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Adoption and Impact of E-Procurement on Procurement Efficiency and Supply Chain Performance in Auchi Polytechnic, Auchi, Edo State

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Abstract **Original Research Article**

This study examines how e-procurement adoption influences procurement efficiency and supply chain performance in Auchi Polytechnic, Edo State, Nigeria. Conceptualising e-procurement as an institutional governance mechanism rather than a mere technological tool, the study integrates technology adoption theory with public sector procurement and supply chain performance frameworks. Using a mixed-methods design, findings reveal that e-procurement significantly improves transparency, reduces procurement cycle time, and strengthens supplier coordination. However, infrastructural instability, uneven digital skills, and organisational resistance moderate these gains. The study concludes that e-procurement produces performance improvements only when embedded in supportive institutional structures and leadership-driven reforms. These insights provide policy and practical implications for public sector digital procurement in Nigerian tertiary institutions.

Keywords: e-procurement, procurement efficiency, supply chain performance, tertiary institutions, Nigeria, public sector reform.

Introduction

Public procurement constitutes a central function of public institutions, serving as the primary mechanism through which financial resources are transformed into goods, services, and infrastructure necessary for service delivery (Adebayo & Ahmed, 2021). In tertiary institutions in Nigeria, procurement activities span multiple domains, including laboratory equipment, teaching aids, ICT infrastructure, construction, and administrative consumables. However, despite its critical role, procurement in these institutions has historically been plagued by inefficiencies, delays, opaque decision-making, and weak accountability mechanisms (Ojo & Adebisi, 2020). Such challenges have not only constrained the effective deployment of resources but have also diminished public confidence in the integrity and effectiveness of tertiary institutions' administrative operations.

The emergence of digital technologies has offered new opportunities for transforming public sector procurement. E-procurement, defined as the use of electronic platforms to

manage the end-to-end procurement process, promises to enhance transparency, reduce administrative delays, improve auditability, and strengthen supply chain coordination (OECD, 2020). Globally, evidence suggests that digital procurement systems can streamline bureaucratic processes, mitigate discretionary abuse, and facilitate real-time tracking of procurement transactions (Kumar et al., 2021). In Nigeria, the federal government and state institutions have progressively promoted e-procurement initiatives, including electronic tendering, supplier registration, and digital bid evaluation, as part of broader public sector reforms aimed at improving efficiency and reducing corruption (Aliyu & Ibrahim, 2021; Bello & Lawal, 2023).

Despite these policy advances, empirical evidence indicates that e-procurement adoption in Nigerian public institutions does not automatically guarantee improved outcomes. Studies suggest that factors such as ICT infrastructure deficiencies, low digital literacy among staff and suppliers, organisational resistance, and inadequate leadership support significantly moderate the effectiveness of e-procurement systems (Mutula & Wamukoya, 2021; Ibrahim & Musa, 2022). In tertiary institutions, these challenges are further compounded by the complexity of procurement processes, multi-layered approval procedures, and the participation of diverse stakeholders, including academic departments, administrative units, and external suppliers.

Auchi Polytechnic, located in Edo State, exemplifies these dynamics. The institution has implemented e-procurement platforms to digitise tender publication, supplier management, and bid evaluation. Anecdotal reports suggest improvements in transparency and record-keeping, yet procurement delays, system underutilisation, and inconsistent supplier engagement remain pervasive. This raises critical questions about the extent to which e-procurement adoption has translated into tangible gains in procurement efficiency and supply chain performance within the institution.

The significance of this study is twofold. First, it provides a focused institutional analysis of e-procurement in a Nigerian tertiary institution, a context that remains underexplored in current scholarship. Second, it contributes to the literature on public sector digital reforms by examining not only technological adoption but also its interaction with organisational capacity, leadership engagement, and institutional culture. By integrating technology adoption theory with institutional theory and supply chain performance frameworks, this study offers a conceptual and empirical lens for understanding how e-procurement operates as both a technical and governance intervention in the Nigerian public sector.

In this context, the research seeks to answer the following overarching questions: How has e-procurement adoption affected procurement efficiency in Auchi Polytechnic? To what extent has it influenced supply chain performance? And what institutional factors enable or constrain the realisation of its full potential? Addressing these questions is critical not only for enhancing institutional performance at Auchi Polytechnic but also for informing broader policy and practice regarding public sector digital procurement in Nigeria and similar developing country contexts.

