

Effect of E-Tendering on Supply Chain Performance of Supermarkets in Nairobi City County, Kenya

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Abstract

The purpose of this study was to examine the effect of e-tendering on supply chain performance of supermarkets in Nairobi City County, Kenya. The study adopted a descriptive cross-sectional survey design anchored on Institutional Theory. The target population comprised 240 procurement and supply chain personnel from 95 registered supermarkets, from whom a stratified random sample of 150 respondents was selected. Data were collected using structured questionnaires and analyzed using descriptive statistics, Pearson correlation, and multiple regression analysis. A total of 133 questionnaires were returned, representing an 88.7% response rate. The descriptive results reported an overall mean of 4.393 (SD = 0.828) for the electronic procurement items presented in the study. E-tendering was positively and significantly associated with supply chain performance ($r = 0.343$, $p < 0.001$) and remained a significant predictor within the broader e-procurement regression model ($B = 0.194$, $\beta = 0.217$, $t = 3.612$, $p < 0.001$). The broader four-predictor e-procurement model explained 55.5% of the variance in supply chain performance ($R^2 = 0.555$). The study concludes that e-tendering is positively associated with supply chain performance and recommends stronger system integration, staff training, supplier engagement, and supportive digital procurement policies. The findings contribute evidence on digital procurement practices within Kenya's supermarket retail sector.

Keywords: *E-Tendering, Supply Chain Performance, Electronic Procurement, Supermarkets, Nairobi City County*

1.0 Introduction

E-tendering is one of the main pillars of electronic procurement, which involves the electronic preparation, advertisement, submission, evaluation and award of tenders through an online procurement platform (Pavithra et al., 2018). It enhances transparency, accountability, and procurement efficiency by decreasing paperwork, manual involvement, and creating a procurement record that can be audited (Sunmola et al., 2020). By automating the bid evaluation process and enabling live interaction among suppliers and buyers, e-tendering reduces procurement cycle time and helps to guide informed decision making.

From an empirical standpoint, e-tendering has been shown to be a strong method to enhance the performance of the supply chain by diminishing procurement lead times, administrative costs, and supplier involvement and competition (Vaidya et al., 2019). This improves fairness and compliance in supplier selection, as well as reduces the chances for favoritism and corruption, and enhances transparency (Bof & Previtali, 2020). Moreover, its broader supplier sourcing via electronic platforms encourages competition in prices and value for money, leading to better procurement results and business operations (Zhang et al., 2021).

The e-tendering system has also been boosted by the use of artificial intelligence and blockchain, which have enhanced the security of the bidding process, data integrity, regulatory compliance, and traceability of the procurement process (Hussain et al., 2022). The technological skills are able to help organizations make better supplier collaboration, optimize procurement decisions, and respond to changing market conditions. As a result, by using e-Tendering, the performance of the supply chain is improved by increasing efficiency, lowering procurement costs, transparency, competitiveness of suppliers and organizational responsiveness. In the supermarket industry, the speed of procurement, the product availability and supplier coordination are vital for successful supermarket operations, and e-tendering is expected to be a key solution to enhance overall supermarket supply chain performance.

1.1 Statement of the Problem

The supermarket industry in Kenya has been facing continuous issues in the supply chain, such as delayed delivery, inflated procurement expenses, and extended cash-to-cash (C2C) cycles, which adversely impact the industry's performance and competitiveness. Big retailers such as Uchumi, Nakumatt, and Tuskys have also faced failures and financial woes, which have been blamed on low financial management, procurement inefficiencies, and poor business strategy

(KEBS, 2012; Achieng et al., 2018). Internal mismanagement was also revealed to be a major contributor to financial challenges faced by supermarkets, leading to high procurement costs, late payment of suppliers and the wrong type of inventory replenishment (Wachira, 2016).

The electronic procurement process, especially e-tendering, has received a lot of promotion as a strategy to enhance procurement transparency, supplier selection, operational efficiency and the overall performance of supply chains. Supermarkets in Nairobi City County, however, still experience technological infrastructure, staff competence, and integration from suppliers as some of the challenges to implementing the digital procurement systems and realizing the expected benefits (Makali, 2015; Kasaine, 2016). These limitations have a negative impact on important supply chain metrics such as on-time delivery, cost per order, and cash-to-cash conversion.

