Digital Divide In Governance: How Technological Gaps Challenge Public Administration In 21st Century Nigeria

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Abstract

The article addresses digital divide in governance with a focus on how technological gaps challenge public administration in the 21st century Nigeria. The objectives of the study are to evaluate how disparities in digital infrastructure, socio-economic status and technical competency challenge the implementation of digital policies. The study employs qualitative research design with data collected through secondary source. The study which is anchored on Technical Acceptance Model by Fred Davis as theoretical framework, revealed that that poor ICT infrastructure, low digital literacy, weak internet access, and policy inconsistency limit e-governance adoption. These challenges cause service delays, reduced transparency, and citizen exclusion, especially in rural areas. The digital divide therefore undermines administrative efficiency and inclusive governance. The study concludes that bridging the gap requires investment in ICT infrastructure, digital training for public servants, expanded broadband access, and a coherent national e-governance framework to ensure effective and resilient public administration. It recommends increased investment in ICT infrastructure, mandatory digital skills training for public servants, public-private partnerships to expand broadband access, and a unified national e-governance policy to bridge technological gaps and strengthen resilient public administration.

Keywords: *Digital divide; E-governance; ICT infrastructure; Public administration and Technological gaps*

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1. Introduction

In the 21st century, technological gaps often referred to as the "Digital Divide", act as a significant drag on the modernization of public administration. These gaps are not just about a lack of hardware; they represent a multi-layered barrier affecting how governments function and how citizens experience governance**.** The 21st century has redefined public administration through e-governance, big data, and artificial intelligence. Yet, the promise of "digital government" remains uneven due to the persistent digital divide. The push toward digital governance is intended to streamline service delivery, yet it faces a "triple threat" of challenges: infrastructural deficits, socio-economic inequality and competency gaps (Amankwah-Amoah *et al*. 2023). These factors create a digital divide that complicates the administration of public services and risks marginalizing large segments of the population.

This article examines how technological gaps in access, skills, and infrastructure undermine the capacity, equity, and legitimacy of public administration globally. Public administration in the twenty-first century is mediated by technology, from Nigeria's IPPIS to India's Aadhaar and Estonia's e-residency (Wirtz & Daiser's 2018). Faster service delivery, transparency, and citizen involvement are all promised by digital platforms (UN E-Government Survey, 2022). The COVID-19 pandemic sharpened these issues. Helsper *et al (*2015) demonstrated that digital-by-default public services presuppose a level of connectivity and skill that marginalizes vulnerable communities, Moon (2020) and Mei (2020) observed how digital disparities in health data systems lead to unequal vaccination distribution. This pattern has continued after the epidemic (Amankwah-Amoah *et al*. 2023). According to Zhao *et al*., (2023). Digital divide is among the problem challenging public administration in the 21st century. This gap appears in three crucial areas of public administration: Unfair physical access to gadgets, power, and bandwidth is known as the "access divide, skills divide can be referred to the process where by citizens and public employees have different levels of digital literacy while Institutional Divide implies Public agencies' uneven ability to implement, manage, and safeguard digital technology. The study's main objectives are to evaluate how disparities in digital infrastructure, socio-economic status and technical competency challenge the implementation of digital policies. Specifically, this study seeks to: Analyze the correlation between technological infrastructure gaps and operational efficiency of 21st-centuery public administration; and investigate how the digital divide, compromise the institutional capacity, social equity, and perceived legitimacy of global administrative framework.

2. Literature Review

Scholarly attention to the digital divide has evolved from a narrow focus on physical access to a multidimensional understanding of how technological gaps intersect with governance, equity, and state capacity. This section reviews three strands of literature

