Journal of Emerging Technologies (JET)
Volume 5, Issue 1 (2025)
ISSN: 2710-0189 (Print) | 2710-0197 (Online)
Website: https://journals.jozacpublishers.com/jet/
https://doi.org/10.5281/zenodo.15360104

Technology development and national development in Nigeria

Kayode Asaju[1*], Sunday Yohanna Ashepo[2]
[1*&2]Department of Public Administration, Federal University Wukari, Taraba State, Nigeria, asajuk@gmail.com[1], sundayy291@gmail.com[2]

*Corresponding author: asajuk@gmail.com

Abstract: The place of technology in achieving accelerated national development in any nation of the world cannot be overemphasized. However, despite the tremendous role that technology plays in national development, it seems this reality is far from Nigeria. This paper examined the role of technology in achieving national development in Nigeria. The paper uses the qualitative research method, where information was sourced from secondary sources using books, journals, official documents of the government from the Federal Ministry of Technology and the digital economy, the Tertiary Education Trust Fund, and other documents, both soft and hard copies. The content analysis was used to analyze the data collected. It was revealed that various efforts by the government to promote technological advancement include the national science, technology, and innovation policy, ICT development initiatives, research and development, and promotion of entrepreneurship. These efforts have led to the appreciation of the adoption of technology across every sector of the economy. The paper further shows that challenges such as brain drain, infrastructural deficits, digital divide, skills gaps, and funding constraints were impediments hindering technology from serving as a veritable tool for accelerating development in Nigeria. It is recommended that the government prioritize investment in critical technology infrastructure, including broadband networks, ICT facilities, and power supply, to enhance connectivity and enable digital transformation across the country.

Keywords: Development, Infrastructure, National development, Technology

1. Introduction

Globally, technology has been recognized by both developed and developing nations as the main driver of achieving sustainable development. This is evidenced in the gap between the two poles (developed and developing nations) nations; while the advanced nations like United States of America, Germany, Britain, France, and China amongst others have fully utilized technology in all spheres of their advancement whether in the provision of social services like education, health care delivery, security, transportation, electrification to mention but few. Specifically, Genelza (2024) and Chukwuere and Handoko (2024) identified the place of technology in educational proficiency using ChatGPT, an Artificial Intelligence (AI) which helps both lecturers and students with personalized and timely responses (Chukwuere, 2024). However, this tool is widely used in both developed and developing nations due to the help of technology. Afolaranmi (2023) identified the place of technology in peaceful co-existence among nations; Merima (2025) opined that technology is crucial in addressing social and ethical behavior. The developing nations like Nigeria, on the other hand, still struggle with the adoption of technology, whether in their social, economic, or political spheres, despite its importance in achieving national development. Uzomah and Eruetemu

(2024) averred that the importance of technology through digital economy and artificial intelligence in driving economic growth and development of a nation cannot be overstated. They were of the view that the digital economy and AI, if creatively and reasonably deployed, have the incredible prospect of upscaling the living standards and condition of the average Nigerian.

Nigeria, with an estimated population of more than two hundred and fifty (250) million, who are mostly youths, and position them in a better position to make the most of technology in advancing its economy. There is no economy in the world that has experienced growth and development and has not integrated technology into various facets of its society, including education, health, administration, commerce, security, among others. Regrettably, Nigeria is still haggard and laggard behind other emerging nations like South Africa, Morocco, and Egypt in terms of technological development. Ahmed (2018) attributed the inability of Nigeria to fully utilize technology to include endemic corruption, lack of funding, poor leadership commitment, and lack of maintenance are some of the factors exacerbating technological development in Nigeria; and until these issues are adequately addressed, achieving national development will become a mirage.

