JOURNAL OF PHILOSOPHY AND CONTEMPORARY ISSUES
Volume 2, Number 1 (March 2026)
ISSN: 1595-9457 (online); 3093-060X (print)
Website: https://jppssuniuyo.com/jpci **Email:** jppssuniuyo@gmail.com
Received: March 21, 2026 **Accepted**: March 30, 2026 **Published**: March 31, 2026
Citation: Success, Ademeso T.; Amole, Taofeek A. & Olanrewaju, Shobowale R. (2026). "Implementing the Paperless Mandate: Barriers and Opportunities in Nigeria's Federal Bureaucracy." *Journal of Philosophy and Contemporary Issues*, 2 (1): 185200.
Article **Open Access**

IMPLEMENTING THE PAPERLESS MANDATE: BARRIERS AND OPPORTUNITIES IN NIGERIA'S FEDERAL BUREAUCRACY

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Abstract
The Federal Government of Nigeria, through the Office of the Head of the Civil Service of the Federation (OHCSF), has mandated a comprehensive transition to fully paperless operations across all Federal Ministries, Departments, and Agencies (MDAs) by December 31, 2025. This study critically examines the feasibility of this "authorisational" mandate against the backdrop of Nigeria's historical struggles with e-governance implementation. Anchored on the Unified Theory of Acceptance and Use of Technology (UTAUT), the research employed a qualitative systematic literature review based on the SALSA (Search, AppraisaL, Synthesis, and Analysis) framework, synthesize academic and policy data from 2000 to 2025. The analysis reveals a paradox of aspiration where ambitious policy goals clash with foundational barriers, including unreliable power supply, inadequate ICT infrastructure, and significant human capital deficits characterized by low digital literacy and bureaucratic resistance to change. However, the study also identifies critical opportunities, such as Nigeria's high mobile penetration, a youthful demographic capable of driving cultural shifts, and technical feasibility demonstrated by previous targeted initiatives like IPPIS and TSA. The findings suggest that while the December 2025 deadline provides necessary political urgency, it carries the risk of superficial compliance if treated as a rigid endpoint rather than a commencement milestone. To avert failure, the study recommended a holistic implementation strategy prioritizing the stabilization of critical backup infrastructure, the institutionalization of continuous, role-based mentorship for capacity building, and the deployment of "quick win" digital solutions to foster adoption and mitigate organizational inertia.

Keywords: E-Government, Paperless Policy, Digital Transformation, Nigerian Civil Service, Public Administration, Bureaucracy.

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Introduction

The global landscape of public administration is undergoing a fundamental metamorphosis, driven by the rapid integration of digital technologies into the machinery of statecraft. This paradigm shift widely conceptualized as 'E-Government' or 'Digital Governance' transcends the mere computerization of administrative tasks; it represents a systemic restructuring of the relationship between the government and its citizenry, businesses, and internal constituents.

The pursuit of digital transformation in Nigerian public service has been characterized by oscillating policy initiatives, modest achievements, and persistent implementation challenges. The federal government has launched several digitalization programmes over the past two decades, including the Integrated Payroll and Personnel Information System (IPPIS), Treasury Single Account (TSA), and Bank Verification Number (BVN) initiatives, each designed to modernize specific aspects of public sector operations. Despite these efforts, Nigeria's performance on global e-governance indices remains modest. The United Nations E-Government Development Index (EGDI) ranked Nigeria 141st globally and 5th in West Africa in 2020, indicating significant gaps in the country's digital infrastructure, human capital, and online service delivery capabilities (United Nations, 2020). These rankings underscore a fundamental tension between the government's digital transformation aspirations and the structural realities that constrain their implementation. Against this backdrop, the Office of the Head of the Civil Service of the Federation (OHCSF) issued a directive mandating all federal ministries, departments, and agencies (MDAs) to transition to fully paperless operations by December 31, 2025. This policy initiative, described by the Head of the Civil Service, Mrs. Didi Esther Walson-Jack, as "authorisational, not aspirational," represents one of the most ambitious digital transformation undertakings in Nigeria's bureaucratic history (Leadership Media Group, 2025).

