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E-Learning Technologies for effective Management of Academic Records and Service delivery in Nigerian Public Universities: A Review

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Abstract
This study reviewed the role of e-learning technologies in the effective management of academic records and administrative service delivery in Nigerian public universities. The review adopted a systematic thematic literature review approach, drawing on relevant peer-reviewed journal articles, conference proceedings, books, policy documents, and other scholarly publications on e-learning, electronic academic records management, digital transformation, administrative service delivery, technology adoption, institutional effectiveness, and public universities. Relevant literature was identified, screened, critically examined, and synthesised thematically across seven major areas: e-learning technologies, electronic academic records management, digital transformation, administrative service delivery, technology adoption, institutional effectiveness, and public universities. The reviewed evidence indicates that e-learning technologies and electronic records management systems can enhance records accessibility, accuracy, security, processing efficiency, information dissemination, and the quality and responsiveness of administrative services. However, their effective utilisation is constrained by inadequate ICT infrastructure, unreliable electricity and internet connectivity, insufficient funding, limited digital competencies, resistance to technological change, weak institutional policies, and data-security concerns. The review further reveals a persistent gap between the availability of digital technologies and their effective institutional utilisation, particularly in academic records management and student-oriented administrative service delivery in Nigerian public universities. The major contribution of the review is the development of an integrated perspective that links digital infrastructure, human capacity, institutional processes, governance, and data security as interdependent conditions for effective technology-enabled records management and administrative service delivery. The study concludes that technology adoption alone is insufficient to achieve sustainable institutional improvement. It therefore recommends strategic investment in reliable and interoperable digital records infrastructure, strengthened data-governance and security policies, continuous staff training, technical support, and systematic monitoring and evaluation. These measures are essential for safeguarding the integrity of academic records, improving administrative responsiveness, and enhancing institutional effectiveness in Nigerian public universities.

Keywords: E-learning technologies; electronic academic records management; digital transformation; administrative service delivery; technology adoption; institutional effectiveness; Nigerian public universities.

Introduction
Digital transformation in higher education is increasingly recognised as a strategic imperative that is reshaping governance, teaching, administrative operations, and service delivery (Nguyen et al., 2026). At the centre of this transformation is e-learning, defined as the use of technology such as the internet, web applications and computing equipment to facilitate teaching and learning, with documented benefits including improved teaching–learning processes, access to educational curricula, reduced long-term learning costs and expanded educational opportunities through distance learning (Yakubu & Dasuki, 2018). Contemporary universities now embed big data, artificial intelligence, the Internet of Things and cloud computing in student information systems, strengthening data integration and institutional responsiveness (Nguyen et al., 2026). In this environment, managing academic records—the information on admissions, enrolment, progression, and graduation that safeguards the integrity of educational credentials—has become inseparable from the technologies that create, store, and retrieve it (Angela, 2026). This relationship matters because it directly affects institutional effectiveness.

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Effective management of students' academic records is crucial for the success of higher education institutions (Yidana & Akuna, 2025). Empirical evidence demonstrates a statistically significant positive relationship between records management and effective service delivery ($\chi^2 = 51.34$, df = 4, $p = .000 < .05$), with funding deficits, personnel shortages, and poor ICT infrastructure ranking as the leading constraints (Records Management in Medical Library and Effective Service Delivery in Hospitals in Makurdi Metropolis, n.d.). System-level evidence points in the same direction: information quality directly affects satisfaction with student information systems among academic and administrative staff (Gürkut & Nat, 2017). Yet students' experience often falls short of institutional awareness — in a survey of 2,156 college students, awareness of registry and student information services was high. Still, satisfaction with service delivery was markedly lower, with concerns centring on service accessibility, academic record management, and the timeliness of document processing (Acal et al., 2026). Across Africa, the transition to digital academic records has produced uneven results. A scoping review of 65 studies from 15 African countries published between 2001 and 2024 found that although the adoption and effective management of digital record systems can significantly enhance the efficiency of academic records management, inadequate IT infrastructure, a lack of digital skills, resistance to change, and security threats continue to hinder adoption, compounded by the absence of clear policies, strategic planning, and integrated systems (Yidana & Akuna, 2025). Registries operate within uneven policy frameworks and resource-constrained environments. While digitalisation has improved efficiency and accessibility where adequately resourced, progress remains hampered by obsolete filing systems, inadequate ICT infrastructure, security and privacy concerns, and shortages of trained records personnel (Angela, 2026). The costs of these weaknesses are concrete: in a public university in Northern Ghana, students were denied graduation certificates because of discrepancies in cumulative grade point averages attributed to clerical errors and suspected data falsification, with the hybrid manual–digital system found to lack Reliability and to generate data fragmentation, procedural delays, and elevated error risk (Ghana, 2025). More broadly, security measures protecting students' academic records are widely regarded as unsatisfactory (Nawusu et al., 2024). Evidence from Nigeria reveals a comparable, and often more acute, pattern. An evaluative analysis found that only 36% of Nigerian tertiary institutions had structured e-learning systems and fewer than 20% of students reported consistent digital access, with infrastructural challenges such as poor internet access and unreliable power supply significantly and negatively correlated with adoption rates ($r = -0.54$, $p < 0.01$) (Muraina et al., 2025). Earlier institutional studies anticipated this outcome: although e-learning facilities at one Nigerian university were adequate and accessible, utilisation was not maximised, with user attitudes, inadequate internet facilities, and inadequate staff training identified as the principal barriers (Eze et al., 2018). Documented constraints include unreliable internet connections and phone lines, slow web access due to narrow bandwidth and a limited number of internet-connected computers (Kamba, 2008), while only about 42.9% of students in an earlier study had access to e-learning facilities, with irregular electric power supply and poor network connection as the dominant hindrances (Eze et al., 2018).

