



INFORMATION AND COMMUNICATION TECHNOLOGY: A TOOL FOR INNOVATION, GROWTH AND DIVERSIFICATION OF THE NIGERIA'S ECONOMY

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Abstract

ICT's role cannot be overemphasized as it is a great tool for innovation, economic growth and development of any country. The journey of ICT in Nigeria began around 1960s, and it has successfully created and transformed new trends which cut across almost all sectors ranging from knowledge dissemination, social development, economic growth, education among others. Economic diversification is the ability of a country to employ more than a single means of generating income. African countries recorded good performance with regards to mobile banking transaction which enhances the financial development of Nigeria and other African countries based on mobile phone technology as an ICT innovation. ICT sector in Nigeria bolstered the country's GDP with 19.54% in 2023 compared to 2022's 18.44%. Some of the challenges facing the use of ICT in economic diversification include but not limited to bad network, poor power supply, corruption, poor orientation on the use of ICT among others. As the global economy moves towards more sustainable practices, Nigeria faces the urgent need to diversify its economy; embracing ICT not only in energy but across all sectors which can stimulate new industries, create jobs, and reduce economic dependence on oil. Nigeria can ensure a more balanced and sustainable economic future, reducing its vulnerability to international oil market fluctuations and fostering a more robust economic structure.

Key Words- ICT, Innovation, Growth, Diversification, Economy

Introduction

ICT is an acronym for Information and Communication Technology which is simply defined as the electromechanical way of collecting, processing, storing and passing information from one person/place in its real time. ICT can also be defined as a scientific, technical and engineering discipline and management approach used in handling information, also its application and connection to social, economic and cultural issues. (Sarkar, 2012). ICT is an advanced branch of computer science which laid emphasis more on networking (connection of several systems and/or devices over a network), software (set of instructions and codes that aid the functionality of the other components of the system), hardware (the physical part of the system that helps the user interact easily with the system), people (sometimes refers so as human ware, they are operators of the system). Data (which are simply refers to as raw fact or unprocessed information). One of the main responsibilities of teachers in ICT and education, according to Vandeyar & Adegoke (2024), is to foster creativity and innovation while also fostering critical thinking in the classroom. Teachers must be well-prepared to tackle and overcome the problems associated with computer education in Nigeria since they have a significant impact on the learning outcomes that are determined in the classroom.

The roles of ICT as a tool for innovation and economic growth and national development can bring a remarkable transformation in literarily all sectors in Nigeria, ranging from medicine, agriculture, engineering,

businesses and more. The use of ICT has also significantly transformed the landscape of education and other sectors in Nigeria as more technology is being adapted (Khaleeq, 2019). Some of the ICT facilities might be identified to be in connection with the way it boost the financial development of an economy, part of which include the mobile phone subscriptions, secure internet servers, the internet, Broadband among others. (World Bank, 2022). As stated above, ICT-based technologies such as banking transactions, where bank users don't necessary have to go to bank for payment of goods and services rendered to them, but can perform basic or sometimes complex transactions within the comfort of their homes with few swipes on their internet enabled mobile phones. The use of smartphones has also enabled the creation of social networks, online communities and lots more, which have significantly grown the financial sector of the nation into a greater dimension and is leading to the enhancement of financial development across all nations.

Nigeria's remarkable ICT journey.

The journey of information and communication technology (ICT) in Nigeria began in the early 1960s, and has transformed and created new avenues for real-time communications, advanced knowledge dissemination, rapid economic growth, competitive social development, productive education processes among others. The evolution of ICT cannot be overemphasised and some of them include the World Wide Web (www) and other internet facilities. As the giant of Africa,

Nigerian's urban growth over the past decades has created an environment for the rapid increase of ICT, influencing all sectors of the economy (Suleiman et al., 2020).