In light of the above, realizing the full potential of technology-driven development requires concerted efforts in policy formulation, infrastructure investment, human capital development, and innovation ecosystem support. This seems difficult to realize in the face of many obstacles and other policy issues. This necessitates a comprehensive understanding of the opportunities, challenges, and strategies for leveraging technology for national development. This paper explores the role of technology as a strategy to accelerate development in Nigeria. It consists of research questions, objectives, methodologies, findings, and recommendations for harnessing technology to drive inclusive growth, foster innovation, and address socioeconomic disparities. By analyzing current trends, initiatives, and best practices, this paper aims to provide insights and recommendations that inform policy decisions and propel Nigeria towards a more prosperous and sustainable future. In doing so, this paper contributes to the ongoing discourse on technology-driven development in Nigeria, highlighting the opportunities for leveraging technology as a catalyst for transformative change and inclusive development across the country.

2. Research questions

The research questions guiding the paper include:

I. What are the strategies adopted for technological development in Nigeria?
II. What is the nexus between technological development and National Development in Nigeria?
III. What factors hinder the effective technological innovation and utilization to achieve accelerated development in Nigeria?

Objectives of the Study

The main objective of the study is to assess the effect of technological development in Nigeria.
Other specific objectives of the paper include.

I. Identifying the strategies adopted for technological development in Nigeria,
II. Examining the effect of technological development on Nigeria,
III. Examining the challenges militating against the effective utilization of technology to achieve national development in Nigeria.

3. Literature review

3.1. Conceptual classifications

Technology

The concept of technology has been defined from different scholarly perspectives. Arthur (2009) viewed technology as a main driver to propelling human existence. This definition emphasizes the instrumental nature of technology in serving human needs and achieving specific objectives. In his postulation, Heidegger (1977) views technology as "a mode of revealing or bringing forth, rather than merely a collection of tools or instruments. According to Heidegger, technology shapes how humans perceive and interact with the world, influencing their understanding of reality. Kline and Pinch (1996) conceptualize technology as a dynamic socio-technical system consisting of artefacts, practices, and knowledge embedded within a broader social and cultural context. This definition highlights the interconnectedness of technology with social, cultural, and organizational factors.

Similarly, Winner, (1977) describes technology as a form of life that profoundly shapes human existence and societal structures" (Winner, 1977). Winner emphasizes the transformative power of technology in shaping not only individual behaviour but broader societal norms and institutions. Bijker (1995) defines technology as "a process of co-construction involving the interaction between technical artefacts, social actors, and institutional contexts. This perspective underscores the co-evolutionary nature of technology, highlighting the mutual shaping of technology and society. These interpretations illustrate the diverse ways scholars conceptualize technology, ranging from instrumental perspectives focused on fulfilling human needs to socio-cultural perspectives emphasizing technology's role in shaping human society and existence.

National development

National development has been a victim of definitional pluralism. This is because there is no universally acceptable definition of the concept. However, scholars have attempted to conceptualize this concept. For instance, according to Todaro and Smith (2014), National development can be defined as the sustained, concerted effort to enhance the social-economic and political well-being of the people in a particular country. These include policies, programs, and initiatives aimed at improving the living standard of the general populace by reducing poverty and inequality, promoting advancement in the productive sectors, and fostering sustainable development across all sectors of society. In light of the above, a similar and more comprehensive definition was proffered by Asaju and Ayeni (2021), when they defined national development as the multi-sectoral growth and expansion that will bring about solving fundamental problems of poverty, unemployment, and deprivation that affect the well-being of the people.

Empirical review

Technology has no doubt been proven to be one of the main drivers of development in both advanced and emerging nations' economies. This is shown by the outcomes of findings from scholars on the nexus between technology and national development. For instance, a study by Olujuolawe and Osuntuyi (2024) examined the potential of home-grown technology to promote national development in less developed nations. They argued that while advanced nations have prioritized the use of technology to foster growth and development in developing nations, they have promoted domestic technology within these nations. Particularly, they make reference to domestic technology in aiding good governance, economic growth, and development, and the provision of basic social amenities to the general populace. The study advanced the merits and demerits of home-grown technology for national development. It was concluded in the paper that, with current strategies that have successfully facilitated and harnessed home-grown technology, achieving national development is feasible. Based on their findings, they recommend a continued advancement in technology to foster economic growth and development by providing and making accessible some of the essential services that will improve the living standard of the citizenry.

