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## **THE DIGITALISATION–INTEGRATION GAP AND ADMINISTRATIVE EFFICIENCY IN NIGERIAN PUBLIC UNIVERSITIES**

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### **Abstract**

*This study examines whether the expanding digitalisation of administrative functions in Nigerian public universities has been matched by comparable progress towards institutional integration and administrative efficiency. It uses a systematic evidence review and structured policy-document analysis, drawing on 31 scholarly and policy sources, with most evidence from 2018-2026. The evidence synthesises digital adoption, interoperability, institutional capacity, and administrative outcomes. The findings show substantial but uneven transactional digitalisation in records management, registration, payments, human-resource administration and information processing. These developments are associated with gains in speed, accuracy, accessibility and responsiveness. However, evidence of institution-wide interoperability, coordinated workflows and seamless data exchange remains limited. Fragmented platforms, weak inter-unit coordination, infrastructure deficits, inadequate digital competence and uneven policy implementation continue to constrain systemic efficiency. The article conceptualises this condition as the digitalisation-integration gap: the institutional distance between digitalising separate administrative functions and connecting them through interoperable, coordinated and end-to-end processes. Digital Era Governance and Institutional Theory explain, respectively, why administrative reintegration is central to mature digital government and why visible technological adoption may coexist with limited organisational change. The study concludes that Nigerian public universities should prioritise integration of existing systems, process redesign, data governance and staff capability rather than continue accumulating standalone platforms.*

**Keywords:** administrative efficiency; digital governance; digitalisation-integration gap; interoperability; Nigerian public universities; digital transformation

## Introduction

Digital transformation has emerged as a pivotal locus of inquiry in contemporary public administration because public institutions increasingly rely on digital technologies to improve service delivery, information management, organisational coordination and administrative responsiveness. Yet the existence of electronic platforms does not necessarily constitute digital transformation. Digitalisation applies digital technologies to existing activities, whereas digital transformation entails extensive changes in organisational structures, institutional relationships, work routines and service-delivery arrangements (Haug et al., 2024; Mergel et al., 2019). Public-sector digital maturity must therefore be assessed through technology, organisational processes, staff capability, institutional culture and governance arrangements rather than online services alone (Aristovnik et al., 2024).

This distinction is particularly important in universities. Admissions, registration, fee payment, student records, examinations, clearance, graduation, transcript processing and human-resource management are administratively interdependent. Nigerian public universities increasingly use electronic platforms and databases to perform these functions, previous studies connect their use with faster processing, improved record accuracy, accessibility and responsiveness (Adeyanju, 2020; Adiele & Bestman, 2025; Jimoh, 2025). Nevertheless, infrastructure limitations, inadequate digital competence, weak coordination and bureaucratic bottlenecks continue to affecting digital systems performance (Nnaji et al., 2026; Sule, 2024).

This implies that technological adoption and institutional transformation may not progress at the same rate. The administrative problem is therefore no longer simply whether universities possess digital platforms, but whether those platforms are connected. A university may operate online registration, electronic payments and digital records while Registry, ICT, Bursary, Admissions, Faculties and Examinations and Records maintain separate databases and procedures. Students and staff may experience repeated data submission, manual verification, duplicated records and multiple administrative tasks. In such circumstances, digitalisation improves individual transactions without transforming the administrative system.

Interoperability is central to this transition. In administrative terms, interoperability refers to the capacity of different information systems and organisational units to exchange, interpret and reuse information in ways that support coordinated service delivery. It extends beyond technical connectivity because effective integration also requires compatible procedures, clearly assigned institutional responsibilities, data-governance arrangements and rules governing authorised information exchange. Contemporary public-administration scholarship therefore treats digital integration as a multidimensional condition involving technology, processes, people, organisational structure and governance (Aristovnik et al., 2024; Haug et al., 2024).

The importance of integration is also evident in earlier e-government maturity scholarship. Layne and Lee (2001) distinguished basic information provision and electronic transactions from higher levels of vertical and horizontal integration, thereby demonstrating that online services do not necessarily represent the endpoint of digital development. Although contemporary digital-government research has moved beyond simple linear maturity models, the underlying distinction between transactional digitalisation and deeper organisational integration remains relevant. Recent research shows that public institutions may provide extensive digital services while system integration, process redesign and organisational transformation remain incomplete (Aristovnik et al., 2024; Haug et al., 2024).