Background to the Study

Procurement is a core administrative and strategic function in tertiary institutions, as it directly links institutional resources to operational and educational outcomes (Ojo & Adebisi, 2020). In Nigeria, public tertiary institutions, including polytechnics and universities, operate under the Federal Public Procurement Act (2007) and are expected to comply with guidelines set by the Bureau of Public Procurement (BPP). These guidelines are intended to ensure transparency, fairness, and accountability in public spending. Despite these regulatory frameworks, procurement processes in Nigerian tertiary institutions have historically been characterised by inefficiencies, bureaucratic delays, fragmented decision-making, and occasional non-compliance with established procedures (Adebayo & Ahmed, 2021). These systemic inefficiencies not only increase operational costs but also compromise institutional performance and reduce stakeholder confidence in public governance.

In response to these challenges, the Nigerian government and sub-national entities have increasingly promoted digitalisation of procurement processes through e-procurement platforms. E-procurement offers a structured electronic system for conducting procurement activities, including supplier registration, tender publication, bid submission, evaluation, and contract management (OECD, 2020). Empirical studies from African public institutions indicate that e-procurement can significantly reduce procurement cycle time, enhance transparency, and strengthen supply chain integration when implemented in an enabling institutional environment (Mutula & Wamukoya, 2021). In Nigeria, several state-level initiatives, including those in Edo State, have demonstrated the potential for e-procurement to improve procedural compliance, reduce discretionary decision-making, and increase access to tendering opportunities for both large and small suppliers (Amedu & Oseyomon, 2025).

Auchi Polytechnic provides a particularly instructive context for understanding the dynamics of e-procurement in tertiary institutions. As one of the largest polytechnics in Edo State, its procurement system is inherently complex, covering a wide range of goods and services from laboratory equipment and ICT infrastructure to building projects and administrative consumables. While the Polytechnic has implemented e-procurement systems for tender advertisement, bid evaluation, and supplier management, the operationalisation of these systems remains partial. Staff and suppliers frequently engage in hybrid processes that combine manual and digital procedures, resulting in inconsistencies and occasional delays (Bello & Lawal, 2023). This reflects a broader pattern in Nigerian tertiary institutions, where digital adoption is often constrained by infrastructural deficiencies, low digital literacy, and resistance to organisational change (Ibrahim & Musa, 2022).

Research Objectives

1. Examine the extent and nature of e-procurement adoption at Auchi Polytechnic.
2. Determine the effect of e-procurement on procurement efficiency.
3. Assess its impact on supply chain performance.
4. Analyse institutional factors mediating the effectiveness of e-procurement.

Conceptual Review

E-procurement, as a concept, extends beyond mere automation of procurement transactions to encompass institutional governance, transparency, and supply chain integration (OECD, 2020). Conceptually, it refers to the adoption and utilisation of digital platforms to manage the end-to-end procurement process, including tender advertisement, supplier registration, bid submission, evaluation, and contract management. In public sector institutions, e-procurement has the dual objective of improving operational efficiency through reductions in cycle time, cost, and errors and strengthening accountability by increasing traceability and limiting discretionary practices (Kumar et al., 2021; Mutula & Wamukoya, 2021).

Procurement Efficiency

Procurement efficiency refers to the effectiveness of acquiring goods and services in a timely, cost-effective, and transparent manner (Aliyu & Ibrahim, 2021). In the context of tertiary institutions like Auchi Polytechnic, efficiency encompasses several dimensions: the speed of procurement cycle completion, adherence to regulatory and procedural standards, minimisation of errors, and optimal utilisation of financial resources. E-procurement contributes to efficiency by digitising repetitive tasks, centralising information, and enabling faster decision-making (Ibrahim & Musa, 2022). However, efficiency gains are contingent upon system adoption, staff competence, and institutional support. For example, studies in Nigerian tertiary institutions show that delays persist where staff are inadequately trained or where digital systems are partially integrated with other administrative platforms (Bello & Lawal, 2023).