In the same vein, Chinyere and Yamma (2021) in their study affirmed that creativity using information technology have far-reaching impact on every facets of the economy and therefore, government and its machineries at all levels are making efforts that cut across piracy, and making sure that information accessible to a wide range of people. According to them, the most essential aspect of information and communication technology is e-marketing which allows for straightforward transactions using the web. Findings from the study revealed that technology affects every sector in society, such as communication, investments, trading of goods and services, and by extension, spring over to the health and educational sector. They suggest that industries should lend out their manufacturing to other countries and depend on telecommunication to keep marketing, research, and development, and their distribution teams in close contact with manufacturing groups.

Furthermore, Oladimeji and Folayan (2018) undertook a study on the growing benefits of the adaptation of the ICT sector to the Nigerian economy in the 21st century. The study concludes that ICT services have helped the market grow by reducing the cost of trade and improving its overall performance through effective and efficient regulation of operations in both the public and private sectors. To them, the use of ICT has created a wireless platform that provides socio-economic benefits for the users and the economy.

Uzomah and Eruetemu (2024), using qualitative research and relying on secondary data for its hermeneutical analysis found out that contrary to popular insinuations, artificial intelligence and digital economy may not compound the nose-diving economic condition of Nigeria. Instead, accelerated and augmented access to faster and improved quality internet, up-skilled tech literacy and aptitude pool, an effervescent start-up ecosystem, access to a wide variety of investment and partnership opportunities have

the incredible prospect of drastically improving the living standard of Nigerians. They concluded by indicating that artificial intelligence and digital economy, if creatively and reasonably deployed will better the lots of Nigerians, economically. It was recommended that general digital education for digital literacy for all Nigerians with a bias on artificial intelligence and the digital economy.

Similarly, Shotunde and Abdulazeez (2020) examine the effect of technology and economic growth in Nigeria. The study is a qualitative research in which data were collected from archival data and interpreted based on the description of the data. Findings revealed that technology constitutes the mainstay and facilitator of the expansion of various economies. Thus, it is pertinent that Nigeria's economy would immensely benefit from such technological innovations. The study further recommends that investing in technology will bring about rapid growth and revitalization of the Nigerian economy.

Asaju (2023) in his study, reiterates the importance of technology in addressing the problems of infrastructural deficits in Nigeria. The study revealed that despite the various investments by the government in infrastructure development, the state of infrastructure in the country is in a state of comatose. According to him, the major reasons for the dilapidated infrastructure in Nigeria include inadequate funding, a high rate of corruption in the public domain, and a lack of political will to invest in infrastructure. It was recommended that the need to invest in infrastructure development, which will not only enhance economic growth but will also attract foreign investors.

The role of technology in achieving human capital development was the focus of the study carried out by some scholars (Asaju, Mabum & Yohanna, 2023). Using both qualitative and quantitative data collected from the institution, the study acknowledged a global realization of the importance of technology in driving modernization, change, and development. It was believed that technology, particularly ICT, has permeated almost every sphere of modern society, including the educational sector. The utilization of ICT in teaching and learning has also enhanced academic excellence at Federal University Wukari. They recommended that the institution partner with ICT companies to provide ICT facilities like computers and projectors.

Gap in literature

Despite the growing importance of technology in driving national development, very limited studies are still undertaken on the importance of technology in driving the overall development in Nigeria. While there are numerous studies (Oladimeji & Folayan, 2018), Shotunde and Abdulazeez (2020) on the impact of technology on economic growth, poverty reduction, and social development, few studies have examined the unique challenges and opportunities facing Nigeria in leveraging technology for national development. One of the gaps in the literature is the lack of practical discourse on technology development in the overall development in Nigeria. Many studies have relied on theoretical frameworks and anecdotal evidence to conclude on the significant effect of technology; only a few of these studies were conducted through rigorous empirical research. This gap is particularly significant given the unique cultural, economic, and institutional context of Nigeria.