This distinction has direct implications for administrative efficiency. Digitalising an individual transaction may reduce processing time, physical contact or clerical effort, but fragmented systems can preserve duplication, repeated verification, incompatible records and manual reconciliation. Conversely, integration can enable verified information to move across authorised units, reduce repetition and support more consistent administrative decisions. Evidence from Nigerian higher education illustrates both sides of this relationship. Digital information and records systems have been associated with improved administrative efficiency, accuracy and responsiveness, while insufficient technological integration, weak coordination and bureaucratic bottlenecks continue to restrict institution-wide performance (Adiele & Bestman, 2025; Jimoh, 2025; Sule, 2024). Nigerian university information-system research similarly identifies fragmentation and data inconsistency as continuing challenges to integrated administration (Adenubi, 2025).

These patterns provide the basis for the concept advanced in this article: the digitalisation–integration gap. The gap refers to the institutional distance between digitalising separate administrative functions and incorporating them into interoperable, coordinated, data-sharing and end-to-end processes. It does not imply the absence of technology. Rather, it captures a condition in which transactional digital capability develops more rapidly than whole-of-institution administrative integration. The outcome may be described as digitally enabled administrative fragmentation, in which technologically advanced functions continue to operate through organisational silos and disconnected workflows. Despite growing research on ICT adoption, electronic administration and digital transformation in Nigerian higher education, comparatively negligible prioritisation is given to interoperability, shared data architecture, cross-unit information exchange and whole-of-institution workflow integration. Existing studies more frequently examine technology adoption, electronic records, digital service delivery and administrative efficiency than interoperability, cross-unit data exchange, shared administrative architecture or whole-of-institution integration. Consequently, it is uncertain whether the expansion of digital administrative functions in Nigerian public universities represents progression towards integrated digital administration or primarily the accumulation of separate electronic transactions.

Accordingly, this article systematically examines recent scholarly and policy evidence to determine the extent to which digitalisation in Nigerian public universities has progressed towards administrative integration, identify the institutional and technological conditions shaping that transition, and assess its implications for administrative efficiency. Rather than presuming that a digitalisation–integration gap exists uniformly, the study treats it as an analytical proposition to be evaluated against the available evidence. In doing so, the article shifts the focus from the conventional question of whether public universities have adopted digital technologies to the more consequential Public Administration question of whether those technologies have been institutionally reintegrated in ways that produce coherent, efficient and user-centred administration.

## **Literature Review**

### **Definition of Key Concepts**

#### **Digital Governance**

Digital governance refers to the institutional use and governance of digital technologies, data and information systems to organise public administration, deliver services, coordinate actors and support public decision-making (OECD, 2020). It is broader than the computerisation of office tasks because it includes the strategies, policy levers, authority relationships, implementation practices and organisational capabilities through which technology is deployed. The OECD Digital Government Policy Framework accordingly treats mature digital government as digital by design, data-driven, platform-based, open, user-driven and proactive, while the United Nations places infrastructure, institutional capability, data governance and human capacity within the wider digital-government environment (OECD, 2020; United Nations Department of Economic and Social Affairs [UNDESA], 2024). In a university, digital governance therefore concerns not only portals and databases but also

who owns institutional data, who may access or alter records, how systems communicate and how digital decisions remain accountable.

#### Digitalisation and Digital Transformation

Digitalisation is the application of digital tools to existing processes, such as converting paper registration, payment or record-retrieval procedures into electronic forms. Digital transformation is broader: it involves redesigning processes, roles, structures and relationships around digital capability (Haug et al., 2024; Mergel et al., 2019). The distinction prevents a university from being classified as transformed simply because several manual transactions are now online. Transformation occurs when digital technologies alter how units coordinate, how information moves and how users experience an entire administrative service.

#### Administrative Integration and Interoperability

Administrative integration is the coordinated organisation of related functions, responsibilities, information and workflows across institutional units. Interoperability is the capacity of different systems and organisations to exchange, interpret and reuse information securely and consistently. The European Interoperability Framework distinguishes legal, organisational, semantic and technical layers, thus illustrating that interoperability is not reduced to software application connections (European Commission, 2017). Technical interoperability connects applications; semantic interoperability preserves the meaning of exchanged data; organisational interoperability aligns procedures, responsibilities and workflows. An integrated university system should therefore permit verified information to move across authorised units without unnecessary re-entry, reconciliation or manual confirmation (Adenubi, 2025; OECD, 2020).

