



Benefits of Information Technology to the Development of Nigeria

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ARTICLE INFO	ABSTRACT
Published online: 08 October 2024	The sustainability and development of businesses and organization solely rely on the geometric progression of the impact of information technology (IT); aside the significant impact on individual lives, many organizations globally have experienced increase in productivity, reduce costs, improvement on the quality of goods and services, enhance communication systems and promote good transportation systems. Every sector has direct impact of the information technology, and the level of development currently is directly proportional to the degree of the impact. In today`s world information technology has become pivotal element in the economic growth; many solutions to everyday challenges could not have been possible without the impact of information technology. Medical and surgical processes of restoring good health to many patients today would not exist, the possibility of travelling globally without difficulties, enhancing communications that has no limitation by location, and many more that makes lives meaningful and dreams achievable are made possible by the influence of information technology. This article will describe the influence of Information Technology in enhancing the growth and development of Nigeria in relation to various sectors such as; education, health, manufacturing industries, real estate, energy, utilities, to mention a few, which will promote business and global image.
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1. INTRODUCTION

Information Technology (IT) has become a major driving force of many monumental changes and innovations, it encompasses all of technology that impact every aspect of life in order to promote efficient data management, enhancing communication networks and providing reliable support for organization processes. The success of every businesses /organizations depends on the application of information technology which forms a basis of business operations for the purpose of improving productivity, efficiency and innovation. Information Technology (IT) is a broad topic with its influence directly related to every spheres of life; Rahul (2021), referenced Harvard Business review article in 1958 where the phrase “Information technology” first appeared and since then its evolvment has been monumental. He further asserted that the evolvment of IT has brought about different profession that are in demand globally which is beyond the traditional understanding of IT to be computer system. The effect of technology on human lifestyle has been profound, completing task in less time and

energy, which will keep improving as the technology progresses. Ballejos (2024) defined information technology as a medium of using computers and related technology in the form of software, cloud-based applications, and networks to communicate or transmit data, establishing organizational infrastructure and securing information. The impact of information technology as stated by Sanjay (2008) includes;

- The rise of leisure as technology as model the scope of work in less time and energy
- A more informed society can make quicker responses to events and trends
- Increase in multitasking which seldom may be difficult
- Global networking
- Create denser social circles
- Cheap price.

The history of information technology (IT) in Nigeria can be traced back to the late 20th century when the country began to adopt and integrate digital technologies into various sectors. Information technology (IT) in Nigeria has been

publicized and promoted under various governments, each contributing to its development in unique ways. However, exploring the history of information technology without acknowledging the earliest use of any technology in Nigeria will not be completed. One of the histories to be considered is the introduction and implementation of microform technology in Nigerian libraries at the University of Ibadan in 1948 (Martha, 2010). She further asserted that the first usage of computers was experienced in University of Ibadan when IBM was set up at the African Education Centre in 1963 and also the analysis of the 1962/63 national census which brought about computing services to Nigeria.

The emergence of Information Technology in Nigeria could also be attributed to the historical development of telecommunications which serves as the pathway to the outside world; this spans across several decades evolving from early telecommunications infrastructure to the modern digital age. This was majorly prominent when Nigeria Telecommunications Ltd (NITEL) was established in 1985 as a sole provider of basic telephony services in the country; this was a combination of department of Posts & Telecommunications (P&T) institutions which was responsible for internal network, and Nigeria External Telecommunications (NET) take charge of the external networks. The main objective of NITEL was to ensure the coordination of planning and coordination of the internal and external telecommunications phone services was achieved, nationalize investments in telecommunications development and provide accessible, efficient and affordable services (Kabiru & Sani, 2019). The services provided started with limited basic telephone services has grown to more complex and sophisticated form of telecommunication services in this present-day generation.

One of the notable periods and governments that have played significant roles in publicizing IT in Nigeria was during the regime of President Olusegun Obasanjo (1999 – 2007); the regime brought about the existence Global System for Mobile Communication (GSM) which was officially commercialized first in the year 2001 by Econet Wireless (now Airtel), and then other operators: MTN, Globalcom & ETISALAT (now 9Mobile). The current subscriber base as asserted by Oluwadamilola (2023), has risen to 226.84 million, a significant step in the improvement of growth and development in Nigeria.

