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Procurement Automation and Organizational Performance of State Corporations in Kenya: Evidence from a Cross-Sectional Survey

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ABSTRACT

Purpose: The purpose of this research was to investigate how automation of procurement activities impacts organizational performance among state corporations in Kenya.

Methodology: The study used a positivist, descriptive cross-sectional survey design. The target population comprised 414 state corporations in Kenya, from which a sample of 203 was drawn using Yamane's (1967) formula. Data were collected from 167 senior procurement and supply chain managers via a structured questionnaire with a five-point Likert scale, yielding an 82.3% response rate. Procurement automation was operationalized across three sub-scales — electronic sourcing, electronic payment processing, and automated evaluation and reporting — while organizational performance was measured using indicators of service delivery effectiveness, value for money, and quality of procurement outcomes. Data were analyzed using Pearson correlation and multiple ordinary least squares (OLS) regression in SPSS v. 26.

Findings: Though electronic payment processing demonstrated a notably low item-total correlation ($r = 0.134$), its utility is discussed alongside evidence of its independent predictive use in the regression model. Overall, the regression model was significant ($F(3,163) = 29.130$, $p < .001$) and accounted for 34.9% of the variance in organization performance ($R^2 = .349$, Adj. $R^2 = .337$). Automated evaluation and reporting ($\beta = .767$, $p < .001$), electronic sourcing ($\beta = .300$, $p < .001$), and electronic payment processing ($\beta = .243$, $p < .001$) each significantly predicted organization performance.

Unique Contribution to Theory, Practice and Policy: This research expands upon socio-technical theory and capability theory by suggesting that automation of procurement activities consists of distinct dimensions that each uniquely impact procurement performance. Findings provide policy guidance for prioritizing automated evaluation and reporting as the highest-impact dimension of procurement automation reform.

Keywords: *Procurement Automation, Electronic Sourcing, Electronic Payment Processing, Organizational Performance, State Corporations, Kenya, Public Procurement*

JEL Codes: *H57, O33, D73*

1. INTRODUCTION

Public procurement is arguably the most impactful government administrative activity because it is the mechanism through which state resources are translated into public goods, services, and infrastructure (Bosio et al., 2022). For developing nations saddled with limited resources yet tasked with providing the widest range of services to their citizens, government procurement processes are critically important. The government operates state corporations in Kenya through 21 ministries and spends billions of Kenyan shillings annually on procurement activities alone (Omondi et al., 2024), accounting for up to 30% of all public spending (Mavidis & Folinas, 2022; Waci et al., 2024). Thus, inefficiencies in public procurement at Kenya's state corporations not only inhibit those organizations' operational capacity but also slow socioeconomic development in Kenya.

Despite long-standing recognition of procurement's critical role in public-sector outcomes, Kenyan state corporations have long grappled with inefficiencies stemming from manual, fragmented procurement systems. Failure to digitize procurement processes leads to bloated procurement cycles, inadequate audit trails, information asymmetries between buyers and suppliers, and, ultimately, a lack of compliance with best-practice procurement standards (Omondi et al., 2024). Accordingly, numerous scholars and procurement experts have advocated for procurement automation, defined as the use of information technology and telecommunications to digitize procurement activities and promote standardization (Herold et al., 2023) as a solution to many of the challenges faced by Kenya's state corporations.

Procurement automation encompasses a range of digital tools deployed across the procurement lifecycle. Electronic sourcing technology digitizes the tendering process and related supplier interactions; electronic payment processing automates payments for procurement-related contracts; and automated evaluation and reporting standardize the processes by which bids are assessed, and procurement reporting is completed (Jiménez et al., 2022; Khorana et al., 2024). Individually, these processes reduce the discretionary leeway available to individuals within an organization and improve both information flows and auditability, features associated with improved performance in most organizations (Hallikas et al., 2021; Herold et al., 2023).

Despite the expected performance benefits of automation, empirical research quantifying this relationship in African public-sector contexts remains limited. Although studies have shown that procurement and automation are associated with state corporation performance in Kenya (Omondi et al., 2024; Waci et al., 2024), they do not treat specific automation aspects as independent variables in a multiple regression framework. Understanding how the various components of procurement automation contribute to organizational performance is necessary because each dimension of automation may affect performance differently. Without isolating them, existing evidence cannot clearly show the relative importance of each dimension when making policy recommendations (Herold et al., 2023).