#### Administrative Efficiency

Administrative efficiency is the capacity to achieve required administrative outputs accurately, promptly and economically while sustaining responsiveness, accountability and service quality. In digital administration, it includes shorter processing times, fewer errors, reduced duplication, reliable records and easier access to information (Adeyanju, 2020; Adiele & Bestman, 2025; Jimoh, 2025). This study distinguishes transactional efficiency, where a particular task becomes faster or more accurate, from systemic efficiency, where the entire service chain becomes coherent through integrated information and coordinated processes. The distinction is consistent with whole-of-government frameworks that assess shared infrastructure, common systems and institutional enablers rather than isolated electronic services (OECD, 2020; Vasconcelos et al., 2025).

#### The Digitalisation Integration Gap

The digitalisation-integration gap denotes the distance between the availability of digital applications and their institutional reintegration into a coherent administrative architecture. It prevails where electronic transactions multiply faster than shared data standards, cross-unit workflows, system interoperability and administrative coordination. The gap is not the absence of technology; it is the limited conversion of technological adoption into institution-wide transformation. Although the term is advanced in this article, it is synthesised from evidence distinguishing digital adoption from organisational transformation and from Nigerian studies reporting fragmented information systems, weak coordination and incomplete technological integration (Adenubi, 2025; Haug et al., 2024; Sule, 2024).

#### Synthesis of Related Research

Research generally agrees that digital technologies can improve administrative performance, but it also demonstrates that the benefits depend on organisational conditions. Nigerian studies of electronic records, digital information systems and digital human-resource systems report faster retrieval, improved accuracy, responsiveness and reduced reliance on paper processes (Adeyanju, 2020; Adiele & Bestman, 2025; Jimoh, 2025). Evidence from Nasarawa State University similarly shows that e-

governance outcomes vary by function: online fee payment improved efficiency and user satisfaction, whereas online registration produced less convincing service-delivery gains (Isah et al., 2024). Collectively, these findings indicate that digital adoption creates real but uneven transactional benefits.

An alternative set of empirical findings is fragmentation. Research on education management information systems identifies inconsistent data, disconnected applications and limited scalability as continuing challenges in Nigerian universities (Adenubi, 2025). Studies of university administrative structures and public tertiary institutions, on the other hand, associate weak technological integration and poor coordination with continuing bottlenecks (Adiele & Bestman, 2025; Sule, 2024). The literature therefore distinguishes multiple digital systems from the existing integrated digital administrative system.

A third strand explains why this distinction persists. Infrastructure and connectivity remain important, but leadership, policy implementation, process design, digital competence and staff acceptance are equally influential (Chima & Enoch, 2022; Nnaji et al., 2026; Williams & Ataire, 2025). Jimoh (2025) opined that employee digital literacy substantially advances the relationship between digital HR-system adoption and administrative efficiency. The synthesis thus rejects a technologically causal model: hardware and software enable change, but institutional capability determines whether separate tools become coordinated administrative systems.

International research reinforces this conclusion. Public-sector digital transformation is increasingly understood as digitally induced organisational change rather than technology acquisition (Haug et al., 2024; Mergel et al., 2019). Higher-education scholarship similarly identifies strategy, leadership, resources, competence, culture and stakeholder coordination as recurring determinants of transformation (Singun, 2025). The empirical void in Nigerian public-university research is the intermediate mechanism connecting digital adoption to systemic efficiency: institution-wide interoperability and administrative integration. This is both an implementation gap and a measurement gap because existing research measures adoption and efficiency more frequently than cross-unit data exchange, workflow continuity and shared administrative architecture.

### Theoretical Framework

Digital Era Governance provides the principal theoretical lens. The tenets are reintegration, needs-based holism and digitisation as defining features of post-New Public Management administrative reform (Dunleavy et al., 2006). Reintegration seeks to reconnect functions fragmented by specialised administrative structures; needs-based holism organises services around users rather than departmental boundaries; and digitisation uses digital capability to redesign administrative processes. Later studies confirm that Digital Era Governance has developed towards increasingly integrated, user-oriented and data-enabled public administration (Ravšelj et al., 2022). In universities, the theory directs attention from departmental computerisation to the complete administrative journey of students and staff.

