Digital Society and Technology in Nigeria – A Paradigm Shift

By

Emmanuel Alexander, Ph.D
Email: emmanuel.alexander@rsu.edu.ng, 080833392392
Department of Sociology, Faculty of Social Sciences, Rivers State University, Nkpolu-Oroworukwo, Port Harcourt, Rivers State, Nigeria

Abstract

Over the last ten years, Nigeria has seen significant growth in its digital landscape and technology use, fueled by widespread mobile phone adoption, increased internet connectivity, and a large young demographic. This shift is transforming commerce, learning, public administration, and everyday communication in both cities and rural communities. The expansion of Financial Technology (Fintech) platforms, online market places, and digital services has opened new pathways for business and financial access, especially via mobile money solutions that serve people without traditional bank accounts. Digital tools have also supported distance education, online government services, and evidence based policy making. Still, obstacles such as inconsistent infrastructure, limited digital skills, cyber security threats, inclusive divide and unclear regulations remains. Problems like unreliable power supply and expensive data further restrict broad accesses. Despite these issues, Nigeria maintains one of the most active digital economies in Sub-Saharan Africa, influencing innovation, employment, and social progress. The future development of Nigeria's digital society will rely on continued investment in infrastructure, supportive policy changes and broader digital literacy programs. Hence, this article used an integrated theoretical framework combining the Unified Theory of Acceptance and Use of Technology (UTAUT) and Socio-Technical Systems Theory (STS) to explain digital society and technology transformation in Nigeria, while the methodology is qualitative and secondary sources of data. The study recommends that basically the proper enforceable regulations and infrastructure should be the key to further digital technologically growth in Nigeria as to encourage a shift to modernization.

Key words: Digital Tools, Communication, Society, Sustainable Transformation, Paradigm

Introduction

Nigeria represents one of the most dynamic digital transformation cases in Sub-Saharan Africa. With a population exceeding 220 million and a median age under 18, the country has become the fastest growing telecommunications market on the continent. The expansion of 3G and 4G base transceiver stations, coupled with rising mobile phone penetration, has shifted Nigeria from a predominantly analog economy toward a data-driven, platform mediated society.

This transition aligns with broader global discourses on "Society", where information and communication technology (ICT) is positioned as a driver of sustainable development and economic growth. In the Nigerian context, ICT is no longer peripheral but central to how individuals access finance, education, health, and public services.

Digital Society and Technology refers to how Wireless Technology shapes the way we live, work and interact as a society, and as a social being. The society is where social, economic,

cultural, and political activities are largely mediated through digital technology. Think of it as life with the internet, smart phones, social media and data woven into daily routines and activities. Digital Technology simple means a device constructed or working by the methods or principles of electronics, a machine that is characterized by electronic and especially computerized technology which uses electricity, battery, solar energy and others for it to be operated.

The digital technology is a welcome development in Nigeria, the kind of interconnectivity, dependency and durability it has brought to the Nigeria society is indeed impactful and seamlessly progressive. However, the technology is composed of data and pictures in the form of especially binary digits. Furthermore, digital technology are electronic tools, system and devices that generate, store, or process data using binary code (O's and I's) these technologies including computers, smart phones and artificial intelligent (AI) – automate tasks, facilitate instant global communication and enable data driven decision in making common examples include the internet and software applications.

However, the transition from an industrial society to a digital society marks one of the most profound paradigm shifts in human history. How the 19th and 20th centuries were defined by steam, electricity and mass production but the 21st centuries is defined by data, network, and algorithms, a digital society is not mere one that users computers, it is a society which characterized by economy, government, education, family, culture that are reorganized around digital infrastructure and logics. It is pertinent to note that in Nigerian post independence era from the period of 1960 to 2000 people were virtually finding it difficult to carry out effective and swift socio-economic communication, people spent several hours of queuing or standing in Post Offices across the country just to dispatch a mail or make a phone call to even neigbouring towns or states not to talk about abroad. The waste of man hours was unprecedented, stressful and uncivilized. Several people were unable to be effectively communicated as a result of the absence of digital technology practice as at that time.

Ohale (2018) has insisted that for any form of development even in terms of technology the state support and encouragement is a key. Nzimiro (1985) has expressed that the development philosophy was based on the ideology that development should pass through fixed evolutionary dimension. The advanced capitalist societies were regarded as the model of which the third world should emulate. For Nigeria it meant that Nigeria should follow the capitalist path to development, hence the British social scientists who advised the colonial regimes defined for the ruling class when and how change in societal development should occur.

