

Research Article

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A Paradigmatic Discourse on the Correlation between Investing in Artificial Intelligence, Effective Communication and National Transformation

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Abstract

Keywords

Artificial Intelligence, Regulation, Transformation, Investment, Communication, Culture

This study focuses on Artificial Intelligence (AI), communication and Nigeria's transformation. The field of artificial intelligence (AI) is rapidly expanding, and these advancements are having far-reaching effects on our daily lives. Nigeria is one of the nations that has seen the potential of this innovation to speed up the pace of national transformation and progress. In the light of this, the study aims to investigate the extent of the adoption of artificial intelligence (AI) technology and communication in the transformation of Nigeria, to identify the potential benefits and drawbacks of incorporating AI and communications into Nigeria's transformation efforts and to examine the ethical, legal, and social implications of AI on Nigeria's transformation as it relates with data privacy, transparency, and accountability. The theoretical frameworks of the study is built around the Diffusion of Innovation theory (DOI) and the Social Construction of Technology theory (SCOT). Paradigmatic analysis is employed in this research to frame discussions of the topic within useful paradigms that would help readers get deeper insights. Hence, the discussion aspect of the study is divided into three paradigms; Historical and Cultural Context, Governmental Roles and Policies as well as Ethical, Legal, And Social Implications of AI Adoption in Nigeria's communications. The study concludes that AI in communication might transform business and Nigeria's economy. However, investing in technology and

infrastructure may lessen or eliminate AI's negative effects on the employment market. If the government regulates and invests more in AI, Nigeria may accelerate its digital transformation.

1.0 Introduction

Artificial intelligence (AI) is a fast developing science that is changing the way we live, work, and communicate. Nigeria is one of the countries that has seen the value in this technology to hasten the country's development and change (Ayoko, 2021). There are many ways in which artificial intelligence (AI) might be useful, and this is one of those ways that could lead to significant benefits. The introduction of AI has the potential to revolutionize all forms of communication in Nigeria, allowing for faster and more efficient exchanges of information across all sectors of the economy. The growth of the country's economy might be significantly affected by this (Okunlaya, Syed Abdullah and Alias, 2022). There has been increasing speculation in recent years that AI has the potential to revolutionize not just the Nigerian economy, but also the country's culture (Okunlaya et al, 2022).

The government of Nigeria understands the importance of AI to economic development and has launched a variety of programs to increase the application of AI to various sectors of the economy (Ayoko, 2021). The Artificial Intelligence in Economic Development Initiative (AI-EDI) is one such initiative with the stated goal of advancing the use of AI to the expansion of the economy (Mogaji and Nguyen, 2022). For instance, the National Information Technology Development Agency (NITDA) has just recently released the Nigeria Artificial Intelligence Roadmap.

The communication sector of the Nigerian economy is one that might benefit greatly from the use of artificial intelligence. Due to the country's enormous population and geographical diversity, effective means of communication are essential to the growth of Nigeria's economy and culture. Artificial intelligence has the ability to

aid in the enhancement of communication in a wide variety of settings, both generally and specifically (West and Allen, 2018). Benefits include, but are not limited to, improved ability for enterprises to communicate with consumers, streamlined communication throughout the country, and faster, more accurate translation services.

Furthermore, AI has the ability to aid in the change of Nigeria by making it possible to build distinctive new communication technologies. This is one way that AI may aid in the progress being made in Nigeria. Voice assistants that are powered by AI may help people with disabilities have better access to information and services, while chatbots can offer companies with personalized customer care and assistance (Sharma, Vimal, Vishvakarma, Kumar, Porto de Souza Vandenberghe, Gaur and Varjani, 2022). It is obvious that AI has the potential to significantly impact Nigeria, especially in the field of communication. If Nigeria accepts AI and invests in its development, the country may use AI to boost economic growth, advance social progress, and improve the quality of life for its citizens. Artificial intelligence has the ability to improve people's living conditions (Ayoko, 2021). Therefore, it is crucial that the government of Nigeria and the corporate sector work together to rapidly advance artificial intelligence (AI) research, development, and implementation in Nigeria. In the light of this, the aim of this study is to present the way for Nigeria to compete in international AI contests by creating conditions favorable to the growth of AI technologies in the country. In other words, this study aims to investigate the current state of artificial intelligence (AI) technology in Nigeria, as well as its potential to transform the way that several sectors, including healthcare, finance, and education, communicate with one another.