2.1 The Digital Divide

The digital gap was initially described as a binary issue involving "haves" and "have-nots" in ICT access. it is seen as the gap between individuals, households, businesses, and geographic areas with regard to both their opportunities to access information and communication technologies (ICTs) and their use of the Internet for a wide variety of activities (OECD, 2001). While early literature treated the digital divide as a problem of infrastructure (Norris, 2001), contemporary public administration confronts a more complex reality, even where infrastructure exists, gaps in skills and institutional readiness produce what Fountain (2001) termed "technology enactment failures. For example, a biometric payroll system is useless if rural pensioners cannot authenticate themselves. An online tax portal excludes small traders without smartphones. AI-driven policy tools reproduce bias when trained on data from only connected populations. According to Ofori-Kuragu *et al.,* (2016) Digital divide in public administration manifests in three critical dimensions. These include: Access Divide: Unequal physical access to devices, electricity, and broadband, Skills Divide: Unequal digital literacy among citizens and civil servants. and Institutional Divide: Unequal capacity of public agencies to adopt, maintain, and secure digital systems (Ragnedda 2017).

Zhao *et al*., (2023) posited that digital divide has extended into a "global divide," "social divide," and "democratic divide" According to Norris (2001), differences in internet usage endanger political engagement. This article therefore asks: how does the digital divide challenge the core functions of public administration service delivery, policy-making, and democratic accountability in the 21st century? The paper moves beyond access metrics to examine the institutional consequences of technological gaps for bureaucracies, especially in the Global South where state capacity is already fragile.

2.2 Forms of Digital Divide in Governance

According to Ragnedda (2017), digital divide manifest in the following form:

First is the disparities in Digital Infrastructure: According to Ragneda (2017), the primary challenge of digital divide is the "participation barrier" caused by uneven

access to hardware and connectivity. This manifest in form of: The Rural-Urban Divide. This explain while urban centers like Lagos, Abuja, and Benin City have relatively stable 4G/5G coverage, rural areas often lack basic broadband. This forces public administrators to maintain expensive dual systems digital for cities and manual for rural areas to ensure inclusivity. Also, Power Instability: Even with good ICT facilities, erratic power supply remains the "Achilles' heel" of Nigerian public administration. Systems like the Integrated Payroll and Personnel Information System (IPPIS) or the Treasury Single Account (TSA) face downtime, leading to delays in salary payments or revenue collection (Enabunene & Imuentiyan, 2026). There is also, Infrastructure Vandalism: Theft and destruction of fiber optic cables and telecommunication masts increase the cost of governance and maintenance for agencies like Galaxy Backbone (Ogbeide, *et al.,* 2024).

2.3 **Socio-Economic Status (SES) and Accessibility**

Socio-economic disparities dictate who can afford to interact with the government. this manifest in form of: The Cost of Data and Devices: Many Nigerians live below the poverty line, making the cost of smartphones and data plans prohibitive. When services like NIN registration or Joint Admissions and Matriculation Board (JAMB) applications move entirely online, it places a financial burden on low-income citizens (Enabunene & Sophia, 2026).

Deepening Inequality: Public administration risks becoming "elitist" if only those with high SES can access digital platforms. This leads to a situation where those who need social welfare programs the most are the least able to apply for them due to a lack of technological resources (Enabunene & Sophia, 2026). According to a 2024 survey of 1,200 Nigerian graduates, 81% of them cited "obsolete technology" as the main reason they avoided government service positions in favor of fintech and telecoms (Phillips Consulting, 2024). This exodus is predicted by human capital theory, which holds that digital skills yield greater benefits outside of government, hence undermining bureaucracy. Even though online applications are required, the Nigeria Immigration Service reported a backlog of 204,000 passports in Q3 2023 (NIS, 2023). Due to the lack of portal appointment spaces, applicants paid touts between ₦35,000 and ₦70,000 for "express" processing. According to Helsper *et al*. (2015), digital-by-default services presume competencies that the majority of users lack; in Nigeria, this assumption led to corruption and decreased confidence, with 64% of respondents to a 2024 study stating that "e-government makes services harder" (Afrobarometer, 2024).