While the adoption of e-procurement systems and its impact on operational efficiency in the retail sector in Kenya has been studied previously (Omondi & Namusonge, 2015; Hussein, 2021), the impact of e-tendering on the performance of the retail supply chain in the supermarkets of Nairobi City County has not been well documented. Furthermore, most of the previous research has ignored the link between e-tendering and important supply chain performance indicators. This knowledge gap requires empirical research to establish whether e-tendering improves performance of the supply chain and whether it has evidence to back up the procurement policy and managerial decision making processes in the retail supermarket sector in Kenya.

1.2 Objective of the Study

To examine the effect of e-tendering on supply chain performance of supermarkets in Nairobi City County, Kenya.

1.3 Research Question

What is the effect of e-tendering on supply chain performance of supermarkets in Nairobi City County, Kenya?

2.0 Literature Review

2.1 Theoretical Framework

Institutional Theory draws on the seminal work of Selznick (1949) and DiMaggio and Powell (1983) , which argues that organizational behaviors are determined more by institutional

pressures than by economic factors. Through the theory, the researcher found three mechanisms of institutional isomorphism, namely coercive pressures, mimetic pressures, and normative pressures that pressure organizations to adopt practices that are considered legitimate in their operating environment. Coercive pressures have occurred as a result of government regulations and procurement policies, which mandate the use of e-tendering systems to improve transparency, accountability and regulatory compliance in the context of supermarkets in Nairobi City County. Mimetic pressures drive supermarkets to emulate their successful competitors by enhancing the effectiveness of procurement and its competitive advantage as a result of the implementation of e-tendering. Professional standards, industry best practices and stakeholder expectation further encourage the use of electronic procurement systems, as they lead to better performance in the procurement process and supply chain (Scott, 2013). The institutional theory is a useful basis to explain the adoption of e-tendering, since organisations are setting up new digital procurement processes to become legitimate and have a positive impact on their efficiency. The theory has been called into question, however, because it pays too much attention to organizational conformity while neglecting strategic agency, thereby accounting for the fact that some companies innovate, and other companies simply copy institutional norms (Battilana, 2006; Greenwood et al., 2011). The theory is still relevant to understanding the effects of institutional influences on the adoption of e-tendering and its impact on performance of supply chain in Nairobi City County supermarkets despite the limitation.

2.2 Empirical Review

Empirical research indicates that e-tendering plays a vital role in organizational performance as it brings benefits in terms of efficiency in procurement, transparency and reduction in procurement costs. For retail, the author Hajir (2021) concluded that e-tendering considerably improved the operational performance of the supermarkets in Nairobi City County where e-procurement was found to account for 66.5% of the improvement in their performance. The study suggested investing in efficient procurement technology that is user friendly and compatible. But it is different from the concept of overall supply chain performance because it does not take an operational performance focus. Likewise, Makali (2015) found that the use of e-tendering enhanced the performance of procurement by reducing the procurement lead time and reducing the cost of operations in supermarkets in Nairobi. The study suggested that more use of ICT tools should be made to optimize procurement processes. However, it did not

measure wider supply chain results. Similar results have been found in the public sector research.

Khasandi et al. (2022) found that e-tendering had an impact on enhancing the performance of the supply chain in county governments as it lowers procurement costs, processing time and errors. Similarly, Bulibah and Juma (2020) found a positive correlation between e-tendering practices and supply chain performance for the Kakamega County government, suggesting that there is a need to invest more in electronic procurement systems in the government. However, both studies took place in public institutions, and therefore cannot be applied to the retail sector. The studies reviewed as a whole support the positive impact of e-tendering on organisational and procurement performance. But there is very little empirical evidence available on its effect on supermarket supply chain performance especially in Nairobi City County, Kenya. The present study is based on this contextual and conceptual gap.