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Nigerian universities' administrative dependence on ICT is nonetheless well established: a survey of 200 students, lecturers and administrators across ten universities examined the impact of ICT on administrative services and the management of students' records, recommending that universities widen the Scope of ICT application in administrative services to fully reap its benefits (Egoeze et al., 2018). Promising institutional interventions exist — a mobile-based academic management system developed for a Nigerian polytechnic consolidated student profile, grade records, digital lecture content and real-time notifications, producing substantial improvements in access to academic information, communication efficiency and student engagement (Abdullahi, 2025). The barriers to scaling such solutions are, however, structural rather than technological, mirroring those documented in comparable public university systems, where 43.24% of lecturers and 50% of students identified inadequate ICT infrastructure as a major obstacle to e-learning integration (Al-Azawei et al., 2016), and where many staff still do not know how to use e-learning facilities for their teaching (Eze et al., 2020). Synthetically, the literature shows that e-learning technologies are central to the efficiency, integrity, and responsiveness of academic records management and service delivery. Yet, adoption in Nigerian public universities remains constrained by infrastructure deficits, capacity gaps, weak policies, and security vulnerabilities. What is less well understood is how these technologies are actually deployed and experienced in the day-to-day administration of academic records in Nigerian public universities, and how their utilisation translates into the quality of services delivered to students. Against this background, the present study examines e-learning technologies for the effective management of academic records and service delivery in Nigerian public universities.

Review of Related Literature

E-Learning Technologies

E-learning is technology-mediated learning, delivered at a distance or used to support face-to-face teaching. In the Nigerian study drawn on here, it is examined through the facilities institutions provide and the extent to which lecturers actually use them, rather than through a single inventory of hardware and software (Eze et al., 2018). Its value for a university lies in whether those facilities are built into teaching and assessment, not in their mere presence. The Nigerian evidence does not support the common claim that e-learning is automatically cheaper, faster, or better for retention. Kamba (2009) found high awareness of e-learning across selected universities, but low investment and commitment. Staff and students mostly used internet sources to locate materials because libraries could not supply current resources; they were not engaged in real online learning. Reported constraints in other developing-country settings include weak infrastructure and limited institutional readiness, rather than a simple list of technical costs (Al-Azawei et al., 2016). For students, the documented benefits are more specific: greater access to learning opportunities, convenience of time and place, a wider range of learning resources, and more powerful intellectual tools (Eze et al., 2020). Those benefits depend on adoption. At one Nigerian private university, e-learning facilities were adequate and accessible, and most lecturers were comfortable using them in class, yet utilisation was not maximised. User attitudes, inadequate internet access, and inadequate training were the limiting factors (Eze et al., 2018). More broadly, many Nigerian institutions still struggle to use e-learning because of poor technological infrastructure (Eze et al., 2020). The useful question, therefore, is not whether the technologies exist, but how deeply they are embedded in institutional practice.