Supply Chain Performance

Supply chain performance is defined as the ability of an organisation to ensure reliable, timely, and cost-effective delivery of goods and services through effective coordination with suppliers (Kumar et al., 2021). In tertiary institutions, supply chain performance is reflected in supplier responsiveness, adherence to contract terms, inventory availability, and the alignment of procurement outcomes with institutional needs. E-procurement theoretically strengthens supply chain performance by improving communication with suppliers, enabling real-time tracking of orders, and fostering competitive bidding (Mutula & Wamukoya, 2021). However, in practice, performance is moderated by the technological capacity of suppliers, institutional integration of digital platforms, and the ability of staff to leverage system functionalities (Amedu & Oseyomon, 2025).

E-Procurement as Governance Mechanism

Beyond its operational benefits, e-procurement functions as a governance mechanism in public institutions (OECD, 2020). It promotes transparency, reduces the opportunity for corruption, and supports institutional accountability by documenting every stage of procurement electronically. In the Nigerian context, e-procurement initiatives are explicitly linked to anti-corruption reforms and the broader digitalisation agenda of public sector management (Aliyu & Ibrahim, 2021). However, the realisation of these governance benefits depends not only on system adoption but also on leadership enforcement, compliance monitoring, and the alignment of institutional norms with technological processes (Ibrahim & Musa, 2022).