4. Methodology

The paper adopted the descriptive survey design as information sourced from secondary sources. It adopts the trend model of survey design using only secondary data. The major sources of gathering data include; journals, official documents of the federal government such as (Central Bank of Nigeria, the National Bureau of Statistics, Federal Ministry of Science and Technology, the Tertiary Education Funds, Federal Ministry of Education), the World Bank, Newspaper publications, magazines, and Periodicals. The study focuses on technological adaptation and its influence on overall development in Nigeria, which requires a trend analysis of the situation under study. These data were analyzed using content analysis. The data are qualitative and have already been derived, thus, they were described in line with the aim of the study. The data were also analyzed to answer the research questions raised.

5. Results and discussion

5.1.Technological advancement in Nigeria

The evolution of technology in Nigeria has undergone significant developments over the years, driven by advancements in communication, infrastructure, education, and entrepreneurship. This implies that Nigeria has a rich history of Indigenous technological innovations, including traditional crafts, agricultural practices, and artistic works (Adekunle, 2014). These early innovations laid the foundation for subsequent

technological developments in the country. The Telecommunication revolution has liberalized Nigeria's telecommunications sector in the early 2000s, leading to a significant expansion of mobile phone usage and internet penetration (Ayo et al., 2018). The introduction of GSM technology revolutionized communication in Nigeria, connecting millions of people. Nigeria has witnessed the rapid growth of financial technology (FinTech) startups, leveraging technology to innovate in mobile payments, digital banking, and peer-to-peer lending (Ibeh et al., 2019).

There is no gainsaying that the Nigerian government has embarked on some giant strides in advancing technology within every facet of its public service delivery. This is evidenced in some of the reforms that were carried out, most especially in the aspect of the Treasury Single Account (TSA), the National Identity Management Commission (NIMC), the electronic registration and voting, and the use of technological gadgets in fighting insecurity, to mention but a few. The essence of all these reforms is to engender transparency and accountability, render efficient and effective service delivery to the citizenry, and safeguard lives and property within the country. Bansal (2024) corroborated this view by asserting that technological reforms are essential for creating a serene atmosphere for technological innovations to thrive. To him, for these reforms to be effective, bureaucratic bottlenecks should be discouraged, and in so doing, improving intellectual property protection regulations can mitigate obstacles to entry and foster a culture of innovation. In view of this, he advocated for the engagement of stakeholders such as the government agencies, industrial experts, and non-government organisations in policy dialogue and advocacy efforts. To him, this is critical for driving regulatory reforms.

The advancement of technology as a strategy for achieving national development has become obligatory for emerging economies like Nigeria that desire sustainable development. In order to achieve this, Ujah-Ugbuagu (2021) is of the opinion that in the era of digital technologies, all hands must be on deck as both government at all levels (Federal, State and Local Government), individuals, and businesses should effectively carry out their responsibilities through utilizing smart technologies as this will enable Nigeria to meet up with her quest for technological advancement. In light of this, it is believed that the Federal Government of Nigeria (FGN), through the Federal Ministry of Science and Technology, took steps to leverage emerging technologies by reviewing its science and technology policy in 2012 (Federal Ministry of Education, 2020). This, according to Ujah-Ugbuagu (2021), is aimed at promoting research and development in new fields of science and technology with a view to fast-tracking Nigeria’s national development efforts. In buttressing this view, Elekebe (2020) said that as part of the efforts and steps taken by the federal government of Nigeria, the National Center for AI and Robotics was established in Abuja in 2019 with the aim of leading the development of emerging technologies in Nigeria.

Further efforts at advancing technology revealed that the Nigerian government has prioritized the development of a digital economy, and this is outlined in the National Digital Economy Policy and Strategy (NDEPS) (Federal Ministry of Communications and Digital Economy, 2020). The strategy aims to leverage technology for economic diversification, job creation, and inclusive growth. These developments highlight the evolution of technology in Nigeria, from the telecommunications revolution to the rise of FinTech start-ups and the emergence of a vibrant innovation ecosystem. As Nigeria continues to embrace technology as a driver of development, it is poised to harness the transformative power of technology to address socio-economic challenges and unlock new opportunities for prosperity.

