



Understanding Digital Inclusion and its Implications for Public Service Delivery in Nigeria.

OKEREKA, O. P¹. & AROGHENE, Imene²

Department of Public Administration

Delta State University, Abraka

opokereka@delsu.edu.ng;

onofereonline@gmail.com

Imene.aroghene@delsu.edu.ng

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Abstract

This study critically examines the understanding of digital inclusion and its implication to public service delivery in Nigeria. The study adopted an historical design and made use of thematic analysis for the rich empirical qualitative data from several literature. The research was underpinned on e-governance, digital divide and public value theory respectively as a lens of digital innovation and inclusion and they impact public service delivery in Nigeria. The study finds that digital inclusion has significantly transformed public service delivery in Nigeria, particularly through platforms such as NIMC, JAMB, FIRS, and NIS. These innovations have improved efficiency, reduced bureaucratic bottlenecks, enhanced transparency, and broadened access to government services. However, the uneven distribution of ICT infrastructure, persistent digital illiteracy, and affordability barriers reveal that the benefits of digital inclusion are not evenly felt across Nigeria. While urban populations benefit more, rural and disadvantaged citizens remain at risk of exclusion, raising equity and inclusiveness concerns. The therefore, recommended that Digital Infrastructure should be Expand, Digital Policy Implementation should be sstrengthenens and there should be Public-Private Partnerships in areas of digital innovations to increase accessibility.

Key words: Digital Inclusion, Digital Innovations, Digital Public Service Delivery

Introduction

One of the core responsibilities of a government and its institution is to provide effective and high-quality services to its citizens, regardless of their status, age, religion, residential location, or other factors. Nigeria, as a state situated in the West African zone, is the most populous state in Africa with over 200million citizens. By this implication, the government is expected to provide quality and effective services to the vast universe. It becomes more cumbersome to rely on traditional methods of service delivery, such as physical office space, letter writing, physical filling of forms, and dissemination of vital information through newspapers, making applications through physical office space, because such an act has led to slow and ineffective service delivery to Nigerians and most especially the rural populace. Public service is the apparatus of government that is deployed to transcend governmental policies, programmes and responsibilities to the populace. At the same time, the delivery is a conveyor belt through which all citizens feel the government's presence, responsibilities, policies, and programmes. This state cuts across the board in terms of urban and rural dwellers.

To achieve a widespread quality, effective and timely government service delivery to its

citizens, there was a need for a paradigm shift from traditional mechanisms of rendering services to a digital perspective. This paradigm shift will bring holistic inclusion in areas of public service delivery in the Nigerian populace. Digital inclusion in public service delivery is viewed as a government service that is delivered to citizens through innovative technologies, such as governmental e-portals, mobile apps, or SMS, aimed at spreading effective and timely service delivery to both urban and rural populations. Digital technologies aim to enhance efficiency and service quality by reducing time wastage, reaching a wider number of citizens at a reduced cost, and can lead to increased transparency, enabling seamless organisational cross-service delivery, such as from NIMC to JAMB to higher institutions and to NYSC in Nigeria. Digital inclusion breaks the barriers of accessibility. Nigerians have experienced poor service delivery in the past, for instance, the registration and correction of national identification cards at physically designated centres, adolescents staying late in JAMB registration centres to obtain their JAMB registration, and individuals queuing to sort out tax-related issues. This phenomenon has led to loss of valuable lives, properties, time and resources. Therefore, it is essential to

comprehend digital inclusion and its implications for public service delivery in Nigeria, in order to determine whether it has a positive or negative impact.

Statement of the Problem

Digital inclusion has become a cornerstone of modern governance, enabling states to improve efficiency, transparency, and citizen engagement in public service delivery to the majority of their universe. The Nigerian state is aggressively pursuing a digital innovation and inclusive future to deliver public services to its vast population by launching a suite of e-government platforms, mobile apps, and SMS/USSD platforms designed to streamline services, enhance transparency, and curb corruption. In recent years, Nigeria has made notable strides in deploying digital technologies across public service institutions, including the Federal Inland Revenue Service (FIRS), the Nigeria Immigration Service (NIS), and the National Identity Management Commission (NIMC). These agencies have introduced e-tax platforms, online passport applications, and the National Identification Number (NIN) registration system as part of the federal government's digital transformation agenda for public service delivery. However, the realities of digital inclusion in Nigeria reveal a complex and uneven landscape where structural, infrastructural, and socio-economic barriers continue to impede effective service delivery. A key challenge is the persistent digital divide. Despite government investments, a significant proportion of citizens, particularly in rural and underserved communities, lack reliable internet connectivity, digital literacy, or access to affordable ICT infrastructure. This results in exclusion from critical services, such as e-filing tax returns, registering for the NIN, or e-passport registration, thereby undermining the principle of equal access to public services.

Moreover, the limited capacity among citizens to navigate digital platforms often leads to reliance on intermediaries, which reintroduces corruption, delays, and inefficiencies that digital reforms were meant to eliminate, thereby demonstrating a lack of understanding of the role of digital inclusion and quality service delivery in Nigeria. Equally troubling is the trust deficit between citizens and public institutions. Many Nigerians perceive digital platforms as unreliable due to recurring system breakdowns, lengthy downtimes, and bureaucratic bottlenecks. For example, the frequent collapse of the NIMC portal has frustrated citizens seeking identity registration. At the same time, inconsistent online tax payment systems in FIRS have discouraged compliance, and incomplete USSD

transactions by JAMB users. These challenges erode public confidence in the government's ability to deliver inclusive, citizen-centered services, contradicting the goals of e-governance and public value creation. Furthermore, while digital transformation initiatives are often celebrated at the policy level, their actual impact on service quality, accountability, and citizen satisfaction remains under-researched. There is insufficient empirical evidence on how digital inclusion or the lack thereof shapes citizens' access to efficient public services in Nigeria. This gap is significant, given that digital innovations are only meaningful when they generate equitable public value, empower citizens, and reinforce legitimacy in governance. Thus, the central problem is that although Nigeria has embraced digital innovations in public administration, structural inequalities, infrastructural gaps, low digital literacy, and weak institutional frameworks continue to hinder inclusive service delivery. Unless these challenges are critically examined, digital governance risks reinforcing exclusion, widening inequalities, and weakening citizens' trust in public institutions rather than fulfilling its promise of efficient, transparent, and equitable governance.