Institutional Theory complements this account by explaining why technological adoption may not produce organisational reintegration. Coercive, mimetic and normative pressures can encourage organisations to adopt visible digital reforms in response to regulatory requirements, competitive comparison and professional expectations (DiMaggio & Powell, 1983; Pan & Fan, 2023). Institutional decoupling further explains how formal reforms may coexist with routines that remain substantially unchanged (Meyer & Rowan, 1977). Contemporary studies confirm that institutional pressures and inherited organisational arrangements continue to shape digital-transformation outcomes (Bennich, 2024; Hinings et al., 2018).

Collectively, the theories produce a clear proposition: Digital Era Governance establishes integration as a criterion of mature digital administration, while Institutional Theory explains why universities may acquire visible technologies without redesigning the structures, responsibilities and routines required for integration. The central proposition is therefore that digital capability and institutional capacity are related but analytically distinct, and that administrative efficiency depends increasingly on the ability to align both.

### Policy and Documentary Context

Nigeria's policy environment recognises many of the institutional conditions required for digital transformation. The National Digital Economy Policy and Strategy 2020-2030 places digital infrastructure, skills, services, trust and regulation within a national transformation agenda, while NITDA's Strategic Roadmap and Action Plan 2024-2027 emphasises digital literacy, infrastructure, cybersecurity, policy implementation and institutional partnerships (Federal Ministry of Communications and Digital Economy, 2019; National Information Technology Development Agency [NITDA], 2024). The Nigeria Data Protection Act 2023 adds binding responsibilities about lawful processing, data security, accountability and the rights of data subjects (Federal Republic of Nigeria, 2023). These provisions are directly relevant to universities because integrated administrative systems intensify data sharing and therefore require clear authority, access control and accountability.

International frameworks reinforce the movement from isolated platforms towards coherent digital ecosystems. The OECD emphasises common platforms, data-driven administration and user-centred design; the UN digital-government framework connects technology with institutions, human capacity and data governance; and the World Bank's GovTech Maturity Index assesses core government systems, shared infrastructure, online services and institutional enablers (OECD, 2020; UNDESA, 2024; Vasconcelos et al., 2025). These documents establish a policy benchmark, but they do not determine implementation within Nigerian universities. Their analytical value lies in clarifying the difference between formal policy ambition and the operational evidence reported by university studies.

### Methodology

The study adopted a structured integrative literature-review design combined with policy-document analysis. The design was appropriate because the evidence relevant to digital governance and administrative integration in Nigerian public universities is distributed across public administration, higher education, information systems and records-management scholarship and comprises quantitative, qualitative, mixed-method, conceptual and policy-based materials. The integrative approach enabled these heterogeneous forms of evidence to be systematically identified, critically examined and thematically synthesised without treating them as methodologically identical.

The units of analysis were therefore published studies and authoritative policy documents rather than individual respondents. Literature was retrieved through a structured search of multidisciplinary scholarly indexes, African-focused journal platforms, publisher databases and DOI records. The search covered studies published between January 2018 and September 2026, although earlier publications were retained selectively where they established the theoretical or conceptual foundations of digital-era governance, institutional change and administrative integration. Search terms were used individually and in combination and included “digital governance,” “e-governance,” “e-administration,” “digital transformation,” “digital information systems,” “electronic records management,” “interoperability,” “system integration,” “administrative efficiency,” “public universities,” “higher education” and “Nigeria.” The database search was supplemented by backward and forward citation tracing. Relevant government, regulatory and international policy documents were retrieved separately from the official websites of their issuing institutions because such documents establish formal expectations and policy benchmarks rather than provide direct empirical evidence of implementation.

Studies were included when they examined digital administrative systems, electronic records, institutional interoperability, administrative coordination or efficiency in Nigerian public universities. Empirical studies involving other Nigerian public tertiary institutions were retained only as contextual evidence where they illuminated conditions applicable to the wider public higher-education sector. International publications were used selectively for theoretical, methodological and comparative interpretation and were not treated as direct evidence of conditions in Nigerian universities. The selected materials were reviewed using a structured evidence matrix that recorded their publication year, institutional setting, research design, administrative function, evidence of digital adoption, degree of system integration, reported efficiency outcomes, constraints and principal conclusions. The methodological coherence of the empirical studies was considered using the principles of the Mixed Methods Appraisal Tool, with study quality determining the interpretive weight assigned to individual findings rather than operating as an automatic basis for exclusion (Hong et al., 2018).