The Nigerian ICT industry has experienced a substantial metamorphosis, signifying a noteworthy achievement in the nation's synchronization with worldwide 21st-century benchmarks. At the outset, the industry encountered challenges related to inadequate infrastructure and limited accessibility, which classified telecommunication services as an indulgence unattainable by the general populace. Nevertheless, a significant shift in the environment commenced in 2001 when the government implemented a crucial policy with the objective of liberalizing the telecommunications sector. In accordance with a study by Enahoro & Olawade (2021), this policy facilitated the involvement of the private sector.

The liberalization policy introduced a paradigm shift towards increased competition, which brought about substantial changes to the telecommunications industry, previously characterized by monopolistic of the defunct Nigeria Telecommunication (NITEL). Nowadays, some notable key competitors in the market includes the renowned network providers such as Globalcom Telecommunication (GLO), Airtel, Mobile Telecommunication of Nigeria (MTN), and 9mobile (formerly Etisalat). This competition not only enhanced the effective and efficient mobile telecommunication but also reduced the cost of telecommunication services, enabling a significant majority of

Nigerians to establish connections with reduced financial burden.

The liberalization of telecommunications, widely regarded as one of the most fruitful economic reforms in Nigeria, has stimulated a competitive market atmosphere that has facilitated advancements and improvements in all aspects. This transition has not only improved the caliber and accessibility of ICT services, but has also played a substantial role in the ongoing revolution in Nigeria's Information and Communication Technology industry. The radical shift from a tightly controlled monopoly to a dynamic and competitive industry has brought to the forefront the significant influence that liberalization had on the ICT revolution in the nation.

Economic development and diversification

Economy is referred to as the social interaction that emphasises the practices, material expression, and discourses associated with the production, use, and management of available resources (Ozioko et al., 2017). Diversification is the process of moving from generating revenue from one sector to a multiple sectors for more sources of income. Economic diversification was defined by Anyachie & Areji (2015) as the ability of all arms of government to determine the economic base of the production and goods and services in a country. Economic diversification can also be defined as the process of making an economy of a country move from a single source of income to a multiple sources, which ranges from growing different sectors in order to boost the income of such country or nation. The advent of the structural

adjustment in developing countries in the late 1980s to early 1990s when it was predicted that following the successful reforms of economic development of a country will be diversified as stated by the World Bank. 2016. Furthermore, it was observed by World Bank that African countries recorded impressive performance regarding mobile phone transactions and phone accounts transactions which improves the financial development of African countries based on mobile phone which is an innovation of ICT. Diversifying the economy of a country holds an important role at boosting the resilience of Africans and also aids the achievement of economic development and also maintains the sustainability growth of such country (OECD, 2011). Although having a sustainable growth may be actualised if the economies of such country does not run a monopoly form of generating income, but on various sectors that has several broad ranges of activities. Because multiple sectors that works simultaneously can influence the economic diversification.

The Role of ICT in Economic Diversification

In economic diversification, the most important aspect is for the country to move its economy from over dependence on a product for revenue and create other streams of revenue. In Nigeria the over dependence on crude oil since its discovery in 1950s has led the country to total dependence on the product and a slight fluctuation in global prices has been affecting the Nigerian economy. Ineye-briggs (2023), Ike & Ike (2013), identified three key contributions of

ICT on the Nigerian economy through the banking sector, oil and gas industry and agricultural sector. While it seems the use of modern technology is gathering weight in Nigeria, the aspects where ICT can help diversify the economy are limitless. Ineye-briggs (2023) identifies areas such as equipping young population with diverse skills, assistance of the youths in their choice of career, promotion effective application of available technologies, enhancement of ICT for business use among other benefits. All the above are within the capabilities of ICT to diversify the economy, therefore cementing the role of the youths in the development of any nation and the application of ICT in the diversification of Nigerian economy.

