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An Assessment of the Effect of E-Procurement Practices on Supply Chain Performance in Selected Organisations in Zambia

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Abstract

Public procurement plays an important role in promoting efficient service delivery, accountability, and value for money, accounting for approximately 10–15% of Gross Domestic Product (GDP) in many economies. Despite increasing adoption of electronic procurement (e-procurement), many organisations in Zambia continue to experience supply chain inefficiencies. This study assessed the effect of e-pro curement practices on supply chain performance in selected organisations in Zambia. A convergent par allel mixed-methods design was adopted, involving 192 respondents for the quantitative component and 15 key informants for the qualitative component. Stratified random sampling and purposive sampling were employed, while quantitative data were analysed using SPSS version 25 and qualitative data through thematic analysis.

The results revealed moderate to high utilisation of e-procurement practices, with 63.0% of respondents reporting high or very high utilisation (mean = 3.64). E-procurement significantly improves supply chain performance, particulary, procurement efficiency (mean = 4.1), and availability of goods (mean = 4.04). ICT infrastructure, staff technical capacity, and organisational behaviour were positively associated with supply chain performance, jointly explaining 64.3% of its variation ($R^2 = 0.643$).

The study concludes that effective implementation of e-procurement significantly enhances supply chain performance in selected organisations in Zambia. It recommends strengthening ICT infrastructure, investing in continuous staff capacity building, enhancing supplier integration, and evaluation mechanisms to maximise the benefits of e-procurement. The study contributes to the body of knowledge by providing empirical evidence on the determinants of successful e-procurement implementation in the Zambian context and offers practical insights for policymakers and organisational leaders seeking to improve supply chain performance through digital procurement systems.

Keywords: E-procurement practices, Supply chain performance, ICT infrastructure, Procurement efficiency, Public organisations, Zambia

Introduction

Background

The rapid advancement of digital technologies has transformed procurement and supply chain management across both public and private sectors worldwide. Organisations are increasingly adopting

electronic procurement (e-procurement) systems to improve efficiency, transparency, accountability, and service delivery. E-procurement involves the use of information and communication technologies (ICTs) to automate and integrate procurement processes, including supplier registration, sourcing, tendering, ordering, invoicing, and contract management (Jiménez, 2022). By reducing manual processes and enhancing information sharing, e-procurement has become an essential strategy for strengthening supply chain performance in increasingly competitive and technology-driven environment.

Globally, governments and organisations have embraced e-procurement as part of broader digital transformation initiatives aimed at improving governance and operational efficiency. Studies have shown that effective implementation of e-procurement contributes to reduced procurement cycle times, lower p rocurement costs, improved supplier relationships, increased transparency, and enhanced availability of goods and services (Khorana, 2024). However, the extent to which these benefits are realised depends on factors such as adequate ICT infrastructure, staff competence, organisational commitment, and supportive institutional policies.

In Africa, the adoption of e-procurement has expanded considerably as governments seek to modernise public procurement systems and improve accountability in the use of public resources. While several countries have introduced electronic government procurement platforms, implementation remains uneven due to infrastructural limitations, inadequate technical skills, resistance to organisational change, and financial constraints (Maepa, 2023). These challenges continue to limit the effectiveness of digital procurement systems in many developing economies.

In Zambia, both public and private sector organisations have increasingly adopted e-procurement systems to improve procurement efficiency and supply chain performance (Bwalya & Mulundano, 2023). Nevertheless, procurement inefficiencies, delays in service delivery, inadequate ICT infrastructure, and limited staff technical capacity remain persistent challenges that may undermine the effectiveness of these systems (Bwalya & Mulundano, 2023). Although previous studies have examined e-procurement adoption in different contexts, limited empirical evidence exists regarding the combined influence of ICT infrastructure, staff technical capacity, and organizational behaviour on supply chain performance within selected organizations in Zambia. This knowledge gap limits evidence-based decision-making and policy formulation for improving digital procurement systems.

Therefore, this study assessed the effect of e-procurement practices on supply chain performance in selected organization in Zambia. Specifically, the study examined how ICT infrastructure, staff technical capacity, and organisational behaviour influenced procurement efficiency, procurement cycle time, delivery reliability, and the availability of goods and services. The findings providepractical insights for managers, ppolicymakers, and other stakeholders seeking to strengthen procurement systems and enhance organisational performance through effective implementation of e-procurement.