Because the included studies differed considerably in design, setting, variables and outcome measurement, statistical meta-analysis was neither appropriate nor feasible. The evidence was consequently analysed through framework-based thematic synthesis. Findings were coded and compared under four principal categories: transactional digitalisation, interoperability and system integration, institutional and socio-technical conditions, and administrative efficiency. Areas of convergence, qualification and contradiction among the studies were identified, while policy expectations were compared with reported institutional practices. This procedure made it possible to determine whether the available evidence supported the proposed digitalisation–integration gap without assuming its existence in advance. Because the study analysed documentary evidence, it did not require a respondent population, probability sampling or statistical sample-size calculation. Methodological rigour was instead pursued through an explicit search strategy, transparent eligibility criteria, structured data extraction, quality-sensitive interpretation and systematic thematic synthesis.

## **Findings**

### **Extensive but Uneven Transactional Digitalisation**

The evidence indicates that digital technologies are increasingly embedded in several areas of university and tertiary-institution administration in Nigeria. Electronic records, digital human-resource systems, online registration, electronic payments and administrative information systems have progressively replaced or supplemented manual processes. Across the reviewed studies, digital adoption is commonly associated with faster processing, improved access to information, better records handling and reduced dependence on paper-based administrative routines (Adeyanju, 2020; Adiele & Bestman, 2025; Jimoh, 2025).

However, digitalisation does not appear to generate uniform outcomes across administrative functions. Evidence from Nasarawa State University is particularly illustrative: online school-fee payment was reported as effectively implemented and associated with improved efficiency and user satisfaction, whereas online registration did not significantly enhance service delivery (Isah et al., 2024). This functional variation suggests that the presence of an electronic platform alone does not guarantee equivalent administrative benefits across different processes.

Other Nigerian evidence similarly indicates the coexistence of digitally advanced functions with activities that remain constrained by manual procedures, inadequate infrastructure or fragmented administrative arrangements (Nnaji et al., 2026; Sule, 2024; Williams & Ataire, 2025). The emerging pattern is therefore a hybrid administrative environment rather than complete institution-wide transformation.

This unevenness is analytically important because it demonstrates that digital maturity cannot be inferred simply from the number of electronic services available. Digitalisation appears to have

progressed most clearly at the level of specific administrative transactions, while the evidence for corresponding transformation across entire institutional processes remains considerably less consistent.

#### Incomplete Integration and Interoperability

The strongest evidence supporting the digitalisation–integration gap concerns the relationship among separately digitalised administrative systems. Although numerous studies document the adoption and efficiency benefits of digital technologies, substantially fewer directly examine whether these technologies operate through shared data architectures, interoperable platforms or coordinated cross-unit workflows.

Where integration is examined explicitly, the evidence indicates continuing fragmentation. Research on education management information systems in Nigerian universities identifies data inconsistency, fragmented information systems and scalability limitations as important weaknesses, with standardised interfaces and service-oriented architecture proposed as mechanisms for improving interoperability (Adenubi, 2025). Broader research on Nigerian university administrative structures similarly identifies insufficient technological integration and weak coordination between academic and administrative units as continuing constraints on institutional effectiveness (Sule, 2024).

Supporting evidence from public tertiary institutions reinforces this pattern. Digital information systems are associated with improved institutional coordination and transparency, yet system integration remains sufficiently problematic to feature prominently among recommended reforms (Adiele & Bestman, 2025). Likewise, contemporary digital-record-management research reports improvements in processing speed, documentation accuracy and workflow while identifying infrastructure and staff-capacity limitations as barriers to optimal performance (Abubakar & Faruk, 2026).

The evidence therefore supports an important distinction between having digital systems and having an integrated digital administrative system. Institutions may operate multiple electronic applications while data exchange, workflow continuity and administrative coordination across those applications remain incomplete. This constitutes the clearest empirical foundation for the digitalisation–integration gap proposed in this study.

#### Institutional and Socio-Technical Constraints

The evidence further indicates that incomplete integration cannot be explained solely by deficiencies in technology. Institutional and socio-technical factors repeatedly emerge as conditions determining the effectiveness of digital administration.