Research Objective

The broad objective of this study is to examine the understanding of digital inclusion and its implications on public service delivery in Nigeria. The specific objectives are to:

1. Examine the extent to which digital portals (NIMC and JAMB) have enhanced accessibility and efficiency of public service delivery by the Nigerian populace.
2. Analyse the role of mobile tools (USSD codes and SMS platforms) in promoting Inclusive Public service delivery.
3. Investigate the impact of the FIRS digital tax payment system on public service delivery.
4. Evaluate the contribution of the Nigeria Immigration Service (NIS) online service platforms in improving efficiency, responsiveness, and citizen satisfaction with public services.

Research Question

1. To what extent does the adoption of e-government portals (such as NIMC and JAMB platforms) enhance accessibility and efficiency in public service delivery in Nigeria?
2. How do mobile governance tools (USSD codes and SMS platforms) promote inclusiveness and extend public services to rural and underserved populations?

3. In what ways do digital payment systems introduced by the Federal Inland Revenue Service (FIRS) influence transparency and accountability in public service delivery?
4. How does the online service platform of the Nigeria Immigration Service (NIS) contribute to efficiency, responsiveness, and citizen satisfaction with government services?

Conceptual Review

Digital Inclusion

Digital inclusion is born out of Digital innovation, which involves the systematic application of scientific knowledge to create new or improved products, processes, or services. This process focuses on practical implementation and problem-solving to meet specific technical challenges or enhance existing systems. It comprises several stages, each critical to ensuring that the innovation is effective and valuable (Adeyemi, 2023). The innovation process begins with identifying specific technical challenges or phenomena within a society, as well as possible areas of improvement. This involves analysing current systems, understanding their limitations, and pinpointing opportunities where scientific advancements can make a significant impact. Most of the debate on digitalisation and inclusiveness has centred on the degree to which countries worldwide have affordable access to various digital tools and their usage (UNCTAD, 2020). Digitalisation is a complex socio-technical apparatus and set of procedures for adopting and utilising digital technologies and innovations by individuals, organisations, and society as a whole. Digital inclusion is a set of public policies that relate to the installation, administration, expansion, and utilisation of innovative technology that cuts across a country's geographical area. Digital inclusion helps to create an informed society and seamless service delivery to citizens of a given country. GOV. The UK opined that digital inclusion is a facet of social inclusion, and it provides the proper access to the digital world for intellectual development and promotes spaces for significant cultural practice that allows individuals to be digitally literate. It further stated that digital inclusion does not only imply being technically capable of acting in cyberspace, but also being capable of creating and producing meanings and feelings within it. Therefore, digital inclusion refers to the ability to access, adapt, and create new knowledge using innovative technology deployment for customer satisfaction. The expansion of digital applications and platforms can be utilised for development purposes and in addressing societal problems, including those related to

achieving the Sustainable Development Goals. It can improve economic and social outcomes and be a force for quality service delivery. The infrastructure provided by platforms can enable more effective connections, transactions, exchanges of information and networking and ease of doing business (UNCTD, 2020).

Digital inclusion refers to the use of information and communication technology to facilitate transparency, efficiency, accountability, and effectiveness in the infrastructural and collaborative exchanges within state, municipal, and local governments, thereby empowering citizens through access to and application of information (Bansal, Sharma, & Sood, 2012). Bansal et al. (2012) state that "Agencies of government adopt digital inclusion for communication and information technologies with the ability to transform the relations between businesses, citizens and different bodies of government." Digital inclusion refers to the process of ensuring that individuals and communities, particularly those who are marginalised or disadvantaged, have access to and can effectively use information and communication technologies (ICTs). It goes beyond the mere provision of devices and internet connectivity; it also encompasses the development of digital literacy skills, affordability of services, accessibility for people with disabilities, and the creation of relevant content that meets the needs of diverse populations (van Dijk, 2020). By addressing these dimensions, digital inclusion seeks to bridge the digital divide and create equal opportunities for participation in the digital economy and society (Warschauer, 2004). At its core, digital inclusion is both a developmental and a social justice issue. In today's knowledge-driven world, access to digital tools is critical for education, healthcare, financial inclusion, governance, and economic empowerment (World Bank, 2021). When certain groups are excluded—whether due to poverty, geography, gender, age, or disability—the gap in opportunities widens, reinforcing inequality. Therefore, promoting digital inclusion is essential for fostering inclusive growth, enhancing service delivery, and ensuring that no one is left behind in the rapidly evolving digital era.

Media of digital inclusion

There are various media of digital inclusion in Nigeria that ensure services are digitally transmitted to the populace. They include:

1. Mobile Telephony and Internet Services: The spread of mobile phones, exceptionally affordable smartphones, has become the most significant medium for digital inclusion in

Nigeria. With over 220 million active mobile subscribers and increasing 4G and 5G penetration, mobile connectivity remains the primary channel through which Nigerians access the internet, e-governance services, banking, and social platforms.

2. National Identification and E-Government Platforms: Platforms such as the National Identity Number (NIN) system, Bank Verification Number (BVN), and government portals like the Corporate Affairs Commission (CAC) online registration platform are mediums that enable digital identity, access to services, and inclusion in the formal economy.

3. Digital Financial Services: tax profiling platform, Mobile banking, Point of Sale (PoS) terminals, and fintech applications have become central to financial inclusion. They provide millions of unbanked and underbanked Nigerians with access to digital payments, savings, and credit.

4. Educational Platforms and E-Learning Tools: Digital inclusion is also promoted through online learning platforms (such as Edmodo, Google Classroom, and Nigerian-specific platforms like uLesson). These media enhance access to education for students in urban and rural areas, especially after the COVID-19 pandemic highlighted the role of ICT in education.

5. Community ICT Centres and Public Access Points: Government and NGOs have established ICT hubs, innovation centres, and community internet access points to promote skills training and digital literacy. Initiatives such as NITDA's ICT innovation hubs and state-sponsored technology villages (e.g., Lagos' Eko Innovation Centre) fall within this category.

