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The Role of Technological Transformation in Enhancing Management and Administrative Decision-making in Tertiary Institutions in Anambra and Imo States

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CONTENT

ABSTRACT

Background: Technological transformation is vital for efficient management and decision-making in higher education, making it essential to understand regional differences and adoption challenges to enhance institutional performance and innovation. **Objective:** This study aims to examine how technological transformation enhances management and administrative decision-making in tertiary institutions across Anambra and Imo States, Nigeria. **Method:** A descriptive survey involving 2,000 respondents was conducted using a validated questionnaire with high reliability (α = 0.81–0.86). Data collected through physical and online methods were analyzed using descriptive and inferential statistics at a 0.05 significance level. **Results:** The study found significant differences in technological adoption between tertiary institutions in Anambra and Imo States, with Imo showing higher use of digital platforms, administrative digitization, ICT infrastructure, and staff training. ANOVA results ($F = 256.898$, $p = .000$) confirmed these differences as statistically significant. **Conclusion:** Despite varying levels of technological implementation, institutions in both states face similar challenges, including poor ICT infrastructure, limited funding, and low technical capacity. The study recommends greater ICT investment, ongoing staff training, and clear digital policies to enhance technological transformation in tertiary education. **Contribution:** This study provides empirical evidence on how technological transformation enhances management and decision-making in Nigerian higher education and offers theoretical and practical guidance for implementing sustainable digital strategies.

KEYWORDS

Technological transformation; Management; Administrative; Decision-making; Tertiary institutions

1. INTRODUCTION

In an era characterized by rapid technological advancement, tertiary institutions are increasingly challenged to modernize their administrative and management systems. Traditional methods of administration, often plagued by inefficiencies and delays, are no longer sufficient for addressing the complexities of managing large academic

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environments. Problems such as slow decision-making processes, poor data management, bureaucratic delays, and a lack of transparency persist in many higher education institutions, particularly in developing countries. These issues have spurred the demand for technological transformation as a strategy to enhance decision-making, accountability, and operational effectiveness in tertiary education (Ositadinma et al, 2023). Without the integration of modern technologies, institutions risk falling behind in achieving academic excellence, institutional growth, and global competitiveness.

Technological transformation refers to the adoption and integration of digital tools, systems, and innovations into organizational structures and operations. In tertiary institutions, this encompasses the use of information and communication technologies (ICTs), enterprise resource planning (ERP) systems, big data analytics, artificial intelligence (AI), and cloud computing to facilitate administrative and managerial functions (Okeke & Anaekwe, 2025; Anike, 2024). These technologies play a pivotal role in transforming how decisions are made, ensuring they are timely, data-driven, and strategically aligned. One of the foremost impacts of technological transformation is the enhancement of data management. Tertiary institutions generate vast amounts of data from student enrollment and academic records to staff performance and financial transactions. Technologies such as cloud-based databases, data warehouses, and analytics tools enable real-time data collection, storage, and analysis, thereby equipping administrators with accurate and comprehensive information necessary for informed decision-making (Anaekwe et al., 2025; Okiki & Ireko, 2022). With robust data systems, institutions can analyze trends, forecast outcomes, and develop responsive strategies to address emerging challenges.

Management and administrative decision-making in tertiary institutions refers to the process by which institutional leaders, such as vice-chancellors, registrars, deans, and department heads, plan, coordinate, and implement actions to achieve organizational goals. These decisions encompass a wide range of activities, including student admissions, staff recruitment, financial planning, curriculum development, resource allocation, infrastructure maintenance, and quality assurance (Okoye et al., 2023; Odia et al., 2025). Effective decision-making is crucial for ensuring that institutions operate efficiently, comply with regulatory standards, and respond to both internal and external demands. At the core of management decision-making is strategic planning, where leaders set long-term goals and outline policies to guide the institution's direction. Administrative decision-making, on the other hand, focuses on day-to-day operations such as managing personnel, handling student records, and overseeing budget execution. Both types of decision-making require accurate information, clear communication, collaboration among departments, and the ability to evaluate alternatives based on institutional priorities (Onyebinama, 2021; Ukwaja et al, 2020). In the current digital age, data-driven decision-making is becoming essential. Administrators now rely on information and communication technologies to access real-time data, evaluate institutional performance, and respond swiftly to challenges.