Infrastructure remains important, particularly reliable connectivity, system availability and adequate technological resources. However, recent evidence also identifies staff digital competence, training, organisational coordination, leadership, policy implementation and resistance to organisational change as important determinants of whether technologies generate sustained administrative improvements (Chima & Enoch, 2022; Jimoh, 2025; Nnaji et al., 2026; Williams & Ataire, 2025).

Employee capability appears particularly significant. At the University of Ilorin, digital human-resource-system adoption was positively associated with administrative efficiency, while employee digital literacy played an important mediating role in the relationship (Jimoh, 2025). The implication is that acquiring digital systems without corresponding investment in human capability may limit the administrative value generated from those systems.

Recent higher-education evidence also identifies weak governance implementation, infrastructure deficits and insufficient digital capability as constraints on institutional transformation despite increasing interest in digital technologies (Nnaji et al., 2026). Evidence concerning Nigerian

university administrative structures similarly identifies poor coordination and bureaucratic bottlenecks, indicating that technological integration is partly an organisational-design problem rather than solely an ICT problem (Sule, 2024).

Collectively, the findings suggest that the digitalisation–integration gap emerges through the interaction between technological and institutional conditions. Hardware, software and connectivity provide the technical basis for digital administration, while administrative coordination, staff capability, governance arrangements and process redesign influence whether separate technologies develop into a coherent institutional system.

#### Administrative Efficiency Gains Are Conditional

The reviewed evidence generally associates digital technologies with improvements in aspects of administrative efficiency. Electronic records management has been linked with shorter turnaround times, faster information dissemination and improved processing of student results, while digital information and records systems have been associated with improvements in record accuracy, responsiveness, accountability and workflow performance (Adeyanju, 2020; Adiele & Bestman, 2025; Abubakar & Faruk, 2026). Digital human-resource systems similarly demonstrate positive relationships with administrative efficiency where employees possess sufficient digital capability (Jimoh, 2025).

Nevertheless, these benefits are not generated automatically by technology. Efficiency outcomes appear stronger where digital systems are supported by adequate infrastructure, staff competence and coherent organisational arrangements. Conversely, where technological adoption coexists with poor integration, weak coordination or limited digital skills, efficiency gains may remain confined to particular transactions instead of extending across the administrative service chain (Nnaji et al., 2026; Sule, 2024).

This distinction is important for interpreting digital transformation in public universities. A payment platform may process transactions efficiently while subsequent verification remains manual; an electronic student-record system may permit rapid retrieval within one administrative unit while other units maintain separate databases; and an online application may reduce physical contact without eliminating duplicated administrative requirements. In these circumstances, digitalisation improves parts of an administrative process without necessarily transforming the process as a whole.

#### Evidence of the Digitalisation Integration Gap

Overall, the evidence provides qualified but substantial support for the digitalisation–integration gap. The reviewed literature consistently demonstrates increasing digital adoption and measurable administrative benefits. However, evidence of institution-wide interoperability, seamless information exchange and end-to-end workflow integration is considerably less developed. Where integration is investigated directly, recurring problems of fragmented systems, inconsistent data, weak inter-unit coordination and incomplete institutional transformation are evident (Adenubi, 2025; Nnaji et al., 2026; Sule, 2024).

The findings therefore do not justify the stronger assertion that Nigerian public universities are uniformly digitally fragmented. Instead, they support the more defensible conclusion that digitalisation appears to have progressed more rapidly than administrative integration in significant areas of Nigerian higher education.

The synthesis also identifies a related research problem. Existing Nigerian studies measure technology adoption, electronic service delivery and administrative efficiency considerably more frequently than interoperability, cross-unit data exchange and whole-of-institution integration. The digitalisation–integration gap is consequently both an administrative implementation problem and an

empirical measurement gap. The current evidence supports its use as an analytical construct, but direct multi-institutional measurement of interoperability and administrative integration will be required before the prevalence or magnitude of the gap across Nigerian public universities can be established conclusively.

## **Discussion**

The findings shift the digital-governance question from whether Nigerian public universities have adopted technology to whether digital functions have been integrated sufficiently to transform administration. The coexistence of efficiency gains and fragmented systems confirms that digital capability and administrative integration are related but distinct. This interpretation is consistent with research that locates transformation in changes to organisational processes and structures rather than in technology acquisition alone (Haug et al., 2024; Mergel et al., 2019). It also reveals a policy-practice gap: national and international frameworks promote shared infrastructure, data governance and institution-wide capability, but the empirical literature continues to report fragmented systems and uneven implementation (Federal Republic of Nigeria, 2023; NITDA, 2024; UNDESA, 2024).