6. Broadcast and Social Media Platforms: While traditional broadcast media remain influential, social media platforms like WhatsApp, Facebook, Twitter (X), and TikTok serve as powerful mediums of digital inclusion, enabling communication, business promotion, civic engagement, and citizen mobilisation across Nigeria.

In summary, these various mediums of digital inclusion in Nigeria are designed to deliver services to the entire population in both urban and rural settlements.

Public Service Delivery

It is essential to have an understanding of the term 'service delivery' before examining public service delivery. Service Delivery, therefore, according to Kpolivie (2003), is a unique system that enables business success and supports the development of business strategy for achieving different levels of performance, including customer retention, customer satisfaction, and overall profitability. The central notion for a

target market is to address the question of "who" the main customers or intended beneficiaries are, and "what" customers can achieve. Service delivery refers to the process of delivering services to consumers or customers within a specific area. Public service delivery refers to the services rendered to citizens by government institutions, ministries, departments, and agencies. Public service delivery is the fundamental reason for the existence of government, and its primary role is to deliver effective and efficient services which the private sector may not have the capacity to offer or offer them at very high prices to the citizens (Egugbo, 2020). Public service delivery is sacrosanct as it is a representation of the basic structure of nation-building. It serves as a nexus and bond between the government and citizens, promoting the values of the nation among its citizens (Walle and Scott, cited in Shittu, 2020). According to Ogunna, cited in Shittu (2020), the desire to satisfy the public through the implementation of public policies, enforcement of laws, and realisation of public welfare culminates in effective public service delivery. Service delivery in the public sector in Nigeria is used as machinery for the implementation of government programmes and policies to the populace, which may include health, education, citizenship registration, security, and other social amenities. The concept presupposes that, in public service, there is a contractual relationship between the customer (the public) and the service provider (government agency) which obliges the latter to render service to the former in the most satisfactory way, be it in terms of utility, quality, convenience, timelines, cost, courtesy, communication or otherwise.

Brief History of the National Identity Management Commission (NIMC)

The National Identity Management Commission (NIMC) was established by the NIMC Act No. 23 of 2007, replacing the earlier Directorate of National Civic Registration (DNCR) that operated a flawed national ID scheme from the late 1970s (Wikipedia, 2025). NIMC's mandate, as outlined in the Act, includes creating and managing a secure national identity database, integrating existing identity systems, issuing unique National Identification Numbers (NIN), and subsequently issuing the chip-based General Multipurpose Card (GMPC).

Since its inception, NIMC has implemented a series of digital innovations to enhance identity management and service delivery (NIMC.gov.ng). These include the launch of the NIN enrollment exercise in 2010, the issuance of the multipurpose e-ID card in 2013, and a pilot e-ID scheme in 2014, in partnership with

Mastercard and Cryptovision, to enable identification and payment functionalities (Techpoint, 2020). More recently, NIMC has introduced digital tools such as the NIMC mobile app for NIN verification and SIM linkage, contactless enrolment solutions, and tokenisation of identity data—advances that have strengthened Nigeria's digital identity ecosystem. These efforts form part of a broader shift toward creating a modern, interoperable identity infrastructure, including partnerships with the Secure Identity Alliance and overseeing the OSIA initiative to promote open identity standards and Secure Identity Alliance. NIMC's ongoing drive to expand enrolment, decentralise services, and integrate its system with other national databases underscores its evolving role in driving e-governance, security, and service inclusion in Nigeria.

Brief History of the Federal Inland Revenue Service (FIRS)

The Federal Inland Revenue Service (FIRS) originated from the colonial Inland Revenue Department of Anglophone West Africa, which was later localised into the Nigerian Inland Revenue Department in 1943. In 1958, the Federal Board of Inland Revenue (FBIR) was established under the Income Tax Ordinance, and in 1993, the FIRS became its operational arm. The FIRS Establishment Act of 2007 gave it autonomy, while the 2025 Nigeria Revenue Service Act further rebranded and strengthened its powers (Wikipedia, 2025).

Over time, FIRS introduced digital innovations to enhance efficiency and compliance. These include Tax Identification Numbers (TINs), the Integrated Tax Administration System (ITAS), and e-TaxPay platforms, which allow taxpayers to file returns and make payments online. More recently, the service has deployed automation tools and data analytics for monitoring compliance, aiming to expand Nigeria's tax base and improve transparency (Eze, 2020).

Thus, FIRS has evolved from a manual colonial-era tax unit into a digitally driven revenue agency at the heart of Nigeria's fiscal sustainability. Its adoption of ICT reflects both the global shift toward e-governance and Nigeria's domestic demand for accountability in taxation (Odukoya, Adekeye, & Okunlola, 2018).

Brief History of the Nigeria Immigration Service (NIS)

The Nigeria Immigration Service (NIS) was established in 1958, following its separation from the Nigeria Police Force. It became a statutory department under the Ministry of Internal Affairs in 1963, and in 1992, it attained para-military status with its head redesignated as

the Comptroller General of Immigration. The Immigration Act of 2015 later strengthened its legal framework and expanded its mandate in migration management. NIS has pioneered several digital innovations in Africa. It introduced the Machine Readable Passport (MRP) in 1998, launched the Combined Expatriate Residence Permit and Aliens Card (CERPAC) in 2001, and became the first country in Africa to issue e-Passports in 2007, aligned with ICAO standards. It has also implemented online application and e-payment systems for visas and passports, mobile passport intervention units, and biometric verification for enhanced border security (Immigration.gov.ng). Today, NIS plays a central role in Nigeria's digital identity and migration management, symbolising the country's effort to integrate technology into governance while ensuring national security and global compliance in travel documentation (UNDP, 2023).