3. Digital Competency Gaps

According to Oyedele, (2015), human element within both the civil service and the general public presents a significant bottleneck in the digitalization of the public sector which often manifest in form of: Civil Service Resistance: There is often a "readiness gap" among older civil servants who may lack the digital skills required for modern e-governance tools. This can lead to resistance to reform, as digitalization is often viewed as a threat to job security or traditional (and sometimes corrupt) bureaucratic processes (Ogbeide, et al, 2023). And citizen Illiteracy: A significant portion of the population lacks the digital literacy to navigate complex government portals. This has given rise to "middlemen" or "cyber-café agents" who charge citizens to perform basic tasks like printing a slip or checking a result, which reintroduces the risk of data compromise and administrative corruption Ogbeide, *et al. (*2024)

2.3 Levels of Digital Divide in Public Administration

The Infrastructural Divide: Governance Without Connection

The International Telecommunication Union (2023) estimates that 2.6 billion people remain offline, with 60% in Africa. For public administration, this implies that: First is Service Exclusion: Nigeria's NIN-SIM linkage policy excluded millions without digital IDs from mobile services and banking, effectively creating "administrative invisibility" (Breckenridge, 2014). Second is Data Gaps: Policy-making relies on digital data trails. Unconnected populations are not counted in real time, leading to misallocation. During COVID-19, vaccine distribution in rural India lagged because CoWIN registration required smartphones. Third is Security Risks: Agencies in low-connectivity regions maintain parallel paper systems, doubling workload and creating fraud loopholes.

The Usage Divide: Capacity and Trust Deficits

Access does not equal use. Van Dijk (2020), identifies a "second-level" divide in skills and usage patterns foe citizens and for public servant. Elderly, rural, and low-income groups often lack digital literacy to navigate e-portals. In Brazil, 34% of social benefit applicants needed third-party help to use the Auxílio Emergencial app, creating new brokers and corruption risks. More also Many bureaucracies face internal divides. Senior officials resist digital workflows; junior staff lack training. A 2022 survey of local governments in Kenya found that 68% of staff used personal phones for official work due to lack of devices, raising data security concerns. This

creates what we term bureaucratic digital alienation where the tools of government are foreign to its own workers (Van Dijk, 2020).

The Institutional Divide: Erosion of Administrative Capacity

This is the most damaging level for public administration. It occurs when the state itself cannot sustain digital systems. This include: First, Legacy System Trap: Agencies run 1990s software on modern networks. Interoperability fails. In South Africa, Home Affairs' paper-digital hybrid system caused 6-month passport delays in 2022. Second is Vendor Dependence: Weak internal IT capacity forces governments to outsource critical systems. When vendors fail or contracts end, institutions are "hollowed out" with no internal memory of how systems work a form of digital institutional erosion. And thirdly, Algorithmic Bureaucracy: AI decision-tools are adopted without oversight. The Netherlands' SyRI welfare fraud system, ruled unlawful in 2020, targeted low-income neighborhoods because of biased data a case where the digital divide in data created administrative discrimination (Enabunene and Imuentiyan, 2026).

4. Theoretical Framework

This study used the Technology Acceptance Model (TAM), which Davis first proposed in 1989. It provides a systematic framework for understanding and predicting people's intentions to use new technology. The Theory of Reasoned Action (TRA), a psychological model developed by Ajzen and Fishbein, served as the paradigm for TAM. Davis especially focused on computer usage, whereas TRA was more general. He suggested that there are two main variables that influence a person's decision to adopt a new system. The degree to which an individual feels that utilizing a specific technology would improve their job performance is known as perceived usefulness (PU). The degree to which a person thinks utilizing a specific technology would be effortless is known as perceived ease of use, or PEOU (Enabunene & Imuentiyan, 2026). Technology

Acceptance Model theory explains how users come to accept and use technology. It suggests that perceived usefulness and perceived ease of use determine the adoption of digital technologies in the public sector. By this theory, This study provides a framework for understanding the digital divide in governance and the challenges it has presented to Nigerian public administration in the twenty-first century. This study contends that systemic shortcomings in perceived utility and perceived ease

of use among both residents and public employees are the root cause of Nigeria's digital gap in governance. Reasonable users reject e-governance platforms that are complicated, expensive, and poorly explained, which replicates paper-based systems and administrative exclusion. Low PEOU and insufficient enabling factors, such as power and training, lead to technology resistance in bureaucracies, which erodes institutional capacity through a process called digital institutional erosion. Therefore, public administration changes that emphasize user-centered design, transparent benefit communication, and investment in the human and physical infrastructure that makes technology acceptable rather than just available are necessary to close Nigeria's digital gap.