The critical contribution that information and communication technology (ICT) makes to economic diversification is acknowledged by Owolabi et al. (2023). They show how, in ways beyond first assumptions, ICT improves resource usage efficiency. ICT has transformed as well as optimized current economic frameworks by reducing manufacturing costs and encouraging higher operational efficiency. In addition, new supply chains have been made easier by ICT integration, which has injected new development streams into the economy. These developments highlight the revolutionary power of ICT and place it as a mainstay of modern market diversification and economic growth. Developing economies of the world over are characterised by mini entrepreneurships which need specific technologies to grow. Such economies need a cluster of small and medium scale businesses which regularly

keeps the economy afloat. The Nigerian economy is not an exemption, however there are macro challenges such as inadequate power supply, poor road network, insecurity and corruption among others which serve as stumbling blocks to the survival of such small businesses. ICT is a veritable tool in maintenance of balance in the economic sustenance of Nigeria and one of the major branches in ICT is the mobile communication. According to (Agbeyangi, et al., 2024), mobile system is a vital contributor to the ICT transformation of Nigeria, in the year 2013, over 166.6 million people accounting for over 83% of the country's population were active users of mobile communication. This has enhanced communication and technological literacy in a country that hitherto consist of large numbers of illiterate people. There has been a radical shift in the application of ICT in day to day activities in Nigeria as the more pessimistic population have started embracing technology in their commercial activities. Agbeyangi et al. (2024) noted further that the continued adoption of mobile communication has opened opportunities for services such as mobile banking services which led to the rise of financial technological companies (FINTECH) such as Flutterwave, Opay, MoniePoint, PalmPay and Kuda just to mention a few. These companies have broadened the horizon of e-commerce and physical markets as they have simplified payment challenges as well as bringing both the buyers and sellers together for seamless economic activities.

In an extensive study by Owolabi et al. (2023) that covered a period of 19 years across 37 African countries, the impact of

ICT on economic diversification in Sub-Saharan Africa was meticulously examined. The findings revealed a mixed influence of various ICT components on economic diversification. Key variables such as fixed line telephone services and ICT imports were found to negatively impact economic diversification, suggesting that reliance on these older technologies and external ICT inputs might constrain the broadening of economic activities. Conversely, newer technologies like internet access and mobile connectivity showed no significant positive effect on diversification. Additionally, fixed broadband and secure internet servers did not have a noticeable negative impact.

The study also explored the role of financial development in economic diversification, finding it to be insignificant in the context of Sub-Saharan Africa. This indicates that simply enhancing financial systems without integrating them with effective ICT strategies may not be sufficient to drive economic diversification.

Though, the results of this extensive research are important, it is important to understand that they are indicative of patterns not only in Nigeria but in other African countries. Nigeria's recent explosion in mobile network expansion was not expressly taken into consideration in the research, which may have special ramifications for the nation's economy. The findings emphasize the necessity of conducting more focused study that is exclusive to Nigeria in order to completely comprehend the particular effects of ICT in the setting of the fast growth of mobile networks.

Impact of ICT on GDP growth and its effect on economy

According to the latest report published by the National Bureau of Statistics in 2023, the sector of Information and Communication Technology (ICT) in Nigeria significantly bolstered the country's real Gross Domestic Product (GDP) during the second quarter of that year, contributing 19.54%. This signifies a substantial growth compared to the preceding year, 2022, when the contribution of ICT was documented at 18.44%. The aforementioned upward trajectory highlights the on-going and favourable influence of ICT on the economic diversification of Nigeria. The report emphasises the critical significance of information and communication technology (ICT) in hundreds of industries, including publishing and broadcasting, information services, telecommunications, and the entertainment sector. The increasing impact of this sector not only signifies its burgeoning importance but also indicates its capacity to serve as a pivotal catalyst for economic reform and modernization in the nation.