Statement of the Problem

Ideally, electronic procurement systems have increasingly been adopted worldwide as tools for improving efficiency, transparency, and accountability in public procurement processes. Digital procurement platforms are expected to streamline procurement workflows, reduce procurement cycle time, enhance supplier participation, and strengthen supply chain coordination (Croom & Brandon-Jones, 2007; Vaidya et al., 2006). Previous studies have shown that e-procurement systems can improve transparency in procurement transactions and also reduce corruption risks because the digital records of procurement activities become traceable and easier to check, more or less. (Jiménez et al., 2022) In addition, effective

e-procurement systems can improve supply chain performance by facilitating timely procurement processes, better supplier management, and improved information sharing across supply chain actors.

Despite these potential benefits, many public sector organisations, particularly in developing countries, continue to experience challenges in achieving the expected performance improvements from e-procurement systems. Evidence from Sub-Saharan Africa suggests that infrastructure limitations, inadequate ICT capacity, and limited system integration often hinder the effective use of electronic procurement platforms (Maepa et al., 2023). In Zambia, research on digital governance indicates that many institutions are still dealing with operational problems, such as bad internet connectivity, not enough technical expertise, and there's also insufficient funding for digital systems. Even though the national e-Government Procurement (e-GP) platform has been introduced to assist procurement digitalisation, there seems to be limited empirical evidence on how specific e-procurement practices actually affect supply chain performance in public organisations (Bwalya and Mulundano, 2023). As a result, it remains unclear whether the adoption of e-procurement systems is translating into measurable improvements in procurement efficiency and supply chain outcomes.

Therefore, this study seeks to assess the effect of e-procurement practices on supply chain performance in selected organisations in Zambia. The study aims to identify the e-procurement practices currently used in these organisations, examine how these practices influence supply chain performance, and develop strategies to strengthen e-procurement implementation. By generating empirical evidence on the relationship between e-procurement practices and supply chain performance, the study will contribute to improving procurement implementation and strengthening supply chain efficiency in Zambian public institutions.

Research Objectives

General Objective

To assess the effect of e-procurement practices on supply chain performance in selected organisations in Zambia.

Specific Objectives

1. To explore the e-procurement practices currently utilised in selected organisations.
2. To examine how identified e-procurement practices influence supply chain performance outcomes.
3. To develop evidence-informed strategies for strengthening e-procurement practices to improve supply chain performance in the selected organisations.

Research Questions

1. What e-procurement practices are currently utilised in the selected organisations?
2. How do the identified e-procurement practices influence supply chain performance outcomes in the selected organisations?
3. What evidence-informed strategies can be developed to strengthen e-procurement practices and improve supply chain performance in the selected organisations?

Significance of the Study

To the procurement and supply chain industry, this study identifies the e-procurement practices that strengthen or weaken supply chain performance and provides practical actions for reducing delays, improving supplier management, and enhancing delivery reliability. To the general public, the study supports improved availability and timeliness of essential goods and services by strengthening how public institutions procure and manage critical inputs. To policymakers and regulators, the study provides

evidence to improve e-procurement implementation, strengthen compliance and capacity-building priorities, and guide system improvements across public organisations. Academically, the study contributes to the limited empirical literature examining the relationship between e-procurement practices and supply chain performance in Zambia.

Literature Review

Concept of Electronic procurement practices in organisations

The adoption of electronic procurement practices has become a central component of procurement reforms. Organisations worldwide have embraced e-procurement systems as part of their efforts to phase in digital transformation to enhance the overall efficiency and transparency of their procurement processes (Panda and Sahu, 2021). Croom and Brandon-Jones (2022), however, tested the effect of the introduction of e-procurement in the United Kingdom public sector. The research revealed that organisations implementing e-procurement systems had significant gains in terms of efficiency in procurement. Additionally, it highlighted that e-procurement improved transparency and compliance and created audit trails. Singh and Chan (2022) have also done a study on the effects of e-procurement adoption, and they have established that adoption of e-procurement boosts green procurement and therefore increases the performance of the sustainable supply chain.