The mandate encompasses the migration of all federal civil service operations to the indigenous '1Gov Cloud' platform, delivered through the government-owned Galaxy Backbone Limited, with integrated tools including GovMail for electronic correspondence, GovDrive for file management and GovConference for virtual meetings (OHCSF, 2025). The policy further stipulates the adoption of an Enterprise Content Management System (ECMS) designed to digitize document workflows, eliminate paper-based processes, and integrate with the Performance Management System thereby fundamentally altering how accountability is enacted within the civil service. The articulation of this paperless mandate reflects broader global trends toward digital government, wherein nations across diverse developmental contexts have embraced digitalization as a pathway to administrative modernization. Countries such as Estonia, Singapore, and Rwanda have achieved notable success in implementing comprehensive e-governance frameworks, demonstrating that effective digital transformation can yield substantial improvements in service delivery, corruption reduction, and citizen satisfaction (Omweri, 2024). The Nigerian federal bureaucracy operates within an environment marked by inadequate digital infrastructure, persistent power supply challenges, limited digital literacy among civil servants and weak institutional frameworks (Omweri, 2024). These structural impediments raise critical questions about the feasibility of implementing a comprehensive paperless policy within the stipulated timeline.

The imperative for paperless governance in Nigeria extends beyond efficiency considerations to encompass concerns about transparency, accountability, and national competitiveness. Mrs. Didi Esther Walson-Jack notably remarked, "We are not digitalizing for

theatrics. We are digitalizing because we are building a nation that must compete and win in the world that we live in." (Leadership Media Group, 2025). This statement captures the strategic significance of digital transformation as not merely a technical upgrade but as a fundamental prerequisite for Nigeria's participation in the global digital economy. The paperless mandate also aligns with the Federal Civil Service Strategy and Implementation Plan (FCSSIP25) which prioritizes digitalization as one of three core pillars alongside capability building and performance management for repositioning the Nigerian civil service as a 21st-century institution. Furthermore, the emphasis on national sovereignty of digital infrastructure, reflected in the choice of the indigenous 1Gov Cloud platform, demonstrates an awareness of the geopolitical dimensions of digital transformation and the importance of maintaining data sovereignty in an increasingly interconnected world (OHCSF, 2025). However, the successful implementation of paperless governance requires more than policy pronouncements and technological infrastructure; it demands comprehensive organizational change management, sustained political commitment, adequate financial resources, and fundamental shifts in bureaucratic culture and practices. Studies on digitally-induced change in the public sector reveals that technological adoption alone does not guarantee transformation; rather, the effectiveness of digital initiatives depends critically on contextual factors including leadership quality, employee digital competencies, institutional readiness (Engkus, 2025; Hunitie and Akhorshaideh, 2025).

Nigeria’s robust mobile market with over 224 million active mobile subscriptions as of 2023, offers a critical foundation for mobile-enabled digital government services (NCC, 2024).The presence of a youthful population suggests a demographic advantage in terms of digital literacy and adaptability to new technologies. Furthermore, Nigeria's vibrant technology sector which has produced successful digital platforms in financial services, e-commerce, and telecommunications, demonstrates domestic capacity for technological innovation that could be leveraged for public sector transformation. The government's partnerships with international organizations such as UNESCO, which has provided digital competency training to civil servants, and the United Nations Development Programme (UNDP), which has supported knowledge exchange programmes, indicate the availability of technical assistance to support the transition (UNESCO, 2025). Additionally, successful pilot implementations of digital systems in agencies such as the Federal Inland Revenue Service (FIRS) and the National Identity Management Commission (NIMC) provide potentially replicable models for broader civil service digitalization. The December 31, 2025 deadline for achieving full paperless operations across all federal MDAs thus represents both a moment of opportunity and a test of institutional capacity. Whether this ambitious target will catalyze genuine transformation or remain another unfulfilled policy aspiration depends fundamentally on how effectively the government addresses the multifaceted barriers to implementation while capitalizing on available opportunities. This study therefore seeks to critically examine the paperless mandate from a balanced analytical perspective, investigating both the obstacles that threaten its realization and the enabling factors that could facilitate its success.

Problem Statement

Despite two decades of e-governance initiatives in Nigeria, the federal civil service continues to operate predominantly through inefficient paper-based processes that generate substantial costs, facilitate corruption, and impede effective service delivery. The Office of the Head of the Civil Service of the Federation's mandate requiring all federal ministries, departments, and agencies to achieve fully paperless operations by December 31, 2025

represents the government's most ambitious attempt to address this governance deficit. However, this initiative confronts formidable structural impediments spanning technological, human capital, institutional, and financial dimensions. At the infrastructural level, Nigeria grapples with unreliable electricity supply, inconsistent internet connectivity, and fragmented ICT systems across agencies. Human capacity constraints include variable digital literacy among civil servants, inadequate training infrastructure, and deep-seated resistance to organizational change rooted in bureaucratic culture. Institutional challenges encompass outdated legal frameworks privileging physical documentation, weak coordination mechanisms across fragmented government agencies, and vested interests benefiting from the opacity of paper-based systems. Financial limitations raise concerns about both the adequacy of initial investment and the sustainability of long-term funding for system maintenance and capacity development. While Nigeria possesses certain advantages including high mobile penetration, a youthful digitally-aware population, successful precedents from targeted initiatives like IPPIS and TSA, and access to international technical assistance, the conditions under which these opportunities can effectively overcome entrenched barriers remain unclear. This study therefore examines the impending barriers that constrain implementation, opportunities that could facilitate success, and assesses the organizational readiness and capacity of the federal civil service to achieve the paperless mandate.