2. THE IMPACTS OF INFORMATION TECHNOLOGY (IT) IN NIGERIA

Nigeria have experienced and will continue to experience tremendous impact of information technology across all sectors, some of the major areas which will be discussed includes;

2.1 Economic Growth and Job Creation

The impacts of Information Technology (IT) on economic growth and job creation includes

- 2.1.1 **Increased Efficiency and Productivity:** Technology has enabled businesses to streamline operations and improve productivity. Automated processes reduce manual effort and optimize resource utilization, leading to higher output and cost-effectiveness.
- 2.1.2 **Digital Entrepreneurship:** The advent of IT has sparked a wave of digital entrepreneurship in Nigeria. Innovations in e-commerce platforms like Jumia and Konga have enabled entrepreneurs to reach customers nationwide without the need for physical stores. This has lowered barriers to entry and encouraged a new generation of startups.
- 2.1.3 **Job Creation:** The IT sector itself has become a significant source of employment. Beyond that, the adoption of technology across industries has created jobs in digital marketing, software development, data analysis, and customer support, among others.
- 2.1.4 **Improved Service Delivery:** Technologies such as online ordering systems have revolutionized service delivery. For instance, the ability to order food online reduces the hassle of physical visits, especially in congested urban areas, enhancing customer convenience.
- 2.1.5 **Entrepreneurial Ecosystem:** The rise of tech startups and innovation hubs has cultivated a supportive environment for entrepreneurship. These hubs provide resources, mentorship, and networking opportunities, attracting both local and international investments.
- 2.1.6 **Economic Diversification:** IT has contributed to economic diversification by reducing dependence on traditional sectors. It has created opportunities in sectors like fintech, e-commerce, telecommunications, and digital services, thus diversifying Nigeria's economic base

2.2 Improved Access to Information and Services

Information Technology (IT) has enhanced access to information and services by bridging geographical and socio-economic barriers, improving access to essential information and services across Nigeria and empowering individuals and businesses to participate more fully in the digital economy. These include;

- 2.2.1 **Internet Access and Connectivity:** IT infrastructure, including broadband networks and mobile internet, has expanded access to the internet across Nigeria. This connectivity allows individuals and businesses to access vast amounts of information and services online
- 2.2.2 **E-Government Services:** Governments at various levels in Nigeria have leveraged IT to

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provide online services to citizens. This includes services such as filing taxes, applying for permits and licenses, accessing government information, and participating in civic engagement processes.

2.2.3 Healthcare Services: IT has facilitated telemedicine and remote healthcare services, allowing people in underserved or remote areas to consult with healthcare professionals online. This improves access to medical advice and treatment options.

2.2.4 E-Commerce Platforms: Online marketplaces like Jumia and Konga provide a platform for consumers to access a wide range of products and services from the comfort of their homes. This is particularly beneficial in urban areas with traffic congestion or where physical retail options are limited.

2.2.5 Information Dissemination: IT has democratized access to information through platforms like websites, blogs, and social media. Citizens can access news, research findings, educational resources, and cultural content online, promoting knowledge sharing and awareness.

2.2.6 Financial Inclusion: IT has played a crucial role in promoting financial inclusion through mobile banking and digital payment systems. Services like mobile money have extended financial services to previously unbanked populations, allowing them to save, borrow, and make transactions digitally.

2.2.7 Job Market Access: Online job portals and professional networking platforms such as LinkedIn have expanded access to job opportunities for Nigerians. Job seekers can search for openings, submit applications, and connect with potential employers online.

2.3 Enhanced Communication and Connectivity

Information Technology (IT) has revolutionized communication and connectivity in profound ways, fostering enhanced connectivity, speed and efficiency of communication in Nigeria and communication across Nigeria and globally, some of the revolution includes;

2.3.1 Instant Communication: IT enables real-time communication through various channels such as email, instant messaging (e.g., WhatsApp, Telegram), and video conferencing (e.g., Zoom, Microsoft Teams). This has reduced communication barriers and facilitated quick decision-making and collaboration.

2.3.2 Global Connectivity: The internet and IT infrastructure have connected Nigeria to the global community. Businesses, individuals, and

organizations can communicate with counterparts worldwide, fostering international partnerships, trade, and cultural exchange. Some of the examples include; Mainone service, Glo1, Satcom e.t.c

2.3.3 Mobile Technology: Mobile devices, including smartphones and tablets, have become ubiquitous, providing continuous connectivity. Mobile apps for social media, news, and productivity tools allow people to stay connected and informed on the go. It provides easy access to information through search engines like Google and online databases, where people can easily access any form of information on virtually any topic, promoting learning, research, and informed decision-making.

