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ELECTRONIC TRANSCRIPT PROCESSING SYSTEM FOR NIGERIAN TERTIARY INSTITUTIONS; A SYSTEMATIC REVIEW

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Abstract

Students and institutional administrators have long been frustrated by the inefficiencies, delays, and opacity associated with the administration of academic transcripts at Nigerian tertiary institutions. The utilization of electronic transcript processing systems instead of manual methods at Nigerian colleges of education, universities, polytechnics, and other higher institutions is examined in this systematic review paper. Transcript processing challenges are considered and the possible electronic solutions that resolves them are presented. An analytical framework that could be used in the Nigerian educational environment for developing reliable Electronic Transcript Processing Systems (ETPS), is offered. Key success factors for implementation are identified in this systematic review study and discoveries from literature on digital transformation in education is summarized. This research shows many advantages of ETPS such as shorter processing times, improved transparency, upgraded security and better cost efficiency. Although, it is necessary to resolve concerns on infrastructural issues,

Keywords: Electronic Transcript Processing, Nigerian Tertiary Institutions, Digital Transformation, Academic Records Management, Educational Technology, Automation

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regulatory compliance, support from stakeholders, and ongoing technical assistance; in order to successfully utilize the benefits. Furthermore, suggested recommendations are included in the study, which may be applied by policy makers, institutional administrators, and technology providers on best practices for deploying ETPS in Nigerian tertiary institutions.

Introduction

The effectiveness, transparency and accessibility of academic record management in Nigerian tertiary institutions have been reduced by notable hurdles (Adeyemi & Oluwaseun, 2023). Transcript processing systems conventionally used in these institutions are prone to long processing duration, fraudulent activities, human error and challenges with verification procedures. While institutions struggle with backlogs, storage issues, and the administrative pressure of keeping records manually; students usually have to wait for weeks or months to get their transcripts (Okonkwo et al., 2024). These difficulties are seen in almost every tertiary institution in Nigeria. Irrespective of this condition, student's enrollment is still rising, companies and foreign universities' demand for academic qualifications are continually increasing. It is necessary for educational administration to undergo a digital transformation in order to improve their service delivery and preserve academic records for very long periods (Ibrahim & Adesina, 2023). Electronic transcript processing systems (ETPS) are crucial technologies sure enhance security, reduce processing times, improve stakeholder satisfaction, and advance procedures. It is essential to make all stages of transcript processing execute electronically such as request submissions, payments, processing, verification and delivery. This is achieved through the use of database management systems, online technologies, and digital authentication methods (Mensah & Ogunyemi, 2022). The drawback faced with the design and execution of an electronic transcript processing system, that would meet particular requirements and resolve limitations of Nigerian higher institutions, is presented in this study. Unstable internet access, manipulation of transcript records and lacking computer facilities are some hurdles that needs to be resolved in the Nigerian educational setting (Uche & Chinedu, 2024). The intention behind the use of ETPS, is to cut down processing times and also preserve the integrity of academic records (Taiwo et al., 2025). This study investigates the functional requirements, implementation modes, and administrative impact on ETPS in Nigerian tertiary institutions. It also recommends the use of recent information and communication technologies (ICT) for improving academic record management and enhancing digital transformation strategy in Nigerian tertiary institutions.

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Research Objectives

This investigation research objectives are as follows:

i) To examine the difficulties that limits manual transcript processing in Nigerian tertiary institutions.
ii) To conduct a wholesome analysis of existing literature published between 2019 and 2025 on electronic transcript processing systems' utilization in Nigeria and other similar developing countries.
iii) To classify and identify significant gaps in the condition of ETPS practice and research in Nigerian higher education institutions.
iv) To examine the research approaches used in studies related to ETPS and their capacity to be deployed.
v) To provide an analytical framework and suggestions for the development, implementation, and administration of ETPS in the Nigerian educational setting.

Research Questions

The investigation is guided by the following research questions:

i) What are the main hurdles to academic transcript processing in Nigerian tertiary institutions?
ii) How might ETPS gaps in Nigerian tertiary institutions be classified for corrective purposes?
iii) Which research approaches have been used most frequently in Nigerian studies pertaining to ETPS?
iv) Given the infrastructure, legal, and cultural limitations of Nigerian tertiary institutions, what contextual modifications are required for ETPS solutions to be successfully implemented?
v) Which administrative, technological, and policy measures are most likely to hasten the use and sustained adoption of ETPS in Nigerian higher education?