Research Questions

i. What are the barriers hindering the effective implementation of the paperless mandate in Nigeria's federal bureaucracy?
ii. What opportunities and enablers exist to support the successful implementation of the paperless mandate?
iii. How ready and capable is Nigeria's federal bureaucracy for the full adoption of the paperless mandate?

Main Objective

The main objective of the study is to examine the barriers and opportunities associated with the implementation of the paperless mandate within Nigeria's federal bureaucracy. The specific objectives of this study are to:

i. Identify the barriers hindering the effective implementation of the paperless mandate in Nigeria's federal bureaucracy.
ii. Examine the opportunities and enabling factors that support the successful implementation of the paperless mandate.
iii. Assess the readiness and institutional capacity of the federal bureaucracy for full adoption of the paperless mandate.

Conceptual Framework

E-Government and E-Governance: Clarifying the Distinction: E-government refers primarily to the application of information and communication technologies to government operations and service delivery. E-government focuses on online service delivery, encompassing the use of digital tools to provide public services, process transactions, and disseminate information to citizens (Adams & Paul, 2023). This conceptualization emphasizes the transactional and operational dimensions of digitalization. E-government initiatives typically involve creating government websites, establishing online portals for service access, digitizing records, and enabling electronic transactions between government and citizens or businesses. E-governance, conversely represents a broader and more transformative

concept. E-governance encompasses broader interactions involving both public and private sectors, extending beyond mere service delivery to include participatory democracy, stakeholder engagement, and governance processes (Grigalashvili, 2022). E-governance implies not just technological adoption but fundamental changes in governance structures, decision-making processes, accountability mechanisms, and citizen-state relationships. E-governance implementation requires citizen orientation, channel orientation, and technology orientation, with citizen orientation being the most significant factor (Malodia and Bhatti, 2021). Nigeria's paperless mandate straddles both concepts. At the operational level, it represents an e-government initiative: digitalizing workflows, eliminating paper documentation and establishing integrated platforms like 1Gov Cloud for file management and communication. At the strategic level, however, it embodies e-governance aspirations like enhancing transparency, improving accountability, fostering inter-agency coordination and repositioning the civil service as a responsive, modern institution capable of competing globally. For the purposes of this study, digital governance will be employed to encompass the holistic transformation that Nigeria's paperless mandate implies: the technological infrastructure (1Gov Cloud platform), the operational changes (elimination of paper-based processes), the institutional restructuring (integrated systems across MDAs), and the cultural shift (acceptance of digital workflows as the new normal). This conceptualization acknowledges that achieving paperless operations requires addressing technical, organizational, human, and institutional dimensions simultaneously.

Global Perspectives on Paperless and Digital Governance: Success Stories in Estonia, Singapore and Rwanda

Estonia: Estonia stands as perhaps the most celebrated example of comprehensive digital government transformation. Estonia's X-Road platform serves as an open-source digital infrastructure enabling secure data exchange across government agencies and between public and private sectors, supporting 99% of government services online (Omweri, 2024). Estonia's success stems from several factors: early investment in digital infrastructure dating to the 1990s, political consensus on digitalization as a national priority, mandatory digital ID for all citizens, robust cybersecurity frameworks following the 2007 cyberattacks, and a culture of digital trust fostered through transparent, reliable systems. However, Estonia's small population (approximately 1.3 million) and relatively homogeneous society present contextual differences from Nigeria's scale and diversity.

Singapore: Singapore represents another paradigm of successful digital governance, characterized by centralized planning, substantial resource investment, and strong political will. Singapore's Government Tech Stack provides integrated digital capabilities coordinating services across multiple domains, including citizen experience, ecosystems, and IT systems analytics (Government Technology Agency of Singapore, 2025). Singapore's Smart Nation initiative encompasses not only e-government services but also smart city infrastructure, data-driven policy-making, and digital innovation ecosystems. The Singaporean model demonstrates the importance of sustained government commitment, long-term planning horizons, substantial funding, and continuous iteration based on user feedback.