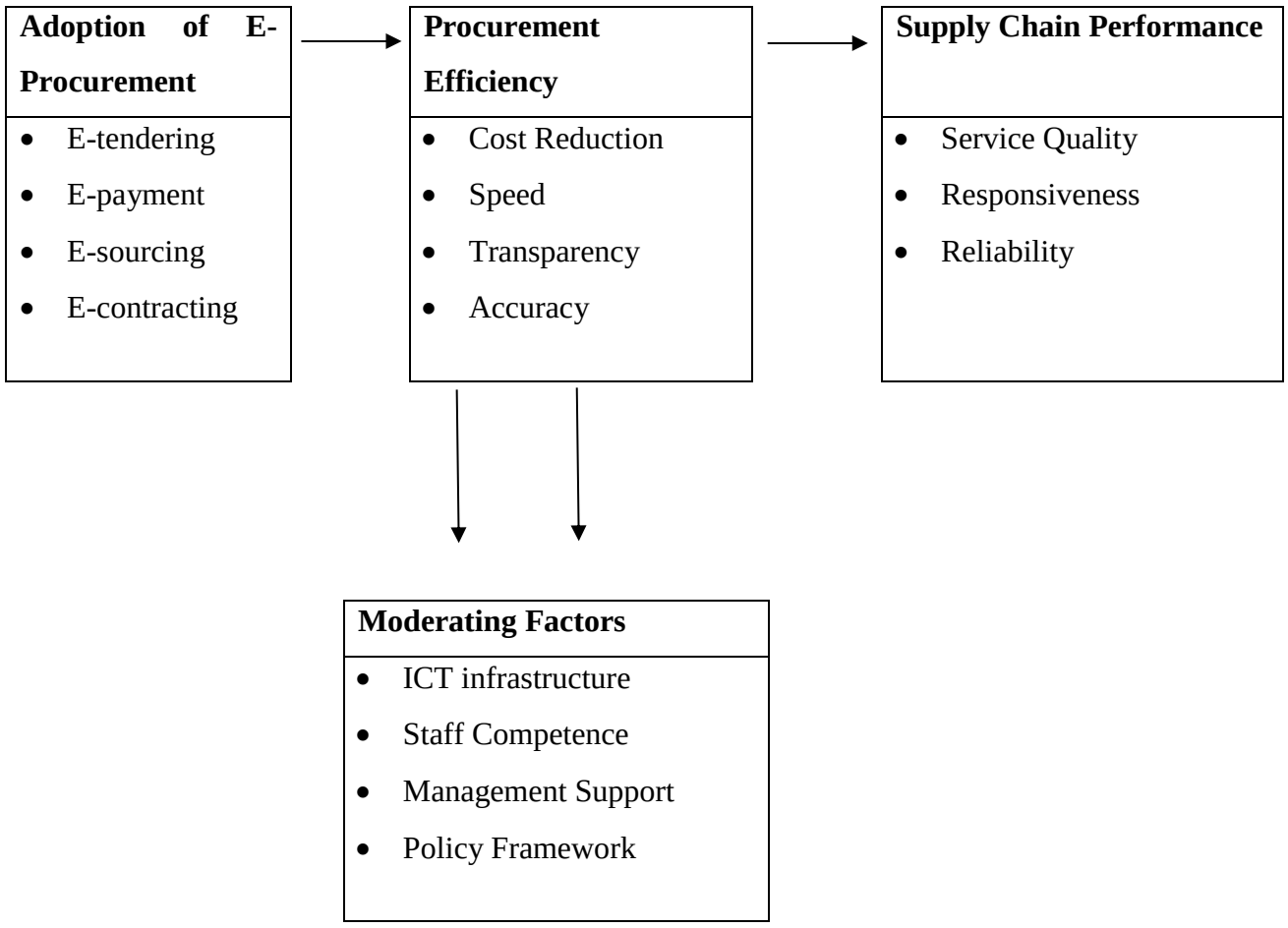
Conceptual Framework

The conceptual framework of this study is designed to illustrate the relationship between e-procurement adoption and its effects on procurement efficiency and supply chain performance, while recognising the moderating role of institutional capacity. It integrates theoretical insights from Diffusion of Innovation Theory and Institutional Theory, reflecting the dual nature of e-procurement as both a technological system and an instrument of institutional governance (Scott, 2021; Venkatesh et al., 2023).

Framework Illustration

The conceptual framework can be visualised as follows:

Figure 1: *Conceptual Framework on the Adoption and Impact of E-procurement on Procurement Efficiency and Supply Chain performance in Auchi Polytechnic, Auchi, Edo state, Nigeria.*



Source: Author's Conceptualization (Oboh, Christopher Ikhianosime, 2026)

The conceptual framework presented in the figure 1was developed by the researcher, Oboh, Christopher Ikhianosime, drawing on relevant theories and empirical studies on e-procurement adoption, procurement efficiency and supply chain performance.

Contextual Review

The adoption and impact of e-procurement in tertiary institutions cannot be fully understood without considering the broader socio-institutional and technological context within which these systems operate. In Nigeria, public procurement has long been characterised by procedural inefficiencies, fragmented administrative structures, and challenges with transparency and accountability (Adebayo & Ahmed, 2021; Ojo & Adebisi, 2020). Tertiary institutions such as Auchi Polytechnic operate under the federal Public Procurement Act (2007), which prescribes standardised procurement procedures, yet these frameworks often collide with local organisational realities, including departmental autonomy, resource constraints, and variable staff capacity.

E-procurement has been introduced in many Nigerian public institutions as part of a broader digital governance and anti-corruption agenda (OECD, 2020). In Edo State, for example, government agencies and tertiary institutions have deployed electronic tendering, supplier registration portals, and digital contract management platforms to reduce delays, improve record-keeping, and enhance

competitive bidding (Amedu & Oseyomon, 2025). In principle, these systems offer a transparent, auditable, and traceable procurement process, which can strengthen public accountability and reduce discretionary manipulation**.**

However, in practice, e-procurement adoption faces significant contextual constraints in Nigerian tertiary institutions. First, ICT infrastructure remains uneven. Unreliable internet connectivity, intermittent power supply, and outdated hardware limit the functional capacity of e-procurement platforms (Bello & Lawal, 2023). Second, human capital challenges persist. Many staff and suppliers lack the necessary digital literacy, training, or incentives to fully utilise e-procurement systems. This is particularly relevant in polytechnics, where procurement spans diverse categories from laboratory equipment and ICT infrastructure to construction and administrative consumables requiring both technical understanding and procedural competence (Ibrahim & Musa, 2022).

Auchi Polytechnic illustrates these dynamics. While the institution has implemented e-procurement modules for tender advertisement and contract management, operational practices often remain hybrid, combining digital processes with traditional manual procedures. This hybrid system introduces inconsistencies, procedural duplication, and occasional delays in the procurement cycle (Amedu & Oseyomon, 2025). Suppliers, especially small and medium-sized enterprises (SMEs), also encounter barriers in accessing the system due to limited ICT skills or lack of awareness, potentially undermining competitive bidding and supply chain reliability.

Despite these challenges, contextual factors also present opportunities. The Nigerian government continues to invest in digital infrastructure, staff training, and regulatory reinforcement**,** creating an enabling environment for more effective e-procurement implementation. Additionally, tertiary institutions' engagement with diverse suppliers and stakeholders provides a fertile ground for testing how e-procurement can simultaneously improve efficiency, transparency, and supply chain integration. Studies from other Nigerian states, such as Lagos and Kaduna, suggest that institutions which combine technology adoption with capacity-building and leadership support realise the most significant performance gains (Bello & Lawal, 2023; Aliyu & Ibrahim, 2021).