Objectives of the Study

This study shall be guided by the following objectives

1. To investigate the extent of the adoption of artificial intelligence (AI) technology and communication in the transformation of Nigeria
2. To identify the potential benefits and drawbacks of incorporating AI and communications into Nigeria's transformation efforts
3. To examine the ethical, legal, and social implications of AI on Nigeria's transformation as it relates with data privacy, transparency, and accountability.

2.0 Literature Review

It is becoming more crucial to study the interplay between AI, communication, and the transformation now taking place in Nigeria. When it comes to healthcare, agriculture, transportation, and even the financial sector, AI has the potential to make significant strides in Nigeria, a growing nation that might greatly benefit from these developments. Artificial intelligence (AI) has the potential to significantly impact several sectors of the Nigerian economy. These are some of the most ready-made industries to be upended by AI. However, efficient interaction is essential for realizing its revolutionary potential. Osuwa, Ekhoragbon, and Fat (2017) believe that effective communication is crucial for increasing people's familiarity with AI, winning their confidence in the technology's potential, and ensuring that the rewards of AI are distributed fairly.

Artificial intelligence has almost limitless application in areas such as the automation of routine tasks and the analysis of massive volumes of data (Kohnert, 2022). Concerns on the political, economic, and even religious fronts are just some of the many problems Nigeria is now facing. However, AI technology has the ability to revolutionize communication and turn present communication systems into ones that are more

effective and efficient, hence having a positive influence on the difficulties now being experienced. Sharma et al.'s (2022) study suggests that AI-powered chatbots would serve as virtual assistants in the near future, handling tasks including fielding customer questions and processing payments. In addition, AI may be used for insightful data analysis to learn about widespread tastes and fads that can inform policy choices (Gwagwa, Kraemer-Mbula, Rizk, Rutenberg, & De Beer, 2020). This practice might be used to exert pressure on decision-makers. To do this, it may be useful to learn about what people like and what is trendy in society as a whole.

Researchers from many institutions have investigated the hypothesis that AI may improve communication and thereby cause a paradigm change in the Nigerian economy. Ogunnusi, Omotayo, Hamma-Adama, Awuzie, and Egbelakin (2021) conducted a research that found AI has the potential to enhance Nigeria's healthcare system using chatbots and virtual assistants. Similar scope was explored by Adekunle, Oyekunle, Oduwale, Owootomo, Obisesan, Elugoke, and Oluwafemi (2020), who looked at the viability of using AI-based predictive analytics to increase agricultural output in Nigeria. In particular, they wanted to know whether the use of AI in agriculture might boost productivity. Despite the potential benefits of AI, there is still cause for concern. According to the findings of their research, Yelwa and Abdulhameed (2020) conclude that the widespread implementation of AI in Nigeria might lead to the elimination of low-skilled jobs. Therefore, it is crucial to ensure that people are well-informed on the advantages and disadvantages of using AI via effective communication.

The development of legal and moral guidelines for the use of AI in Nigeria calls for concerns. Ensuring AI is created and used responsibly is crucial (Atewolara-Odule, Aiyelaagbe, Olubomehin, Ogunoye, Feyisola, and Sanusi, 2020). The implications of artificial intelligence

(AI) are vast, and it is an incredible piece of technology. Kohnert (2022) conducted research on the moral implications of AI in Nigeria and recommended a regulatory framework for the technology. Research on the legal and ethical considerations of AI application by Gaffley, Adams, and Shyllon (2020) may be relevant to the situation in Nigeria. Gaffley, Adams, and Shyllon (2020) also looked at the legal and ethical considerations associated with AI deployment and from this study, it is clear that not nearly enough study has been done on how AI has altered Nigerian social and cultural standards. It is crucial to ensure that AI-driven shifts do not conflict with preexisting cultural and societal norms in Nigeria (Sharma et al., 2022). Artificial intelligence has the potential to significantly impact people's daily lives and livelihoods. Additional study is required to fully comprehend the cultural and societal effects that AI implementation in Nigeria may have.