Electronic Academic Records Management

Records management supports accountability and organisational decision-making, but that role is not the same as evidence that an electronic records management system (ERMS) has been successfully adopted. Higher education institutions need systems that can handle routine operations and produce both standard and ad hoc reports. ERMS can manage the volume of information required for planning, yet many organisations either delay adoption or implement a system without guidance, often with poor results (Mukred et al., 2019a). In Yemeni higher professional education institutions, performance expectancy, effort expectancy, social influence, facilitating conditions, policy and training were each significantly related to ERMS adoption, and adoption was significantly related to productivity (Mukred et al., 2019b). Local evidence is consistent but institution-specific. At the University of Lagos, a survey of 380 academic staff, registry staff, and heads of department found that electronic record management reduced turnaround time for official memoranda, improved information dissemination to staff, and sped up the processing of students' results (Adeyanju, 2020). In Tanzania, Sokoine University of Agriculture still runs a hybrid system: paper filing remains dominant, while LAWSON, SUASIS and GEPG

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are used to varying degrees in finance, ICT and student services. Reported benefits were faster retrieval, better communication, lower operational costs, and greater transparency. Constraints included weak infrastructure, dependence on IT staff, unstable internet, limited training, and a lack of formal guidelines (Kitinya, 2025). African reviews describe the same uneven pattern. Academic registries operate under uneven policies and resource constraints, with obsolete filing systems, inadequate ICT infrastructure, security and privacy concerns, and shortages of trained records staff (Angela, 2026). A scoping review of academic records practice across 15 African countries likewise found that digital systems can improve efficiency. In contrast, weak infrastructure, limited skills, resistance to change, security threats, and the absence of clear policy and integrated systems continue to slow adoption (Yidana & Akuna, 2025). The cost of failure is concrete. At a public university in Northern Ghana, students were denied graduation certificates because of discrepancies in cumulative grade point averages attributed to clerical error and suspected falsification. The hybrid manual–digital system lacked Reliability and produced fragmented data, delays, and a higher risk of error (Yidana, 2025). Security remains a separate weakness: existing measures for protecting student academic records have been judged unsatisfactory (Nawusu et al., 2024). Nigerian studies mirror this gap between ICT availability and reliable records practice. A survey of 200 students, lecturers, and administrators in ten universities found that ICT affected administrative services and student record management, and recommended wider application if the benefits were to be realised (Egoeze et al., 2018). In Makurdi, a survey of 400 healthcare and administrative staff at Benue State University Teaching Hospital found that digital tools improved the timeliness of record retrieval and updating, access to patient records across departments, and storage efficiency, but inadequate technical capacity and infrastructural limits still constrained implementation (Sorkaa, 2026). A mobile academic-management system at Federal Polytechnic Kaura Namoda brought student profiles, grades, lecture content and notifications onto one platform and reported better access, communication and engagement (Abdullahi, 2025). These are promising local interventions, not evidence that the structural constraints have been removed.

Digital Transformation

Digital transformation refers to organisation-wide changes in structure, roles, processes and business models driven by the extensive adoption of digital technologies for value creation, adaptation and renewal, extending beyond a purely technical upgrade to encompass strategic and organisational change (Ogara et al., 2026). In higher education it is increasingly recognised as a strategic imperative reshaping governance, teaching, administrative operations and service delivery (Nguyen et al., 2026); conceptually it involves innovations in technological infrastructure, the integration of digital tools into academic and support activities, and the reconfiguration of institutional workflows (Nguyen et al., 2026). Critically for records and service delivery, digital transformation in student management is not merely a technical upgrade but a fundamental redesign of management systems aimed at enhancing service quality, transparency and operational efficiency (Nguyen et al., 2026), with big data, artificial intelligence, the Internet of Things and cloud computing now embedded in student information systems to strengthen data integration and institutional responsiveness (Nguyen et al., 2026). Empirical work identifies the determinants of successful transformation. In a survey of 286 lecturers, staff and students analysed through structural equation modelling, digital transformation leadership, IT staff competencies, the application of new technology, technology infrastructure, financial capacity, university culture and skills all positively affected the digital transformation of student management, with financial capacity emerging as the strongest factor (Nguyen et al., 2026). Institutional readiness, however, is uneven: a systematic review of 19 studies found that digital transformation in higher education remains an emerging field in which no proposal has been developed holistically (Benavides et al., 2020), and a multivocal review reported that 75% of the universities analysed did not have a digital strategy while 56% had launched isolated initiatives that were not integrated with one another and therefore lacked strategic return for the organisation (Fernández et al., 2023). Where transformation initiatives have been applied, the most common target (25%) has been improving the quality and competitiveness of education, followed by services offered (18%), security (17%) and satisfying student demands (12%) (Fernández et al., 2023). Resources, information systems, and organisational structure and culture also influence the success of digital transformation and the quality of education services, with organisational culture playing a particularly significant role in changing service patterns (Aisyah et al., 2023). The literature cautions, however, that many organisations continue to struggle to realise the benefits of digital transformation despite accelerated technology adoption, because transformation is treated as a technology project rather than a human and organisational one; the key concern is