2.3.4 Social Media Platforms: Platforms like Facebook, Twitter, and Instagram have transformed how people communicate, share information, and interact socially. These platforms have also become essential tools for businesses and organizations to engage with their audiences and customers.

2.3.5 Remote Work and Telecommuting: IT has enabled remote work opportunities by providing tools for virtual collaboration, file sharing, and project management. This flexibility has allowed employees to work from anywhere, reducing commuting stress and enhancing work-life balance.

2.3.6 Crisis Communication: During emergencies or crises, IT facilitates rapid dissemination of critical information to the public, emergency responders, and stakeholders. Social media and mass notification systems help in spreading alerts and coordinating responses.

2.3.7 Enhanced Customer Service: IT has improved customer service through channels like chatbots, helpdesk software, and CRM systems. Businesses can provide timely support and personalized interactions, enhancing customer satisfaction and loyalty.

2.3.8 Educational Impact: IT has transformed education through e-learning platforms, virtual classrooms, and online educational resources. Students can access lectures, coursework, and educational materials remotely, expanding learning opportunities.

2.4 Transformation of Education and Learning

Nigeria has experienced substantial transformations in education and learning delivery due to advancements in Information Technology (IT). IT have significantly expanded educational opportunities in Nigeria, making learning more

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inclusive, flexible, and accessible to a diverse range of learners, ultimately contributing to the country's socio-economic development. Here are some key ways these transformations have occurred:

- 2.4.1 **Online Courses:** The availability of online courses from platforms like Coursera, UdeMy, and Khan Academy has democratized access to education. Nigerians can now enroll in courses covering various subjects offered by universities and institutions worldwide, often at their own pace and schedule.
- 2.4.2 **Educational Apps:** Mobile apps designed for education, such as educational games, language learning apps, and interactive study tools, have become popular. These apps provide engaging ways for students to learn and practice skills outside traditional classroom settings.
- 2.4.3 **Virtual Classrooms:** IT has enabled the concept of virtual classrooms where students and teachers can interact in real-time through video conferencing platforms like Zoom, Google Meet, and Microsoft Teams. This technology facilitates remote learning, facilitates collaborative learning experiences which are not bound by locations, and allows educators to conduct lessons, discussions, and even assessments online.
- 2.4.4 **Digital Libraries and Repositories:** Digital libraries and online repositories house a wealth of educational resources, including e-books, academic journals, research papers, and multimedia materials. These resources are accessible to students and researchers across Nigeria, promoting self-directed learning and academic exploration.
- 2.4.5 **Access to Quality Content:** IT has made it possible for students in remote or underserved areas to access high-quality educational content that may not be readily available locally. This helps bridge the educational gap between urban and rural areas.
- 2.4.6 **Flexible Learning Opportunities:** The flexibility offered by IT-based education allows learners to study at their own convenience, balancing education with other responsibilities such as work or family commitments. This flexibility is particularly beneficial for adult learners and professionals seeking to upskill or pursue further education.
- 2.4.7 **Skills Development:** IT-based learning encourages the development of digital literacy and skills necessary for the modern workforce, preparing students for careers in technology-driven industries.

2.5 Government Efficiency and Transparency

IT has played a pivotal role in enhancing government efficiency and transparency in Nigeria by facilitating digital transformation, promoting open data and communication, improving service delivery, and fostering citizen engagement. Some of the areas impacted includes;