Strategies adopted for Technological development in Nigeria

The Nigerian government, in an attempt to promote the development of technology, has put in place many strategies and reforms geared towards driving economic growth and development. Some of these strategies were highlighted and discussed under this section of the paper.

1. **National Science, Technology, and Innovation (STI) Policy:** Nigeria's National STI Policy provides a comprehensive framework for promoting technological development and innovation across various sectors of the economy (Federal Ministry of Science and Technology, 2012). This policy emphasizes the need for Research & Development, human capital development, and industry-academia collaboration in advancing technological capabilities.
2. **ICT Development Initiatives:** In recent times, information technology has become the driving force behind developmental discourse around the globe, especially how government uses it to solve the day-to-day problems that affect the welfare and safety of the citizens. Its importance has been acknowledged in every facet of human endeavor. Data from the Nigerian Communication Commission (NCC) reported that the ICT sector contributed 9.88 percent to the total nominal GDP in the fourth

quarter of 2021, which is lower than the rate of 10.58 percent recorded in the same quarter of 2020. This places Nigeria as Africa's largest ICT market with about 82% of the continent's telecoms subscribers and 29% of internet usage (International Trade Administration, 2023). This stride is apparently attributed to the investment by the Nigerian government in ICT development initiatives in public service delivery, with a positive effect on achieving development objectives.

3. **Support for STEM Education**: For national development to be feasible, investing in and developing a practical science-based curriculum that will promote technology is necessary. STEM as a strategy for advancing technology for development has been recognized and used by countries like China, which have invested greatly in science-based education. Xinhua (2020), cited in Ujah-Ogbuagu (2024), averred that 'China is one of the countries investing heavily in emerging technologies through focused science and technology education and technological development. In addition to their investment in education, re-skilling, and government effort in incentivizing the private sector have greatly contributed to leapfrogging emerging technologies in China, translating into a fast-transforming environment'.
4. **Research and Development (R&D) Funding:** Research and Development has, over the years, been proven to be responsible for the advancement of many nations. This implies that increased investment in research and development has the potential to develop home-grown technology that will serve the peculiar needs of our immediate environment. The Nigerian government, through the Tertiary Education Trust Fund, has been releasing funds to tertiary institutions across the country and other research institutes to address the issues of technological deficit in the country. For instance, in 2022, Nigeria's gross domestic expenditure on Research and Development accounted for 0.13 percent of its GDP. This implies that Nigeria spent the sum of 1.5 billion U.S dollars on R&D IN 2023. (Sttista, 2023).
5. **Industry Partnerships and Collaboration:** The whole initiative of development is not the sole responsibility of the government alone, but rather through collaboration between the Public and Private Partnership (PPP). The Federal Government of Nigeria, as a means of developing technology, has partnered with individuals, non-governmental organizations, and other stakeholders. This is because PPP presents a preferred alternative for long-term development in infrastructure and other essential services, thereby improving and reducing the social gap that exists in the country. Ezeanya-Esiobu, (2020) affirmed this position by implying that the collaboration between government, academia, and the private sector is critical for advancing technological development in Nigeria. Public-Private Partnership (PPP) and industry-academia linkages facilitate knowledge transfer, technology adoption, and innovation diffusion.
6. **Promotion of Entrepreneurship:** Throughout the world, entrepreneurship has assumed the position of job creation, especially in countries with large population of youths like Nigeria. The Nigerian government through the National Youth Service Corps (NYSC) has introduced the Skill Acquisition and Entrepreneurship Development (SAED) to the teeming youths who participated in the scheme as part of the initiative to promote entrepreneurship in the country. These skills cut across various sectors, including technology development. Anyadike, Emeh and Ukah (2012) posit that through entrepreneurship, information and communication technology was utilized in the area of manufacturing and repairs of GSM accessories and the printing and selling of recharge cards.