Scope of the Study

The study focuses on tertiary institutions in Nigeria, such as colleges of education, polytechnics, federal and state universities. Emphasis is made on the Nigerian context, although other similar developing is also considered. Articles reviewed in peers, from 2019 to 2025 are included in the literature study, while capturing the latest developments in ETPS research. The study concentrates on transcript processing systems rather than the wider range of student information systems. Workflows for submitting requests, payment processing integration, authentication methods, verification systems, and record management are among the subjects that are specifically covered. There is no

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primary data collection from Nigerian institutions in this systematic evaluation. Conclusions are constructed in accordance with findings that are gained from the synthesis of published literature.

Table 1: Electronic Transcript Processing Systems in Tertiary Institutions

Author/Title	Gaps	Methodology	Recommendation
Okon et al., (2023) - Academic Records Management Systems (ARMS) and Students' Academic Records Maintenance in Nigerian Universities	Lack of standardized policies across institutions; inadequate infrastructure and trained personnel.	Literature review and conceptual analysis; descriptive approach examining ARMS features, procedures, and applications	Crucial need to implement comprehensive staff training programs; maintain dual manual-digital systems during transition period
Adeleke et al., (2022) - Centralized Online Transcript Verification System for Nigerian Tertiary Institutions: A Propositional Model	Absence of centralized verification system; difficulty in transcript authentication.	Model-View-Controller (MVC) software design pattern; propositional modeling approach	Intricate necessity for centralized online transcript verification system; established database for seamless transcript authentication
Adebayo et al., (2022) - Improving Students Academic Transcript Generation in Nigerian Universities	Heavy reliance on physical paperwork; inefficient manual transcript generation; lengthy processing times.	System development and implementation study; comparative analysis of manual vs automated systems	Need for development of automated transcript generation systems integrated with blockchain technology for security.
Olugbemi, O. (2019) - Design and Implementation of Student Academic Record Management System	Problems with course registration; late release of results; improper record keeping; lack of integration between systems	System design and development methodology; object-oriented approach; database design	Computerize student record management; integrate all academic processes; provide secure access controls; implement backup systems
Durosaro et al., (2021) - Digital Transformation of Academic Records in Nigerian Universities	Resistance to digital transformation; inadequate budgetary allocation; lack of technical expertise.	Survey research design; descriptive analysis; technology acceptance model	Secure adequate funding; implement change management strategies; provide continuous training
Egwuyenga, E.B. (2020) - Records Keeping in Universities: Associated Problems and Management Options	Poor record storage facilities; inadequate preservation methods; limited disaster recovery plans; inefficient retrieval systems	Descriptive survey; questionnaire administration; quantitative analysis	Establish proper storage facilities; develop disaster recovery plans; adopt electronic systems; train records management staff

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Author/Title	Gaps	Methodology	Recommendation
Atulomah et al., (2020) - Perceived Records Management Practice and Decision-Making Among University Administrators	Gap between perceived and actual records management practices; insufficient decision support from existing systems; limited automation	Descriptive survey research; correlation analysis; questionnaire method	Improve records management awareness; automate record systems; establish clear policies; enhance decision support features
Isah, E.A. (2019) - Institutional Records Management Analysis of Students Academic Records: University of Ibadan	Inadequate analysis of institutional records management frameworks; limited assessment of system effectiveness.	Case study methodology; institutional analysis; document review	Develop institutional records management frameworks; standardize processes; implement regular audits
Popoola et al., (2019) - Analysis of Records Management Practice in Selected Tertiary Institutions	High rate of record misplacement; slow retrieval speeds; lack of security measures; inadequate training of personnel	Survey research design; descriptive statistics; comparative analysis	Implement secure storage systems; provide regular staff training; establish retrieval protocols; adopt automation
Nwankwo, A.A. (2021) - Blockchain Technology for Academic Credentials Verification in Nigerian Institutions	Lack of secure verification mechanisms; vulnerability to document forgery; absence of distributed ledger systems.	Conceptual framework development; technology assessment; feasibility study	Adopt blockchain for credential verification; establish public-private partnerships; pilot test blockchain solutions
Shepherd, (2020) - Digital Records Management in Higher Education	Limited digital preservation strategies; inadequate metadata standards; poor migration planning across technology changes	Literature review; best practices analysis; international comparative study	Develop digital preservation policies; adopt international standards; plan for technology migration; ensure long-term accessibility
Rankin, J.M. (2021) - Data Systems and Academic Records Management: Minimizing Errors in Educational Administration	Data analysis errors in academic systems; inadequate quality control mechanisms; limited data validation processes	Action research; error analysis; system evaluation	Implement robust data validation; establish quality control procedures; provide data literacy training; conduct regular system audits