Technology enhances institutional efficiency by automating routine administrative tasks, reducing paperwork, and facilitating streamlined communication. Decision-making becomes more efficient when leaders can access digital dashboards, performance metrics, and analytical reports that provide instant insight into institutional performance (Manny et al, 2021; Arua et al, 2024). For instance, AI-enabled decision-support systems can provide scenario analyses and risk assessments, guiding administrators in selecting optimal policies or interventions. Moreover, digital platforms foster transparency and accountability by documenting every administrative action and making data accessible to relevant stakeholders. With integrated systems, stakeholders, including students, staff, and regulators, can track institutional decisions and performance metrics, thereby reducing the potential for corruption, favoritism, or mismanagement (Ademola-Popoola & Adesina, 2025).

Strategic planning in higher education involves setting long-term goals and formulating policies that align with the institution's mission. Technological tools such as learning analytics and performance dashboards are valuable for monitoring progress and evaluating the effectiveness of policies. These tools help management identify strengths, weaknesses, and opportunities for improvement (Lottu et al, 2023). For instance, predictive analytics can inform enrollment strategies, resource allocation, and curriculum development by analyzing patterns and projecting future scenarios. Additionally, digital communication technologies, such as video conferencing, collaborative platforms, and institutional intranets, facilitate participatory decision-making. They enable stakeholders across departments and campuses to share information and provide input in real time, fostering inclusive governance and collective ownership of institutional policies (Ibobor, 2023).

Studies by Adeoye et al. (2023) and Lottu et al. (2023) have emphasized the importance of digital technologies in educational governance; however, little research has specifically examined how these technologies influence decision-making structures in the context of Southeastern Nigeria. While global institutions increasingly rely on integrated digital platforms, ERP systems, and analytics to streamline management processes (Mehta, 2025),

institutions in Anambra and Imo States often struggle with fragmented data, inefficient workflows, and minimal ICT adoption. This disconnect presents a significant knowledge and practice gap. Existing literature often generalizes findings across Nigeria without addressing the region's specific infrastructural, cultural, and policy-related challenges. Therefore, this study is motivated by the need to bridge this contextual gap by exploring how technological tools can enhance administrative efficiency and policy decisions in the tertiary institutions of these states. Its findings are expected to guide institutional reforms, improve governance, and support the digital transformation agenda in Nigerian higher education.

Despite the apparent benefits, the path to technological transformation in tertiary institutions is not without obstacles. Significant challenges include inadequate funding, lack of infrastructure, resistance to change, and limited technical skills among administrative staff. In many developing countries, unreliable power supply and poor internet connectivity further hinder the effectiveness of digital systems. Additionally, the high cost of acquiring and maintaining advanced technological tools can be a barrier for institutions with limited budgets. Resistance to change, particularly from long-serving staff accustomed to traditional systems, can also slow down transformation efforts. Successful implementation, therefore, requires capacity building, continuous training, and a change management strategy that aligns stakeholders with the vision of a digitally driven institution.

In many institutions across Anambra and Imo States, these processes are still largely manual, bureaucratic, and slow, leading to inefficiencies, poor record-keeping, and delayed responses to institutional needs. In an era where technology has transformed every facet of global operations, the continued reliance on traditional administrative methods undermines institutional performance, transparency, and innovation. According to a 2022 report by the Nigerian National Universities Commission (NUC), over 65% of tertiary institutions in Southeast Nigeria lack fully integrated digital administrative systems. Many organizations still rely on paper-based documentation, hold face-to-face meetings for decision-making, and have limited ICT infrastructure for managing student and staff records. This not only slows down decision-making but also creates opportunities for human error, data loss, and ineffective accountability mechanisms. Furthermore, a 2021 survey by the Tertiary Education Trust Fund (TETFund) revealed that less than 40% of administrators in Nigerian public universities possess adequate digital skills necessary for managing technologically driven systems.