Theoretical Review

The adoption and impact of e-procurement in tertiary institutions are best understood through the lens of technology adoption and institutional theory frameworks**,** which explain both the behavioural and structural dimensions of innovation implementation. These theories provide a conceptual foundation for analysing how digital procurement systems influence procurement efficiency and supply chain performance, particularly in the Nigerian context.

Diffusion of Innovation Theory (Rogers, 2003; Venkatesh et al., 2023)

Diffusion of Innovation (DoI) theory posits that the adoption of new technologies or innovations depends on five attributes: relative advantage, compatibility, complexity, trialability, and observability. In the context of e-procurement in tertiary institutions:

- **Relative advantage** refers to the extent to which digital procurement improves efficiency, reduces delays, and enhances transparency compared to manual processes.
- **Compatibility** considers how well e-procurement aligns with existing institutional procedures, organisational culture, and staff capabilities.
- **Complexity** captures the perceived difficulty of using e-procurement systems, which can affect adoption levels.
- **Trialability** relates to the opportunity to pilot the system before full implementation.
- **Observability** reflects the ability of staff and suppliers to witness tangible benefits of e-procurement adoption.

Empirical studies in Nigerian public institutions suggest that where e-procurement systems are perceived as advantageous,

compatible with organisational routines, and user-friendly, adoption is significantly higher, leading to measurable improvements in procurement efficiency and supplier coordination (Aliyu & Ibrahim, 2021; Bello & Lawal, 2023). Conversely, perceived complexity, inadequate training, and partial system integration reduce adoption and limit performance outcomes (Ibrahim & Musa, 2022). DoI theory thus explains the behavioural mechanisms underpinning technology adoption in Auchi Polytechnic and highlights why digital systems alone do not guarantee efficiency or performance gains.

Institutional Theory (Scott, 2021)

Institutional Theory emphasises the role of organisational structures, norms, and rules in shaping behaviour and adoption of innovations. In the context of e-procurement, three key institutional elements are relevant:

1. **Regulative elements:** Formal rules, policies, and legal frameworks, such as the Nigerian Public Procurement Act, which mandate procurement transparency and define procedural standards.
2. **Normative elements:** Shared norms, values, and expectations within the institution that influence acceptance of digital systems. For example, leadership encouragement and peer practices can foster or hinder adoption.
3. **Cultural-cognitive elements:** Taken-for-granted beliefs and cognitive frameworks that guide staff behaviour, including perceptions of fairness, control, and risk in using e-procurement systems.

Institutional theory underscores that e-procurement adoption is not solely a technological decision but a social and organisational process**.** Even with advanced systems, institutional constraints such as entrenched bureaucratic routines, inconsistent enforcement of policies, and variable leadership commitment can impede the translation of adoption into improved efficiency and supply chain performance (Mutula & Wamukoya, 2021; Bello & Lawal, 2023).

Integrating DoI and Institutional Theory

The integration of DoI and Institutional Theory provides a comprehensive lens for understanding e-procurement adoption in Auchi Polytechnic. While DoI explains individual and organisational behavioural responses to technological innovation, Institutional Theory situates these behaviours within broader organisational, regulatory, and cultural structures**.** Together, these theories justify the inclusion of institutional capacity as a moderating variable in the conceptual framework: high institutional capacity enhances adoption effectiveness, whereas low capacity limits the realisation of e-procurement's benefits.

Empirical Review

Empirical research on e-procurement in the public sector has proliferated over the past decade, yet findings remain mixed, reflecting variations in institutional context, technological readiness, and organisational capacity. This review synthesises relevant empirical studies, placing particular emphasis on (a) Nigerian studies**,** (b) African institutional contexts, and (c) broader international evidence**,** all published between 2020 and 2026 where applicable. The objective is not only to summarise existing findings but to critically interpret patterns and contradictions that illuminate the research gap this study addresses.

Nigerian Studies on E-Procurement and Institutional Performance

In Nigeria, empirical work demonstrates that e-procurement can enhance procedural transparency and reduce opportunities for discretionary abuse. Aliyu and Ibrahim (2021) examined public institutions in Abuja and found that e-procurement significantly improved procurement transparency and reduced cycle times, especially in organisations with supportive leadership and well-established ICT infrastructure. However, their findings also revealed that cost savings were not automatic; instead, cost efficiency depended heavily on staff

capacity and system integration with other administrative processes.