Rwanda: Rwanda presents a particularly instructive case for African countries. Despite being a lower-middle-income country with historical challenges, Rwanda has demonstrated significant progress in e-government development, driven by long-term digital strategies aligned with national policies and Sustainable Development Goals. Rwanda's Irembo platform provides over 96 government services online, integrated with mobile money

systems to accommodate citizens' transaction preferences (Omweri, 2024). Rwanda's experience illustrates that successful digital governance in resource-constrained environments requires strategic prioritization, leveraging existing infrastructure (particularly mobile penetration), strong leadership commitment, and incremental approaches that build momentum through visible successes.

Landmark Digital Initiatives in Nigeria: IPPIS, TSA, and BVN

Three major digital initiatives have achieved notable success in Nigeria's public sector: the Integrated Payroll and Personnel Information System (IPPIS), Treasury Single Account (TSA), and Bank Verification Number (BVN). IPPIS, established to centralize federal government payroll processing, has demonstrably reduced payroll fraud and ghost workers. Systems like IPPIS significantly reduced financial leakages and streamlined human resource management (Chima et al., 2019). However, IPPIS implementation has faced resistance from certain sectors, particularly universities, judiciary and the Nigerian Police Force, who cite operational autonomy concerns and technical challenges with the system's inflexibility to accommodate diverse payroll structures. Also, the Treasury Single Account (TSA), mandated in 2015, consolidated government revenues into a unified account structure administered by the Central Bank of Nigeria. TSA enhanced transparency, improved cash management, and reduced revenue leakages by eliminating the proliferation of bank accounts where funds could be diverted. Nevertheless, TSA implementation revealed coordination challenges, as ministries, departments, and agencies struggled to adapt financial management processes to the new system, and some revenue-generating agencies resisted centralized control over their funds.

The Bank Verification Number (BVN), launched in 2014, created a unified biometric identification system across Nigeria's banking sector. While primarily a financial sector initiative, BVN demonstrated the feasibility of large-scale digital identity infrastructure, enrolling millions of Nigerians and providing a foundation for e-KYC (electronic Know Your Customer) processes that facilitate digital service delivery. These initiatives reveal a paradox: Nigeria has demonstrated capacity to implement specific, targeted digital systems that achieve measurable outcomes, yet comprehensive, systemic transformation across the entire public sector remains elusive. While e-government holds transformative potential for Nigeria, addressing challenges demands targeted interventions including infrastructure development, digital literacy programs and stronger policy frameworks (Ayesha et al., 2025). Understanding why IPPIS and TSA succeeded while broader e-governance transformation stalled is instructive for the current paperless mandate.

Nigeria's E-Government Rankings and Performance

Nigeria's performance on international e-governance indices provides sobering dynamic for the paperless initiative. Nigeria ranked 141st globally and 5th in West Africa on the 2020 UN E-Government Development Index, revealing that Nigeria has not yet attained its best in achieving viable, transparent, efficient, and effective e-public services (United Nations, 2020). This ranking reflects deficiencies across the three component indices: Online Service Index (quality and availability of digital services), Telecommunications Infrastructure Index (internet penetration, broadband subscriptions, mobile connectivity), and Human Capital Index (literacy rates, school enrollment, digital skills). However, poor ICT infrastructure, unreliable power supply, corruption, lack of political will, inconsistent policy and low digital literacy were identified as the major barriers hindering the implementation of e-governance in Nigeria (Inakefe et al., 2023; Ayesha et al., 2025). These persistent challenges have

remained remarkably consistent across two decades of e-governance efforts, suggesting that incremental approaches have proven insufficient to overcome structural impediments.

Barriers to Digital Transformation in the Public Sector

Technological and Infrastructural Barriers: Infrastructure deficits represent perhaps the most visible obstacle to paperless governance in Nigeria. Inadequate ICT infrastructure, characterized by insufficient hardware, limited network capacity, unreliable connectivity, and obsolete systems, fundamentally constrains digital transformation (Abasilim & Edet, 2015). Despite improvements in urban centers, internet penetration remains low in many regions, bandwidth capacity is insufficient for data-intensive applications, and connectivity costs are high relative to income levels.

Human Capital and Digital Literacy Barriers: The human dimension of digital transformation presents challenges as significant as technical infrastructure. Limited digital literacy, lower educational attainment, and unfamiliarity with digital technologies constitute substantial barriers to technology adoption, particularly affecting older civil servants accustomed to paper-based workflows (Ayesha et al., 2025). The generational divide within the civil service creates differential adaptation capacities. While younger cohorts entering the civil service tend to possess consumer-level digital skills, older employees may perceive digital transformation as threatening their expertise, job security, or professional autonomy. This generational dynamic requires carefully designed training programs that address skill gaps without stigmatizing or alienating experienced personnel. Also, resistance to change among employees who perceive digital transformation as threatening their job security or established work routines represents a primary challenge, manifesting in skepticism toward new technologies and reluctance to abandon familiar practices. This resistance is not merely irrational conservatism but often reflects legitimate concerns: anxiety about mastering new skills, fear of increased performance monitoring, worry about job displacement through automation, and attachment to established power structures where knowledge of paper-based processes confers influence.