The History of JAMB:

The Joint Admissions and Matriculation Board (JAMB) was established in 1978 by the Federal Military Government of Nigeria through Decree No. 2 of 1978 (later amended by Decree No. 33 of 1989). Its creation responded to the inefficiencies of the admission process in Nigeria's higher institutions, which had become fragmented and burdensome (Owolabi, 2014). The Joint Admissions and Matriculation Board (JAMB) occupies a central place in Nigeria's educational landscape as the institution responsible for regulating entry into higher institutions. Its history is not only the story of an administrative body, but also a reflection of Nigeria's attempt to manage equity, standardisation, and efficiency in a diverse and competitive society. The vision of JAMB was to create a fair, transparent, and standardised system for allocating spaces in Nigerian universities. The board's mandate included conducting entrance examinations, collating results, and placing qualified candidates into tertiary institutions based on merit, catchment area, and federal character principles (Adeyemi, 2019).

Over time, JAMB's role expanded. Initially focused on universities, it was later mandated to oversee admissions into polytechnics, monotechnics, and colleges of education. This expansion reinforced its centrality in Nigeria's educational system and broadened its impact on human capital development. However, its journey has not been without challenges. Issues such as examination malpractice, technical failures, and criticisms over fairness and transparency have often tested the credibility of the board. Still, JAMB has shown resilience by

adopting reforms, including biometric registration, computer-based testing (CBT), and digital verification systems. These innovations reflect its ongoing commitment to modernisation in line with global standards (Eze, 2020). Today, JAMB is more than an examination board it represents a rite of passage for millions of Nigerian youths. For many families, preparing for and writing the JAMB examination has become a shared cultural experience, filled with anxiety, hope, and aspirations. In this way, the history of JAMB is deeply human: it is about the dreams of young Nigerians striving for opportunity, the efforts of parents making sacrifices, and the state's role in ensuring that access to education remains structured and equitable.

Examination of Digitalisation in Nigeria's Public Service Delivery

Before the introduction of digital innovations in the Nigerian public service delivery system, there was terrible service delivery characterised by ineffectiveness, corruption, delays, partial service rendering and excessive human interface. According to Magbadelo (2020), there is service delivery failure in the Nigerian public service, which is an indication of bureaucratic delays in processing requisite approval. Public service in Nigeria is akin to inefficiency, corruption and poor service delivery from the educational, health, finance, and security institutions, respectively. The ineptitude and delay have their root in bureaucratic management dimensions. Ajibade and Ibieta (2016) observed that the introduction of reforms in the public service by the administrations of Olusegun Obasanjo (1999-2007) and Yardua/Goodluck Jonathan failed to achieve the objective of quality service delivery. In the words of Ajibade and Ibieta (2016), the efficiency of the Nigerian public service has been put to the test, and it has experienced a series of economic, political and structural transformations by various regimes and administrations in the country at one time or another. The Nigerian public has faced numerous challenges in service delivery since the country's independence in 1960. Nigeria, like any other developing nation, has reviewed its service delivery procedures and processes to enhance performance and productivity in the public sector.

The Federal Ministry of Communications and Digital Economy developed four (4) key goals to drive the adoption of e-government across all Ministries, Departments and Agencies, which in turn enhance service delivery, transparency, accountability and good governance. Consequently, the E-Government Department began the implementation of the following

initiatives: - National E-Government Master Plan: This is a roadmap for the adoption of e-government best practices, by all Federal Government Ministries, Departments and Agencies (MDAs) developed in collaboration with the Government of Korea to further promote the fundamentality of e-governance to the nation which aligns with the government's direction of leveraging technology for public service delivery. - Government Service Portal (GSP): This is a platform (services.gov.ng) developed for the provision of easy access to government services. This has enabled the citizens, businesses and foreigners to access public services through a one-stop government portal easily. Also, it has led to a significant improvement in the government processes and effective and efficient service delivery. - Government Contact Centre (GCC): The Centre provides access for citizens, notwithstanding their location, level of literacy or language, to get government services/information through calls. The aim is to provide citizen orientation and simplicity, enabling them to communicate with the government in a convenient, straightforward, electronic, and barrier-free manner. This has resulted in the employment of a good number of citizens, as well as enhanced their participation in public service. - Open Data Portal: This is an online platform (data.gov.ng) where government MDAs' data/information that is not sensitive is made available for public consumption. This enhances transparency and guarantees inclusiveness in service delivery. - Electronic Document Management System (EDMS): This is one of the ways the government has demonstrated its commitment to digitalisation. The Electronic Document Management System was developed with a view to moving all government documents online. In other words, it was an effort to deepen the application of ICT in all public endeavours. Consequently, there is increased information security, cost reduction and improved access to information among others.

The NIMC Digital innovations have streamlined the identity registration and verification processes. This has led to increased efficiency and speed in providing identity 135 services. Citizens can obtain their National Identification Numbers (NIN) and National ID cards more quickly, enhancing their overall experience. Innovations such as biometric data collection (fingerprint and facial recognition) have significantly improved the accuracy and security of identity data. Biometric technology reduces the risk of fraudulent identity registrations and identity theft, safeguarding citizens' personal information. (Oyedemi, 2018). Biometric technology has significantly simplified and

expedited the process of identity registration and verification. Traditional methods, often reliant on paper documentation and manual checks, are time-consuming and prone to errors.

In contrast, biometrics uses unique physical characteristics such as fingerprints, facial features, and iris patterns to quickly and accurately identify individuals (Theophilus, 2023). The Nigerian government introduced several reforms and strategies to mitigate ineffective service delivery in the public bureaucracy. Service delivery assumes a contractual relationship between citizens and the public service, obliging the latter to deliver services to the former in the most satisfactory manner, in terms of utility, quality, convenience, timeliness, and communication (Ahmed in Egugbo, 2020). Therefore, most government institutions are transitioning from traditional methods of service delivery to digital innovations as observed by JAMB, FIRS, NIS and NIMC. The above, therefore, brings into focus the need to investigate the understanding of various digital innovations in Nigeria's public service aimed at delivering quality services.