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no longer whether organisations adopt digital technologies, but how they establish the human and organisational conditions required to use them effectively and responsibly (Ogara et al., 2026). Digital applications have been shown to improve transparency, accountability and efficiency in administrative work (Nguyen et al., 2026), which is precisely the terrain of academic records management.

Administrative Service Delivery

Administrative service delivery in universities is an information-intensive function, and the literature establishes records management quality as a significant positive predictor of its effectiveness. The relationship is empirically demonstrable: records management was found to have a statistically significant positive relationship with effective service delivery (χ^2 = 51.34, df = 4, p = .000 < .05), while the leading constraints on that relationship — inadequate funding ($\bar{x}$ = 4.41), shortage of trained personnel ($\bar{x}$ = 4.33) and poor ICT infrastructure ($\bar{x}$ = 4.22) — operate as a mutually reinforcing triad (Records Management in Medical Library and Effective Service Delivery in Hospitals in Makurdi Metropolis, n.d.). Comparative evidence points in the same direction: adoption of electronic records management was associated with a 37% reduction in average waiting times, a 29% reduction in errors attributable to incomplete or unavailable records, and significantly higher satisfaction scores (Records Management in Medical Library and Effective Service Delivery in Hospitals in Makurdi Metropolis, n.d.). In the specific case of university registries, an intervention study at the University of Lagos found that electronic record management greatly reduced turnaround time in the treatment of official memoranda, improved information dissemination to staff and increased the speed of processing students' results (Adeyanju, 2020). System-level models clarify the mechanism. In the DeLone and McLean information systems success model, service quality was added explicitly to capture the importance of service and support as contributors to information system success (Yakubu & Dasuki, 2018), and in an application of the model to a Nigerian university, the effect of service quality on user satisfaction was statistically significant (Yakubu & Dasuki, 2018). Evidence from 382 instructors across three Nigerian universities similarly showed that system quality and information quality significantly affect both use and user satisfaction of the student information system, and thereby its management benefits for instructors (Mazadu et al., 2022). Digital transformation has likewise been linked directly to service quality: strengthening electronic systems for managing educational and administrative processes enhances the quality of academic and administrative services, and enhancing both through digital transformation can significantly improve the satisfaction of staff and students (Ayad & Henni, 2026). Perception gaps, however, complicate any assumption that service delivery automatically improves. Where awareness of registry and student information services was high among 2,156 college students, satisfaction with actual service delivery was markedly lower, with concerns centering on accessibility of services, the management of academic records and the timeliness of document processing (Acal et al., 2026). Information quality has been shown to have a direct effect on satisfaction with student information systems among academic and administrative staff (Gürkut & Nat, 2017). The practical lesson is that service delivery outcomes depend less on the presence of technology than on the reliability, timeliness and accessibility of the information it delivers.

Technology Adoption

Adoption research in this field is dominated by three theoretical traditions — the technology acceptance model, the unified theory of acceptance and use of technology and the DeLone and McLean IS success model — which are the most frequently used theories for explaining user acceptance of technology, especially in the e-learning domain (Yakubu et al., 2020). TAM holds that perceived usefulness and perceived ease of use shape users' attitudes, intentions and actual behaviour, on the premise that users are more inclined to adopt a technology if they believe it helps them do their job and is easy to use (Ngampornchai & Adams, 2016); UTAUT, which draws on eight theoretical frameworks, predicts intention and use from four core constructs (Ngampornchai & Adams, 2016, Shaibu et al. 2025). Recent applications have extended these models. In a study of 441 academicians, performance expectancy, effort expectancy, facilitating conditions, habit and hedonic motivation were significant influences on e-learning adoption, while social influence and personal innovativeness in IT were not significant predictors (Gunasinghe et al., 2019). Elsewhere, behavioural intentions and facilitating conditions were found to directly affect students' actual utilisation of a learning management system (Bayaga & Plessis, 2023). Applied to Canvas at a Nigerian university, the IS success model supported five of nine hypothesised relationships, with information quality exerting the strongest influence on behavioural intention, followed by system quality; service quality