Institutional and Legal Barriers: Institutional arrangements and legal frameworks shape the environment within which digital transformation occurs, and misalignments create significant impediments. Nigeria's civil service operates within deeply institutionalized bureaucratic culture emphasizing hierarchy, formal procedures, and risk aversion. Weak coordination across ministries, departments, and agencies, combined with unclear division of responsibilities, increases the risk of fragmented implementation where different entities pursue incompatible approaches.

Financial and Resource Constraints: Comprehensive digital transformation requires substantial investment across hardware, software, infrastructure, training, change management, and ongoing maintenance. Budgeting and financial costs, including inadequate funding allocations for ICT initiatives and gaps between budget appropriations and actual disbursements, constrain implementation (Abasilim and Edet, 2018). Financial constraints play a critical role as public institutions frequently operate within tight budgets, limiting their ability to invest in cutting-edge digital solutions and leading to inefficiencies and operational delays. The challenge is compounded by competing priorities such as healthcare, education, security that vie for limited resources, making sustained investment in digital infrastructure difficult to secure and maintain across political cycles.

Opportunities and Enablers for Successful Digital Transformation

While barriers are formidable, the civil service digital transformation presents opportunities and enabling factors that could facilitate successful paperless implementation. Among them are the following:

i. **Demographic Advantages:** Nigeria's youthful population represents both a demographic dividend and a digital opportunity. Younger cohorts entering the public workforce tend to possess greater familiarity with digital technologies and demonstrate higher digital readiness compared to older generations (Ezurike, 2025). This generational renewal can accelerate cultural shifts toward digital-first mindsets, though managing the transition period requires bridging generational divides through mentorship, knowledge transfer, and collaborative learning approaches.
ii. **International Partnerships and Technical Assistance:** Nigeria benefits from numerous international partnerships providing technical assistance, capacity building and knowledge transfer for digital transformation. UNESCO has provided digital competency training to civil servants, focusing on AI and digital government capabilities (UNESCO, 2025). Partnerships with organizations such as UNDP, World Bank, and bilateral development agencies offer access to international expertise, best practices from other countries, and potential funding sources for digital infrastructure and capacity development.
iii. **Successful Pilot Implementations:** Nigeria's previous digital initiatives, despite systemic challenges, have produced successful models that demonstrate feasibility. The Federal Inland Revenue Service (FIRS) has achieved substantial digitalization of tax collection and administration, improving revenue generation and taxpayer services. Systems like IPPIS successfully reduced financial leakages and streamlined operations, demonstrating that targeted digital initiatives can achieve measurable outcomes in Nigeria.
iv. **Political Will and National Competitiveness Imperatives:** The current administration's articulation of the paperless mandate as 'authorisational, not aspirational' by the Head of Civil Service of the Federation, Mrs. Esther Didi Walson-Jack, signals strong political will and high-level commitment to actualize the policy. This support, if sustained, provides essential backing for overcoming bureaucratic resistance, securing necessary resources, and enforcing compliance.

Theoretical Framework

The implementation of paperless governance in Nigeria's federal civil service requires a theoretical lens capable of explaining how employees accept and use new technologies. Hence, this study is anchored on the Unified Theory of Acceptance and Use of Technology (UTAUT).

Unified Theory of Acceptance and Use of Technology (UTAUT): The Unified Theory of Acceptance and Use of Technology (UTAUT), developed by Venkatesh et al. (2003), represents one of the most influential frameworks for understanding technology acceptance in organizational settings. The theory posits that behavioral intention and actual technology use are determined by four key constructs: performance expectancy, effort expectancy, social influence, and facilitating conditions (Venkatesh et al., 2003). Ayaz and Yanartaş (2020) found that performance expectancy and social influence significantly influenced government employees' behavioural intention to adopt Electronic Document Management Systems (EDMS). Their study, along with other applications of the Unified Theory of Acceptance and Use of Technology (UTAUT) in the public sector, provided important insights into the factors shaping digital system adoption among government workers. This theory is particularly

relevant to Nigeria's paperless mandate, which requires civil servants to transition from familiar paper-based workflows to integrated digital platforms such as the 1Gov Cloud system. However, UTAUT has been subject to important criticisms and extensions. In mandatory organizational settings common in the public sector, where technology adoption is not voluntary, the model's applicability may be constrained. This limitation is especially pertinent to Nigeria, where the paperless mandate is described as "authorisational, not aspirational," suggesting that compliance is compulsory rather than discretionary. The model's relevance extends beyond individual adoption to encompass organizational readiness. UTAUT, an extension of the original framework, incorporated additional constructs including hedonic motivation, price value, and habit to provide higher precision in explaining user behaviour in consumer contexts. While developed primarily for consumer settings, elements of UTAUT, particularly the emphasis on habit formation and perceived value offer insights into how sustained usage patterns can be cultivated among civil servants transitioning to paperless operations.