In Nigeria, preparations have begun for the widespread adoption of AI throughout the country's commercial sector. According to Oruma, Misra, and Fernandez-Sanz (2021), in 2018, the Nigerian government released the Nigerian AI Roadmap in an effort to make the country a frontrunner in the global AI development race. To guarantee that Nigeria is ready for AI, the road map prioritizes increasing capacity via research, producing new research, establishing appropriate infrastructure and regulatory frameworks, and interacting with other stakeholders. Artificial intelligence (AI) technology has the potential to enhance communication in Nigeria, which in turn might help the country's economy and society develop. Automation of processes like diagnosis and treatment are two areas where AI has the potential to enhance healthcare delivery (Balogun, 2021). Similarly, the automation of mundane duties like toll collecting and tax filing might lead to the creation of new employment opportunities and an improvement in the effectiveness of business operations (Matthew; Kazaure; Onyebuchi; Daniel; Muhammed; Okafor, 2021). Artificial intelligence may also help improve security in two other ways: by watching surveillance footage

and by developing a predictive analysis of terrorist acts.

Consequently, the use of AI technology in Nigeria has the potential to revolutionize the country's means of communication while also causing widespread disruption across a number of industries via the mechanization of established procedures and the development of novel, superior alternatives. It is important to create regulatory frameworks and infrastructure that can support and speed up the incorporation of AI technology in order to fully realize the advantages of AI (Ogunnusi et al, 2021). This is essential if the nation is going to make the most of the AI's advantages. This means that the Nigerian government, together with other interested parties, has to undertake the required preparations to enable a seamless AI-powered transformation of the country's communication infrastructure.

3.0 Theoretical Frameworks

While this study might be framed within a number of theoretical frameworks, the Diffusion of Innovations theory and the Social Construction of Technology theory stand out as particularly apt.

3.1 Diffusion of Innovations Theory (DOI)

One of the most well-established theories in all of social science is the Diffusion of Innovation (DOI) theory which was propounded by E.M. Rogers in 1962. Its initial use was in the field of communication, where it served to describe the gradual gain in popularity and subsequent spread of an idea or product within a certain group or society (Miller, 2015). More specifically, it was used to characterize the diffusion of a product or service among a certain community. This theory attempts to explain how new ideas and technology spread across a community. It does this by emphasizing on the impact of interconnected groups of people. Perceived relative advantage of the technology, compatibility with existing values and practices, complexity of the technology, and the ability of opinion leaders to influence the opinions of others are all identified as key factors

that influence the adoption of new technologies by the theory (Miller, 2015). All of these things matter when it comes to using cutting-edge innovation. With these, the rate at which new technologies are adopted depends on a number of factors.

The theory of the Diffusion of Innovations sheds light on the reasons why certain organizations and people in Nigeria are more receptive to adopting AI than others in this context. One possible explanation is that certain groups and individuals are more adaptable than others. This is because certain organizations and individuals in Nigeria are more advanced technically. Companies that see AI as the future of their industry and feel it will provide them a major competitive advantage over present technology may be more willing to use AI.

Similarly, businesses are more likely to embrace AI if they see it as complementary to their current values and practices rather than a threat to the way they have always done business (Lund, Oname, Tijani, & Agbaji, 2020). A central tenet of the theory is that effective and transparent communication is crucial to facilitating the spread of new technology. Effective and clear communication of the advantages of AI to potential users in Nigeria is crucial for increasing the technology's chances of being broadly adopted. According to Ayoko (2021), opinion leaders, also seen as influential corporate executives and government officials, may play a pivotal role in moulding the views of others and promoting the use of AI.

3.2. Social Construction of Technology Theory (SCOT)

Social construction of technology (SCOT) is a theory that is found in the academic field of Science and Technology Studies. Those who subscribe to the Social Constructionist Objectivist Theory (SCOT), often known as social constructivists, argue that social interaction, rather than technological progress, is the primary factor in the emergence of novel technologies (Klein and Kleinman, 2002). According to the Social

Construction of Technology concept, innovations in technology emerge through human interactions and are created in response to societal pressures. According to this school of thought, technologies are not objective but rather reflect the values, interests, and power dynamics inherent in the networks through which they are created. The goal of this theory, according to Yousefikhah (2017), is to explain why technologies are not neutral.