Challenges facing the use of ICT for Economic Diversification in Nigeria

The process of diversifying any economy involves a conscious shift in effort and planning, such processes are usually besieged by some challenges, below are some issues affecting the adoption of ICT as an alternative stimulus for economic growth in Nigeria:

1. **Poor / erratic electric supply:** ICT thrives on constant and stable power supply for technological gadgets to

work optimally, this is why most developed countries have stable power supply. In Nigeria, majority of businesses rely on other sources of power supply such as generators and solar energy to cater for their power needs. These sources have proven to be either too expensive to manage or unsustainable for the business operations, hence making ICT tools less effective. For instance in the production industry, the power supply is important for the chain of production to move seamlessly and where ICT has been incorporated into the production chain, the automation needs constant and stable power in order not to post error.

2. **Lack of ICT infrastructure:** There is a lack of infrastructure in technology in Nigeria when compared to developed countries. Internet infrastructures such as servers, broadband, smart cities among others are stimulants for annexing the full potentials of ICT in economic diversification. Where there are no clear investments in ICT infrastructure, it become difficult to leverage upon ICT for meaningful economic development.
3. **Inconsistent government policies on ICT:** Nigerian government understands the importance of ICT in stimulating the economy and have developed policies such as the National Policy on ICT 2012. Nevertheless, a conscientious look at the policy show no clear paths towards the actualisation of

diversification of the economy through the use of ICT.

4. **Corruption:** There is a high rate of corruption prevalent in the country and this has also affected the ICT sector. There have been numerous documented cases of funds meant for procurement of ICT equipment being diverted for personal use. This has negatively affected the growth of the industry limiting the prospect of ICT as a major source of economic diversification. Also there has been an increase in negative use of technology for scam. Such instances where bank accounts have been hacked as a result of online scammers do not build trust in the system.
5. **Lack of adequate education and sensitisation on the use of ICT:** Majority of Nigerian population resides in the rural areas where they have very limited exposure to ICT. They do not know how to apply ICT to improve economic activities. There is a large market yet untapped for ICT in rural areas where majority of the population do not operate a bank account or perform any form of technology assisted processes. There cannot be any meaningful diversification of the economy if there is no real link between the rural areas where other resources such as agricultural products can be produced for exporting which can be done through ICT.
6. **Bad Network services:** ICT is a field that depends solely on network

services for inter connection between the sender and the receiver. The network provides a clear platform for the actualisation of ICT

Conclusion

The critical role of Information and Communication Technology (ICT) in catalysing economic transformations in the 21st century is undeniable. As a key driver of ground-breaking innovations, ICT has played a significant role in shifting the global economic landscape away from an overreliance on greenhouse gas-emitting industries toward more sustainable and renewable energy sources. This shift poses significant economic challenges for countries like Nigeria, whose primary source of revenue traditionally stems from crude oil. For Nigeria, the integration of ICT into various sectors represents a vital strategy for fostering national economic growth and resilience. As the global economy moves towards more sustainable practices, Nigeria faces the urgent need to diversify its economy. Embracing ICT not only in energy but across all sectors can stimulate new industries, create jobs, and reduce economic dependence on oil.

Given the transformative potential of ICT, it is imperative for Nigeria to leverage this technology to enhance productivity, drive economic diversification, and position itself competitively in a rapidly evolving global market. By doing so, Nigeria can ensure a more balanced and sustainable economic future, reducing its vulnerability to international oil market fluctuations and fostering a more robust economic structure.

Recommendation:

The following are recommended for the actualisation of economic diversification through the use of ICT in Nigeria:

1. To increase the use of ICT as a tool for driving the economy, governments should prioritize the deployment of suitable ICT infrastructure and technologies at all of human endeavours
2. The provision of reliable electricity supply is crucial for the industrial revolution. All advanced nations have reliable electricity. The Nigerian government should declare a power sector emergency and overhaul all power supply networks. ICT cannot be effectively utilized without proper power supply, hence this will help diversify the economy.
3. Cyber security regulations should be revised and brought up to global standards to limit individual susceptibility to cyber fraud, a key concern in the financial sector's usage of ICT.
4. The government deserves praise for creating a National ICT Policy, but a roadmap is needed to increase the use of ICT as a key contributor to GDP.

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