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was significantly related to user satisfaction but not to behavioural intention (Yakubu & Dasuki, 2018)(Yakubu & Dasuki, 2018). A second strand of research identifies the barriers that suppress adoption in developing systems. Syntheses of developing-country studies list internet accessibility, knowledge gaps among stakeholders, ICT illiteracy, undefined strategies, inadequate selection of learning management systems and inefficient user support, alongside insufficient funds, unclear plans and teachers' attitudes and ICT skills (Al-Azawei et al., 2016). In a study of public universities, the principal barriers were low internet bandwidth, insufficient financial support, inadequate training programmes, lack of technical support, lack of ICT infrastructure, ambiguous policies and objectives, frequent electricity shortage, ICT and e-learning illiteracy, and lack of awareness, interest and motivation — with lack of training programmes and inadequate ICT infrastructure identified by the majority of participants (Al-Azawei et al., 2016). Framework-based studies in Nigeria reach similar conclusions: technology-related factors (ease of use, speed, accessibility and service delivery) were endorsed by 100% of participants, organisation-related factors such as training support and diversity by 93%, impact-related factors by 93%, and environment-related factors by 53% (Eze et al., 2020). Institutional evidence reinforces the point: awareness of e-learning in Nigerian universities was found to be very high but investment in and commitment to developing e-learning applications very poor, with unreliable internet connections and telephone lines, slow web access due to narrow bandwidth and a limited number of internet-connected computers as the recurring obstacles (Kamba, 2008). An evaluative analysis of Nigerian tertiary institutions similarly found that only 36% had structured e-learning systems and fewer than 20% of students reported consistent digital access, with poor internet access and unreliable power supply significantly and negatively correlated with adoption rates ($r = -0.54$, $p < 0.01$) (Muraina et al., 2025). Attitudinal resistance compounds infrastructural weakness: even where facilities are adequate, users may decline to change, and e-learning facilities are then left under-used (Eze et al., 2018).

Institutional Effectiveness

Institutional effectiveness in this literature is theorised through the "net benefits" construct of the DeLone and McLean model, designed to encompass all expected benefits of an information system for its different stakeholders (Salam & Farooq, 2020); the updated model collapsed individual and organisational impact into this more parsimonious construct (Urbach et al., 2009). Net benefits are defined as the contribution of the information system to individual and organisational success, are influenced by system use and user satisfaction, and are evaluated by the degree of system efficiency or productivity and return on investment (Ntorukiri et al., 2022). Applied to higher education, frameworks such as HOT-FIT incorporate technological, human and organisational factors alongside net benefits, which are operationalised as a quality assurance tool, a means of accreditation and a distinct institutional advantage, with satisfaction ultimately experienced by stakeholders (Suseno & Winanti, 2024). Empirical studies confirm the linkage between records and information systems and institutional performance. ERMS adoption was found to have a significant relationship with the productivity of higher professional education institutions (Mukred et al., 2019), and records management itself has a direct relationship with accountability, productivity and transparency that enhances public service delivery quality (Mukred et al., 2019). Student information systems affect institutional processes through system and information quality, which significantly shape use and user satisfaction and thereby the management benefits derived by university instructors (Mazadu et al., 2022). The broader e-learning literature makes a comparable claim: successful use of e-learning helps institutions overcome certain issues inherent in the traditional classroom and facilitates education delivery beyond time and space while supporting enhanced performance monitoring and skill development, ultimately improving the quality of output and institutional performance (Gunasinghe et al., 2019). Where transformation is undertaken, digital applications improve transparency, accountability and efficiency in administrative work (Nguyen et al., 2026). Effectiveness, however, is conditional on investment and governance. Evidence from a public university in Tanzania concludes that electronic record-keeping has clear potential to improve management efficiency, but that its success depends on adequate investment in infrastructure, capacity building and policy development, supported by full automation, regular training and strong institutional support (Kitinya, 2025). The self-reinforcing character of the constraints is well documented: under-funding produces infrastructure deficits; infrastructure deficits prevent ERMS adoption; the absence of ERMS perpetuates manual-system inefficiencies; and those inefficiencies generate information quality failures that impair the very service delivery outcomes that would otherwise justify further investment (Records Management in Medical Library and Effective Service Delivery in Hospitals

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in Makurdi Metropolis, n.d.). Institutional effectiveness therefore depends not only on acquiring systems but on breaking this cycle through funding, workforce capacity and formal policy.