The Social Construction of Technology theory, when applied to the field of AI, emphasizes the need of considering the social and cultural setting in which AI is developed and used. This highlights the need of considering the social and cultural context of AI development and deployment. This theory argues that contrary to popular belief, artificial intelligence (AI) is not a neutral technology but is instead influenced by the societal norms and hierarchies of those involved in its development and implementation. Humans are responsible for creating and using AI, thus this is the situation. This indicates that Nigeria's cultural and social values might influence the growth and use of AI in Nigeria.

In addition, the theory places heavy emphasis on including a wide range of stakeholders in AI's development and use to ensure it takes into account a diversity of perspectives and interests (Douglas, 2012). This is because when more people have a say in the development of AI, it is better able to balance competing interests. This entails recruiting and retaining a wide cross-section of the Nigerian population to work on developing and deploying AI, so that it may best serve the needs of Nigerians generally. In other words, this means recruiting participants from a wide variety of regions, ethnic groups, and economic strata.

4.0 Research Methodology

Paradigmatic analysis is employed in this research to frame discussions of the topic within useful paradigms that would help readers get deeper insights. Hevner, Chatterjee, and Iivari (2010) related Iivari's (1991) definition of paradigmatic analysis as a research methodology that is used to

study the underlying assumptions and beliefs that shape a particular discourse or field of study. This study employs this approach by discussing the various paradigms and worldviews that shape the discussion surrounding these issues in Nigeria, and then looking into how these factors shape Nigeria's outlook on AI and other communication technologies. From the outset, it is important to emphasize the complexity and multidimensionality of this issue, which is influenced by several social, economic, political, and technical variables. This technique is applicable to this inquiry since it collects and integrates information from several fields, including sociology, economics, politics and communication studies and this has led to the validation of its generalizability.

5.0 Paradigmatic Analysis

The historical and cultural history of Nigeria is one of the important paradigms that would be considered in this study. This is because the historical and cultural background of a nation like Nigeria impacts the country's attitude toward technology and innovation. Jacob (2012) provides a thorough account of the ways in which colonialism, post-colonialism, and political turmoil have all left their mark on the history of Nigeria. The country has a rich cultural history that spans over several time periods. As a consequence of these causes, some Nigerians see technology and its power to transform their society with suspicion, and they tend to have a more pessimistic viewpoint on development and modernization as a result (Oruma et al, 2021).

Another important paradigm that will be investigated is how the government and its policies in Nigeria have influenced the country's outlook on AI and telecommunications. Jacob (2012) argues that the government of Nigeria plays a crucial role in setting the agenda for technical growth and innovation despite the country's complex political environment. In addition, the political environment of Nigeria is complex and diverse, as stated by Jacob (2012).

This paradigm will investigate the activities and policies already in place by the government of Nigeria to advance AI and telecommunications technologies, as well as the perspectives and actions of various stakeholders in the nation. This paradigm will also examine how the government of Nigeria may enhance its policies.

Furthermore, the study will investigate the effects of communication and AI technologies on Nigeria's economy and society. Even while these technologies have the potential to improve people's lives and facilitate new forms of communication in Nigeria, they also raise questions about privacy, safety, and the possibility of individuals losing their jobs. Moreover, these innovations may significantly alter daily life in Nigeria.

Paradigm 1: Historical and Cultural Context

Technology and innovation in Nigeria have been heavily influenced by the country's rich cultural history, particularly in the fields of artificial intelligence (AI) and communication. Nigeria has over 250 distinct ethnic groups and languages, thus it has always been a cultural melting pot. This variety is great for the country's cultural heritage, but it hinders the country's capacity to progress as a whole (Geveer, Ukonu, & Oyeoku, 2018). Many reasons, including political unpredictability, economic backwardness, and corrupt government officials, contribute to Nigeria's inadequate funding of Research and Development (R&D).