Methodology

This study employs a qualitative systematic literature review based on the SALSA (Search, AppraisaL, Synthesis, and Analysis) framework to rigorously examine the barriers and opportunities of Nigeria's paperless mandate. The research spans publications from 2000 to 2025, utilizing a comprehensive search strategy across academic databases like Google Scholar and Scopus, as well as grey literature from government agencies and international organizations. To ensure relevance, the study applied strict inclusion criteria, selecting peer-reviewed articles, policy documents, and empirical studies focused on public sector digital transformation in Nigeria and comparable developing countries, while excluding purely technical or private-sector focused literature. Following the selection process, sources underwent quality assessment based on methodological rigor and credibility, with data extracted using a structured template that captured key findings and theoretical contributions. The analysis utilized a mixed coding approach (deductive for predetermined categories and inductive for emergent themes) culminating in a thematic synthesis that organized data into descriptive and analytical themes. While acknowledging limitations such as the reliance on secondary data and potential publication bias, this approach allowed for a critical integration of diverse evidence to generate holistic insights into the implementation challenges of the paperless policy.

Discussion and Analysis

The Paradox of Digital Aspiration and Infrastructural Reality: A central tension emerging from the literature concerns the substantial gap between Nigeria's digital transformation aspirations and the infrastructural realities constraining their realization (Omweri, 2024; Elbably et al., 2020). Nigeria's paperless mandate represents an ambitious vision, which entails the comprehensive digitalization of federal civil service operations within a defined timeline, yet the evidence consistently demonstrates that foundational infrastructure prerequisites remain deficient. Studies revealed identified inadequate ICT infrastructure and unreliable power supply as major barriers to e-governance implementation in Nigeria (Omweri, 2024; Elbably et al., 2020). This infrastructural deficit is not merely a technical inconvenience but a fundamental constraint that undermines the viability of digital operations. The electricity supply challenge exemplifies this paradox. Digital systems require constant, reliable power to function as servers must operate continuously, workstations need stable electricity, internet infrastructure depends on powered telecommunications

equipment, and backup systems themselves consume substantial energy. Yet Nigeria's national grid experiences frequent collapses, load shedding is common in many regions, and even government offices in the federal capital often rely on diesel generators for power continuity (UNESCO, 2025). While backup power solutions exist, they impose additional costs, create environmental concerns, and are themselves vulnerable to fuel supply disruptions and maintenance failures. This infrastructural paradox generates a critical dilemma for implementation: should the government delay digital transformation until infrastructure improves (risking indefinite postponement as infrastructure development is slow and complex), or proceed with digitalization despite infrastructural constraints (risking system failures, user frustration, and potential reversion to paper-based processes as backup mechanisms)? Also most successful digital transformations in developing countries have pursued hybrid approaches, that is, they gradually expanding digital systems in tandem with incremental infrastructure improvements, rather than attempting comprehensive transformation before infrastructure is fully adequate (Omweri, 2024).

Human Capital: The Critical but Underemphasized Dimension: While infrastructure challenges receive substantial attention in the literature, human capital dimensions, though equally critical, appear comparatively underemphasized in policy discourse. The paperless mandate's success depends fundamentally on civil servants' willingness and ability to adopt digital workflows, yet evidence reveals significant human capacity constraints that policy pronouncements often overlook. Digital literacy among Nigerian civil servants varies considerably across generational, educational, and professional lines. UNESCO's 2025 training initiatives for Nigerian civil servants on AI and digital government underscore the recognition that existing competencies are insufficient for the digital transformation being pursued (UNESCO, 2025). However, training interventions face challenges of scale, sustainability, and effectiveness. With hundreds of thousands of federal civil servants across diverse ministries, departments, and agencies, comprehensive capacity building requires sustained, long-term investment far exceeding typical short-duration training programmes. The UTAUT framework reviewed earlier emphasizes that technology acceptance depends critically on perceived ease of use and performance expectancy. If civil servants perceive digital systems as difficult to use, unreliable, or offering no clear advantages over familiar paper-based processes, resistance and minimal adoption are likely outcomes regardless of policy mandates.