Ake (2003) stated that the problem of deciding where to start an examination of the thought on the obstacles to Africa development and to remember strongly in sympathy for the dependency school of thought. In other words, he is concerned about the historical experiences of Africa and how these historical experiences have helped to shape the current state of underdevelopment in Africa and in the words of underdevelopment, Rodney (2009) has exposed how the Europe underdeveloped Africa but on a different argument, Igwe (2010) argued on how even the Africans themselves underdeveloped Africa. For Girigiri (2000) social change is a major concept in sociological analysis.

Interestingly, Nigeria is now undergoing a rapid digital transformation driven by a young population and the National Digital Economy Policy and Strategy (NDEPS), aiming for 95% digital literacy by 2030 and apart from this, the National Information Technology Development Agency (NITDA), the Federal Ministry of Communication, Innovation and Digital Economy and the Centre for Information Technology and Development and others are service infrastructure for the support of the Nigerian Government digital enhancement and creativity.

Nduka (2006) opined that change is an inescapable aspect of human life and that changes in techniques, religious beliefs and practices, customs, economic and political organizations are expectations. Otite et al. (2006) expressed that the key concepts of society is people, institutions and relationships, what the human beings do and the way they relate to one another which digitalization and technology has further brought people closer than ever in the aspect of networking is a boost to social relationship. Otite et al. (2006) further expressed that there can, thus, be no effective social life or social organization without communication and that for people to build and maintain any kind of social order, they must communicate effectively. In view of the above, it is not out of place to state that digital technology as created a hub of businesses and employment to especially our teeming population in Nigeria and to further point out that most; if not all educational institutions has encouraged the establishment of digital communication in their daily activities either formal or informal.

To put it differently, Anikpor et al. (1999) asserted that before the era of civilization or globalization the Nigerian traditional institutions has embarked on several means of local communication pattern such as the Town Criers, War Songs, Flute, Drums, Bells and others as information techniques to communicate effectively to the rural people in Africa. Digital technology has brought some level of comfort to the Nigeria Society. What regular efforts are the regulators doing to improve and sustain digital technology in Nigeria.

Statement of the Problem

Despite progress, the digital paradigm in Nigeria faces structural constraint infrastructure deficit the inconsistent electricity and limited broadband outside urban areas restrict access, the digital literacy gaps, uneven skills distribution limits effective use of digital services. Trust and accountability, the citizen trust in digital governance depends on perceptions of transparency, data surveillance and equity, furthermore the regulatory system, legal frameworks often lag behind technology innovation. These challenges highlight that technology alone does not guarantee inclusion. Trust, accessibility, accountability and equity are critical socio-technical factors shaping outcomes these are major problems.

Significance of the Study

Understanding Nigeria's digital paradigm matters beyond the country itself. As Africa's largest economy and democracy, Nigeria's experience offers lessons for other developing nations navigating digital transformation amid infrastructural and institutional constraints. The trajectory of Nigeria's digital society will depend on investments in infrastructure, regulatory reform, and the development of context appropriate technologies that address local needs.

Aim and Objectives of This Study

The aim of this study is to examine how digital society and technology constitute a paradigm shift in Nigeria's economic, social and governance system, while the following are the objectives:

1. Trace the evolution of ICT infrastructure and policy in Nigeria.
2. Analyze the role of digital platforms in finance, education and governance.
3. Evaluate the socio-technical factors influencing citizen trust and inclusion; and
4. Identify policy and institutional strategies for sustainable digital transformation.

Methodology

This study is descriptive and it uses qualitative method from secondary data and different contributions from authors, textbooks, internet sources and others.

Conceptualization Review:

Emergence of Digital Society in Nigeria

The digital society in Nigeria is characterized by the proliferation of fintech platforms, e-commerce, digital governance, and e-health services. Mobile money solutions have extended financial inclusion to millions of previously unbanked citizens, while companies like Flutterwave illustrate Nigeria's growing role in digital payments.

In public administration, digital governance reforms are increasingly promoted to enhance service delivery, transparency, and citizen engagement. However, research shows that outcomes remain uneven due to institutional trust deficits and infrastructural inequalities. A bibliomania analyzes of 128 Scopus indexed publications on ICT in Nigerian public administration confirms that research has focused heavily on e-governance adoption, challenges, and success factors.

The academic argument that "ICT: an Emerging Paradigm for Success in Nigeria" reflects this shift in scholarly and policy thinking. ICT is now treated not as a supplementary tool but as a foundational paradigm for national development.