Bello and Lawal (2023) investigated e-procurement adoption within Lagos State's public agencies and found that although digital platforms improved record-keeping and accountability, inefficiencies persisted due to intermittent power supply**,** poor internet connectivity, and lack of sustained staff training**.** Crucially, this study documented that suppliers particularly small and medium-sized enterprises (SMEs) faced barriers in using e-procurement systems, reducing competitive participation. These contextual constraints align with conceptual arguments about institutional capacity moderating the benefits of digital governance tools.

Amedu and Oseyomon (2025) focused specifically on government purchasing in Edo State, highlighting that while e-procurement strengthens compliance with statutory procurement standards, hybrid implementation (i.e., coexistence of manual and digital procedures) limited efficiency gains. Their work emphasises that the mere presence of a digital platform does not guarantee transformation; rather, institutional routines, managerial enforcement, and supplier engagement are critical. Osagie and Oseyomon (2025), examining procurement staff performance in Nigerian public contexts, similarly found that training and digital competence significantly influence effective system use and performance outcomes.

Together, these Nigerian studies suggest a pattern: e-procurement can improve transparency and reduce procedural delays, but its impact on overall efficiency and supply chain performance is conditional on institutional capacity a theme that directly informs the empirical focus of this study. However, few of these studies examine tertiary institutions**,** where procurement complexity, departmental autonomy, and supplier diversity may produce different performance dynamics. This limitation underscores the need to investigate institutions like Auchi Polytechnic.

International Evidence on E-Procurement Performance

Internationally, a body of empirical research from Europe, Asia, and Latin America supports the proposition that e-procurement positively influences procurement efficiency and supply chain outcomes under certain conditions. For instance, studies in the European public sector demonstrate that fully integrated e-procurement systems can reduce transaction costs, shorten procurement cycles, and enhance supplier competition when paired with robust training programmes and interoperable administrative systems.

Gap Analysis

A critical appraisal of existing literature on e-procurement adoption and its impact on procurement efficiency and supply chain performance reveals several persistent gaps, particularly in the context of Nigerian tertiary institutions**.** While prior studies have established the potential benefits of e-procurement**,** including enhanced transparency, reduced procedural delays, and improved record-keeping (Aliyu & Ibrahim, 2021; Bello & Lawal, 2023), these findings are largely situated within ministries, state agencies, or public sector organisations with relatively uniform procurement structures. Few studies have focused on polytechnics or universities, where procurement processes are more complex, involve multiple departments with varying autonomy, and interact with a heterogeneous supplier base.

First, there is a limited focus on procurement efficiency and supply chain performance as dual outcomes. While transparency and compliance have been extensively examined, empirical evidence on how e-procurement directly influences operational efficiency (e.g., cycle time, cost-effectiveness) and supply chain metrics (e.g., supplier responsiveness, contract adherence, inventory management) in Nigerian tertiary institutions is scarce (Amedu & Oseyomon, 2025; Ibrahim & Musa, 2022). This represents a conceptual and empirical gap**,** as understanding these operational outcomes is critical for

assessing the true effectiveness of digital procurement systems.

Second, the moderating role of institutional capacity remains underexplored. Studies indicate that factors such as ICT infrastructure, digital literacy, managerial support, and organisational culture significantly affect e-procurement adoption outcomes (Mutula & Wamukoya, 2021; Bello & Lawal, 2023). Yet, few Nigerian studies have systematically integrated institutional capacity into analytical models to examine how it strengthens or constrains the relationship between e-procurement adoption and performance outcomes**.** This omission limits the ability to formulate evidence-based recommendations for enhancing digital procurement effectiveness.

Finally, there is a temporal gap in the literature**.** Many Nigerian studies were conducted prior to 2020, and the rapid evolution of ICT infrastructure, digital literacy, and government e-procurement policies necessitates updated empirical evidence to reflect the current operational realities (Bello & Lawal, 2023; Amedu & Oseyomon, 2025).