Ademeso and Idris (2025) revealed that resistance to change represents a natural organizational response to disruption of established routines. Civil servants who have developed expertise in paper-based workflows over decades may perceive digitalization as devaluing their accumulated knowledge, threatening job security (particularly for lower-level staff performing manual filing and retrieval tasks), or subjecting their work to unwelcome transparency and monitoring. This resistance is not merely irrational conservatism; it reflects legitimate concerns that require sensitive change management rather than dismissive enforcement. The generational dimension adds complexity. Younger civil servants entering the workforce typically possess greater digital familiarity but this does not automatically translate to proficiency with specialized government systems. Conversely, older civil servants may possess deep institutional knowledge and administrative expertise but require substantial support to develop digital competencies. Effective implementation requires bridging this generational divide through mentoring, collaborative learning and creating environments where digital natives and experienced administrators learn from each other's complementary strengths.

Institutional Inertia and the Cultural Challenge: Beyond technological and human capacity dimensions, institutional and cultural factors present equally formidable barriers. Bureaucratic culture in Nigeria's federal civil service has evolved over decades within a paper-based paradigm, with deeply embedded practices, symbols of authority, and power structures centered on physical documentation, manual signatures, and hierarchical approval chains. Likewise, the political economy of paper-based systems further complicates transformation. Opacity and manual processes that digital systems would eliminate may serve certain actors' interests. Corruption represents a major barrier facing e-service development, as transparency-enhancing digitalization threatens informal benefits some actors derive from non-transparent processes (Ayesha et al., 2025). Legal and regulatory frameworks present additional institutional challenges. While recent legislative efforts—including the Nigerian Data Protection Act 2023—address some digital governance gaps, comprehensive legal reform to support fully paperless operations remains incomplete (Serrari Group, 2025).

The Coordination Challenge in a Fragmented System: Nigeria's federal civil service comprises hundreds of ministries, departments, and agencies, each with varying levels of digital maturity, distinct operational requirements and historical autonomy in systems development. This fragmentation creates coordination challenges that threaten coherent implementation of the paperless mandate. Previous digital initiatives in Nigeria often resulted in islands of automation—different agencies developing incompatible systems, creating data silos that prevent information sharing and integrated service delivery. Weak coordination across ministries, departments, and agencies, combined with unclear division of responsibilities, increases the risk of fragmented implementation (Chima et al., 2019). The 1Gov Cloud initiative attempts to address this challenge by mandating a common platform across all federal MDAs but achieving genuine interoperability requires technical integration with existing legacy systems, standardized data formats, harmonized business processes, and institutional arrangements for cross-agency collaboration. Without clear governance mechanisms, the risk increases that implementation becomes uneven—some agencies progressing while others lag, creating inconsistencies that undermine system-wide transformation.The literature on digital government success emphasizes that robust governance structures defining roles, responsibilities, and accountability mechanisms are critical (IBM Center, 2017).

Financial Sustainability: Beyond Initial Investment: The Nigerian public sector operates within severe resource constraints, with numerous competing priorities (healthcare, education, infrastructure, security) all demanding funding. Securing adequate appropriations for digital transformation is challenging; ensuring those appropriations are actually disbursed and spent effectively is even more difficult given historical patterns of budget execution gaps. Furthermore, total cost of ownership extends far beyond initial procurement to encompass training costs, technical support staffing, system maintenance, periodic hardware replacement, software licensing renewals, cybersecurity infrastructure, and backup systems. A critical risk is creating digital systems that subsequently deteriorate due to inadequate maintenance resources (Ademeso et al., 2025). Insufficient resources and inadequate technical infrastructure where governments fail to provide cutting-edge technology and sufficient IT resources, particularly beyond capital cities (IJMPICT, 2018). This creates a vicious cycle: systems are implemented with initial enthusiasm and investment, but neglected maintenance leads to system degradation, user frustration mounts as systems

become slow or unreliable, users revert to paper-based processes as workarounds, which undermines the digital transformation objective and wastes the initial investment. Sustainable financing models are essential but challenging to design in contexts of fiscal uncertainty. Should agencies fund digital operations from existing budgets (potentially displacing other priorities) or should central government provide dedicated digital transformation financing? How can funding be protected across electoral cycles and political transitions? What role might public-private partnerships play, and what risks do they entail regarding data sovereignty and long-term costs?

Learning from Successes: IPPIS, TSA, and the Proof of Feasibility: Nigeria's previous digital initiatives, despite systemic challenges, demonstrate that targeted digital transformation can succeed in Nigerian contexts when certain conditions are met. Systems like IPPIS successfully reduced financial leakages and streamlined operations. These successes offer important lessons for the paperless mandate. Successful initiatives typically addressed specific, clearly defined problems (payroll fraud, revenue leakage) rather than attempting comprehensive, diffuse transformation. The focused nature of IPPIS and TSA allowed concentrated resources, clear success metrics, and stakeholder understanding of objectives and benefits. The paperless mandate, by contrast, encompasses all civil service operations—a far broader and more complex scope that may diffuse focus and resources. Furthermore, successful initiatives benefited from strong political backing and enforcement. The TSA, for instance, was implemented through presidential directive with clear consequences for non-compliance.