Despite these, Nigeria has made great strides in innovation and technological advancement over the last several years, especially in the field of mobile communication. Nigeria has more than 184 million active mobile lines, making it the most populated mobile market in Africa, as reported by the African Union Commission (2021). As a result, the number of IT companies has exploded, with many starting up to cater to the needs of the digital communication and AI industries (Balogun, 2021). Telemedicine is one

area where advancements in AI and communications technology are changing the healthcare landscape in Nigeria. Telemedicine has the ability to drastically revolutionise the delivery of healthcare in Nigeria due to the country's large population and inadequate healthcare infrastructure. The healthcare industry is also investing heavily in AI-powered chatbots and virtual assistants to provide patients with individualised guidance and support. (Ayoko, 2021).

The Nigerian agricultural sector is also investigating the potential of artificial intelligence (AI) to increase crop yields and improve food safety since a large part of Nigeria's economy is tied to agriculture (Adekunle et al., 2020). Adekunle et al (2020) further noted that AI-powered systems may analyse data on weather patterns, soil quality, and crop growth to deliver timely insights and assistance to farmers throughout the country. By making more well-informed choices about planting, irrigation, and fertilisation, farmers may boost their revenue and generate more food and money. Traditional religious practises and a rich cultural heritage tends to hinder Nigeria's aspirations to adopt cutting-edge AI and telecommunications systems. For instance, some may disagree with the employment of AI in decision-making processes on the grounds that it limits human agency. Some people are worried about the effect that AI will have on the employment market, especially in sectors like agriculture and healthcare.

Nigeria's historical and cultural context influences the country's outlook on technology and innovation (Jacob, 2012) and creates barriers to the country's ability to adopt cutting-edge tools like AI and telecommunications. It is necessary to carry out an investigation of the cultural and socioeconomic setting in which these technologies are being deployed to ensure that they are used in ways that are culturally acceptable and useful to all Nigerians. While there are undoubtedly many positive outcomes that might result from using such technologies, it is crucial that the context in which they will be used be taken into consideration.

Paradigm 2: Governmental Roles and Policies

The Nigerian government plays a crucial role in determining the country's approach to technological innovation and advancement, particularly in regards to the creation and implementation of AI and other forms of communication technology. Findings from a study conducted by Gwagwa et al (2020) portrays that government policies and regulations has a significant impact on the growth of Nigeria's technology sector, and thus on the country's economic development and competitiveness.

Government agencies like the National Information Technology Development Agency (NITDA) help shape the way people in Nigeria think about and use technology. More so, the National Institute of Standards and Technology (NIST) is an organisation which was established as a means of portraying that the government participates in technological advancement and regulation. Ezekwesili (2010) states that it is NITDA's responsibility to provide regulations and guidelines for the expansion and implementation of IT in Nigeria. One of its main goals is to create conditions that are beneficial to the growth of the local IT sector, which includes fields like AI and telecommunications. Another instance is the government's efforts, via a variety of programmes, to encourage originality and get people off to a good start in their endeavours, here, the Presidential Enabling Business Environment Council (PEBEC) is one of such programme that aims to make it easier for people in Nigeria to start their own businesses. The government has also introduced a variety of programmes specifically designed to aid new businesses in the IT sector. The Technology Incubation Programme is one of these initiatives; it helps budding business owners by providing them with resources.

The government of Nigeria would have to overcome a number of obstacles before it could successfully foster the expansion of the technology sector. Sharma et al. (2022) claim that one of the greatest challenges faced by emerging technology businesses is a dearth of proper

infrastructure and support mechanisms like incubators and accelerators, as well as funding from venture capital. Intellectual property rights, data privacy, and cybersecurity are just a few of the cases where Nigeria's regulatory framework has been called into question. There have been some encouraging trends in recent years, but the government still faces many formidable obstacles in its efforts to foster the expansion of the IT industry. Hence, it will be crucial for the government to maintain its investments in the infrastructure and support systems for new enterprises (Matthew et al, 2021), in addition to resolving any regulatory difficulties and working towards building a more advantageous business climate for technology companies.