The Nexus between Technological Development and National Development in Nigeria

The nexus between technology and national development in Nigeria is multifaceted, with technology playing a pivotal role in driving economic growth, innovation, and socio-economic transformation. The nexus is driven by the following factor;

a. **Productivity, efficiency, and competitiveness:** Through the adoption of technology in production and rendering of services, there is an increasing efficiency and effectiveness, and satisfaction experienced by government and business owners. Innovation and information communication technology are two crucial components that have played various fundamental roles in the lives of businesses, households, and the entire economy at large (Akinwale, Ogundari, Olaopa & Siyanbola, 2012). This presupposes that applying technology to governance and business enterprise will place the government and entrepreneurs at an advantageous position, thereby propelling economic growth and national development.
b. **Driver of job creation:** Technology opens opportunities for a new paradigm for young entrepreneurs to venture into tech businesses, and by extension, create jobs and generate wealth. National Information Technology Development, NITD report revealed that the ICT sector had boosted the

Federal Government's job creation efforts by creating over 12 million jobs from 2012 to date (NITD 2023). This is significant as individuals can earn, save, and invest in the economy, thereby enhancing national development.

c. **Promote digital inclusion:** Technology has the potential to promote digital inclusion and empower marginalized communities, thereby fostering social development and inclusivity (Oyelaran-Oyeyinka & Lal, 2016). Initiatives such as mobile banking, e-government services, and digital literacy programs help bridge the digital divide and improve access to essential services, education, and information.
d. **Educational and Development:** Technology has been used to improve the educational sector through the use of information and communication technology in teaching/learning, and research. According to Asaju et al. (2023), the use of technology has fostered learning and academic excellence among staff and students in tertiary institutions. Education has been recognized as one of the pivotal factors of human capital development, which is sacrosanct in achieving national development objectives. Therefore, collaboration through knowledge sharing using technology will foster innovation and development.
e. **Effectiveness of Governance:** Electronic governance is one of the ways in which technology has enhanced national development throughout the world. Through technology, government activities have improved, thereby facilitating transparency and accountability, reducing excessive bureaucratic bottlenecks, and bringing changes in how government activities are carried out and enhancing effective service delivery. As rightly captured by Jacob and Adeshola (2021), "there are several initiatives geared towards accelerating development through technological platforms in governance, e-Nigeria initiatives geared towards connecting communities, vital agencies, institutions of government, and educational institutions at all levels with ICT are currently being pursued by the government."

Technological development challenges in Nigeria

Some of the issues responsible for technological challenges in Nigeria include the following;

1. **Infrastructure deficits**: Inadequate infrastructure, power supply, and internet connectivity pose a significant barrier to the widespread adoption and use of technology (Adeloye et al., 2020). Poor infrastructure limits access to digital tools and platforms, hindering innovation, economic productivity, and service delivery. Asaju (2023) also asserts that poor infrastructure development is responsible for the low pace of socio-economic development in Nigeria. According to him, the absence of critical social infrastructure in the country affects economic growth but also efforts at enhancing the well-being of the people.
2. **Digital divide**: Disparities in access to technology exacerbate inequalities between urban and rural areas, as well as among socio-economic groups (Oyelaran-Oyeyinka & Lal, 2016). Limited access to computers, smartphones, and the internet restricts opportunities for education, employment, and participation in the digital economy, creating a wide gap between this divide.
3. **Skills gap:** Shortages of skilled manpower in Science, Technology, Engineering, and Mathematics (STEM) fields hamper technological innovation and capacity-building efforts in Nigeria (Adepoju et al., 2021). The mismatch between industry demands and the skills of the workforce inhibits the development and deployment of new technologies.
4. **Cybersecurity concerns**: The proliferation of technology exposes Nigeria to cybersecurity threats. This includes hacking, data breaches, and cyberattacks (Ikegwu & Tella, 2019). Weak cybersecurity infrastructure and inadequate regulatory frameworks undermine confidence in digital transactions and impede the growth of e-commerce and online services.
5. **Regulatory bottlenecks**: Complex regulatory frameworks, bureaucratic red tape, and policy inconsistencies stifle innovation and investment in the technology sector (Adenuga et al., 2018). Unclear regulations, intellectual property rights issues, and cumbersome licensing procedures deter entrepreneurs and investors from engaging in tech-driven ventures.
6. **Funding constraints**: Limited access to financing and venture capital inhibits the growth of technology startups and innovative ventures in Nigeria (Agboola & Adeniran, 2017). Insufficient funding for research and development (R&D) activities hampers efforts to develop homegrown technological solutions and innovations.
7. **Brain drain:** The emigration of skilled professionals and tech talents exacerbates Nigeria's brain drain phenomenon, depriving the country of valuable human capital and expertise (Onuoha, 2019). The loss of skilled workers to foreign countries diminishes Nigeria's capacity to drive technological innovation and economic development.