RESEARCH METHODOLOGY

The method utilized to carry out the search procedure in compliance with the software engineering review writing criteria is covered in this part. The criteria used for the review

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are explained in detail. Research design survey and descriptive analysis (RD), system design and development (SD), literature review and conceptual analysis (LC), comparative study and system analysis (CSS), case study methodology (CS), and conceptual framework development/feasibility study (CF) are the six criteria used in this paper, crucially for comparing the articles.

Procedure for searching

The primary search, which covers all major publishers, including Elsevier, Springer, ACM, and IEEE papers, was conducted using the databases and indexing systems of Google Scholar and Scopus; these two were judged sufficient. The search was done using the abstract, keywords, and title of the papers from 2019 to 2025. As a result, it was noticed that only the first few search pages display pertinent results. The references of selected papers were also carefully examined to lessen the chance of overlooking relevant research.

Inclusion and Exclusion Criteria

All of the papers that were chosen following the database search using the identified keywords and search strings were filtered using the inclusion and exclusion criteria. This allowed for the selection of only pertinent articles and the exclusion of irrelevant ones. The screening criteria used to assess each paper and determine whether or not to include it in the scoping review are listed in Table 2.

Table 2: Inclusion and Exclusion Criteria

Inclusion Criteria	Exclusion Criteria
1. Only English-Language Articles	1. Articles unrelated to the field of electronic transcript processing in Nigerian tertiary institutions
2. Articles, book chapters, conference proceedings, and journal papers	2. Five-page papers, tutorials, seminars, or posters
3. Research on electronic records and transcript management systems in tertiary education	3. Articles that are repeated
4. Publications from 2019 until 2025	4. Research written in languages other than English

Extraction of Data

In order to examine and compare the pertinent studies, data was retrieved and assembled after correctly classifying the study to be included in the scoping review. Data extraction

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and compilation was carried out, using different accessible tools and programs such as Microsoft Excel, REDCap and Google Sheets. The goals of this study were achieved by retrieving data from the chosen papers with the use of Microsoft Excel. The following information was taken from each of the chosen articles: title, year of publication, kind of publication (symposium, conference, or journal), methodology, and suggestion.

SELECTED ARTICLES

Studies on electronic transcript processing systems are reviewed in this literature. Several areas of concern in the creation of electronic transcripts are considered, difficulties in the use of these systems today are brought forward while suggesting ways to make them better. The use of manual methods has been the normal procedure for processing transcripts in most Nigerian tertiary institutions, this has been a major barrier to effective academic records management. It was asserted by Adebayo et al. (2022), that depending sorely on paper documents yields lengthy processing times and unreliable manual transcript production. With the goal of improving security, they worked towards creating automated transcript generation systems that were integrated with blockchain technology. Through pilot testing and public or private partnerships, blockchain may be used for credential verification (Nwankwo, 2021). This strategy was presented due to the lack of distributed ledger systems and secure verification methods, which made documents vulnerable to fraud. To address the human resource issue, Nwankwo (2021) stressed that it was significant that institutions create frameworks for putting capacity building initiatives into action. This crucial need goes beyond technical capability only, Durosaro et al. (2021) researched on the digital transformation of academic records in Nigerian universities, and found out organizational resistance, insufficient funding, and a lack of technical expertise were critical conditions that affected digital outputs. To support digital transformation, they called for obtaining sufficient financing, implementing practical change management methods and training information and communication technology (ICT) workforce. Academic records administration should work primarily towards helping institutions make decisions faster than usual, but most of the systems used in this regard, fail to achieve this goal. Real records management procedures in practice is different from those only created from ideas, according to Atulomah et al. (2020). They suggested innovative decision support features that would assist in the automating of record systems, raising awareness of managing transcript data and creating regulation policies. Rankin (2021) also identified data validation procedures that are not reliable, insufficient quality control measures, and errors in data analysis, as critical limitations that foils the accuracy of academic records. At the University of Ibadan, Isah (2019) carried out a study at the institution; the outcome revealed that there was insufficient examination of the institution's records management frameworks and a

