI inventions and creations, where the policies will protect the innovators and encourage further innovation.

Recommendations

Based on the findings, there is a need to have huge focus on trade policies and digital infrastructure. Through Generative AI, digital trade can be boosted through improving customer service, logistics, and market analysis. There is a need for policies that can support e-commerce platforms and the infrastructure, a move that can aid in ensuring the facilitation of cross-border trade. In addition, Generative AI can aid in lowering entry barriers for start-ups and provide small businesses with the necessary tools to facilitate consumer engagement, marketing, and other activities such as content creation (Chen et al., 2021). Some of the key policies that are in line with the initiative and can be enacted by the policymakers include tax incentives, grants, and ensuring that SMEs are able to access AI tools.

The issue of regulations and ethics has been raised in the findings. Artificial intelligence can process vast amounts of data. As a result, there is a need for policies that address data privacy and cybersecurity to ensure that innovations, businesses, and individuals are all protected. The policies need to make sure that the emerging technologies company the ethical guidelines and that everyone's privacy is respected (Chen et al., 2021). Additionally, there is also a need to develop frameworks to ensure that persons using AI observe critical ethical guidelines such as transparency, honesty, accountability, and bias to prevent misuse and ensure that there are equitable benefits.

 In addition, there is a need for having a framework for cross-border collaboration. First, based on the findings, it is manifest that Generative AI can play a huge role in ensuring better regional cooperation, especially among African nations. Through generative AI policy frameworks, countries can further enjoy shared infrastructure, policy development, and more research on modern technology. There can be added agreements amongst nations within the region where they can include provisions regarding digital trade and Ai cooperation Burton (2023). Further, more policies can be enacted that can ensure international bodies cooperate to establish global standards on Artificial intelligence. This can help African countries and other global nations to be on the same page in aligning with global practices, especially on matters of technology.

Finally, there is a need for a further focus on sustainability and inclusivity, based on the findings. Artificial intelligence technologies have had numerous environmental impacts. This includes aspects such as consumption and energy. There is a need for future policies that will ensure that there is an integration of AI development with

sustainable practices (Eke et al., 2023). Additionally, AI advancements have contributed to massive and inclusive economic growth. This necessitates the need for further focus on the need for creating opportunities, especially for marginalized communities and for small and medium enterprises, to ensure that they also get to benefit from AI technologies.

Conclusion

The ability of generative AI to drive transformation and positive economic growth cannot be overlooked. AI has increased automation forecasting innovation as well as job opportunities, among several others. In the African economic landscape, the role of AI stretches to increased democratised access and inclusion to the global markets. However, its adoption within the region has faced significant hurdles, including inadequate infrastructure, a shortage of specialised skills, and a weak regulatory framework. Therefore, for adequate leveraging of AI in the continent to support sustainable growth, diverse recommendations have to be actualised, including strengthening the regulatory landscape, introducing target training programs and fostering public-private partnerships to facilitate significant investments and support the integration of generative AI in Africa's economic landscape.

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