3.0 Methodology

The study adopted a descriptive cross-sectional survey design. The design was appropriate because it enabled the collection of quantitative data on existing e-tendering practices and examination of the relationship between e-tendering and supply chain performance without manipulating the study variables (Creswell & Creswell, 2018; Saunders et al., 2019). The target population comprised procurement and supply chain staff from 95 registered supermarkets in Nairobi City County, as reported in the study sampling frame. The accessible population comprised 240 personnel in procurement-related roles, including procurement directors, supply chain managers, procurement officers, inventory clerks, and system operators. Stratified random sampling was used to ensure representation by supermarket category and management level. Yamane's (1967) formula, at a 95% confidence level and 5% margin of error, yielded a sample of 150 respondents. Proportionate allocation was then used to distribute the sample across the relevant strata.

Primary data were collected using a structured self-administered questionnaire with a five-point Likert scale (1 = Strongly Disagree; 5 = Strongly Agree). Questionnaire items were adapted from previous empirical work on electronic procurement and supply chain performance, while the KNBS Economic Survey (2023) provided contextual secondary information. The questionnaire was piloted with 15 respondents from a supermarket excluded from the main study to assess clarity, relevance, and usability. Content and face validity were reviewed by supply chain management scholars and procurement practitioners, while construct alignment

was assessed against the study objective and conceptual framework (Kothari, 2014; Saunders et al., 2019).

Prior to data collection, ethical approval was obtained from Kenyatta University and authorization was obtained from the National Commission for Science, Technology and Innovation (NACOSTI). Participation was voluntary, informed consent was obtained, and confidentiality and anonymity were maintained throughout the study. IBM SPSS Statistics was used to code and analyze the data. Descriptive statistics, including frequencies, percentages, means, and standard deviations, summarized respondent characteristics and study variables. Inferential analysis used Pearson correlation and multiple regression at a 5% significance level to assess the relationship between e-tendering and supply chain performance. Findings were presented using tables and figures.

4.0 Findings and Discussion

A total of 133 of the 150 questionnaires were returned, yielding an 88.7% response rate. The achieved response rate provided an adequate basis for the planned statistical analyses.

4.1 Descriptive Statistics

The descriptive results showed an overall mean of 4.393 (SD = 0.828) across the electronic procurement items presented in Table 3. Respondents reported broad use of electronic sourcing in procurement (M = 4.045, SD = 0.976), improved supplier delivery reliability (M = 4.549, SD = 0.839), lower procurement transaction costs (M = 4.316, SD = 0.700), and a shorter cash-to-cash cycle (M = 4.662, SD = 0.797). These results indicate favorable perceptions of digital procurement practices among supermarkets in Nairobi City County and are consistent with prior studies linking electronic procurement to procurement efficiency and supply chain outcomes (Makali, 2015; Hajir, 2021; Bulibah & Juma, 2020; Khasandi et al., 2022).

Table 3: Descriptive Statistics Results for E-Sourcing

Statement	Mean	Std Dev
Our supermarket uses e-sourcing to identify and select suppliers	4.045	0.976
E-sourcing has led to more reliable and timely supplier deliveries	4.549	0.8391
E-sourcing has lowered the cost per procurement transaction	4.316	0.7003
E-sourcing has helped reduce the cash-to-cash cycle time	4.662	0.7967
Average	4.393	0.828

Source: Research Data (2026)

4.2 Inferential Analysis

4.2.1 Correlation Analysis

Correlation analysis revealed a significant positive relationship between e-tendering and supply chain performance ($r = 0.343$, $p < 0.001$). This indicates that higher e-tendering scores were associated with higher supply chain performance among the surveyed supermarkets. The finding is consistent with previous evidence linking e-tendering with procurement efficiency and cost reduction (Hajir, 2021).

4.2.2 Model Summary

The broader e-procurement regression model demonstrated substantial explanatory power ($R = 0.745$, $R^2 = 0.555$, adjusted $R^2 = 0.541$), indicating that the four e-procurement predictors jointly explained 55.5% of the variation in supply chain performance. The model summary therefore represents the combined explanatory contribution of the predictors rather than e-tendering alone.