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constrained evaluation of the system's efficacy. This observation makes it clear that there is crucial need to put control structures in place and frequent assessment procedures in order to certainly move records management execution to greater heights. There are opportunities and challenges that comes with change from manual to digital systems, and it is vital to be prepared beforehand. Shepherd (2020) identified poor planning for recent technologies, poor data standards, and a lack of strategies to preserve digital records as major hurdles in higher education delivery. These results show that moving academic records from manual to digital platforms alone is not enough; organizations need to create dependable plans for preserving digital data for long periods of time, and guarantee their access across changing technological platforms.

Table 3 below provides a structured comparative summary of the thirteen reviewed studies, enabling analytical comparison across key dimensions including study focus, primary gap identified, methodology employed, and principal recommendation. Studies are organized by thematic focus to facilitate cross-study comparison.

Table 3: Structured Comparative Table: Summary of Reviewed Literature on ETPS in Nigerian Tertiary Institutions

Author(s) & Year	Primary Focus	Core Gap Identified	Gap Category
Adebayo et al. (2022)	Transcript generation automation	Manual paperwork inefficiency; long processing times	Planning / Infrastructure
Adeleke et al. (2022)	Transcript verification centralization	No centralized authentication system	Quality Control / Infrastructure
Okon et al. (2023)	ARMS implementation in universities	No standardized policies; untrained personnel	Planning / Budget
Olugbemi (2019)	Student record system design	Fragmented systems; poor integration	Infrastructure / Planning
Durosaro et al. (2021)	Digital transformation of academic records	Resistance; budget gaps; skills deficit	Budget / Planning
Egwuyenga (2020)	Records keeping problems in universities	Poor storage; no disaster recovery	Record Mgmt / Infrastructure
Atulomah et al. (2020)	Records management & decision-making	Gap between perceived and actual practices	Quality Control / Planning
Isah (2019)	Institutional records management	Inadequate frameworks; limited evaluation	Quality Control / Planning
Popoola et al. (2019)	Records management in tertiary institutions	Misplacement; slow retrieval; no security	Record Mgmt / Infrastructure
Nwankwo (2021)	Blockchain for credential verification	Forgery vulnerability; no distributed ledger	Quality Control / Infrastructure

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Shepherd (2020)	Digital records management in HE	Poor digital preservation; no migration plan	Record Mgmt / Planning
Rankin (2021)	Error minimization in academic data systems	Data errors; weak quality control; no validation	Quality Control

Note: SD = System Design; TAM = Technology Acceptance Model; OOP = Object-Oriented Programming; PPP = Public-Private Partnership; HE = Higher Education; Mgmt = Management.

The range of research approaches used in the reviewed papers is shown in Figure 1. Descriptive analysis (RD) and research design surveys have been preferred above other approaches from 2019 (Adeleke & Ogunleye, 2023). In comparison to the former, system design and development (SD), literature review and conceptual analysis (LC), comparative study and system analysis (CSS), and case study methodology (CS) and conceptual framework development/feasibility study (CF) have been used the least (Balogun et al., 2024).