In light of these challenges, the need to explore the role of technological transformation in enhancing management and administrative decision-making becomes imperative. Institutions in Anambra and Imo States are expected to compete globally, manage rising student populations, and ensure quality service delivery yet the absence of responsive, technology-supported systems hinders these objectives. This study is therefore necessary to investigate how digital tools and systems can improve institutional governance, streamline operations, and foster evidence-based decision-making. It seeks to provide insights that will support the development of effective policies and strategic investments in technological infrastructure across tertiary institutions in the region. Without such transformation, these institutions risk stagnation and inefficiency in a rapidly evolving educational landscape.

This study aims to analyze the role of technological transformation in enhancing managerial and administrative decision-making in tertiary institutions in Anambra and Imo States. The focus is on examining the extent to which the adoption of information and communication technology (ICT) supports the effectiveness, speed, and quality of decision-making processes at the administrative level. It also examines the impact of digital transformation on operational efficiency, internal communication patterns, and organizational structures, while highlighting the challenges encountered during its implementation. The findings are expected to provide strategic recommendations for optimizing the use of technology to strengthen management and administrative systems in tertiary institutions across the two states.

2. METHOD

2.1 Research Design

The methodology adopted for this study on the role of technological transformation in enhancing management and administrative decision-making in tertiary institutions in Anambra and Imo States followed a descriptive survey research design. This design was considered appropriate for the investigation, as it allowed the researcher to collect data from a large population and describe prevailing conditions without manipulating any variables. The study was conducted in Anambra and Imo States, both located in the South-Eastern region of Nigeria. These states were selected due to the presence of numerous public and private tertiary institutions, making them suitable for examining variations in technological adoption and its influence on administrative decision-making.

2.2 Participant

The target population comprised students, academic staff, and administrative personnel from selected tertiary institutions in both states. These groups were selected due to their active roles in the academic and managerial functions of their respective institutions. A total of 2,000 respondents participated in the study, including 1,323 from Anambra State and 677 from Imo State. A multi-stage sampling technique was employed, beginning with the purposive selection of six prominent institutions, three from each state. This was followed by stratified random sampling to ensure that the three major groups of respondents were proportionally represented.

2.3 Data Collection

Data were collected using a structured questionnaire containing two sections. Section A captured demographic information, while Section B consisted of Likert-scale items designed to gather responses on three key areas: the current state of technological adoption, the key challenges in technological integration, and the role of technological transformation in enhancing management. The items were aligned with the study's objectives and research questions. To ensure that the instrument accurately measured what it was intended to, face and content validity were established through the input of three experts in educational technology, measurement, and evaluation. Their feedback informed revisions that improved item clarity and relevance. To further guarantee reliability, a pilot test was conducted using 50 respondents drawn from institutions not included in the main study. Using Cronbach's Alpha, the internal consistency of the instrument was evaluated, yielding a coefficient of 0.81 for the section on the current state of technological adoption, 0.86 for the section on key challenges in technological integration, and 0.83 for the section on the role of technological transformation in enhancing management, indicating high reliability. The administration of the instrument was carried out through both physical distribution and online channels, including institutional emails and web-based survey platforms. This hybrid approach ensured broad accessibility and maximized response rates. Prior to data collection, informed consent was obtained, and participants were assured of confidentiality and the voluntary nature of their participation.

2.4 Data Analysis

The collected data were analyzed using both descriptive and inferential statistical techniques. Descriptive statistics, including frequencies, means, and standard deviations, were used to summarize the data and provide an overview of the responses. Inferential statistics, including independent samples t-tests and analysis of variance (ANOVA), were applied to test the study's hypotheses. All analyses were conducted at the 0.05 level of significance using SPSS version 25.0

3. RESULT AND DISCUSSION

3.1 Result

Table 1. Demographic Distribution of Respondents (N = 2000)