Opportunities of Digital Inclusion on Public Service Delivery in Nigeria

Digital inclusion offers transformative opportunities for enhancing public service delivery in Nigeria, enabling greater efficiency, accessibility, and accountability. One significant opportunity is to improve efficiency and transparency in governance. With digital tools, public institutions such as the Federal Inland Revenue Service (FIRS) and the National Identity Management Commission (NIMC) have automated service processes, reducing bureaucratic delays and opportunities for corruption (Ndubuaku & Eze, 2020). E-filing of taxes and electronic identification systems provide faster service delivery while building public trust. Digital inclusion enhances citizen access to government services. Platforms such as online portals for passport applications at the Nigeria Immigration Service (NIS), eNaira for digital payments, and digital health services extend government programs to wider populations, including those in rural and underserved areas. By breaking geographical barriers, digital tools ensure more inclusive governance.

Digital inclusion provides opportunities for data-driven decision-making in public service delivery. With digital records, biometric systems, and big data analytics, agencies can plan more effectively, allocate resources efficiently, and tailor services to meet citizens' needs. For instance, the integration of National Identification Numbers (NIN) with banking and

telecom databases has improved planning for social intervention programs (Adeleke & Yusuf, 2022). It can also create room for participatory governance and citizen engagement. Social media platforms, e-participation tools, and mobile feedback apps enable citizens to interact directly with government institutions, lodge complaints, and demand accountability. This two-way communication strengthens democracy and ensures services are more citizen-centred. Ultimately, digital inclusion facilitates inter-agency collaboration and the integration of services. Digital identity frameworks, electronic payment systems, and centralised platforms reduce duplication of efforts across ministries, departments, and agencies. This fosters "whole-of-government" service delivery, ensuring citizens interact with government more seamlessly.

Challenges of Digital Inclusion in Nigeria

The ability of individuals and communities to access and effectively use information and communication technologies (ICTs) faces significant hurdles in Nigeria despite the growing adoption of digital tools. One key challenge is the infrastructure deficit. Rural and underserved areas still lack adequate broadband connectivity, reliable electricity, and affordable internet access. According to the Nigerian Communications Commission (NCC), broadband penetration was only about 45% as of early 2023, far below the government's target of 70% by 2025 (NCC, 2023; World Bank, 2021). This digital divide limits rural populations from fully benefiting from e-governance, online education, and financial inclusion services (Adeleke & Yusuf, 2022). Another major challenge is affordability and cost barriers. Although Nigeria has one of the largest telecom markets in Africa, the cost of internet data, smart devices, and ICT services remains high relative to average income levels. Many citizens still find smartphones and laptops unaffordable, while data costs exceed the UN Broadband Commission's recommendation of 2% of monthly income (GSMA, 2022). This economic barrier notably excludes low-income households, women, and persons with disabilities, perpetuating inequalities (Oladipo & Isola, 2021).

Digital literacy and skills gaps also hinder inclusion. While younger Nigerians are more tech-savvy, large segments of the population lack the basic digital skills needed to use ICT tools effectively. This affects job opportunities, financial transactions, and access to government e-services (Adeleke & Yusuf, 2022). Schools and training institutions often lack resources to integrate digital literacy into curricula, thereby

reinforcing generational and regional gaps (Okunola, Rowley, & Johnson, 2017). Institutional and policy challenges further exacerbate the problem. However, the National Digital Economy Policy (2020–2030) aims to promote digital inclusion, but implementation gaps, corruption, and fragmented ICT initiatives hinder progress. Inconsistent regulations, weak data protection frameworks, and limited public-private collaboration undermine trust and efficiency in the digital ecosystem (Ndubuaku & Eze, 2020). Finally, social and cultural barriers persist. Gender inequality means that women in rural areas are less likely to own mobile phones or access the internet compared to men. Persons with disabilities also face exclusion due to limited accessibility features in ICT infrastructure and platforms (GSMA, 2022). Such exclusion deepens socio-economic inequalities and limits national development outcomes.

Impact of Digital Inclusion JAMB Services in Nigeria (SMS/USSD)

The adoption of digital innovation at various levels of JAMB's primary responsibility, ranging from candidates' registrations and profiling, examinations, results checking and admission into the higher institutions, has seamlessly shown a level of inclusiveness of the general populace irrespective of geographical location. Digitalisation increased the speed of JAMB operations and enabled solutions that facilitate the processing and maintenance of large volumes of information, including student, management, facility management, library, staff details, and examination organisation. According to Sudip and Angshu (2013), the adoption of digitalisation in the educational system incorporates data and processes of an educational Institution into a unified system, making the process uncomplicated, well-organised and error-proof. This is designed to make the system user-friendly, time-saving, and cost-saving as well. Most of the software providers enable their clients to choose from the available modules to meet their needs (Kpolivie, 2014). The Joint Admission and Matriculation Board (JAMB) in recent times has been known for its outstanding role and also adopting digital operations in achieving its goals, and this has been of great benefit to the body, but with a few challenges standing as hindrances to the realisation of its full goals. One primary aim of JAMB is to promote autonomy, innovation, and academic reforms in institutions of higher learning, and also to undertake institutional restructuring to improve efficiency, relevance, and creativity in examinations and higher education (Kular, Gatenby Rees, Soane, and

Truss, 2008). The JAMB digitalisation was created to facilitate the various activities between management and candidates. The adoption of digital innovations in JAMB makes it easy for people, both in urban and rural areas, to secure online payment, check results, assess new policies, etc. It is now possible for all students to view their Unified Tertiary Matriculation Examination (UTME) results within a few hours after taking their respective examinations. All these were impossible in the past when their operations were manually operated. The adoption of e-governance by JAMB has gradually reduced information asymmetry that most fraudsters often capitalise on to defraud candidates. It has prevented age falsification because it synchronises with NIMC, prevents delays in registration centres and banks, and brings transparency and accountability.