Table 4: Model Summary

Model	R	R Square	Adjusted R-Square	Std. Error of the Estimate
1	.745 ^a	.555	.541	.4303

Source: Research Data (2026)

4.2.3 Analysis of Variance

The ANOVA results indicated that the overall four-predictor e-procurement regression model was statistically significant, $F(4, 128) = 39.837$, $p < 0.001$. The result shows that the predictors included in the model jointly explained a statistically significant proportion of variation in supply chain performance; the omnibus test should not be interpreted as the effect of e-tendering alone.

Table 5: Analysis of Variance

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	29.504	4	7.376	39.837	.000 ^b
	Residual	23.699	128	.185		
	Total	53.203	132			

Source: Research Data (2026)

4.2.4 Regression Coefficients

Regression analysis showed that e-tendering was a positive and statistically significant predictor of supply chain performance within the broader e-procurement model ($B = 0.194$, $\beta = 0.217$, $t = 3.612$, $p < 0.001$). This finding indicates a significant positive predictive association between e-tendering and supply chain performance after accounting for the other predictors included in the model (Hajir, 2021; Ochieng, 2020).

Table 6: Regression Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
eTendering	.194	.054	.217	3.612	.000

Source: Research Data (2026)

4.3 Discussion of Findings

The findings show that e-tendering was positively associated with supply chain performance ($r = 0.343$, $p < 0.001$) and remained a significant predictor within the broader e-procurement model ($\beta = 0.217$, $p < 0.001$). The result supports prior evidence that digital tendering can strengthen procurement efficiency, supplier coordination, and transparency in organizational supply chains (Hajir, 2021; Ochieng, 2020).

5.0 Conclusion

The study concludes that e-tendering is positively associated with supply chain performance among supermarkets in Nairobi City County, Kenya. The results indicate that stronger adoption of digital tendering practices is associated with improved procurement coordination and efficiency. However, because the study used a cross-sectional design, the findings should be interpreted as evidence of association and prediction rather than definitive causation.

6.0 Recommendations

Supermarkets should strengthen the integration of e-tendering with procurement and supplier-management systems, provide continuous staff and supplier training, and strengthen cybersecurity and data governance. Policymakers should support interoperable digital procurement standards and an enabling regulatory environment, particularly for medium-sized

retailers. Future studies should test e-tendering effects in other retail sectors and geographical contexts using longitudinal designs.

References

- Aboelmaged, M. G. (2010). Predicting e-procurement adoption in a developing country: An empirical integration of technology acceptance model and theory of planned behavior. *International Journal of Information Management*, 30(2), 139–146.
- Achieng, R., Otieno, P., & Wanyama, S. (2018). Financial distress and collapse of retail chains in Kenya: A case of Uchumi, Nakumatt, and Tuskys. *International Journal of Business and Social Science*, 9(2), 45–56.
- Battilana, J. (2006). Agency and institutions: The enabling role of individuals' social position. *Organization*, 13(5), 653–676.
- Boateng, D., Mensah, J., & Owusu, K. (2023). E-procurement systems and supply chain performance: Evidence from African retail markets. *International Journal of Supply Chain Management*, 12(1), 45–62.
- Bof, F., & Previtali, P. (2020). E-procurement and transparency in supplier selection: Evidence from public sector organizations. *Journal of Public Procurement*, 20(3), 233–251.
- Bulibah, A., & Juma, H. (2020). E-tendering practices and supply chain performance in Kakamega County Government. *International Journal of Supply Chain Management*, 9(3), 112–120.
- Creswell, J. W., & Creswell, J. D. (2018). *Research design: Qualitative, quantitative, and mixed methods approaches* (5th ed.). Sage Publications.
- DiMaggio, P. J., & Powell, W. W. (1983). The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields. *American Sociological Review*, 48(2), 147–160.
- Field, A. (2018). *Discovering statistics using IBM SPSS statistics* (5th ed.). Sage Publications.
- Greenwood, R., Oliver, C., Sahlin, K., & Suddaby, R. (2011). *The Sage handbook of organizational institutionalism*. Sage Publications.
- Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2022). *Multivariate data analysis* (9th ed.). Cengage Learning.
- Hajir, O. (2021). E-tendering and operational performance of supermarkets in Nairobi City County. *African Journal of Business and Management*, 13(2), 77–89.
- Hussain, M., Khan, S., & Ali, R. (2022). Blockchain and artificial intelligence in e-tendering: Enhancing transparency and security. *Journal of Supply Chain Management*, 58(4), 112–128.
- Hussein, A. (2021). E-procurement adoption and operational efficiency in Kenya's retail sector. *African Journal of Business Management*, 15(1), 23–34.
- Kasaine, S. (2016). Barriers to e-procurement implementation in supermarkets in Nairobi County. *Kenya Journal of Business Studies*, 12(2), 77–89.
- Kenya Bureau of Standards. (2012). *Report on retail sector performance in Kenya*. Kenya Bureau of Standards.