In Africa, electronic procurement platforms have been adopted as part of the public procurement reforms in a number of countries. Some countries such as Kenya, Nigeria, Rwanda, and Ghana have implemented national e-procurement systems to increase transparency and decrease inefficiencies in the supply chains Amani, 2015). The purpose of these reforms is to make procurement more transparent and competitive and to make it easier for suppliers to have access to procurement opportunities. Besides, Kiusya (2018) has investigated the impact of the use of e-procurement practices on the operational performance of manufacturing organisations in Mombasa. He emphasised that proper installation of e-procurement practices has an overall positive and significant effect on operational performance. On the other hand, Addy (2024) uncovered the factors influencing e-procurement acceptance in the public sector of Ghana's construction industry (GCI). Using an extended unified theory of acceptance and use of technology (UTAUT 2). Another study by Geoffrey Ntooki and Alexander (2021), The influence of e-procurement practice on organisational performance, showed that e-procurement has a positive effect on organisational performance as long as the management ensures proper internet connection, system integration and supplier training to enhance performance.

In Zambia, a study done by Silomba and Manchisi (2026) examined the influence of e-Government procurement systems on the performance of public entities. They concluded that electronic order processing is equally positively related to procurement performance at r 0.702, implying that the availability of internet functionality for e-government procurement (e-GP) systems is vital, as it is easier, faster, and less expensive to procure goods and services. Additionally, from the survey done by Bwalya (2023), the majority (70%) of local authorities reported having several challenges, which include inadequate funding, limited ICT infrastructure, a lack of skilled IT personnel, intermittent power supply, and unstable internet connectivity. Nambela and Mutono-Mwanza (2024) proposed the following recommendations to enhance the effectiveness of the e-procurement system within the Ministry: Enhance Communication, Boost Supplier Participation, Improve Supplier Responsiveness, Strengthen Data Security and Privacy Controls and Increase Transparency.

From the reviewed studies, it is seen that e-procurement has a positive effect and it enhances supply chain outcomes. However, these benefits depend largely on the level of organisational readiness for adoption.

Supply Chain Performance

Supply chain performance is widely regarded as a key determinant of organisational effectiveness, particularly in environments where the timely delivery of goods and services is essential. It refers to the ability of supply chain systems to coordinate procurement, logistics, inventory, and distribution activities in a manner that meets organisational objectives efficiently. Ahmed et al. (2023) ; Korir et al. (2017). Within organisations, the supply chain includes all functions that are involved in receiving and fulfilling a customer request. Madzimure et al. (2020). Supply chain performance refers to the accomplishment of a given task(s) measured against preset explicit standards of accuracy, completeness, cost and speed by the supply chain system of an organisation.

At a global level, supply chain performance is commonly assessed using indicators such as lead time, cycle time, delivery reliability, cost efficiency, flexibility and availability of goods and services. These indicators provide a measurable understanding of the processes in the supply chain and how they perform in varied operational cases. Building integration across the functional areas, plus efficient mechanisms for information exchange, are some of the main traits of well-managed supply chains, as scholars like Gunasekaran et al. (2009) point out. Similarly, Christopher M (2016) notes that agility and responsiveness have turned into key performance drivers, particularly in today's uncertain, highly disrupted environment. As technologies are increasingly being integrated, the role and functioning of supply chains have also changed, as cited by Ahmed et al. (2023). This is because they have less need to rely on manual processes. Many of the problems encountered in the developing world that impact the performance of the supply chain are more serious deficiencies in infrastructure, regulatory systems and technical skills that can undermine the success of supply chain operations. A study by Korir et al. (2017) reveals that there was a weak but positive and significant correlation between procurement information sharing and supply chain performance in Kenya. An e-informing study by Nyaoga (2025) showed that the adoption of e-informing led to a more frequent use of references for product or service quality; it also improved information sharing with suppliers, like pricing, and acted as an ideal wellspring of information about suppliers' experiences, which in turn boosts procurement performance. Charnor (2024). The study revealed that there is a moderation effect between electronic procurement adoption and procurement performance because of institutional quality.

While Zambia's adoption of e-procurement systems is slowly growing, there is limited empirical evidence on how e-procurement affects supply chain performance in public institutions and health care facilities. The majority of studies available address the compliance and policy aspects of procurement, but not the operational results of digital procurement systems. This situation highlights the need for empirical studies that examine the extent to which e-procurement practices contribute to improved supply chain performance within Zambian organisations.

Theoretical Review

Technology-Organisation-Environment (TOE) Framework

The Technology Organisation–Environment (TOE) Framework, developed by Tornatzky (1990), explains how technological, organisational, and environmental factors influence organisational adoption of technological innovations Nguyen et al., (2022). According to the framework, successful implementation

of e-procurement depends on the availability of appropriate technological infrastructure, organisational readiness, and supportive external environments.