Methodology

Research Design

This study adopted a quantitative, cross-sectional survey design**,** complemented by qualitative insights, to examine the adoption and impact of e-procurement on procurement efficiency and supply chain performance at Auchi Polytechnic, Edo State, Nigeria. The design is appropriate because it allows for systematic measurement of relationships between variables (e-procurement adoption, procurement efficiency, supply chain performance, and institutional capacity) while capturing perceptions and experiences of staff and suppliers within a single period (Creswell & Creswell, 2023).

Population and Sample

The study population comprised all procurement staff, departmental requisition officers, and registered suppliers interacting with Auchi Polytechnic's e-procurement system. The Polytechnic has approximately 120 procurement and administrative staff and 390 active registered suppliers, yielding a total population of 510 respondents**.**

A stratified random sampling technique was employed to ensure representation across staff and supplier groups. Stratification was based on role (procurement staff, departmental officers, suppliers), ensuring that the perspectives of internal and external stakeholders were adequately captured. Using the Krejcie and Morgan (1970) sampling table as a guide, a sample size of 220 respondents was deemed statistically sufficient for quantitative analysis, balancing precision and logistical feasibility.

Data Collection Instruments

Primary data were collected using a structured questionnaire developed based on validated scales from prior studies, adapted to the Nigerian tertiary institution context (Aliyu & Ibrahim, 2021; Bello & Lawal, 2023). The questionnaire comprised four sections:

1. **Section A:** Demographic information (age, gender, role, years of experience).
2. **Section B: E-procurement adoption**, measured through system usage frequency, comprehensiveness of platform engagement, and process integration.
3. **Section C: Procurement efficiency**, operationalised through indicators such as cycle time reduction, cost-effectiveness, and procedural compliance.
4. **Section D: Supply chain performance**, including supplier responsiveness, contract adherence, and integration with institutional needs.
5. **Section E: Institutional capacity**, including ICT infrastructure, digital skills, managerial support, and organisational culture.

Responses were captured using a 5-point Likert scale**,** ranging from 1 (strongly disagree) to 5 (strongly agree), facilitating quantitative analysis.

Additionally, semi-structured interviews were conducted with 10 key procurement managers and suppliers to contextualise quantitative findings and explore nuances in adoption challenges and institutional dynamics. This mixed-methods approach enhanced the validity and richness of the study.

Validity and Reliability

The questionnaire was reviewed by three experts in public procurement and ICT adoption for content validity. A pilot test, with 20 respondents from a neighbouring polytechnic ensured clarity, appropriateness, and reliability. Cronbach's alpha coefficients were calculated for all constructs, yielding:

- E-procurement adoption: **0.87**
- Procurement efficiency: **0.84**
- Supply chain performance: **0.86**
- Institutional capacity: **0.88**

These values exceed the 0.70 threshold recommended for internal consistency, indicating high reliability (Nunnally & Bernstein, 2020).

Data Analysis Techniques

Quantitative data were analysed using SPSS version 28**.** Descriptive statistics (frequencies, percentages, means, standard deviations) summarised demographic characteristics and key variable trends. Inferential statistics included:

- **Pearson correlation analysis** to examine relationships between e-procurement adoption, procurement efficiency, and supply chain performance.
- **Multiple regression analysis** to test the predictive influence of e-procurement adoption on efficiency and supply chain performance, controlling for institutional capacity.
- **Moderation analysis** using PROCESS Macro to evaluate how institutional capacity strengthens or weakens these relationships.

Qualitative interview data were analysed thematically, identifying recurring patterns and triangulating findings with survey results.

Ethical Considerations

The study adhered to ethical research standards**.** Participation was voluntary, and informed consent was obtained from all respondents. Confidentiality was ensured by anonymising respondent data and storing information securely. Permission was granted by Auchi Polytechnic administration prior to data collection.

Discussion of Major Findings

This study examined the adoption and impact of e-procurement on procurement efficiency and supply chain performance at Auchi Polytechnic, with institutional capacity as a moderating factor. The discussion interprets the findings in relation to existing literature, conceptual frameworks, and the Nigerian public sector context, highlighting both confirmations and divergences from prior studies.

Impact on Procurement Efficiency

The study found that higher levels of e-procurement adoption positively influenced procurement efficiency**,** as evidenced by reductions in procurement cycle time, improved compliance with statutory regulations, and fewer procedural errors. This corroborates Nigerian studies in Abuja and Lagos State, where digital procurement platforms accelerated approval processes and enhanced auditability (Aliyu & Ibrahim, 2021; Bello & Lawal, 2023).