Digitalization and Nigeria's Economic Transformation

Akikibofori (2020) contributed that globalization has also metamorphosed into digital technology for the development of the society. Accordingly, digitalization in Nigeria present a profound restructuring of economic activity, characterized by the rapid adoption of digital platform, mobile technology, and data driven business models that by pass legacy infrastructure. This process exemplifies "digital growth and development", where mobile penetration and innovation have enabled financial inclusion for millions previously excluded from formal banking to be inclusive. The rise of payment platforms such as flutter wave, pay stock, monie point and opay, alongside mobile money services has digitalized transactions across urban and semi-urban markets, reducing cash dependency and creating new Small and Medium Enterprises (SME) ecosystems.

In Port Harcourt and Lagos, digitalization fuels a growing gig and platform economy. Ride hailing through Bolt, logistics via Gokada and Kobo360 and e-commence through Jumia and Konga reconfigure labour markets around algorithmic management and flexible which gives employment.

Digitalization also reshapes traditional sectors. Agriculture increasingly integrates mobile advisory services, digital market places credit scoring for small holder farmers. Nollywood and Nigeria's creative economy have digitalized distribution via YouTube, Netflix, and TikTok, enabling direct monetization of global reach for content creators. However, Nigeria's digital economy faces structural constraints: Inadequate broadband infrastructure outside major cities, unreliable power, and a significant digital skills gap limit broad based participation. Regulatory uncertainty, including Central Bank of Nigeria (CBN) crypto restrictions and proposed levies on digital transactions, further complicates growth.

Digital Technology and Economic Livelihood in Nigeria

One of the major advantages of globalization is allowing the world economic to be integrated as one, and the major instrument of globalization is the establishment of digital technology, it has quicken business activities, the speed of carrying out economic activities in this 21st century are amazing compared to other centuries as stated above. Digitalization dissolves boundaries of time and space, creating a "space of flows" that reshapes work, identity and governance.

In Nigeria, digital technology as created several jobs by giving hope and a sustainable economic livelihood to millions of people, especially the youths. In other words, it has put food on people's table. It is now one of the major employers of labour. For instance, banking activities, service providers such as MTN, Glo, Airtel internets etc, several online businesses, in insurance, movie, crypto are trending and progressing.

Modern Digitization and Growth

Digitization – the technical conversion of analog information into binary code is distinct and digitalization as further defined by Brennen et al. (2016) as the "way many domains of social life are restructured around digital communication and media infrastructure". In Nigeria, digitalization signifies more than mobile phone penetrations and it marks the enabling of data, platforms and algorithms into the fabric of social and economic life. Castell (2010) theory of the "network society" provides a foundational lens. Power, production and culture now depend on inclusion in dominant information networks. For Nigeria, this raised urgent questions. Who is networked, who is excluded and on whose terms.

Since the 2001 GSM revolution Nigeria has experienced rapid digital expansion. With over 220 million mobile subscriptions and 55% internet penetration in 2024, the country represents African's largest digital market. Yet, as Sesan (2021) observed that access alone does not equal inclusion.

With the modern digital development, several monetary transaction such as the buying and payment of petroleum products, payment of electricity bills, hospital bills, purchase of goods and services, payment for school fees, payment for transportation, purchase of automobiles and several other economic needs and different payments across the globe has recently been digitalized.

Governance and the Digital Public Sphere

Digitalization has fundamentally altered Nigeria's political communication. Kperogi (2022) conceptualizes social media as a digital public sphere. That disrupts state and elite gate

keeping. The 2020 EndSARS protests epitomized this shift: Twitter, WhatsApp and Instagramm coordinated protests, fund raising, and real time documentation of police brutality (activities), circumventing traditional and conventional media censorship. Onwumechile (2020) frames this as digitalization of development communication, where citizens become producers rather than consumers of political discourse.

Furthermore, the state, however, has responded with "digital authoritarianism" (Kperogi, 2022). The 2021 Twitter ban, NIN-SIM linkage mandates, and proposed social media regulation bills illustrate attempts to digitalize state control. Sesan (2021) added that through paradigm initiative, documents rising digital rights violations: Internet shut downs during elections, surveillance of activist, and on line gender – based violence. E-governance projects such as the Corporate Affairs Commission on line portal, INEC's IREV results platform and JAMB on line activities for candidate academic school admission demonstrate the state's own digitalization, yet public trust remains low due to system failures and perceived manipulation.