Within this study, ICT infrastructure represented the technological context, staff technical capacity and organisational behaviour represented the organisational context, while procurement regulations and institutional support formed part of the environmental context. The TOE Framework therefore provided an appropriate theoretical foundation for explaining factors influencing successful implementation of e-procurement practices in selected organisations in Zambia.

Diffusion of Innovation Theory

The Diffusion of Innovation Theory, proposed by Rogers (2003), explains how new technologies and innovations are adopted within organisations and societies. The theory suggests that adoption is influenced by perceived relative advantage, compatibility with existing systems, complexity, trialability, and observability.

In the context of this study, organisations are more likely to adopt and effectively utilise e-procurement systems when users perceive them as beneficial, easy to use, and compatible with existing procurement processes. Staff training, management support, and organizational culture play significant roles in facilitating technology adoption.

Resource-Based View (RBV) Theory

The resource-based view is associated with Barney (1991). The theory argues that sustainable organisational performance depends on valuable, rare, inimitable, and well-organised organisational resources. ICT infrastructure, skilled procurement personnel, organisational knowledge, and digital capabilities constitute strategic organisational resources capable of creating competitive advantage.

This theory supports the argument that organisations investing in modern ICT infrastructure and developing competent procurement professionals are better positioned to achieve improved supply chain performance through successful implementation of e-procurement systems.

Empirical Review

Empirical evidence indicates that e-procurement significantly improves procurement efficiency and supply chain performance across different sectors. Previous studies have reported that organisations implementing electronic procurement systems experience reduced procurement cycle times, lower transaction costs, improved supplier relationships, enhanced procurement transparency, and increased operational efficiency.

Studies further indicate that ICT infrastructure plays a critical role in determining the successful implementation of e-procurement. Organisations possessing reliable Internet connectivity, integrated procurement software, secure information systems, and adequate technological resources generally report higher procurement performance than organisations with weak ICT infrastructure. Similarly, staff technical capacity has consistently been identified as an important determinant of successful e-procurement implementation. Procurement personnel possessing adequate ICT knowledge and technical skills are better able to utilise electronic procurement systems effectively, resulting in improved procurement outcomes.

Organisational behaviour also influences implementation success. Management commitment, employee acceptance, organisational culture, and institutional support have been found to facilitate adoption of digital procurement technologies while minimising resistance to organisational change. Although numerous international studies have examined e-procurement adoption, relatively few have simultaneously investigated the combined effects of ICT infrastructure, staff technical capacity, and

organisational behaviour on supply chain performance within selected Zambian organisations. This gap provided the basis for undertaking the present study.

Research Gap

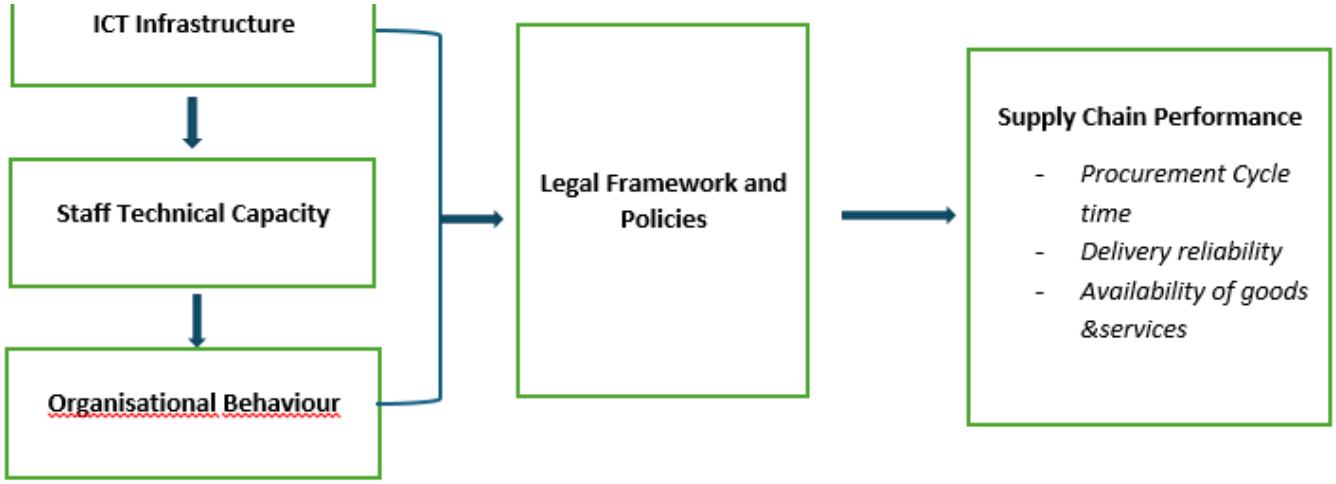
Existing literature provides substantial evidence regarding the benefits of e-procurement in improving procurement performance. However, most previous studies have focused on individual determinants of e-procurement adoption or have been conducted in developed countries. Limited empirical research has comprehensively examined the combined influence of ICT infrastructure, staff technical capacity, and organisational behaviour on supply chain performance within selected organizations in Zambia.