- 2.5.1 **E-Government Services:** IT has facilitated the digitization of government services, enabling citizens to access services online. Platforms like the Integrated Payroll and Personnel Information System (IPPIS) and the Treasury Single Account (TSA) have streamlined payroll and financial management processes, reducing bureaucratic bottlenecks and corruption.
- 2.5.2 **Transparency and Accountability:** IT tools such as government websites, portals, and online databases provide transparent access to public information, budgets, expenditures, and procurement processes. This transparency helps in curbing mismanagement of public funds and promotes accountability among government officials.
- 2.5.3 **Digital Payment Systems:** The adoption of electronic payment systems for taxes, fees, and government services has minimized the use of cash transactions, reducing opportunities for corruption and enhancing financial accountability. Example includes; online payment for Nigeria Passport services, LASG EGIS (Lagos State Geographic Information System) online portal for applying for Certificates of Occupancy (C of O), paying land use charges, and verifying property ownership, e.t.c
- 2.5.4 **Improving Service Delivery:** IT has improved the efficiency of public service delivery through automation and digitalization. For example, the National Identity Management Commission (NIMC) has implemented IT systems for the issuance of National Identification Numbers (NIN), facilitating easier access to government services and reducing duplication. - IT tools like electronic voting systems and biometric registration have enhanced electoral processes, promoting transparency and accountability
- 2.5.5 **Emergency Response and Crisis Management:** IT infrastructure supports efficient communication and coordination during emergencies. Integrated systems enable authorities to disseminate alerts, coordinate response efforts, and provide timely information to the public during crises such as natural disasters or health emergencies.

2.5.6 E-Governance Initiatives: Various e-governance initiatives aim to transform internal government processes, enhance transparency, and improve efficiency. Initiatives like the Government Integrated Financial Management Information System (GIFMIS) and the Nigerian Immigration Service (NIS) electronic passport system streamline operations and reduce bureaucratic inefficiencies.

2.6 Social Impact and Empowerment

IT and social media platforms have profoundly influenced social impact by fostering communication, information access, community building, activism, cultural exchange, education, healthcare, economic opportunities, and support networks. These advancements continue to shape how individuals interact, learn, collaborate, and advocate for societal change globally. So many ways IT have influenced social impact which includes;

2.6.1 Access to Information: these includes easy access to a wealth of information through the internet, digital libraries, and online databases, online educational resources and e-learning platforms. These opportunities empower individuals to learn, explore new ideas, and make informed decisions about their lives and communities, offering opportunities for skill development and knowledge acquisition regardless of geographical location or socio-economic background

2.6.2 Social Networking and Community Building: online communities facilitate connections between individuals with shared interests, identities, or goals, and also empowers individuals and communities to advocate for social change, raise awareness about issues, and mobilize support through digital campaigns, petitions, and online protests. This fosters a sense of belonging, support networks, and collaborative efforts for social causes and community initiatives

2.6.3 Economic Opportunities: providing platforms for e-commerce, freelancing, and online businesses. IT facilitates remote work opportunities, allowing individuals to work from anywhere with internet access.

2.6.4 Digital Entrepreneurship: Providing platforms for e-commerce, freelancing, and online businesses, facilitates remote work opportunities by allowing individuals to work from anywhere with internet access. This will empower individuals to start ventures, market products/services globally, and enhance flexibility of employment options even in rural

areas and access markets that were previously inaccessible.

2.6.5 Health and Well-being: individual and society well-being is being impacted by providing supports for public health initiatives via disseminating accurate health information, promoting preventive measures, and facilitating telemedicine services. It provides avenues for online platforms to share mental health education, counseling, and peer support, which helps to reduce stigma, increase awareness, and empower individuals to seek and take control of their health and access healthcare resources more efficiently.

2.7 Civic Engagement and Governance

The synergy between civic engagement and good governance is essential for creating an enabling environment where information technology can thrive in Nigeria, this can be achieved through the following;

2.7.1 Policy Formulation and Regulation: Effective governance structures and civic engagement can lead to the development of clear and supportive policies and regulations for IT. This includes laws on data protection, cybersecurity, intellectual property rights, and digital infrastructure development. When these policies are well-defined and consistently enforced, they create a conducive environment for IT investment and innovation.

2.7.2 Transparency and Accountability: Good governance promotes transparency in IT projects and initiatives. This transparency helps build trust among stakeholders, including investors and the public, fostering greater participation and investment in IT ventures. It also reduces the risk of corruption and mismanagement in IT-related projects

2.7.3 Digital Inclusion: Civic engagement encourages policies and initiatives that promote digital inclusion across all segments of society. This includes improving access to IT infrastructure and services in rural and underserved areas, as well as ensuring affordability and accessibility for marginalized groups. Governance frameworks that prioritize inclusivity can bridge the digital divide and promote equitable IT development.