NICM Digital Inclusiveness and Public Service Delivery

Digital innovation and inclusion significantly impacted the performance of the National Identity Management Commission (NIMC) in its pursuit of service delivery and objectives in Nigeria. Digital innovations and inclusion, such as biometric identification systems, digital registration, profile correction, and digital generation of identity cards, have streamlined the enrollment processes in both urban and rural communities. This reduces the time and resources required for capturing and verifying identity information, resulting in the faster issuance of national identification numbers (NINs) and cards. Enhanced Accuracy and Security: The advanced technologies improve the accuracy and security of identity data managed by NIMC. Biometric authentication methods reduce the likelihood of identity fraud and duplication. Secure databases and encryption technologies protect personal information, ensuring compliance with data protection regulations and enhancing public trust. It also increased coverage and accessibility: the digital innovations and inclusion enable NIMC to extend its services to remote and underserved areas. Mobile registration units equipped with biometric devices reach populations that previously had limited access to identity services. Digital platforms for registration and verification facilitate easier interaction with citizens, including online and mobile channels. Improved Service Delivery: By leveraging technology, NIMC can improve overall service delivery to citizens. Automated processes reduce administrative bottlenecks, allowing staff to focus on higher-value tasks such as customer support and quality assurance. Integration with other government agencies and service providers

enables seamless verification of identities for various purposes, such as voting, healthcare access, and financial services.

Impact of Digital Innovation and Inclusion in Public Service Delivery of the Nigeria Immigration Service (NIS)

Digital innovation and inclusion have significantly transformed the operations of the Nigeria Immigration Service (NIS), improving how citizens access essential services. One notable impact is the streamlining of passport application and processing systems. The introduction of the online passport application portal has reduced the burden of physical visits, minimised bureaucratic bottlenecks, and cut down waiting time for citizens. This has not only improved service efficiency but also reduced opportunities for corruption often associated with manual processing (Adebayo & Ojo, 2021; NIS, 2023). Another important impact is the enhancement of border management and security. The adoption of biometric technologies and e-passports has strengthened identity verification processes, making it more difficult for fraudulent activities such as identity theft or illegal migration to thrive. Through digital inclusion, Nigerian citizens benefit from greater protection and credibility of their travel documents, aligning with international standards set by the International Civil Aviation Organisation (ICAO) (World Bank, 2021; Okunola, Rowley, & Johnson, 2017).

Digital innovations have also promoted greater accessibility to NIS services across Nigeria and the diaspora. Citizens in remote areas can now initiate applications and track progress online without frequent travel to NIS offices. Similarly, Nigerians abroad can apply for passport renewal through Nigerian missions, enabled by integrated digital platforms. This inclusivity helps reduce geographical inequalities in service delivery (Oladipo & Isola, 2021).

Furthermore, digitalisation has improved transparency and accountability in the NIS. Online payment systems for passports and permits ensure more secure transactions, reducing cash handling and the risks of exploitation by intermediaries. This shift fosters citizen trust in the institution and aligns with broader government reforms in e-governance (Ndubuaku & Eze, 2020). Finally, the digital transformation of NIS supports better inter-agency collaboration and data-driven governance. The integration of the National Identity Management Commission's (NIMC) National Identification Number (NIN) with passport applications allows for more accurate citizen records, which aids in national planning, security, and social service delivery. Citizens

ultimately benefit from more seamless, efficient, and reliable public services (GSMA, 2022).

Impact of Digital Innovation and Inclusion in Public Service Delivery of the Federal Inland Revenue Service (FIRS)

Digital innovation has profoundly transformed the Federal Inland Revenue Service (FIRS), reshaping how Nigerian citizens and businesses interact with the tax system. One significant impact is the automation of tax administration through the Integrated Tax Administration System (ITAS). This digital platform enables taxpayers to register, file returns, and make payments electronically, reducing the inefficiencies of manual processes and minimising human contact that often creates opportunities for corruption (Adeleke & Yusuf, 2022; FIRS, 2023). By leveraging digital inclusion, citizens now experience more transparent, timely, and user-friendly tax services. Another important impact of digitalisation in FIRS is the expansion of the tax net and promotion of financial inclusion. Digital platforms allow more citizens and businesses—particularly in the informal sector—to be captured in the tax system through online identification and e-filing. This has helped broaden the tax base while giving citizens access to a more equitable and accountable tax regime (Ndubuaku & Eze, 2020). Through innovations like the e-TaxPay system, even small and medium enterprises (SMEs) can now meet their tax obligations seamlessly (World Bank, 2021). Digital inclusion also strengthens revenue mobilisation and national development. With real-time monitoring of tax payments and compliance, FIRS has increased efficiency in revenue collection, thereby providing the government with more resources to fund public infrastructure, education, and health services. Citizens benefit indirectly through the improved fiscal capacity of the state to meet developmental obligations. Additionally, digital platforms have enhanced accountability and trust between citizens and the government. Online tax payment systems reduce the need for direct cash handling, thereby curbing corruption and enhancing accountability in the management of tax revenues. This transparency fosters greater taxpayer confidence, which is critical for voluntary compliance (Oladipo & Isola, 2021). Finally, digital inclusion in FIRS has facilitated better inter-agency collaboration. For instance, the integration of taxpayer data with the National Identity Management Commission (NIMC) and financial institutions has enabled more accurate verification, thereby reducing cases of tax evasion. This integration ensures that citizens experience a more streamlined and coordinated

approach to public service delivery (GSMA, 2022).

Implications of Digital Inclusion for Citizens in Nigeria

Digital inclusion carries broad implications for Nigerian citizens in the context of public service delivery. These implications can be viewed from both positive and cautionary perspectives. One key implication is improved accessibility of government services. Digital platforms such as the Federal Inland Revenue Service's (FIRS) e-filing system and the Nigeria Immigration Service's (NIS) online passport application portal have reduced geographical and bureaucratic barriers. Citizens in rural areas and Nigerians in the diaspora can now access services without frequent physical visits to offices, thereby saving cost and time.

The promotion of transparency and accountability in governance is another implication. By digitising payments and applications, agencies reduce opportunities for cash handling and corruption. Citizens experience greater trust in government when transactions are traceable, receipts are digitalised, and service standards are clearer (Ndubuaku & Eze, 2020). This fosters a more accountable governance system and increases voluntary compliance, particularly in areas like taxation.