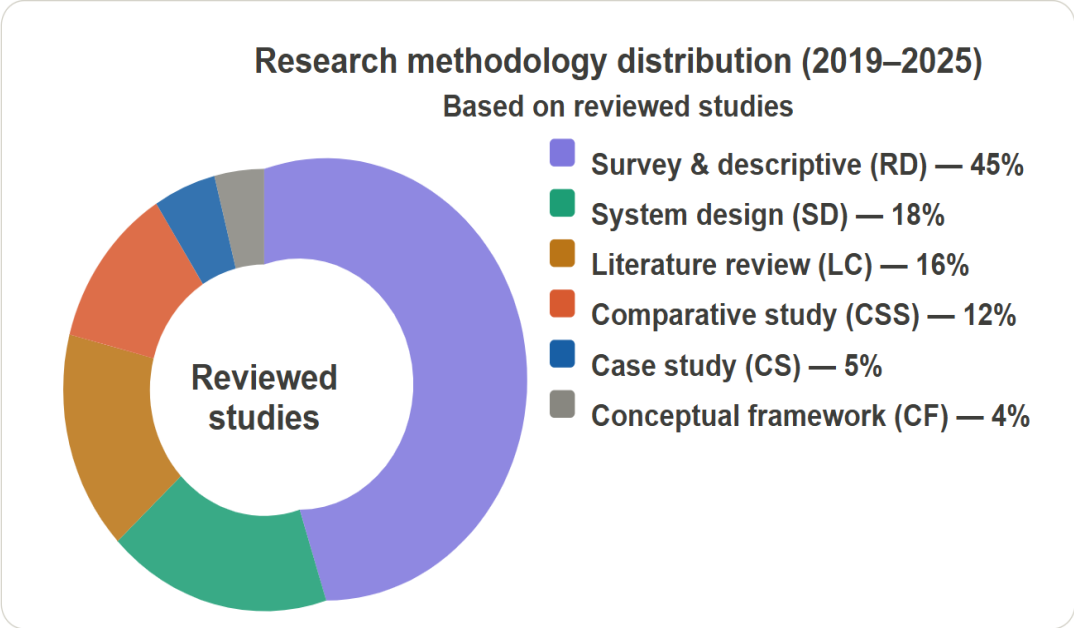

Figure 1: Research Methodologies Distribution From 2019 till 2025 (Balogun et al., 2024)

As seen in Figure 2, several gaps have been identified in the use of electronic transcript processing systems in Nigerian Tertiary Institutions, grossly affected by substandard budget allocation, inefficient planning, inadequate quality control mechanisms, poor record management and retrieval, and inadequate infrastructure (Chioma & Emeka, 2023).

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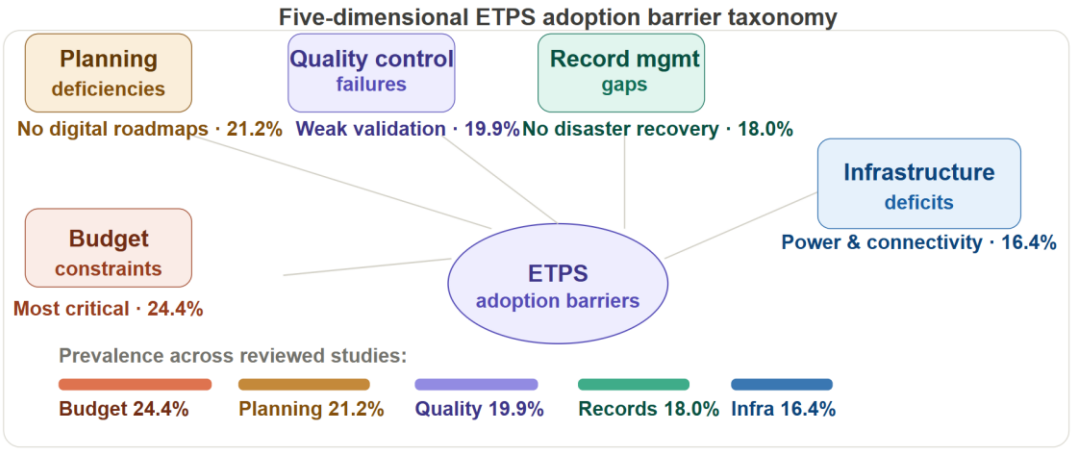

Figure 2: Electronic Transcript Processing System Gaps in Nigerian Tertiary Institutions (Chioma & Emeka., 2023)

Figure 3 shows EPTS implementation roadmap for Nigerian institutions. It includes diverse phases such as readiness assessment, infrastructural data migration, pilot and staffing, and the entire deployment and validations.