2.7.4 Capacity Building: Effective governance supports initiatives for capacity building in IT skills and education. This includes promoting IT literacy among citizens, enhancing the skills of IT professionals through training programs, and fostering collaboration between educational institutions and industry to align curricula with

industry needs. Civic engagement can advocate for these initiatives and ensure they receive adequate support and funding

3.0 ROLES OF INFORMATION TECHNOLOGY IN NIGERIA

Information Technology (IT) is applicable to almost every sector for socio-economic development in Nigeria; financial institutions, healthcare services, innovative communications, creation of jobs, different industries could testify to the effect of information technology improving their productivity and efficiency. Some of these to be considered includes;

- 3.1 Education: IT has transformed the education sector in Nigeria by improving access to learning resources, enhancing teaching methods through e-learning platforms and educational apps, and facilitating remote learning. IT infrastructure in schools and universities supports research, collaboration among students and educators, and access to global knowledge networks.
- 3.2 Healthcare: IT plays a crucial role in improving healthcare delivery in Nigeria. Electronic health records (EHRs), telemedicine, and health information systems help healthcare providers manage patient information more efficiently, reduce medical errors, and enhance diagnosis and treatment outcomes. IT also supports public health initiatives, disease surveillance, and health education campaigns.
- 3.3 Communication and Connectivity: IT infrastructure, including telecommunications networks and the internet, facilitates communication and connectivity across Nigeria. It enables real-time communication through email, social media, and messaging platforms, fostering information dissemination, social interaction, and business communication.
- 3.4 Financial Services: IT has revolutionized the financial services sector in Nigeria, driving financial inclusion and expanding access to banking services through mobile banking, online payment platforms, and digital wallets. IT innovations such as blockchain technology and fintech solutions are transforming payment systems, lending practices, and financial management.
- 3.5 Security and Safety: IT plays a crucial role in enhancing security and safety in Nigeria. Surveillance systems, biometric identification, and cybersecurity measures protect individuals, organizations, and critical infrastructure from threats such as cybercrime, terrorism, and fraud.

IT also supports emergency response systems and disaster management efforts.

4.0 CHALLENGES OF INFORMATION TECHNOLOGY IN NIGERIA

With the dynamic growth of technology in Nigeria, there are still challenges to be considered as technology has not been fully implemented to mitigate them, and these require concerted efforts from government, private sector stakeholders, educational institutions, and international partners to create a conducive environment for the growth of Information Technology in Nigeria. Some of these includes;

- 4.1 Infrastructure Deficiencies: considering the economic situation of the country, limited and unreliable IT infrastructure, including inadequate internet connectivity, power supply issues, and outdated technology infrastructure, pose significant challenges. Apart from the fact that these deficiencies hinder the adoption and effectiveness of IT solutions across various sectors, it also created huge gap of IT accessibility between urban and rural areas, depriving the use of digital services
- 4.2 Financial Constraints: High costs associated with IT infrastructure, software licensing, and maintenance pose financial barriers, especially for small and medium enterprises (SMEs) and startups. Limited access to affordable financing options for IT investments further hampers adoption and innovation in the IT sector
- 4.3 Lack of Skilled IT Workforce: There is a shortage of skilled IT professionals in Nigeria. This skills gap affects the implementation and maintenance of IT systems, cybersecurity measures, and the development of innovative IT solutions. It also limits the capacity of businesses and government agencies to fully leverage IT for growth and development.
- 4.4 Cybersecurity: The increasing threat of cyber-attacks and inadequate cybersecurity measures pose risks to IT systems and data integrity. Nigeria, like many other countries, is vulnerable to cyber-attacks such as hacking, phishing, malware, and ransomware. Many organizations are not adequately prepared to handle these threats, not only in Nigeria but all over the world. Ebunoluwa (2022), in his recent report carried out in 2021 on the ransomware attack stated that 71% of Nigerian organizations were badly hit by the attack; this means the cybersecurity is still at large and this pose a greater challenge to Nigeria economy. Weak cybersecurity infrastructure and inadequate awareness among users make businesses and

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individuals susceptible to financial losses, data breaches, and reputational damage.

- 4.5 Economic/Political factors: Economic/political instability, inflation, and currency fluctuations can affect IT investments and the affordability of IT products and services, making long-term planning and sustainability challenging. Taking the dollar fluctuation rate into consideration, this has deprived many investors into bringing technology into the country and even the existing could not survive under the adverse economic effect.
- 4.6 Vendor and Supply Chain Risks: Dependency on external vendors for IT products and services exposes Nigerian businesses and organizations to supply chain risks such as vendor lock-in, supply shortages, and dependency on foreign technology providers.

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