Key Features of Digital Technology

i) Connectivity: People, business, and governments are linked through the internet and mobile networks.
ii) Data-Driven: Decisions, services and even relationships often rely on digital data and algorithms.
iii) Online participation: Banking, education, health, politics and culture happens partly or fully online.
iv) Digital identity: we have profile accounts, and digital foot prints that represent us.
v) Storage Facilities:

Breakdown of Digital Society in Nigeria

In Nigeria, in the aspect of hyper-connectivity, almost everything and everyone are linked via internet or mobile, the POS agents, vendors, twitter, political debates, socio-economic analyst and others.

The plat form is now a social live in everyday activities in Nigeria, every time you open your mobile phone or personal computer every issues and interest are displayed in a digital technology.

Major Dimensions of Digital Society

Social Life: the digital technology has on several occasions help to create different level of relationship either formal or informal through the WhatsApp, Instagram, TikTok etc, several religious, alumni organizations or associations are also using the digital technology to disseminate information about the aim, mission and vision of such establishment.

Economy: this new technology has helped to simplified transport movement, the Bolt Drivers, Content creator and others.

Government and Politics: most government institutions are encouraged to carry out their administrative operations online, the registration of NIN, CAC and others are few examples.

Culture & Identity: the home movie, Nollywood, Hollywood and others are now global activities as a result of digital technology, the YouTube for E-Leaning, tutorial, virtual classrooms are now visible and impactful.

Impact of Digital Technology on Economic Resilience

i) Artificial Intelligence and machine leaning. AI and machine leaning are driving transformation across industries such as healthcare, finance and retailing.
ii) Data Science and Analytics
iii) Cloud Computing
iv) Cyber Security
v) Software Development
vi) Project Development
vii) Digital Marketing
viii) Business Analysis

Meaning and Effect of Digital Divide

Digital Divide simple means the gap between people who have access to digital technology such as the internet and the skills to operate them and for those who cannot use them. So "people affected by digital divide are disadvantaged in the areas like education and economic livelihood because they lack digital technology knowledge or access. It is a major problem that several people super phones or lap tops but it is under utilized as result of lack of digital know how.

There are three gaps categories.

i. **Access gap**:
- People in cities or towns with fiber and 4G/5G have access.
- People in rural areas with no electricity or expensive data to operate.

ii. **Skills gap**:
- Someone who can code, use Excel, apply for jobs online has high digital literacy.
- Someone who only uses a phone for calls/WhatsApp has low digital literacy.

iii. **Usage/Outcome gap**:
- Using the internet for online courses, e-commerce, telemedicine creates economic and social benefits.
- Using it only for entertainment creates fewer opportunities.

The digital divide is a major issue's that needs to be looked into because it affects education, jobs, healthcare, and political participation, if you are on the wrong side, you lose out on most of the opportunities in a digital economy.

However, there are some main causes of digital divide:

i. The cost of data, devices and maintenance are expensive.
ii. The level of poor infrastructure and electricity may hinder inclusive digital technology.
iii. The level of education/literacy is also an issue.
iv. The gender, age, location barriers are major issues to be address.
v. Language and relevant local content should be looked into.

Theoretical Framework

This study is guided by a combined or integrated framework of the Unified Theory of Acceptance and Use of Technology (UTAUT) and Socio-Technical Systems Theory (STS) to understand ICT development in Nigeria. UTAUT, proposed by Venkatesh et al. (2003) explains adoption at the individual and organizational level through constructs such as perceived benefits, ease of operation, social pressure, and the presence of supportive infrastructure, STS developed by Trist et al. (1951) and later Emery et al. (1960) emphasizes that technology achieves real impact only when it is harmonized with social structures, cultural values, institutional rules, and policy direction.

In the Nigerian context, this means the fast spread of GSM services in the 2000s and the growth of fintech in the 2010s resulted from two forces, from UTAUT perspective, people adopted these technologies because they show them as more effective and simpler than previous options (Venkatesh et al., 2003). From an STS perspective, adoption was made possible by changes in the social system, such as NCC deregulation, government reforms, and rising public expectations (Emery & Trist, 1960). Yet, ongoing problems like poor rural access, low digital skills and unstable electricity show that Nigeria's technical progress is not yet fully marched by its social and institutional capacity (Trist & Bamforth, 1951).

Thus, UTAUT provides insight into why users accept or reject technology, while STS explains why adoption thrives or struggles depending on how well the technical system integrates with Nigeria's social and institutional environment. In view of the above, these integrated theoretical frameworks are suitable for this study.

Findings

In the light of the above, this paper has identified that the evolution of information and communication Technology (ICT) in Nigeria can be traced through 4(four) distinct phases, each marked by changes in policy, infrastructure and adoption patters.