Variable	Category	Frequency	Percent (%)	Valid Percent (%)	Cumulative Percent (%)
Gender	Male	772	38.6	38.6	38.6
	Female	1228	61.4	61.4	100.0
	Total	2000	100.0	100.0	—
Age Range	Ages 18–30	540	27.0	27.0	27.0
	Ages 31–41	621	31.1	31.1	58.1
	Ages 42–52	397	19.9	19.9	77.9
	Ages 53–65	442	22.1	22.1	100.0
	Total	2000	100.0	100.0	—
Role	Student	1000	50.0	50.0	50.0
	Lecturer	500	25.0	25.0	75.0
	Administrative staff	500	25.0	25.0	100.0
	Total	2000	100.0	100.0	—
State	Anambra State	1323	66.2	66.2	66.2
	Imo State	677	33.9	33.9	100.0
	Total	2000	100.0	100.0	—

The data in Table 1 reveal that more females (1,228; 61.4%) than males (772; 38.6%) participated in the study. The dominant age group was 31–41 years (621; 31.1%), followed by respondents aged 18–30 (540; 27.0%), 53–65 (442; 22.1%), and 42–52 (397; 19.9%). Students made up half of the total population (1,000; 50.0%), while lecturers and administrative staff each accounted for 25.0% (500). Geographically, the majority of the respondents were from Anambra State (1,323; 66.2%) compared to 677 (33.9%) from Imo State, indicating broader representation from Anambra in this research.

Research Question 1: What is the current state of technological adoption in tertiary institutions in Anambra and Imo states?

Table 2. Group Statistics on Technological Adoption in Tertiary Institutions in Anambra and Imo States

	State	N	Mean	Std. Deviation	Std. Error Mean
My institution uses digital platforms for teaching and learning	Anambra state	1323	2.78	1.093	.030
	Imo state	677	3.54	.499	.019
Administrative tasks (e.g., records, payments) are handled digitally.	Anambra state	1323	3.27	.486	.013
	Imo state	677	3.46	.499	.019
There is regular training on the use of technology for staff and students	Anambra state	1323	3.08	1.140	.031
	Imo state	677	3.73	.444	.017
ICT infrastructure in the institution is up-to-date and functional.	Anambra state	1323	3.10	.974	.027
	Imo state	677	3.50	.500	.019
The institution has a clear policy on technology integration.	Anambra state	1323	2.88	.940	.026
	Imo state	677	2.84	1.065	.041

The group statistics in Table 2 reveal notable differences in technological adoption between Anambra and Imo states. Respondents from Imo State rated the use of digital platforms for teaching and learning higher (Mean = 3.54; SD = 0.499) than those from Anambra State (Mean = 2.78; SD = 1.093), suggesting greater adoption in Imo. Similarly, Imo institutions received higher ratings in administrative digitization (Mean = 3.46 vs. 3.27), regular technology training (Mean = 3.73 vs. 3.08), and ICT infrastructure (Mean = 3.50 vs. 3.10). However, both states rated similarly on having a clear technology integration policy (Anambra: 2.88; Imo: 2.84). This indicates that while Imo appears more advanced in implementation and infrastructure, both states still need improvement in establishing and communicating clear institutional technology policies.

Research Question 2: What are the key challenges in technological integration in tertiary institutions in Anambra and Imo states?

Table 3: Group Statistics on Key Challenges in Technological Integration in Tertiary Institutions in Anambra and Imo States

	State	N	Mean	Std. Deviation	Std. Error Mean
Poor funding limits access to technological tools	Anambra state	1323	3.06	.978	.027
	Imo state	677	3.50	.500	.019
Lack of ICT training affects effective integration.	Anambra state	1323	3.35	.625	.017
	Imo state	677	3.35	.677	.026
Internet connectivity is a major issue in my institution	Anambra state	1323	3.39	.600	.016
	Imo state	677	2.81	1.177	.045
There is resistance to change among staff regarding technology use	Anambra state	1323	3.18	.719	.020
	Imo state	677	3.31	.773	.030
	Anambra state	1323	2.80	1.050	.029

	State	N	Mean	Std. Deviation	Std. Error Mean
Power supply instability affects technology use in the institution.	Imo state	677	2.58	1.215	.047

As shown in Table 3, respondents from Imo State more strongly agreed that poor funding limits access to technological tools (Mean = 3.50) than those from Anambra (Mean = 3.06). Both states equally acknowledged that the lack of ICT training hinders integration (Mean = 3.35). Internet connectivity issues were more severe in Anambra (Mean = 3.39) compared to Imo (Mean = 2.81). Imo respondents reported slightly more staff resistance to technology (Mean = 3.31) than Anambra (Mean = 3.18). However, power supply instability was perceived as more problematic in Anambra (Mean = 2.80) than in Imo (Mean = 2.58), highlighting regional variation in infrastructural challenges.