Furthermore, few studies have employed a mixed-methods approach to integrate quantitative and qualitative evidence in explaining the relationship between e-procurement practices and supply chain performance. This study addresses these gaps by providing empirical evidence from selected Zambian organisations using both quantitative and qualitative data. The findings contribute to the growing body of knowledge on digital procurement implementation in developing economies while offering practical recommendations for strengthening e-procurement systems and improving supply chain performance.

Conceptual Framework

In this study, a blend of the frameworks was developed to provide a more comprehensive understanding of the relationship between e-procurement practice and supply chain performance in public organisations in Zambia. Outlined are ICT Infrastructure, Staff Technical Capacity and Organisational behaviour as the Independent Variables, while the Legal frameworks and Policies governing e-procurement are the Mediating Variables. Lastly, Supply Chain Performance, which is the Dependent Variable.

Figure1: Conceptual Framework of the study



Source (Author,2026)

Research Methodology

Research Design

This study employed a convergent parallel mixed-methods research design, which enabled the simultaneous collection and analysis of quantitative and qualitative data. The design was selected because it provides a comprehensive understanding of the research problem by integrating numerical data with participants' experiences and perspectives. Quantitative data were used to determine the relationship

between e-procurement practices and supply chain performance, while qualitative data provided in-depth explanations of the factors influencing successful implementation of e-procurement systems. The findings from both approaches were integrated during the interpretation stage to enhance the validity and credibility of the study.

Philosophy of Study

The researcher used a pragmatist approach in this study due to the combination of the two methods, quantitative and qualitative, in obtaining the results of this research, which aims to obtain a complete understanding of the effect of e-procurement practices on supply chain performance. The pragmatic worldview emphasises practical solutions and supports the use of diverse data sources to answer the research questions effectively. Ontology, epistemology and axiology form the three major dimensions of research philosophy.

Study Area

The study was conducted in Lusaka Province, Zambia, focusing on five organisations that have adopted e-procurement practices. These organisations were the Zambia Medicines and Medical Supplies Agency (ZAMMSA), University Teaching Hospital (UTH), University of Lusaka (UNILUS) Hospital, University of Zambia (UNZA) Clinic, and the Road Development Agency (RDA). The selected organisations represent public institutions with varying levels of e-procurement implementation, making them appropriate settings for assessing the effect of e-procurement practices on supply chain performance.

Target Population

The target population consisted of employees involved in procurement and supply chain management activities within selected public and healthcare-related organisations in Zambia. These include procurement officers, ICT personnel, finance officers, and administrative staff. These individuals are selected because they are directly involved in the use and management of the e-procurement system, and thereforee possess relevant knowledge and experience.

Sample Size and Sampling Techniques

A total of 192 dents participated in the quantitative component of the study through structured questionnaires. For the qualitative component, 15 key informants were purposively selected based on their experience and involvement in procurement decision-making, of whom 13 successfully participated in the interviews. Stratified random sampling was used to select respondents for the quantitative survey to ensure equal chances of participation, while purposive sampling was employed to identify key informants with extensive knowledge and experience in e-procurement implementation.

Data Collection Methods

Primary data were collected using two instruments: Structured questionnaires and semi-structured interview guides. The questionnaire consisted of closed-ended questions measured on a five-point Likert scale ranging from Strongly Disagree (1) to Strongly Agree (5). The instrument collected quantitative information on ICT infrastructure, staff technical capacity, organisational behaviour, and supply chain performance. Semi-structured interviews were conducted with procurement managers and other key personnel to obtain detailed insights into the implementation of e-procurement systems, the challenges encountered, and strategies for improving supply chain performance. The interviews complemented the survey findings by providing contextual explanations of the quantitative results.