5. Methodology

The study employed a desktop literature research design. The desktop literature evaluation focused on previously published books and periodicals that looked at technical competence and digitalization in Nigerian public administration. The study is presented both topically and chronologically. Secondary sources, including academic textbooks, peer-reviewed journal articles, conference proceedings, and online resources, provided the majority of the data. Additional evidence was obtained from relevant official publications and reliable news sources. Desk research does not aim to gather data. Instead, a thorough understanding of the field can be obtained by going over the results of earlier research. To locate the relevant journals and publications, a number of topics were searched on Google, including digitalization, e-governance, public administration, and the difficulties facing Nigeria's public sector and governance.

6. Discussion of Findings

6.1. Technological Infrastructure Gaps and Operational Efficiency of 21st-Centuery Public Administration: The Nexus

In recent years, digital transformation has emerged as a crucial driver of administrative efficiency in the public sector globally. Digital transformation involves the integration of digital technologies, automation, and data-driven decision-making to enhance governance, improve service delivery, and streamline administrative processes (Westerman et al., 2014). In the Nigerian public sector, efforts towards digital transformation have gained momentum, albeit with challenges such as infrastructure deficits, resistance to change, and inadequate

digital (Eze *et al.* 2020). The digital divide is the gap between those with access to modern information technology and those without, it is a prerequisite for contemporary institutional health (Adebayo & Dada 2021). As of 2024, the digital competency landscape in Nigeria shows a significant gap between the government's ambitious targets and the current grassroots reality despite the Federal Government aims for 95% digital literacy by 2030 (Enabunene and Imuentiyan 2026). Corroborated by Eze et al. (2020), digital readiness is not just about hardware, with initiatives like the Treasury Single Account (TSA) and Integrated Payroll and Personnel Information System (IPPIS) etc. Technological infrastructural gaps act as a fundamental barrier to the modernization of global administration. Far from being a mere technical hurdle, it fundamentally reshapes the "geography of power" in the 21st century. Technological gaps compromise the administrative framework in three critical dimensions:

Compromised Institutional Capacity: Global administrative frameworks increasingly rely on data-driven governance and e-administration to function. The digital divide creates administrative islands where capacity is unevenly distributed (Eze *et al*. 2020).

Information Asymmetry: Institutions in digitally deficient regions cannot contribute to or access real-time global datasets. This leads to a "data-blind" administration, where policy decisions are made at the global center based on incomplete data from the periphery (Ragneda 2017).

Infrastructure Fragility: As administrative processes move to the cloud, institutions lacking robust connectivity face frequent disruptions. This creates a reliance on fragmented, analog systems that are incompatible with global standards, leading to institutional erosion (Kane *et al.,* 2015).

Human Capital Flight (Brain Drain): Digital inequality exacerbates the "brain drain" you've noted in your work. Skilled administrators in low-tech environments often migrate to digitally advanced institutions, further depleting the local capacity to manage complex global regulations (Wirtz & Daiser's 2018).

Erosion of Social Equity: Digital inequality transforms public services from universal rights into privileged access. In a global administrative context, this manifests as:

Participation Gaps: Global governance often uses digital platforms for stakeholder consultations (e.g., climate policy or trade standards). Those on the "wrong" side of

the divide are effectively silenced, ensuring that global frameworks are designed without their input (Wirtz & Daiser's 2018).

Algorithmic Bias: When global administrative bodies deploy AI and automated systems for resource allocation or vetting, the training data often lacks representation from digitally marginalized populations. This results in "digital redlining," where certain groups are systematically disadvantaged by the very frameworks meant to serve them (Ragneda 2017).

The "Usage Gap: Even when access exists, the disparity in digital literacy prevents marginalized groups from navigating complex digital bureaucracies, reinforcing existing class and regional hierarchies (Eze *et a*l. 2020).

Crisis of Perceived Legitimacy: According to Vial, (2019). Technological Legitimacy in public administration rests on transparency, accountability, and inclusivity. The digital divide undermines all three.