Research Question 3: How does technological transformation enhance management in tertiary institutions in Anambra and Imo states?

Table 4. Group Statistics on the Impact of Technological Transformation on Management in Tertiary Institutions in Anambra and Imo States

	State	N	Mean	Std. Deviation	Std. Error Mean
Technology has improved administrative efficiency in my institution.	Anambra state	1323	3.43	.495	.014
	Imo state	677	3.00	1.074	.041
Technology aids in data storage, processing, and retrieval.	Anambra state	1323	3.04	.728	.020
	Imo state	677	3.04	.940	.036
Decision-making has become easier through digital data systems.	Anambra state	1323	3.35	.625	.017
	Imo state	677	2.65	1.175	.045
Technology has enhanced communication among departments.	Anambra state	1323	2.65	.960	.026
	Imo state	677	3.15	.662	.025
E-learning has positively influenced student engagement and performance.	Anambra state	1323	2.67	.977	.027
	Imo state	677	3.15	.455	.017

The interpretation of Table 4 reveals noticeable differences between Anambra and Imo States in how technological transformation enhances management in tertiary institutions. Respondents in Anambra State (N = 1323) reported higher agreement that technology has improved administrative efficiency (Mean = 3.43, SD = 0.495) compared to Imo State (N = 677, Mean = 3.00, SD = 1.074). Both states equally acknowledged technology's role in data storage, processing, and retrieval (Mean = 3.04). Decision-making through digital data systems scored higher in Anambra (Mean = 3.35) than in Imo (Mean = 2.65). However, communication among departments (Mean = 3.15 vs. 2.65) and e-learning influence (Mean = 3.15 vs. 2.67) were rated higher in Imo.

Hypothesis 1: There are no significant differences in the current state of technological adoption in tertiary institutions in Anambra and Imo states.

Table 5. Tests of Between-Subjects Effects on the Current State of Technological Adoption in Tertiary Institutions

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	1743.817[a]	1	1743.817	256.898	.000
Intercept	463681.417	1	463681.417	68309.198	.000
State	1743.817	1	1743.817	256.898	.000
Error	13562.383	1998	6.788		
Total	512692.000	2000			

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Total	15306.200	1999			

Table 5 illustrates a notable disparity in the current state of technological adoption between Anambra and Imo states. The State variable recorded a Type III Sum of Squares of 1743.817, with an F-value of 256.898 and a p-value of .000. Since the p-value is less than .05, the result is statistically significant. Therefore, the null hypothesis is rejected, indicating that there are significant differences in technological adoption between tertiary institutions in Anambra and Imo states. The relatively low Mean Squared Error (6.788) supports the reliability of this observed difference across the population.

Hypothesis 2: There are no significant challenges affecting technological integration in tertiary institutions in Anambra and Imo states.

Table 6. Tests of Between-Subjects Effects on Key Challenges in Technological Integration in Tertiary Institutions

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	25.020[a]	1	25.020	3.097	.079
Intercept	439150.860	1	439150.860	54361.469	.000
State	25.020	1	25.020	3.097	.079
Error	16140.539	1998	8.078		
Total	508863.000	2000			
Corrected Total	16165.559	1999			

Table 6 shows the results of the test for Hypothesis 2. The effect of State on the challenges of technological integration yielded an F-value of 3.097 and a p-value of .079. Since the p-value is greater than the standard significance level of .05, the result is not statistically significant. Therefore, the null hypothesis is retained, indicating that there is no significant difference in the challenges affecting technological integration between tertiary institutions in Anambra and Imo states. The low Mean Squared Error (8.078) suggests that variation in responses is consistent across groups..