Public Universities

Public universities constitute a distinctive institutional context for this literature, because their funding and governance arrangements shape both the pace of technology adoption and the quality of service delivery. In Nigeria, traditional approaches to teaching and assessment have continued to be practised in tertiary institutions, and most institutions have been unable to utilise e-learning fully or to obtain its advantages, which in turn hinders innovative teaching and rigorous research (Eze et al., 2018). Public-sector studies report that awareness of e-learning is high while investment and commitment remain poor (Kamba, 2008), and that negative economic factors — difficulties with computer and internet access, electricity supply, inadequate skills and low literacy — have prevented broad access to educational technologies (Kamba, 2008). Research attention has largely concentrated on public higher education institutions, which is itself an indication of where the problem is perceived to lie (Eze et al., 2020). International evidence from comparable public systems reinforces the pattern and its structural character. In public universities in a developing economy, the use of e-learning was found to be at a very early stage: most public universities had made only limited attempts to apply custom or open-source applications, and the majority of academic staff still lacked sufficient knowledge and skills to use them properly, with causes traced to the prior isolation of staff from the scientific world, delayed introduction of e-learning technologies, and continuous national instability and insecurity (Al-Azawei et al., 2016). Case-study evidence from public universities in Tanzania shows that hybrid record-keeping systems persist, with paper filing dominant and electronic platforms used unevenly across departments, and with insufficient infrastructure, dependence on IT personnel, inconsistent connectivity, limited staff training and the absence of formal guidelines constraining full utilisation (Kitinya, 2025). The structural roots of these weaknesses are captured in the observation that publicly funded institutions operate within a self-reinforcing cycle of under-funding, infrastructure deficit, absent ERMS and consequent information quality failure (Records Management in Medical Library and Effective Service Delivery in Hospitals in Makurdi Metropolis, n.d.).

Synthesis

Across the seven strands, the literature converges on a consistent argument: e-learning technologies and electronic records systems demonstrably strengthen administrative service delivery and institutional effectiveness, yet their contribution in public universities is contingent on adoption behaviour, funding, staff capacity and formal policy. Two gaps are evident. First, most Nigerian evidence addresses teaching and learning or hospital-based records management, with comparatively little examining e-learning technologies as instruments of *academic records management* in university registries. Second, adoption studies in Nigeria are dominated by student-facing learning management systems, leaving the administrative and records-management applications — and their consequences for the timeliness, integrity and security of service delivery to students — comparatively under-researched. These gaps define the analytical space within which the present study is situated.

Conclusion

The literature establishes that e-learning technologies and electronic records management systems have substantial potential to enhance the efficiency, accuracy, accessibility, security and timeliness of academic records management and administrative service delivery in Nigerian public universities. However, the realisation of these benefits is not determined by technology availability alone. Their effectiveness depends on adequate ICT infrastructure, reliable electricity and internet connectivity, staff digital competencies, user acceptance, sustainable funding, institutional policies, data security and strategic digital transformation. The evidence further indicates that Nigerian public universities continue to experience a significant gap between technology availability and effective utilisation, resulting in persistent manual or hybrid records practices, information fragmentation, processing delays and inconsistent service quality. Consequently, effective digital transformation requires an integrated institutional approach that aligns technology, people, processes and governance. Given the limited empirical attention to the use of e-learning technologies specifically for academic records management and student-oriented administrative service delivery, further context-specific investigation in Nigerian public universities

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is warranted. Such evidence is essential for developing sustainable strategies that can strengthen records integrity, improve administrative responsiveness and ultimately enhance institutional effectiveness.

Recommendations

The following recommendations are made based on the conclusion of the study:

1. University management should prioritise reliable internet connectivity, electricity supply, secure cloud-enabled platforms, interoperable electronic records management systems and robust data-security mechanisms. This should be supported by clear institutional policies and standardised procedures to facilitate accurate, timely, accessible and secure management of academic records and improve administrative service delivery.
2. Regular training should focus on digital competencies, electronic records management, data protection, system utilisation and change management, while dedicated technical support should be provided to sustain effective technology adoption. Such interventions should be accompanied by periodic monitoring and evaluation to ensure that investments in e-learning technologies translate into measurable improvements in records integrity, processing efficiency, user satisfaction and overall institutional effectiveness.

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