From a Digital Era Governance perspective, the principal deficiency is incomplete reintegration. University administration is experienced by users as a connected service journey, but it is commonly organised through departmental boundaries. If an online transaction later requires manual confirmation or repeated submission to another unit, the front end has been digitalised while the administrative process remains fragmented. Digital maturity should therefore be judged by the continuity of information and workflow across authorised units, not by the visibility or number of portals.

The evidence also identifies institutional capacity as the mechanism connecting adoption to integration. Digital platforms generate greater value when staff competence, leadership, data governance, cross-unit coordination and process redesign are present (Aristovnik et al., 2024; Jimoh, 2025). Without these capabilities, bottlenecks are not removed but transferred to another stage of the process. This explains why technologically similar functions can produce different outcomes across an institution.

Institutional Theory further explains why visible digitalisation may advance more rapidly than less visible administrative reform. Regulatory expectations, professional norms and competitive pressures encourage universities to demonstrate technological modernity (Bennich, 2024; Pan & Fan, 2023). Portals and electronic platforms are readily observable to regulators, students and competing institutions, whereas harmonising databases, redefining data ownership and redesigning interdepartmental workflows are administratively difficult and less visible. Universities may therefore adopt the outward symbols of digital modernisation while established approval chains, departmental ownership of information and manual verification remain substantially intact. This condition may be described as symbolic digitalisation: technology confers legitimacy and signals reform, but its integration into everyday administrative routines remains partial. The argument does not imply deliberate deception; rather, it shows how new technologies can be layered onto established bureaucratic arrangements instead of transforming them, a pattern consistent with institutional decoupling (Hinings et al., 2018; Meyer & Rowan, 1977).

These findings require a broader interpretation of efficiency. Faster retrieval or payment processing is valuable, but systemic efficiency exists only when improvements extend across the complete service chain. The digitalisation-integration gap contributes to public-administration scholarship by naming the discontinuity between localised digital capability and institutional reintegration. It is not another rigid maturity stage; it is a diagnostic concept for determining whether digital adoption has been converted into coordinated administrative capacity.

The review also exposes an empirical weakness. Nigerian research measures adoption, satisfaction and localised efficiency more often than interoperability, workflow continuity or whole-of-institution maturity. Future multi-university studies should operationalise the gap through indicators such as duplicate data entry, frequency of manual verification, shared identifiers, system-to-system exchange, cross-unit processing time and the proportion of services completed without administrative hand-offs. Such measurement would establish the prevalence and magnitude of the gap rather than infer it from fragmented evidence.

## Conclusion

Digital technologies have improved key administrative areas in Nigerian public universities, particularly records management, payments, registration, personnel administration, and information processing. The benefits include speed, accuracy, accessibility and responsiveness. Nevertheless, these improvements are not consistently accompanied by institution-wide interoperability, integrated data systems or coordinated workflows. The review therefore supports the existence of a qualified digitalisation-integration gap: transactional digitalisation is more visible and better developed than systemic administrative integration.

The central public-administration lesson is that technological capability cannot substitute for institutional capacity. Digital transformation becomes meaningful when information, authority and workflow are coordinated across organisational boundaries. Nigerian public universities must therefore move from the digitalisation of isolated tasks towards reintegrated administrative systems organised around complete services and accountable data use.

## Recommendations

University leadership should prioritise systemic integration and technological interoperability within the existing digital ecosystem before sanctioning the procurement of discrete, non-interoperable platforms. Shared data standards, interoperable interfaces, role-based access, common institutional identifiers and end-to-end workflow design should guide investment. Digital governance should also be treated as an institution-wide administrative responsibility involving Registry, Bursary, ICT, Admissions, Examinations and Records, Faculties and senior management rather than as the exclusive responsibility of ICT departments.

Continuous staff development, reliable infrastructure and clear data-governance responsibilities are necessary because technology cannot produce sustained efficiency without institutional capability. Regulatory and higher-education authorities should establish standards for interoperability and include cross-unit data exchange, workflow continuity and administrative reintegration in assessments of university digital maturity. Finally, future research should measure the digitalisation-integration gap directly across multiple public universities and test its relationship with administrative efficiency, accountability and user experience.

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