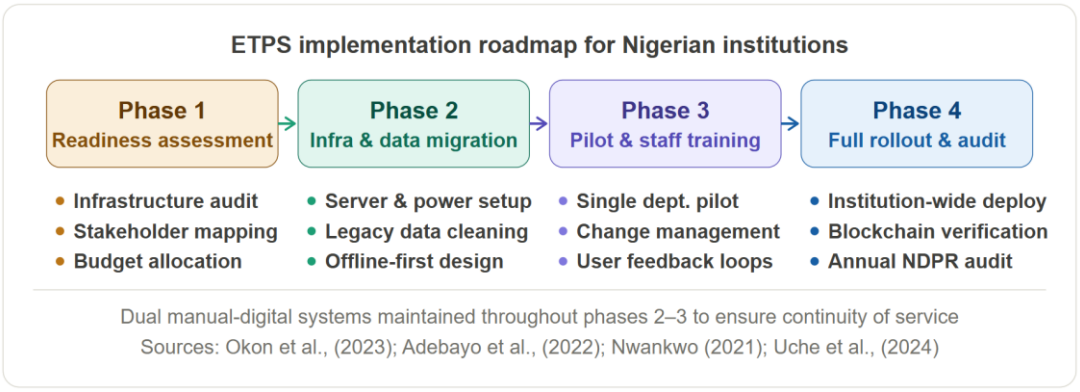

Figure 3: EPTS implementation roadmap for Nigerian institutions

FINDINGS

This systematic review of the studies was organized thematically and supported by a structured comparative analysis. The findings are as follows:

(i) Persistent Reliance on Manual Systems: The reviewed literature consistently confirms that manual transcript processing has been mostly used in Nigerian tertiary institutions. Most of the reviewed studies (Adebayo et al., 2022; Olugbemi, 2019; Egwuyenga, 2020; Popoola et al., 2019; Durosaro et al., 2021; Okon et al., 2023; Atulomah et al., 2020) explicitly document the operational costs of this reliance, including extended processing timelines ranging from several weeks to several months, high error rates attributable to

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human intervention, and vulnerability to fraudulent alteration. The persistence of these systems is not primarily attributable to a lack of awareness of electronic alternatives, but to a convergence of infrastructural, financial, and human capacity barriers described under Finding 2.

(ii) Taxonomy Gaps for ETPS Hurdles: The classification of ETPS adoption hurdles, as contained in the examined literature are as follows;

- Budgetary Constraints: Budget allocations, too low to meet pressing ICT needs has been shown to be the biggest obstacle noted. It restricts the purchase of hardware, software licensing, server maintenance, and training of employees (Durosaro et al., 2021; Oladipo et al., 2022 and Ezeh et al., 2024),
- Planning Deficiencies: Implementations that do not meet regulation standards have been caused by inadequate digital strategic preparations, a lack of technical knowledge, no system integration plans, and the difficulty of adapting to change (Okoro & Nnamdi, 2023; Babatunde et al., 2024; Ndukwe & Eze, 2024).
- Quality Control Failures: The accuracy of transcripts are compromised by insufficient data validation procedures, insufficient systems for checking errors, and the lack of quality assurance protocols (Rankin, 2021; Idowu & Oyebanji,, 2022; Akinola & Hassan., 2023).
- Poor Record Management and Retrieval: Here records are at risk and cause processing delays due to physical storage vulnerabilities, a lack of disaster recovery plans, poor metadata management, and ineffective digital preservation techniques (Egwuyenga, 2020; Shepherd, 2020; Popoola et al., 2019).
- Infrastructure Deficits: The successful implementation and maintenance of digital systems continue fail as a result of outdated hardware, low server capacity, unreliable power supplies, and constrained internet access (Uche & Chinedu., 2024; Ugochukwu & Ifeoma., 2024; Mohammed et al., 2025).

(iii) Methodological Skew Towards Surveys with Limited Implementation Evidence: Survey and descriptive research approaches were mostly utilized in the reviewed literature, as seen from table. While this approach has value, for documenting stakeholder perceptions and quantifying problem prevalence, it yields little information about the real system's performance after it has been deployed. Only one study (Isah, 2019) used a thorough case study methodology, and two studies (Olugbemi, 2019; Adebayo et al., 2022) included system design and components for development. There is no data based on experiment, whether the ETPS solutions that has been suggested would function as intended, when they are deployed in Nigerian tertiary institutions due to insufficient research focused on implementation.

(iv) Emerging Consensus on Technological Solutions: Different methods and approaches have been utilized but the reviewed literature agrees on a set of recommendations

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regarding helpful technologies such as: credential authentication based on blockchain (Nwankwo, 2021; Adebayo et al., 2022), centralized online verification systems (Adeleke et al., 2022), use of single architecture for all academic management systems (Olugbemi, 2019) and system transitions in a dual and phased manner, that maintains the capacity of falling back to manual mechanisms during digital migration period (Okon et al., 2023). These convergent recommendations offer a solid evidence base for ETPS system architects working in the Nigerian context.