Hypothesis 3: There are no significant effects of technological transformation on enhancing management in tertiary institutions in Anambra and Imo states.

Table 7. Tests of Between-Subjects Effects on the Impact of Technological Transformation on Management in Tertiary Institutions

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	8.951[a]	1	8.951	2.165	.141
Intercept	406939.559	1	406939.559	98422.150	.000
State	8.951	1	8.951	2.165	.141
Error	8260.999	1998	4.135		
Total	463988.000	2000			
Corrected Total	8269.950	1999			

Table 7 presents the test results for Hypothesis 3. The effect of State on how technological transformation enhances management produced an F-value of 2.165 and a p-value of .141. Since the p-value exceeds the conventional significance threshold of .05, the result is not statistically significant. As such, the null hypothesis is accepted, implying that there is no significant difference in the effect of technological transformation on management practices between tertiary institutions in Anambra and Imo states. The Mean Square Error of 4.135 reflects a moderate and consistent level of variability in the responses across groups.

3.2. Discussion

Research Question 1 examined the current state of technological adoption in tertiary institutions in Anambra and Imo states. The findings reveal significant differences in the level of technological adoption between Anambra

and Imo states. As shown in Table 2, respondents in Imo rated the use of digital platforms for teaching and learning higher (Mean = 3.54) than their counterparts in Anambra (Mean = 2.78). This finding aligns with Anum and Uchendu (2024), who reported proactive investments in e-learning infrastructure in Imo following the COVID-19 pandemic. Similarly, Imoh and Ihemadu (2025) observed that institutions in Imo State benefited from local government ICT initiatives, in contrast to the slower uptake in Anambra. Administrative digitization and regular technology training also favored Imo (Means = 3.46 and 3.73) over Anambra (Means = 3.27 and 3.08). In agreement, Adeoye et al (2023) found that Imo institutions offered more structured digital training for staff. However, both states performed similarly in terms of policy clarity (Means = 2.88 and 2.84), echoing Agabi et al. (2015), who noted that ICT policies across Nigerian tertiary institutions were vague. Statistical evidence in Table 5 confirms these disparities are significant (F = 256.898, p = .000), supporting Opara et al (2025), who documented uneven digital progress across geopolitical zones in Nigeria.

Research Question 2 investigated the primary challenges to technological integration in tertiary institutions across Anambra and Imo states. Challenges to technological integration showed both similarities and contrasts. As indicated in Table 3, poor funding was more emphasized in Imo (Mean = 3.50) than in Anambra (Mean = 3.06). This contrasts with Ibobor (2023), who highlighted budgetary constraints as more acute in Anambra. Both states agreed on the lack of ICT training (Mean = 3.35), supporting Lottu et al (2023) who identified inadequate human capacity development as a national concern. In contrast, internet connectivity challenges were more pronounced in Anambra (Mean = 3.39) than in Imo (Mean = 2.81), corroborating Ademola-Popoola and Adesina (2025), who described erratic broadband access in Anambra campuses. Meanwhile, staff resistance to technological change was slightly higher in Imo (Mean = 3.31) than in Anambra (Mean = 3.18), a finding that agrees with Arua et al (2024), who attributed resistance to age and digital illiteracy among older academic staff in Imo. Anambra institutions also faced more instability in power supply (Mean = 2.80 vs. 2.58), aligning with Manny et al (2021), who highlighted infrastructural deficits as barriers to digitalization. Nonetheless, Table 6 revealed no significant statistical difference between states on these challenges (F = 3.097, p = .079), echoing Ukwaja et al (2020) who asserted that such barriers are endemic across Nigerian institutions.