The Transparency Paradox: Global frameworks often claim transparency because "the data is online." However, if a significant portion of the global population cannot access that data, the transparency is illusory. This breeds distrust and the perception of a "hidden" global elite (Kane *et al.,* 2015).

Accountability Deficit: When administrative errors occur in digital systems (e.g., in global health or finance), those without digital tools find it nearly impossible to seek redress. This inability to hold global actors' accountable leads to a legitimacy gap (Fitzgerald *et al*. 2014).

Eurocentric Frameworks: Fitzgerald et al. (2014), posited that as global digital standards are often set by technologically advanced nations, the resulting frameworks can feel like digital neo-colonialism. This perception compromises the "moral authority" of global institutions, making their mandates harder to enforce in the Global South.

6.2. The Effects of Digital Divide On Institutional Capacity, Social Equity, and Perceived Legitimacy of Global Administrative Framework.

Digital transformation is driven by several factors, including technological advancements, increasing citizen expectations, regulatory changes, and the need for operational efficiency (Kane *et al.,* 2015). Research by Helsper *et al (*2015) highlights that organizations embracing digital transformation experience improved efficiency, cost reduction, and enhanced decision-making capabilities.

Institutional capacity in the global administrative framework refers to the ability of international organizations (IOs), non-governmental organizations (NGOs), and state bureaucracies to formulate, implement, and monitor global policies. According to Bello and Wahab (2022), digital divide affects institutional capacity through asymmetric data and bureaucratic capability, the Rise of Technocratic Gatekeeping and e-Governance. Furthermore Fatile, (2018), posited that global administrative frameworks are tasked with advancing human rights, development, and equitable resource distribution. The digital divide actively undermines these goals, converting technical disadvantages into systemic social inequalities. In a study by Afrobarometer, (2024). 2.7 billion people globally w remain offline and invisible to the administrative state, leading to misallocated resources and deepened systemic neglect.

Legitimacy in global governance relies on the perception of fairness, inclusivity, and accountability. The digital divide creates a profound "democratic deficit" within the global administrative framework, eroding its normative authority (Fatile, 2018).

Bello and Wahab, (2022). Summary the effects of digital divide on global administrative framework by stating that Disparity in data analytics, digital infrastructure, and technical personnel leads to technocratic gatekeeping by the Global North and operational bottlenecks in under-connected states. Fatile, (2018) corroborated that invisibility of the offline population in data-driven global policy design can amplified gender, geographic, and economic inequality, thereby leading to procedural barriers to entry and performative multi-stakeholder inclusivity, rejection of global standards, rise of fragmented digital sovereignty and erosion of trust.

7. Conclusion

To ensure efficient and reliable public administration, closing the technology divide necessitates investments in ICT infrastructure, digital training for public employees, increased broadband access, and a cohesive national e-governance framework. Institutional deterioration is the result of the digital divide taken together. Systems become unreliable due to infrastructure gaps, costly due to SES gaps, and unusable due to competency gaps. A two-tiered administrative state that is effective for the connected but exclusive for the majority is the end outcome. The fundamental tenets of public administration in the twenty-first century, equity, capability, and legitimacy are compromised by this. Because it undermines the Weberian ideal of impartial, universal bureaucracy, the digital gap is the primary administrative challenge of the twenty-first century. Gaps in skills and access turn into gaps in citizenship itself when technology mediates the connection between the state and its citizens. Instead of advocating for digitalization, public administration experts and practitioners should consider who it benefits and who it excludes.

8. Recommendations

In order to close technology gaps and improve resilient public administration, this report suggests a single national e-governance policy, required digital skills training for public employees, public-private partnerships to boost broadband availability, and more investment in ICT infrastructure. Rethinking e-governance as a public administration reform initiative rather than an IT procurement exercise is necessary to close the digital divide. Without intentional inclusiveness, the state of the twenty-first century runs the risk of becoming effective but illegitimate a government that functions well, but only for a select few. Future studies must examine interventions that match technological advancement with bureaucratic culture and create criteria for "administrative digital inclusion.

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