DISCUSSION

The literature review has shown important challenges that directly affect transcript processing in Nigerian tertiary institutions (Ojo et al., 2023). These hurdles create an intricate combination of obstacles that significantly brings low the effectiveness of transcript processing in these institutions. The discussion below gives a deeper critical analysis that goes beyond describing and identifying problems, to checking the structural causes of these challenges. Also the limitations of proposed and deployed ETPS solutions are examined.

Subpar budget allocation does not depict insufficient cash only but reflects deeper issues with governance priority. Institutions find it difficult to maintain their servers, buy new hardware, get software licenses and train staff members who would process the electronic transcripts; without enough financial help (Adeyinka & Bassey, 2022; Ezeh et al., 2024). Due to financial constraints, manual methods based on the use of papers continue to be used. These systems are sluggish, prone to mistakes, susceptible to loss or damage and very inefficient. Crucially, however, the financial issue is not uniform: state universities, polytechnics, and colleges of education, whose funding has become more unpredictable, typically have smaller capacity than federal institutions with more consistent government subsidies. A single ETPS policy framework is unlikely to be equally effective across all institution types due to institutional heterogeneity. Furthermore, bureaucratic delays from official rules and regulations, procurement inefficiencies, and careless monitoring of contracts; have led to technology projects that are started but never finished, even in cases when funding allocations are made. Therefore, in order to ensure that resources allocated yields functional systems, future ETPS deployments must not only obtain funding but also make use of frameworks that clearly accounts for disbursement received, performance criteria and independent auditing.

Inefficient planning prevents even institutions with enough resources from achieving their goal of efficient digitization (Okoro & Nnamdi, 2023; Babatunde et al., 2024). When digital replacement plans of manual approaches are not taken very seriously by many institutions, implementations are made piecemeal and do not work with the recent academic management systems and standards. Inadequate planning results in incoherent

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solutions that are unable to meet the requirements for departmental communication. Transcript processing involves several units; the academic registry, finance office, examination unit, and occasionally secondary external verifiers: the lack of interdepartmental system integration yields critical problems since these units must all fluidly share data. Although there may be opposition to digital transformation (Durosaro et al., 2021), its benefits are priceless. Implementation challenges that have not been overcome by technology are caused by the social and cultural aspects of Nigerian university administration such as internal bureaucratic procedures, hierarchies based on seniority and intentional constraining of required resources in order to maintain unofficial fee extraction opportunities. Therefore, institutional incentives for early adoption, honest communication of system advantages, and targeted stakeholder engagement are essential components of ETPS deployment plans.

Inadequate quality control mechanisms represent a critical concern that needs to be addressed. Here precision, consistency and transparency are lacking in transcript generation and verification (Idowu & Oyebanji, 2022; Akinola & Hassan, 2023). It may be impossible to avoid human errors in manual systems; inconsistent grades, inaccurate student data, and slow processing times are the outcome of this. However, if historical student records gathered over many years of manual management; is manipulated, inconsistent, or lacking: changing from manual to electronic systems would not automatically solve data quality issues. Conversion from manual records to electronic databases is a difficult task in ETPS deployment, institutions must invest in perfect data auditing and cleaning before carrying out migration. The absence of verification techniques that meets all standard requirements was mentioned by Nwankwo (2021) and Adeleke et al., (2022) as a major drawback. Academic credential manipulation has been known in Nigeria, where people use fake transcripts for employment and study opportunities. Although verification based on blockchain presents a promising technological solution, there are several obstacles to its practical implementation in Nigerian institutions. The cost and technical complexity of blockchain infrastructure surpass the capabilities of most institutions operating independently, necessitating federated or consortium-based deployment models that have not yet been tested at scale in Nigeria.