Therefore, addressing these challenges requires collaborative efforts between the public and the private sector. The government needs to encourage captains of industry, academia, and civil society and other non-governmental organization should be encouraged to invest in infrastructure development and also to promote digital literacy and skills development, strengthen cyber-security measures, streamline regulatory processes, increase funding for technology initiatives, and foster an enabling environment for innovation and entrepreneurship.

6. Recommendations

The paper, therefore, recommends the following;

1. **Investment in infrastructure:** Prioritize investment in critical technology infrastructure, including broadband networks, ICT facilities, and power supply, to enhance connectivity and enable digital transformation across the country.
2. **Promotion of digital literacy:** Implement programs to promote digital literacy and skills development, cutting across all sectors of the economy with emphasis on marginalized communities and other stakeholders. This will reduce the digital gap and enhance all-inclusive access to technology by all stakeholders.
3. **Support for innovation ecosystem**: Foster an environment conducive to innovation by establishing tech hubs, incubators, and research centres, providing funding, mentorship, and networking opportunities for startups and entrepreneurs in the technology sector.
4. **Policy reform and regulatory framework**: Review and streamline regulatory frameworks to facilitate innovation, investment, and entrepreneurship in the technology sector, ensuring clarity, consistency, and transparency in implementing policies regulating digital technologies.
5. **Public-private partnerships**: Foster collaboration between the public and the private sector of the economy that could ginger technology-driven development initiatives and leverage the strengths and resources of both sectors to address infrastructure and development challenges in the country.
6. **Strengthening cybersecurity:** Enhance cybersecurity measures and capacity-building efforts to mitigate cyber threats and protect digital infrastructure, data, and transactions, fostering trust and confidence in the digital ecosystem. Offenders should be adequately punished.
7. **Encouraging research and development:** Increase investment in Research and Development (R&D), Science and Technology, engineering, and mathematics (STEM), and other disciplines that support collaborative research projects and innovation that will drive technological innovation and knowledge creation.
8. **Promotion of digital entrepreneurship:** The need for the government to provide support for digital entrepreneurship through access to financing, business incubation, regulatory support, and market access, fostering a vibrant ecosystem of innovative ventures that contribute to economic growth and job creation.
9. **Integration of technology in education:** Integrate technology into educational curricula and learning environments to enhance teaching and learning outcomes, preparing students with the digital skills and competencies needed for the future workforce.
10. **Sustainable technology solutions**: Promote sustainable technology solutions, including renewable energy, clean technology, and environmentally friendly innovations, to address environmental challenges and promote green growth in Nigeria.

7. Conclusion

Technology and national development in Nigeria are undeniable, with technology catalyzing economic growth, innovation, and social progress. From driving entrepreneurship and job creation to enhancing governance effectiveness and promoting environmental sustainability, technology plays a vital role in advancing Nigeria's development agenda. However, realizing the full potential of technology requires addressing infrastructure deficits, bridging the digital divide, promoting digital literacy, fostering innovation ecosystems, and creating an enabling policy environment. By leveraging technology effectively and addressing associated challenges, Nigeria can harness the transformative power of technology to accelerate progress towards achieving its national development goals and building a prosperous and inclusive society for all.

8. Funding
This research paper received no internal or external funding.

9. Acknowledgments
We acknowledged Mr. Yohanna, Markus Kamale, for his insight and other secretarial Jobs

ORCID
Kayode Asaju https://orcid.org/0000-0001-9386-7655

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