Data Analysis Quantitative

Data were coded, entered, cleaned, and analysed using the Statistical Package for the Social Sciences (S PSS) Version 25. Descriptive statistics, including frequencies, percentages, means, and standard

deviations, were used to summarise the characteristics of respondents and key study variables. Inferential statistical techniques, including Pearson correlation and multiple linear regression analysis, were employed to examine the relationships between ICT infrastructure, staff technical capacity, organisational behaviour, and supply chain performance. Qualitative data obtained from interviews were analysed using thematic analysis. Interview transcripts were reviewed repeatedly, coded, and organised into themes corresponding to the study objectives. The qqualitative findings were then integrated with the quantitative results to provide a comprehensive interpretation of the study findings.

Ethical Considerations

Ethical principles were observed throughout the research process. Permission to conduct the study was obtained from the relevant institutional authorities before data collection commenced. Participants were informed about the purpose of the study and provided informed consent before participating. Participation was entirely voluntary, and respondents were free to withdraw from the study at any stage without any consequences. Confidentiality and anonymity were maintained by ensuring that participants' identities were not disclosed in the research report. All data collected were used solely for academic purpose were securely stored to prevent unauthorised access. The study adhered to the ethical standards governing research involving human participants and ensured that participants were treated with dignity, respect, and fairness throughout the research process.

Results and Discussion

Response Rate

A total of 192 structured questionnaires were distributed to respondents across the selected organisations, and all were completed and rreturned, representing a 100% response rate. The high response rate enhanced the reliability and validity of the quantitative findings by ensuring adequate representation of the study population. In addition, 15 key informants were purposively selected for the qualitative phase, of whom 13 participated, representing an 86.7% response rate. The combination of quantitative and qualitative data provided a comprehensive understanding of the effect of e-procurement practices on supply chain performance.

Demographic Characteristics of Respondents

The respondents represented diverse professional backgrounds, including procurement officers, supply chain practitioners, finance officers, ICT personnel, stores officers, and management staff. The distribution of respondents across the five organisations ensured balanced institutional representation and enhanced the generalizability of the findings. Most respondents possessed adequate experience in procurement and supply chain management, indicating that they were well positioned to provide informed responses regarding e-procurement implementation.

Level of E-Procurement Utilisation

The study sought to determine the extent to which e-procurement practices had been implemented in the selected organisations. The findings indicated that 63.0% of respondents rated the level of e-procurement utilisation as high or very high, while the overall utilisation recorded a mean score of 3.64 (SD = 0.92). This finding suggests that although e-procurement systems have been adopted across the participating organisations, implementation remains at varying levels depending on institutional capacity and available technological resources. The qualitative findings supported these results, with participants indicating that electronic tendering, supplier registration, purchase requisitions, and electronic record management had

significantly reduced paperwork, improved procurement transparency, and facilitated timely procurement decisions.

Table1: Utilisation of E-Procurement Practices (N = 192)

Rating	ZAMMSA	UTH	UNILUS	UNZA Clinic	RDA	Total	%
Very Low	2	3	2	1	2	10	5.2
Low	4	6	3	2	5	20	10.4
Moderate	8	13	7	4	9	41	21.4
High	17	25	12	9	15	78	40.6
Very High	11	15	7	5	5	43	22.4
Total	**42**	**62**	**31**	**21**	**36**	**192**	**100**

Mean = 3.64, SD = 0.92

Source (Author,2026)

Effect of E-Procurement Practices on Supply Chain Performance

Supply chain performance was assessed using four key indicators: Procurement efficiency, procurement cycle time, delivery reliability, and availabilityy of goods and services. The findings showed that procurement efficiency recorded the highest level of improvement with a mean score of 4.14 (SD = 0.76). This was followed by the availability of goods and services (Mean = 4.04; SD = 0.79), procurement cycle time (Mean = 3.94; SD = 0.81), and delivery reliability (Mean = 3.84; SD = 0.83). These findings indicate that organisations implementing e-procurement systems experienced substantial improvements in procurement operations, resulting in faster procurement processes, enhanced inventory availability, and improved supplier performance. Interview participants emphasised that automation minimised manual procurement procedures, reduced administrative delays, and improved communication between procurement officers and suppliers. They further reported that electronic procurement systems enhanced accountability by providing complete procurement records and audit trails.