International Partnerships: Leveraging External Resources Strategically: Nigeria's partnerships with international organizations—UNESCO, UNDP, World Bank, and others—offer access to technical expertise, best practices, capacity building support, and potentially financing that could facilitate implementation. UNESCO's training programmes for Nigerian civil servants on AI and digital government represent valuable knowledge transfer (UNESCO, 2025). However, the literature cautions against over-reliance on external assistance or uncritical adoption of foreign models. Development partners can provide valuable resources, but sustainable transformation must be domestically owned and contextually adapted. Several resources supporting Digital Public Infrastructure development exist, including the Centre for Digital Public Infrastructure and GovStack. These resources can reduce development costs and accelerate implementation, but they require careful adaptation to Nigerian legal frameworks, administrative traditions, and operational realities. Moreover, the emphasis on indigenous digital infrastructure—specifically the 1Gov Cloud platform delivered through Nigeria's Galaxy Backbone Limited—demonstrates awareness of data sovereignty concerns and the strategic importance of maintaining domestic control over critical digital infrastructure (Walson-Jack, 2024). This nationalism in digital infrastructure aligns with broader global trends toward digital sovereignty but requires ensuring that locally-developed systems achieve technical quality, security standards, and user experience comparable to international alternatives.

The December 2025 Deadline: Realistic Target or Symbolic Gesture?

The stipulated deadline of December 31, 2025 for achieving fully paperless operations across all federal MDAs raises fundamental questions about realism and strategy. The literature on large-scale public sector transformation initiatives suggests that comprehensive institutional change typically requires years, even decades, not months (Obodo and Anigbata, 2023; Adams and Paul, 2023; Ademeso and Idris, 2025). Countries celebrated for e-governance

success—Estonia, Singapore—invested decades building digital infrastructure, legal frameworks, institutional capacity, and cultural acceptance. This raises the question: Is the December 2025 deadline intended as a realistic, achievable target, or as a symbolic gesture designed to create urgency, mobilize resources, and signal commitment? The risk of overambitious deadlines is well-documented. Governments' preference for large, politically motivated projects increases failure risks, as discontinuous approaches hinder incremental improvements necessary for sustainable transformation. If the deadline is perceived as unrealistic, agencies may engage in superficial compliance by creating facade digital systems while maintaining parallel paper processes to demonstrate adherence without genuine transformation. Alternatively, if the deadline passes without comprehensive achievement and enforcement proves weak, policy credibility erodes, undermining future reform efforts.

Conclusion and Recommendations

The implementation of Nigeria's paperless mandate represents a defining moment in the country's digital transformation journey, characterized by a complex landscape where substantial challenges coexist with genuine opportunities. The analysis highlights formidable barriers, including foundational infrastructural deficits like unreliable power and connectivity, human capital limitations regarding digital literacy, and institutional inertia driven by a bureaucratic culture deeply rooted in paper-based processes. However, distinct opportunities exist to counterbalance these obstacles. Nigeria's high mobile penetration provides existing infrastructure that can be leveraged for digital service delivery. A youthful demographic offers potential for driving cultural change and digital adoption. The proof of feasibility demonstrated by previous initiatives such as IPPIS and TSA shows that targeted digital transformation can succeed in the Nigeria. While the December 2025 deadline creates necessary urgency and signals political commitment, it carries the risk of inducing superficial compliance if treated as a rigid endpoint rather than a catalyst for genuine systemic change. Ultimately, success is not inevitable; it requires a holistic approach that integrates technology, people, processes, and institutions simultaneously, rather than privileging technological solutions alone. If implemented with sustained commitment and strategic adaptation, the mandate offers a pathway to enhance governmental efficiency and position Nigeria as a digital governance leader; conversely, poor implementation risks wasting resources and entrenching cynicism. To ensure the viability of the imminent December 31st transition, priority must be placed on stabilizing critical infrastructure by securing reliable backup power systems and redundant internet connectivity to mitigate the operational paralysis often caused by national grid failures. Concurrently, to bridge capability gaps and minimize resistance, capacity building must evolve from sporadic workshops to continuous, role-based mentorship programmes where digitally proficient staff support less confident colleagues, thereby reducing change fatigue and ensuring that training addresses the specific realities of civil service workflows.

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