Paradigm 3 – Ethical, Legal, and Social Implications of AI Adoption in Nigeria's communications

Nigeria's outlook on technology and innovation has been profoundly influenced by the paradigm around the ethical, legal, and societal ramifications of artificial intelligence (AI). This has persisted for quite some time. The framework acknowledges that AI might have far-reaching effects on society, but also acknowledges the significant ethical, legal, and societal issues associated with this developing technology (Kohnert, 2022). The necessity to protect individuals' privacy while using AI is one of the technology's biggest challenges. The ability to process massive volumes of data is essential for AI to make decisions and predictions; nevertheless, this data typically includes private information. Nigeria's National Information Technology Development Agency (NITDA), as stated by Ezekwesili (2010), created a framework to ensure data security. This structure establishes norms for the gathering, processing, and storing of sensitive data. In addition, the Nigerian Communications Commission (NCC) has passed regulations mandating that telecommunications service providers get consumers' permission prior to collecting and using their personal information. Legislation mandating such consent was drafted by the NCC and subsequently passed.

Lack of openness and accountability are also key concerns in the field of artificial intelligence. It may be difficult to grasp how AI systems arrive at their findings because of their intrinsic complexity and lack of transparency. A research by Lund et al (2020) found that being dishonest about one's intentions might lead to prejudice, discrimination, and unjust treatment. The government of Nigeria has taken action to solve this problem by passing laws requiring businesses to explain the reasoning behind the conclusions made by their AI systems. The issue that has arisen in Nigeria as a result of the use of face recognition technology by law enforcement officials is illustrative of why openness and accountability are so important. Minority groups and political dissidents are two groups of persons who may be singled out by this technology if proper oversight and accountability are not in place (Yelwa and Abdulhameed, 2020). Because of the possibility that this technology may be used to discriminate against certain populations, many are understandably worried about its potential impact.

The possible effects of AI on the labour market and the economy have been raised as an issue of worry, along with issues of data security and information accessibility. Some worry that the advent of AI will lead to a severe loss of jobs, especially in labor-intensive sectors like manufacturing and transportation (Mogaji and Nguyen, 2022). This is the case even though AI has the ability to open up new career paths and boost economic development. According to Ayoko (2021), the government of Nigeria has begun investing in educational and training courses to solve these issues. These classes are meant to help employees acquire the knowledge and abilities they will need to succeed in today's dynamic labour market.

As a result, Nigeria's approach to technology and innovation is heavily influenced by the country's stance on the ethical, legal, and societal implications of artificial intelligence (Atewolara-Odule et al, 2020). Nigeria can ensure that it is prepared to harness the transformative power of

AI while simultaneously minimising the negative repercussions that AI may have by addressing concerns relating to data privacy, transparency, and accountability, and the potential effect of artificial intelligence on jobs and the economy.

6.0 Conclusion and Recommendation

The telecoms industry in Nigeria is just one area where artificial intelligence (AI) has the potential to bring widespread upheaval. The application of AI to the communication process will lead to faster, more accurate, and more efficient exchanges of information. In addition, the entire user experience will be improved, and communication quality will increase as a result of the ability to send customised messages. Two further benefits of communication made possible by AI are enhanced consumer engagement and satisfaction. This is particularly vital in the current corporate climate, when success depends on standing out from the crowd via exceptional customer service.

Broad adoption and use of AI in communication will need substantial investments in Nigeria's infrastructure and technology. The public sector, private industry, and academic institutions would need to work together to provide sufficient financing for research and development in order to properly incorporate AI into communication. The potential effects of AI on the job market, have also been raised as a source of concern. It is possible that certain jobs might be lost as a consequence of the widespread use of AI in communication, which makes it possible to automate formerly labor-intensive processes. Hence, it is critical that authorities take precautions to lessen the blow to the economy and workforce that AI may otherwise deal. One solution would be to provide courses that retrain and educate impacted employees.

In conclusion, the use of AI in communication might revolutionize industry and boost Nigeria's economy. However, with the right investments in technology and infrastructure, the potential negative impacts of AI on the job market might be

mitigated, if not eliminated. Nigeria may speed up its transition to a digital economy with the help of AI provided the government develops the necessary regulations and investments in the technology.

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