- Khasandi, J., Wekesa, P., & Mutua, S. (2022). E-tendering and supply chain performance in county governments in Kenya. *Journal of Public Procurement*, 22(1), 45–63.
- Kenya National Bureau of Statistics. (2023). *Economic survey report*. Kenya National Bureau of Statistics.
- Kothari, C. R. (2014). *Research methodology: Methods and techniques* (2nd ed.). New Age International Publishers.
- Kothari, C. R. (2018). *Research methodology: Methods and techniques* (4th ed.). New Age International Publishers.
- Makali, J. (2015). Challenges of e-procurement adoption in Kenya's retail sector. *International Journal of Supply Chain Management*, 4(2), 56–64.
- Mugenda, O. M., & Mugenda, A. G. (2019). *Research methods: Quantitative and qualitative approaches*. Acts Press.
- Ochieng, P. (2020). E-procurement adoption and supply chain efficiency in Kenya's retail sector. *Journal of Supply Chain and Operations Management*, 8(1), 34–49.
- Organisation for Economic Co-operation and Development. (2019). *Public procurement in the digital age: Driving efficiency and transparency*. OECD Publishing.
- Omondi, G., & Namusonge, G. (2015). E-procurement adoption and supply chain performance in Kenya's retail industry. *International Journal of Economics, Commerce and Management*, 3(6), 112–128.
- Pavithra, S., Ramesh, K., & Kumar, V. (2018). E-tendering systems and procurement efficiency: A review. *International Journal of Procurement Management*, 11(3), 245–262.
- Saunders, M., Lewis, P., & Thornhill, A. (2019). *Research methods for business students* (8th ed.). Pearson Education.
- Scott, W. R. (2013). *Institutions and organizations: Ideas, interests, and identities* (4th ed.). Sage Publications.
- Sekaran, U., & Bougie, R. (2020). *Research methods for business: A skill-building approach* (8th ed.). Wiley.
- Selznick, P. (1949). *TVA and the grass roots: A study in the sociology of formal organization*. University of California Press.
- Sunmola, F., Adepoju, T., & Ogunleye, A. (2020). E-tendering and procurement transparency in developing countries. *Journal of African Business*, 21(4), 367–384.
- Taber, K. S. (2018). The use of Cronbach's alpha when developing and reporting research instruments in science education. *Research in Science Education*, 48(6), 1273–1296.
- Tate, W. L., Ellram, L. M., & Schoenherr, T. (2021). Strategic supply chain management in the digital era: Implications for procurement practices. *Journal of Supply Chain Management*, 57(3), 23–39.
- Vaidya, K., Sajeev, A., & Callender, G. (2006). Critical factors that influence e-procurement implementation success in the public sector. *Journal of Public Procurement*, 6(1/2), 70–99.

- Vaidya, K., Sajeew, A., & Callender, G. (2019). E-procurement practices and supply chain performance: Evidence from global case studies. *Journal of Purchasing and Supply Management*, 25(2), 100–115.
- Wachira, M. (2016). Internal mismanagement and financial distress in Kenyan supermarkets. *African Journal of Finance and Management*, 14(1), 55–72.
- World Bank. (2021). *Digital procurement: Transforming public procurement systems for efficiency and transparency*. World Bank.
- Yamane, T. (1967). *Statistics: An introductory analysis* (2nd ed.). Harper & Row.
- Zhang, Y., Li, H., & Chen, X. (2021). Competitive pricing and supplier participation in e-tendering platforms. *Journal of Business Research*, 134, 345–356.