Table 2: Supply Chain Performance Indicators (N = 192)

Indicator	ZAMMSA	UTH	UNILUS	UNZA	RDA	Mean	SD
Reduced cycle time	4.2	4.1	3.9	3.8	3.7	3.94	0.81
Delivery reliability	4.1	4.0	3.8	3.7	3.6	3.84	0.83
Availability of goods	4.3	4.2	4.0	3.9	3.8	4.04	0.79
Procurement efficiency	4.4	4.3	4.1	4.0	3.9	4.14	0.76

Source (Author,2026)

Correlation Analysis

Pearson correlation analysis was conducted to determine the relationship between ICT infrastructure, staff technical capacity, organisational behaviour, and supply chain performance. The results revealed significant positive relationships among all study variables ($p < 0.01$). ICT infrastructure demonstrated the strongest positive relationship with supply chain performance ($r = 0.681$), followed by staff technical capacity ($r = 0.634$) and organisational behaviour ($r = 0.592$). In addition, ICT infrastructure was strongly associated with staff technical capacity ($r = 0.642$) and organisational behaviour ($r = 0.584$), while staff technical capacity and organisational behaviour were also positively correlated ($r = 0.601$). These findings

suggest that improvements in technological infrastructure, employee competencies, and organisational support are associated with enhanced supply chain performance.

Table 3: Correlation Matrix

Variable	ICT	STC	OB	SCP
ICT Infrastructure	1			
Staff Technical Capacity	.642**	1		
Organisational Behaviour	.584**	.601**	1	
Supply Chain Performance	.681**	.634**	.592**	1

$p < 0.01$

Source (Author,2026)

Multiple Regression Analysis

Multiple linear regression analysis was performed to examine the combined effect of ICT infrastructure, staff technical capacity, and organisational behaviour on supply chain performance. The regression model was statistically significant ($F = 105.218$, $p < 0.001$) and explained 64.3% of the variation in supply chain performance ($R^2 = 0.643$). Among the predictor variables, ICT infrastructure had the strongest positive influence on supply chain performance ($\beta = 0.412$, $p < 0.001$), followed by staff technical capacity ($\beta = 0.328$, $p < 0.001$) and organisational behaviour ($\beta = 0.271$, $p = 0.001$). The findings demonstrate that organisations with well-developed ICT infrastructure, competent procurement personnel, and supportive organisational environments are more likely to achieve improved procurement efficiency, delivery reliability, and overall supply chain performance.

Table 4: Regression Results

Variable	Beta	T	Sig.
ICT Infrastructure	0.412	5.921	0.000
Staff Technical Capacity	0.328	4.873	0.000
Organisational Behaviour	0.271	3.992	0.001

$R^2 = 0.643$, $F = 105.218$

$p < 0.001$

Source (Author,2026)

Qualitative Findings

The qualitative analysis generated several key themes that complemented the quantitative findings.

Theme 1: Improved Procurement Efficiency. Participants reported that e-procurement significantly reduced procurement processing time by automating supplier registration, tender evaluation, purchase approvals, and contract management. Automation minimised paperwork and enhanced workflow efficiency.

Theme 2: Importance of ICT Infrastructure. Most participants emphasised that stable internet connectivity, reliable procurement software, adequate computer hardware, and effective system maintenance were fundamental requirements for successful implementation of e-procurement.

Theme 3: Staff Technical Capacity. Interview participants highlighted continuous staff training as essential for improving user confidence and maximising the benefits of digital procurement systems. They noted that organisations investing in staff development experienced smoother implementation and fewer operational challenges.

Theme 4: Organisational Support Management commitment, organisational policies, and employee willingness to adopt new technologies were identified as important factors influencing successful implementation of e-procurement. Respondents indicated that supportive leadership promoted acceptance of technological change and encouraged effective utilisation of electronic procurement systems.

Discussion of Findings

The findings demonstrate that e-procurement practices positively influence supply chain performance in selected organisations in Zambia. The high level of e-procurement utilisation indicates increasing organisational recognition of digital procurement as a strategic tool for improving operational efficiency. The strong influence of ICT infrastructure confirms that technological readiness remains a prerequisite for successful implementation of e-procurement systems. Organisations possessing reliable digital infrastructure are better positioned to automate procurement activities, improve supplier communication, and strengthen procurement transparency.