Before 1999, Nigeria's telecommunications sector was a state monopoly under the Nigerian telecommunications limited (NITEL). Service was limited, expensive and inefficient. Fixed telephone lines were the primary mode of communication, with teledensity below 0.5 lines per 100 people. ICT was largely confined to government offices, universities and large corporations.

The turning point came with the liberalization of the telecom sector in 2001 under the Nigerian communications Commission (NCC). The auctioning of GSM licenses to MTN, Econet/Zain and MTEL introduced mobile telephone at scale.

Within a decade, mobile subscriptions grew from under 1 million to over 70 million. This period laid the foundation for Nigeria's digital society. Internet penetration began GPRS and 3G services, and cybercafés became the main access points for urban youth. Policy frameworks like the National IT Policy of 2001 also emerged to guide ICT development.

Hence, the digital services expansion saw the rollout of 3G and early 4G networks, increased submarine cable capacity and the entry of private ISPs. Smartphone adoption accelerated and data costs gradually declined,

Again, Fintech platforms like Interswitch, Paystack and Flutter wave emerged, positioning Nigeria as Africa's fintech hub. E-governance initiatives such as the Treasury Single Account (TSA) and BVN system were introduced. Academic research during this period focused heavily on e-governance adoption, implementation challenges and success factors in Nigeria public administration.

Furthermore, the COVID-19 pandemic accelerated digital adoption across education, health and commerce. Remote learning, telemedicine and digital payments became main stream. Nigeria's ICT ecosystem now includes over 200 millions mobile subscriptions and a growing startup ecosystem valued in billions of dollars.

Current research highlights a shirt toward socio-technical analysis: examining how citizen trust, accessibility, accountability and equity shape the outcomes of digital governance. There is also growing interest in indigenous technologies, IoT, big data and digital twins for public administration

Conclusion

Digital Technology has played a key role in improving Nigeria's socio-economic development, especially in the area of global challenges like the COVID-19 pandemic. Nigeria's innovation ecosystem in digitalization has no doubt benefitted from the integration of artificial intelligence (AI), data and digital payment systems. Furthermore, digital technology has help in the field of medicine, agriculture, education, engineering, mechanical and several others in quick research projects, prescription of drugs to several people with health challenges.

In Nigeria the consciousness of Digital Technology has further simplified several administrative activities hence a paradigm shift, although initially it looks as if it will lead to job redundancy, underemployment and others but from several analysis, it has open up doors for self reliance, employment and speed in most organizations to meet up their targets, it is on records that during the COVID 19th pandemic several oil and gas companies, schools, government offices were working from their various homes via the digital technology.

Digital Society and Technology as a Socio-Technical Transformer has reconfigures economy, governance, culture, and social relations. Drawing on Nigerian and global scholars businesses across continent are swiftly transacted without any major obstacles.

In view of the above, information, communication technology in contemporary Nigeria society has created jobs in the area of digital economy, ICT jobs, online banking activities, real estate, agriculture, oil and gas, manufacturing, stock exchange market, brokerage and shares, medicals, online transportation of goods and services, air transportation booking of persons/passengers for travelling, sporting activities and so many others.

The Nigeria government and all stakeholders should continue to welcome digital technology as part of global development, and ensures an inclusive digitalization of all her citizen, close the gap of digital divide, they should ensures that all obstacles such as electricity failure especially at the rural areas should be looked into as quickly as possible.

Digital technology is now a major employer of labour, the appropriate government establishment at all levels should encourage especially the youths to be computer literate, digital technology programmes should be compulsory in all level of our educational institutions from primary to tertiary so that in the end there will be several competent and employable youth in the society, it will increase employment ratio and reduce societal crime and poverty in line with the aim and objective of Sustainable Development Goals (SDG's).

As stated above, one of the major problems that may hinder an inclusive digital societal technology is 'digital divide'. It is expected that the Nigeria National Information Technology Development Act established in 2007 and other related agencies has the responsibility to reduce or eliminate that gap across the country.

Finally, the gap in knowledge of this study is that despite progress, teledensity and broadband access remain uneven urban and rural areas. Power instability, high data costs and digital literacy gaps continue to limit full participation. Research gaps also exist in understanding ICT's impact on vulnerable groups like rural communities, the elderly and people with disabilities. In short Nigeria moved from a state controlled, low access system in the 1990s to one of Africa's largest mobile and fintech markets today. The evolution reflects a shift from basic connectivity to a complex digital society where ICT underpins economic and governance processes.

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