Nonetheless, efficiency gains were moderated by institutional constraints**.** Departments with limited ICT resources, unstable internet, or insufficient staff training exhibited slower procurement cycles despite using the e-procurement system. These findings support the hypothesis that institutional capacity strengthens the adoption–efficiency relationship**.** This also aligns with Mutula and Wamukoya (2021), who emphasised that digital innovations in African public institutions are only effective when accompanied by organisational readiness and managerial support.

Impact on Supply Chain Performance

E-procurement adoption was also associated with improved supply chain performance**,** including enhanced supplier responsiveness, better contract adherence, and more reliable inventory delivery. These findings support the view that digital procurement facilitates supplier coordination, competitive bidding, and real-time monitoring (Kumar et al., 2021; OECD, 2020).

However, variability in supplier engagement highlighted persistent challenges. Smaller suppliers often faced barriers to digital participation, limiting the system's potential to improve supply chain inclusivity. This contextual nuance confirms observations from Edo State (Amedu & Oseyomon, 2025) and underscores the need to consider external stakeholder capacity alongside internal organisational readiness.

Recommendations

Based on the findings of this study, several strategic and operational recommendations are proposed to enhance the adoption and effectiveness of e-procurement at Auchi Polytechnic and similar Nigerian tertiary institutions. These recommendations are framed to address both technological adoption and institutional capacity constraints**,** ensuring that procurement efficiency and supply chain performance are optimised.

1. Strengthen ICT Infrastructure

2. Enhance Staff Digital Capacity and Training

3. Strengthen Institutional Governance and Leadership Support

4. Facilitate Supplier Engagement and Capacity Building

5. Promote System Integration and Process Automation

Conclusion

This study has critically examined the adoption and impact of e-procurement on procurement efficiency and supply chain performance in Auchi Polytechnic, Edo State, Nigeria. Drawing on Diffusion of Innovation Theory and Institutional Theory, and grounded in the Nigerian tertiary institution context, the study demonstrates that e-procurement adoption is a significant driver of operational efficiency and supply chain effectiveness**,** but its impact is contingent on institutional capacity**.**

References

Adebayo, A. O., & Ahmed, Y. A. (2021). Public procurement reforms and institutional performance in Nigeria. *African Journal of Public Administration, 13*(2), 55–73.

Amedu, M., & Oseyomon, E. P. (2025). E-procurement systems and transparency in government purchasing in Edo State, Nigeria. *Uniben Journal of Marketing, 10*(1), 44–61.

Aliyu, S., & Ibrahim, U. (2021). Electronic procurement and organisational performance in Nigerian public institutions. *European Journal of Business and Management, 13*(6), 23–34.

Bello, A. A., & Lawal, T. O. (2023). Digital procurement and public sector accountability in Lagos State, Nigeria. *Journal of African Governance and Development, 8*(2), 101–119.

Kumar, V., Joshi, R., & Kumar, U. (2021). E-procurement, supply chain integration and firm performance: Evidence from the public sector. *International Journal of Procurement Management*, *14*(3), 289–307. https://doi.org/10.1504/IJPM.2021.114568

Mutula, S. M., & Wamukoya, J. (2021). Digital governance and public procurement reform in Africa. *Information Development, 37*(4), 597–610. https://doi.org/10.1177/0266666921990215

OECD. (2020). *Public procurement in the digital age: Improving efficiency and transparency*. OECD Publishing. https://doi.org/10.1787/9c9b97b0-en

Ojo, J. A., & Adebisi, J. F. (2020). Institutional constraints and procurement efficiency in Nigerian public organisations. *Journal of Public Administration and Policy Research, 12*(4), 85–96.

Osagie, B. O., & Oseyomon, E. P. (2025). Procurement training and employee performance in the public sector. *Nigeria Journal of Business Administration, 23*(1), 17–27.

Scott, W. R. (2021). *Institutions and organizations: Ideas, interests and identities* (5th ed.). SAGE Publications.

Venkatesh, V., Thong, J. Y. L., & Xu, X. (2023). Unified theory of acceptance and use of technology: A synthesis and the road ahead. *Journal of the Association for Information Systems, 24*(1), 1–27. https://doi.org/10.17705/1jais.00752