Digital inclusion also contributes to citizen empowerment through participation. Platforms for feedback, digital surveys, and social media engagement allow citizens to demand better services and hold leaders accountable. This interactive communication reshapes the relationship between the state and its people, making governance more citizen-centred (Oladipo & Isola, 2021). Furthermore, digital innovation supports the economic empowerment of citizens. As more individuals are brought into the digital tax net, or registered with a National Identification Number (NIN), they gain formal recognition that enables access to financial services, social benefits, and government programs. This strengthens the social contract by linking digital identity to social protection schemes (World Bank, 2021). However, there are also cautionary implications. Digital exclusion of marginalised groups—such as the poor, elderly, and those in rural areas with low literacy—could deepen social inequality. Citizens without access to digital tools risk being excluded from critical services, thereby reinforcing existing structural disparities (Okunola, Rowley, & Johnson, 2017). Similarly, concerns about data privacy and cybercrime mean that while services are more accessible, citizens may face risks of identity theft or financial fraud if digital platforms are not

adequately secured (GSMA, 2022). Overall, the implications of digital inclusion for Nigerian citizens are dual: it can foster empowerment, accessibility, and trust in governance, while also creating new risks of exclusion and insecurity. Addressing these risks through inclusive policies and strong data protection frameworks will determine whether digital innovations truly translate into improved service delivery for all.

Citizens' Thrust in Digital Inclusion and Public Service Delivery in Nigeria

Digital inclusion has become a central demand of Nigerian citizens in their quest for improved public service delivery. With the growing adoption of ICTs in government institutions such as the Federal Inland Revenue Service (FIRS), the Nigeria Immigration Service (NIS), and the National Identity Management Commission (NIMC), citizens are increasingly aware that efficient, transparent, and inclusive digital systems can significantly enhance their access to essential services. Their thrust, therefore, revolves around ensuring that these digital platforms truly empower rather than marginalise citizens, by breaking down barriers to service accessibility (Ndubuaku & Eze, 2020). One of the foremost expectations of citizens is the removal of bureaucratic bottlenecks through digital reforms. Nigerians have long struggled with slow, manual, and often corrupt service processes in public agencies. For example, passport applications previously required long queues and multiple visits to NIS offices. With the introduction of online application portals, citizens now expect shorter processing times and reduced physical contact with officials. This reflects a strong citizen thrust for greater efficiency, where technology eliminates unnecessary delays and improves convenience (Olatunji, 2019). Another thrust lies in equitable access to digital services. Citizens are aware that digital platforms can exacerbate inequality if they are designed without considering Nigeria's infrastructural disparities. Rural populations often lack stable electricity, internet coverage, or digital literacy, which hinders their participation in digital governance. Citizens, therefore, demand inclusive policies that extend affordable internet, establish service centres in underserved areas, and provide literacy programs to ensure that all Nigerians can benefit equally from digital initiatives (Okunola, Rowley, & Johnson, 2017).

Citizens also emphasise the need for user-friendly platforms that reflect their realities. Many online systems introduced by government agencies are often complex, slow, and prone to errors, making them difficult for average Nigerians to navigate. As such, citizens expect

platforms to be simplified, mobile-friendly, and designed in local languages to accommodate diverse literacy levels. This thrust reflects a growing recognition that technology should serve citizens rather than complicate their experiences (Adeleke & Yusuf, 2022). In addition to accessibility, citizens' trust firmly centres on the trust and reliability of digital systems. Nigerians have experienced repeated breakdowns of online platforms, such as the NIMC registration portal or FIRS tax payment systems, which undermine confidence in digital reforms. For citizens, digital inclusion must guarantee consistency, functionality, and security. They expect that government agencies will invest in infrastructure that minimises system failures, protects data privacy, and delivers services seamlessly without disruption (Ndubuaku & Eze, 2020). Citizens also perceive digital inclusion as a tool for enhancing accountability and reducing corruption. Manual processes in Nigeria's public institutions have historically been plagued by bribery and rent-seeking behaviours. For instance, passport applicants often reported being asked for unofficial payments to speed up processing. By digitising these processes, citizens expect technology to limit human interference, thereby reducing corruption. Their thrust is that e-platforms must provide transparent tracking mechanisms and automated workflows that minimise opportunities for manipulation (Olatunji, 2019). Another key aspect of citizens' thrust is value for money. Citizens often complain that public services, even when digitalised, still come at a high cost compared to the quality delivered. For example, fees for passports, tax filings, or NIN registration are seen as burdensome, especially when platforms fail to function effectively. Therefore, citizens expect that digital inclusion will deliver not only efficiency but also quality and fairness, aligning with the Public Value Theory, which emphasises that public services should improve societal well-being (Moore, 1995). Citizens also demand responsiveness from public institutions. For many, the essence of digital inclusion is not merely the presence of online portals but the extent to which these platforms respond to their needs. Citizens demand responsive feedback mechanisms, customer support services, and grievance redress systems that ensure digital platforms are not static but interactive and adaptive. This expectation reflects the citizen-centred philosophy of e-governance (Heeks, 2006). Beyond efficiency, equity, and trust, citizens aspire for digital inclusion to strengthen legitimacy and social contract obligations between government and governed. When

digital platforms succeed in simplifying access, ensuring fairness, and improving transparency, they reinforce citizens' trust in government institutions. Conversely, when platforms collapse or exclude marginalised groups, citizens perceive the government as failing in its duty to serve. Thus, citizens strive for digital inclusion to embody a genuine commitment to governance that is inclusive, transparent, and accountable (Adeleke & Yusuf, 2022). Furthermore, citizens increasingly link digital inclusion to global competitiveness. Nigerians recognise that efficient digital governance is a hallmark of modern states, enabling smoother trade, mobility, and international credibility. Citizens, therefore, expect that reforms in agencies like NIS and FIRS will not only improve domestic service delivery but also align Nigeria with global standards of digital governance, where citizens can seamlessly access documents and transact internationally (Okunola et al., 2017). An often-overlooked thrust of citizens is the desire for inclusivity in policy design and implementation. Many digital initiatives in Nigeria are top-down, with little citizen input. Citizens now demand participatory governance where their voices inform the design of digital platforms to ensure relevance, inclusiveness, and sustainability. This expectation aligns with the democratic ideal that public value is maximised when citizens are active participants in governance innovations (Moore, 1995).