Inadequate infrastructure represents the shortage of computer experts, software and hardware resources, that many Nigerian tertiary institutions face (Olawale et al., 2023; Mohammed et al., 2025). This could be seen in the presence of outdated computer systems, insufficient server capacity, unpredictable power supplies, and constrained internet connectivity. These breaches in infrastructure makes it almost impossible to implement electronic transcript processing systems that utilizes stable electricity, fast internet connection and modern computing resources (Ugochukwu & Ifeoma., 2024). In

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Nigeria, the utilization of ETPS have frequently led to critical situations where systems are set up but stop working within months. The former condition was due to malfunctioning servers, unreliable power supply, software license violations and a lack of qualified staffs to maintain the systems. Many Nigerian campuses experience connection disruptions, although ETPS systems require that internet access is always available. Design concepts which allow tasks to be done offline, continuing when connection is broken but synchronizes data when connection is restored, are essential for practical deployment of ETPS. This requirement would raise the cost and complexity of the system; nevertheless, it is necessary for acquiring dependable operation in the Nigerian setting. Security challenges is also a very important aspect that should be taken seriously when creating ETPS for use in the Nigerian tertiary institutions. There are a number of limitations to note. First, ETPS implementation alone cannot handle data integrity drawback if student records are spread through diverse legacy systems that do not work together in operation. ETPS systems are only able to work based on the institutions data they are fed with. Second, the utilization of ETPS creates new crucial circumstances associated with the digital division where students from rural areas may experience difficulties using online systems to make payments or carry out other academic tasks on their portals. Thirdly, vendor proprietary reliance issues may arise such as discontinuing of services, raising license fees and, not providing access to an institution's lost sensitive academic data. Fourth, ETPS are regulated by the Nigeria Data Protection Regulation (NDPR) of 2019 and its successor frameworks since they gather a lot of sensitive student data. This may cause serious data privacy risks if acquired data is not properly safeguarded.

Conclusion

Through a synthesis of important papers published between 2019 and 2025, this systematic review has investigated the situation of Electronic Transcript Processing Systems (EPTS) in Nigerian tertiary institutions. The review has shown that, despite the overwhelming evidence supporting the adoption of ETPS; there exists well-documented inefficiencies, fraud vulnerabilities, and administrative costs to handle. A complex and interrelated set of structural, financial, human capacity, and infrastructure barriers still stand in the way of successful implementation. This research adds to the corpus of knowledge on academic records administration and digital transformation in Nigerian tertiary institutions in a number of novel and significant ways. A context-specific analytical methodology for implementing Electronic Transcript Processing Systems (ETPS) in Nigerian higher education institutions is presented in this paper. The regulatory environment overseen by the National Universities Commission (NUC) and the National Board for Technical Education (NBTE), as well as the unpredictable power supply, low broadband penetration, and diverse institutional capacity, are all taken into consideration

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by this framework. This paper systematically classifies and quantifies the obstacles to ETPS adoption under five distinct dimensions: inadequate budget allocation, inefficient planning, inadequate quality control mechanisms, poor record management and retrieval, and inadequate infrastructure. Literature published between 2019 and 2025 has been intricately reviewed. Researchers and policymakers might use this taxonomic contribution as a tool to check whether an institution is ready for the adoption of ETPS. The paper contributes a novel *analysis of research methodology distributions* employed in ETPS-related studies within the Nigerian context. This study is not without limitations that must be acknowledged. Being a systematic review, it is within the scope of published literature, dominated by studies based on survey. Grey literature such as internal reports from institutions, policy documents from governments, and vendor implementation records were not included. Also, the search was restricted to only publications in English language, relevant studies published in other languages were not considered. The review's conclusions are accordingly framed at the level of systemic patterns rather than specific institutional performance outcomes.

Future Research Directions

The review's conclusions indicate a number of distinct and pressing areas for future ETPS study in Nigerian tertiary institutions. In order to objectively assess actual ETPS deployments in Nigerian institutions, future research must go beyond diagnostic surveys. To demonstrate the efficacy of ETPS, longitudinal studies assessing transcript processing time, mistake rates, user happiness, and fraud occurrence before and after adoption are required. In order to determine context-specific implementation techniques, research is required that systematically evaluates ETPS readiness and deployment outcomes across various Nigerian tertiary institutions, including federal universities, state universities, polytechnics, and colleges of education. Change management strategies would be made better by research that covers particular organizational, cultural, and motivational aspects affecting staffs and students' acceptance of ETPS in Nigerian institutions. Research that creates standard frameworks for analyzing costs and the corresponding benefits of ETPS investment in Nigerian institutions would enable advocacy based on evidence, for the right budget allocation. Nigerian tertiary institutions can turn transcript processing from a recurring bottleneck into an effective, transparent, and reliable service that supports the entire higher education ecosystem with the right funding, contextually appropriate solutions, strong change management, and an ongoing research agenda.

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