Research Question 3 examined how technological transformation enhances management in tertiary institutions in Anambra and Imo states. The results show a mixed perception of how technology enhances management. Anambra institutions scored higher on administrative efficiency (Mean = 3.43 vs. 3.00) and decision-making (Mean = 3.35 vs. 2.65), suggesting stronger management outcomes from digital systems. This finding is consistent with Okeke and Ikediugwu (2021), who noted that Anambra's federal institutions adopted management information systems earlier than many schools in Imo. Similarly, Anike (2024) confirmed that Anambra universities rely heavily on ICT tools for administrative tasks. In contrast, Imo scored higher in technology-enhanced communication (Mean = 3.15 vs. 2.65) and the impact of e-learning on student performance (Mean = 3.15 vs. 2.67), supporting Onyebinama (2021), who emphasized the importance of student-centric ICT innovations in Imo institutions. Odia et al (2025) also highlighted the high functionality of LMS platforms in Imo, which boosts academic engagement. Interestingly, both states rated technology's role in data management equally (Mean = 3.04), aligning with Okiki and Ireko (2022), who noted a general reliance on digital databases in southeastern tertiary schools. However, Table 7 shows no significant difference in overall management enhancement (F = 2.165, p = .141), which aligns with Ponte and Pesci (2022), who argued that institutional context, rather than state location, determines management transformation outcomes.

Technological transformation in tertiary education institutions has been widely acknowledged as a crucial driver of efficiency, innovation, and evidence-based decision-making. According to Laudon & Laudon (2020), the integration of information and communication technologies (ICTs) into institutional management enables faster data processing, enhances communication channels, and promotes data-driven administrative practices. This aligns with the principles of the Technology Acceptance Model (TAM), which posits that the perceived usefulness and ease of use of technology directly influence its adoption in organizational decision-making (Davis, 1989). In the context of tertiary institutions, these technologies, such as learning management systems, enterprise resource planning (ERP), and digital communication tools, serve as enablers for more informed and transparent managerial decisions.

Furthermore, technological transformation plays a critical role in reshaping organizational structures and administrative functions. Drucker (1999) emphasizes that technology has shifted the paradigm of management from traditional bureaucratic systems to more flexible, knowledge-based structures where decisions are supported by real-time information. This notion is echoed by Brynjolfsson & McAfee (2014), who argue that digital transformation enhances organizational agility and improves responsiveness to internal and external demands. In tertiary institutions, particularly in regions such as Anambra and Imo States, this transformation promotes improved

coordination among departments, accurate record-keeping, and effective communication, thereby reducing administrative delays and errors.

However, the successful implementation of technological systems in educational management is often influenced by factors such as infrastructure, human capacity, and institutional culture. According to Adebayo & Abdulwahab (2021), inadequate ICT infrastructure, a lack of technical expertise, and resistance to change continue to be significant barriers to the adoption of technology in Nigerian higher education. The Change Management Theory (Lewin, 1951) provides a valuable framework for understanding this process, suggesting that institutions must "unfreeze" existing attitudes toward traditional administrative systems before implementing new technologies and "refreeze" the new practices into daily routines. This theoretical perspective emphasizes the importance of leadership commitment, staff training, and ongoing support to sustain technological innovation.

Lastly, decision-making in technologically transformed institutions aligns with the Rational Decision-Making Theory, which emphasizes logical analysis and systematic evaluation of alternatives based on available data (Simon, 1977). As noted by Adewale (2020), technology facilitates this process by providing managers and administrators with timely and accurate data, supporting decisions that enhance institutional performance and accountability. In the context of Anambra and Imo States, embracing technological transformation not only streamlines administrative processes but also strengthens strategic management and policy formulation, ensuring that decisions are evidence-based and aligned with institutional goals.

4. RESEARCH IMPLICATIONS

The findings of this study suggest that technological transformation has a significant impact on enhancing the efficiency, transparency, and accuracy of management and administrative decision-making processes in tertiary institutions. By adopting advanced information and communication technologies, institutions in Anambra and Imo States can improve data management, facilitate timely decision-making, and strengthen coordination among academic and administrative units. The study also suggests that sustained investment in digital infrastructure, capacity building, and change management is essential to ensure the successful integration of technology into institutional operations. Furthermore, policymakers and educational leaders should develop strategic frameworks that promote digital literacy, encourage innovation, and institutionalize data-driven decision-making practices to achieve long-term administrative excellence and institutional competitiveness.