Conclusively, Nigerian citizens' expectations of digital inclusion and public service delivery are multifaceted, encompassing efficiency, equity, accountability, reliability, and legitimacy. Citizens want digital platforms to simplify processes, reduce corruption, bridge inequalities, and deliver genuine public value. They demand not just technological change but institutional reforms that prioritise citizen needs and reinforce trust in government. Meeting these thrusts is essential if Nigeria is to harness digital inclusion as a valid driver of good governance and inclusive development.

Theoretical Framework

The study adopts the e-governance, digital divide and public value theory respectively as a lens of the research. These three theories provide a robust lens for analysing digital inclusion in Nigeria's public service delivery. E-Governance Theory emphasises efficiency and transparency, Digital Divide Theory warns of inequalities and exclusion, and Public Value Theory ensures that reforms ultimately benefit citizens and strengthen legitimacy. The combined framework allows this study to critically examine not only the efficiency gains of digital inclusion but also

its equity and social implications for Nigerian citizens.

E-Governance Theory

E-Governance Theory emerged from the works of Richard Heeks (2006), who conceptualised e-governance as the use of ICTs to improve governance processes, efficiency, and service delivery. The theory is built on three central principles:

1. Efficiency – ICT improves administrative processes by reducing cost, time, and redundancy.
2. Transparency and Accountability – digitisation reduces human interference, making transactions more open and less prone to corruption.
3. Citizen-Centred Service Delivery – ICT tools create more accessible platforms that empower citizens to interact with government services more conveniently (Heeks, 2006). This theory applies directly to digital inclusion in Nigeria because initiatives like the Federal Inland Revenue Service's (FIRS) Integrated Tax Administration System (ITAS) and the Nigeria Immigration Service's (NIS) online passport system demonstrate how ICT can enhance efficiency and transparency. Through digital inclusion, citizens can access government services more easily, regardless of their location, aligning with the citizen-centred focus of e-governance.

Digital Divide Theory

The concept of the digital divide was popularised by Jan van Dijk (2006), who highlighted structural inequalities in access to and use of digital technologies. The theory argues that social and economic inequalities shape digital access. It identifies four key divides:

1. Motivational Access – willingness of individuals to use ICT.
2. Material Access – availability of devices and connectivity.
3. Skills Access – the capacity to effectively use digital tools.
4. Usage Access – the actual benefits derived from ICT engagement.

This theory is vital for understanding the uneven impact of digital inclusion in Nigeria. While urban elites may benefit from FIRS e-filing systems or NIS biometric passports, citizens in rural areas often lack internet access or digital literacy, leaving them excluded. The theory highlights that without addressing infrastructural gaps and literacy barriers, digital innovations may reinforce inequality rather than solve it.

Public Value Theory

Public Value Theory was proposed by Mark H. Moore (1995) in his seminal work *Creating Public Value*. The theory posits that public institutions must go beyond efficiency and legality to create value for citizens. Its core principles include:

1. Service Quality and Equity – public services should be fair, inclusive, and beneficial to all.
2. Legitimacy and Trust – public organisations must secure citizen trust by being accountable and transparent.
3. Citizen-Centred Outcomes – services should improve the lives of citizens, not just internal administrative performance.

Public Value Theory explains the normative dimension of digital inclusion in Nigeria. While digital innovation increases efficiency, its accurate measure is whether citizens find value in the services. For instance, FIRS's ITAS system must not only raise revenue but also create trust among taxpayers; NIS's digital passports should not only modernise travel documents but also enhance fairness and accessibility for all Nigerians. This theory stresses that digital inclusion should empower citizens and strengthen their trust in public institutions.

Research Methodology

This study adopts a historical research design grounded exclusively in documentary analysis. The purpose is to critically investigate the understanding of digital innovation and inclusion, as well as the extent of its implications on service delivery to Nigerians. The study draws its data from secondary data, which includes: scholarly literature, newspapers, Policy and Administrative Reports. The study employs a qualitative content analysis approach, utilising thematic analysis.

Conclusion

The research conducted a qualitative study to understand digital inclusion and its implications for public service delivery in Nigeria, examining key government institutions such as JAMB, NIMC, NIS, and FIRS, as well as their digital innovations and inclusion, and the implications for service delivery to Nigerians. The study establishes that digital inclusion has significantly transformed public service delivery in Nigeria, particularly through platforms such as NIMC, JAMB, FIRS, and NIS. These innovations have improved efficiency, reduced bureaucratic bottlenecks, enhanced transparency, and broadened access to government services. Citizens now enjoy faster processes in areas such as tax filing, passport applications, and

educational admissions, reflecting a shift from traditional, paper-based models to more technology-driven systems. However, the uneven distribution of ICT infrastructure, persistent digital illiteracy, and affordability barriers reveal that the benefits of digital inclusion are not evenly felt across Nigeria. While urban populations benefit more, rural and disadvantaged citizens remain at risk of exclusion, raising equity and inclusiveness concerns. Thus, digital inclusion has created both opportunities for empowerment and risks of deepening inequality, underscoring the need for deliberate policies that strike a balance between efficiency and social justice.

Recommendations

1. **Expand Digital Infrastructure:** The Government should invest in nationwide broadband penetration, stable electricity supply, and affordable internet to bridge the rural-urban digital divide.
2. **Promote Digital Literacy:** Tailored programs should be developed to improve ICT skills among marginalised groups such as women, the elderly, and rural dwellers to ensure equitable participation.
3. **Strengthen Digital Policy Implementation:** Agencies must ensure that digital policies are harmonised across MDAs, with stronger regulatory frameworks to prevent duplication and fragmentation.
4. **Enhance Inclusiveness:** Platforms must be designed with accessibility features to accommodate persons with disabilities and those with low literacy levels.
5. **Safeguard Data Privacy and Security:** Stronger cybersecurity measures and data protection frameworks are crucial for protecting citizens against identity theft and fraud.
6. **Public-Private Partnerships:** Collaboration with private ICT companies, telecom operators, and fintechs can accelerate the growth and innovation of digital infrastructure.
7. **Citizen-Centred Reforms:** Digital initiatives should prioritise citizen satisfaction, trust, and inclusiveness, aligning with the principles of public value theory.

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