Similarly, the significant effect of staff technical capacity emphasises the importance of investing in continuous professional development. Procurement personnel with adequate ICT competencies are more capable of utilising electronic procurement systems effectively, thereby improving procurement efficiency and organisational performance. The positive contribution of organisational behaviour further demonstrates that management commitment, employee acceptance, and supportive institutional policies facilitate successful adoption of digital procurement technologies. These findings are consistentt with the Technology–Organisation–Environment (TOE) Framework, Diffusion of Innovation Theory, and Resource-Based View Theory, all of which emphasise the importance of technological capability, organisational readiness, and strategic resource utilisation in achieving successful technology implementation.

Overall, the study confirms that effective implementation of e-procurement enhances procurement efficiency, reduces procurement cycle time, improves delivery reliability, and increases the availability of goods and services. These findings contribute to the growing body of knowledge on digital procurement implementation in developing economies and provide practical evidence fororganisational seeking to strengthen supply chain performance through technology-enabled procurement systems.

Conclusion

This study assessed the effect of e-procurement practices on supply chain performance in selected organisations in Zambia, with particular emphasis on the influence of ICT infrastructure, staff technical capacity, and organisational behaviour. The findings demonstrated that e-procurement practices significantly improve supply chain performance by enhancing procurement efficiency, reducing procurement cycle time, improving delivery reliability, and increasing the availability of goods and services. The study further established that ICT infrastructure was the strongest predictor of supply chain performance, followed by staff technical capacity and organisational behaviour.

The results underscore the importance of investing in robust technological infrastructure, continuous capacity building, and supportive organisational policies to maximise the benefits of e-procurement.

Organisations that effectively integrate digital procurement systems into their procurement processes are better positioned to improve operational efficiency, strengthen transparency and accountability, and achieve sustainable supply chain performance. The findings contribute to the growing body of knowledge on ddigital procurement implementation in developing countries and provide practical evidence to support policy formulation and organisational decision-making.

Recommendations

Based on the findings of the study, the following recommendations are proposed:

1. **Strengthen ICT Infrastructure:** Organisations should invest in reliable ICT infrastructure, including modern procurement software such as ERP, high-speed fibre-optic internet connectivity, data backup and disaster recovery systems, cybersecurity solutions (firewalls, Encryption, and multi-factor authentication) and regular system maintenance to support effective e-procurement implementation.
2. **Enhance Staff Technical Capacity:** Organisations should establish structured training programmes focusing on e-procurement system operation, ERP utilisation, electronic tender management, supplier relationship management, digital record management, procurement analytics, and cybersecurity awareness. professional certification programmes through procurement bodies and periodic refresher training should also be introduced to improve employees technical competencies and confidence in using digital procurement platforms. Continuous technical support and mentoring should accompany training initiatives to maximise system utilisation and improve procurement outcome
3. **Enhanced Supplier Integration Through Electronic Supplier Relationship Management (e SRM) Systems:** Organisations should really set up electronic supplier relationship management systems, also called e SRM, that can handle supplier registration, electronic communication, supplier performance monitoring, and real-time order tracking. Ideally, supplier portals should be woven into e-procurement systems too, so that information moves faster, procurement cycle times get shorter, delivery reliability improves, and overall collaboration between organisations and suppliers becomes stronger. Regular supplier capacity-building workshops should also be conducted to ensure effective participation in digital procurement processes.
4. **Institutionalise Performance Monitoring and Continuous Improvement:** Organisations should establish electronic supplier relationship management (e-SRM) systems that facilitate supplier regi stration, electronic communication, supplier performance monitoring, and real-time order tracking. Supplier portals should be integrated into e-procurement systems to improve information sharing, red uce procurement cycle times, enhance delivery reliability, and strengthen collaboration between organisations and suppliers. Regular supplier capacity-building workshops should also be conducted to ensure effective participation in digital procurement processes.

Future Research

1. Comparative Studies Across Sectors

Future work should compare e-procurement adoption and supply chain performance across public and private sector organisations in Zambia, to see if those differences really shape procurement results. In other words, looking at multiple sectors might show patterns that single-sector studies fail to capture.

2. Longitudinal Evaluation of E-procurement Performance

Future research should also conduct longitudinal evaluation studies that follow procurement over time to understand the enduring effects of e-procurement platforms on procurement efficiency, supplier responsi-

veness, stock availability and overall supply chain performance.

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