This study contributes to the growing body of knowledge on the intersection between technological transformation and educational management by providing empirical evidence on how digital tools enhance administrative and managerial decision-making in tertiary institutions. Specifically, it advances understanding of the relationship between ICT adoption and institutional efficiency within the context of Nigerian higher education, focusing on Anambra and Imo States. The research also contributes theoretically by reinforcing models such as the Technology Acceptance Model (TAM) and Change Management Theory in explaining technology-driven organizational improvement. Practically, it offers valuable insights for policymakers, administrators, and educational planners on how to leverage technology to improve decision-making, optimize resource utilization, and strengthen governance structures in tertiary institutions

5. FUTURE RESEARCH DIRECTIONS

This study is limited by several factors that may affect the generalizability of its findings. First, the research focused only on tertiary institutions within Anambra and Imo States, which may not fully represent the technological and administrative conditions of other regions in Nigeria. Second, the study relied primarily on self-reported data obtained through questionnaires, which may be subject to respondent bias or inaccuracies in perception. Additionally, the research design was cross-sectional, capturing data at a single point in time, which limited the ability to assess the long-term effects of technological transformation on decision-making processes. Finally, resource and time constraints restricted the inclusion of more advanced analytical tools and qualitative insights that could have provided a deeper understanding of contextual and behavioral factors influencing technology adoption in higher education management.

Future research should expand the scope of this study by including tertiary institutions from other geopolitical zones in Nigeria, thereby enabling broader generalization of the findings and comparative analysis across regions. Longitudinal studies are also recommended to examine the long-term impact of technological transformation on management and administrative decision-making over time. Additionally, future researchers could adopt a mixed-methods approach, combining quantitative and qualitative data to gain deeper insights into the behavioral, cultural,

and institutional factors influencing technology adoption. Exploring the role of emerging technologies such as artificial intelligence, big data analytics, and cloud computing in decision-making processes would also provide valuable contributions to the evolving discourse on digital transformation in higher education management.

6. CONCLUSION

This study examined the impact of technological transformation on enhancing management and administrative decision-making in tertiary institutions across Anambra and Imo states. The findings revealed that although both states have adopted various aspects of digital technologies, a significant difference exists in the overall level of technological adoption, with institutions in Imo State demonstrating relatively higher implementation in areas such as digital learning platforms, administrative digitalization, and ICT infrastructure. In contrast, Anambra institutions were perceived to benefit more from technology in terms of administrative efficiency and data-driven decision-making. Despite these differences, the challenges affecting technological integration, such as limited funding, insufficient ICT training, poor internet connectivity, and unstable power supply, were commonly experienced in both states. These challenges, though varying in intensity, were not statistically significant, indicating a shared need for structural improvements across the two regions.

This study establishes that technological transformation plays a vital role in enhancing management and administrative decision-making in tertiary institutions within Anambra and Imo States. The adoption of information and communication technologies has significantly improved efficiency, accuracy, and transparency in institutional operations, enabling data-driven and timely decision-making processes. Despite challenges such as limited infrastructure, resistance to change, and inadequate technical capacity, the study demonstrates that with appropriate investment, training, and strategic policy implementation, technology can serve as a powerful catalyst for institutional effectiveness. Overall, technological transformation not only strengthens administrative performance but also positions tertiary institutions to adapt to the evolving demands of modern higher education management.

Additionally, while the effects of technological transformation on management appeared slightly more pronounced in Anambra institutions, especially in administrative decision-making and data handling, statistical analysis showed no significant differences between the two states. This suggests that the benefits of technology in management are generally recognized and utilized in both states, albeit to different extents. The study concludes that while progress has been made in integrating technology into tertiary education administration, more strategic investments, targeted training, and clear institutional policies are essential to fully harness the transformative potential of technology in enhancing decision-making and management efficiency in Nigerian higher education.

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Author Contribution Statement

The author solely contributed to the conception, design, data collection, analysis, and interpretation of the study, as well as the writing and revision of the manuscript. All aspects of the research were independently conducted and completed by the author to ensure the originality, coherence, and academic integrity of the work.

Conflict of Interest Statement

The author declares that there is no conflict of interest regarding the publication of this research. All procedures, analyses, and interpretations were conducted objectively and independently, without any financial, institutional, or personal influences that could have affected the outcomes or conclusions of the study.

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