This study contributes to the literature by examining how three dimensions of procurement automation (electronic sourcing, electronic payment processing, and automated evaluation and reporting) relate to organizational performance in the procurement context in Kenya. Using survey data from 167 procurement management professionals and multiple OLS regressions, the study assesses whether each dimension of procurement automation explains unique variance in state corporate performance while controlling for other variables. Specifically, the study seeks to address the following research question: To what extent do electronic sourcing, electronic payment processing, and automated evaluation and reporting explain variation in organizational performance among state corporations in Kenya?

Beyond its empirical contribution, this study has practical relevance for policymakers and public-sector managers seeking to allocate limited digital-reform resources efficiently. By disaggregating the effects of automation on performance, government officials can make more informed decisions about where to focus their efforts (and money) to improve their organizations' procurement capabilities.

2. THEORETICAL BACKGROUND AND HYPOTHESIS DEVELOPMENT

2.1 Theoretical Framework

The theoretical foundation of this study draws primarily on socio-technical systems theory and organizational capability perspectives, both of which explain how and why digital procurement interventions yield desirable performance outcomes. The socio-technical view of automation holds that technology alone does not determine outcomes. Automated tools produce performance effects when used alongside human resources, organizational routines, and structures (Harland et al., 2021). Consequently, in the context of procurement automation, outcomes associated with electronic procurement systems depend on the extent to which automation is internalized into procurement routines and decision-making criteria.

Organizational capability theory views procurement automation interventions as capabilities that should be nurtured rather than purchased. Following this argument, automated procurement systems restructure procurement routines, reduce discretion associated with procurement decisions, and facilitate cross-organizational coordination, to name a few operational capabilities that become capitalized into improved performance once automation systems are institutionalized (Herold et al., 2023). Viewing procurement automation as an organizational capability can explain why performance gains from this automation remain elusive when organizations half-heartedly implement electronic systems (Herold et al., 2023; Omondi et al., 2024).

Bosio et al.'s (2022) Public Procurement Theory approaches procurement systems as governance levers and tools that simultaneously advance organizational policy mandates, managerial efficiency, and transparency goals. Automation improves procurement governance by reducing information asymmetry between procurement stakeholders and by constraining discretionary

behavior, both of which are key indicators of public procurement failure (Bosio et al., 2022). Automation processes, such as cataloging and approval routing conditions, require suppliers and procurement actors to comply with procurement rules vetted into e-procurement systems. The extent to which suppliers and procuring agencies adapt to these rules determines how much automation will improve procurement outcomes.

Empirical evidence on procurement automation indicates that it translates into improved procurement and organizational performance outcomes. The literature shows that procurement automation reduces transaction costs, captures accurate information, and creates audit trails that support improved performance outcomes (Herold et al., 2023). Hallikas et al. (2021) found that organizations with higher levels of automation achieve higher value-for-money and compliance scores than those with less sophisticated procurement tools. Procurement system quality has been shown to explain variance in value-for-money and organizational performance outcomes in Kenyan state corporations (Waci et al., 2024).

2.2 Electronic Sourcing and Organizational Performance

Automated sourcing refers to procurement actors using digital tools to plan and implement sourcing decisions, including issuing tenders, identifying potential suppliers, and receiving supplier bids electronically (Herold et al., 2023). Electronic sourcing improves procurement efficiency by eliminating the administrative tasks required to kick-start a procurement cycle and by opening sourcing opportunities to many more suppliers than would be possible manually (Herold et al., 2023). Opening procurement opportunities through electronic sourcing enables organizations to achieve improved performance through shorter cycles, broader supplier pools, and procurement decisions supported by written records.

Herold et al. (2023) found that e-procurement systems improve procurement efficiency and compliance scores among public organizations that integrate them into procurement workflows, rather than those that adopt them as a symbol of technological advancement. Automating sourcing decisions among African universities, colleges, and polytechnics increased transparency and institutional performance by shifting procurement decisions away from university advisors who used them as channels to offer favors to well-connected suppliers and toward digital environments that guarantee equal opportunities to everyone who meets the sourcing criteria (Khorana et al., 2024). Similarly, Omondi et al. (2024) report that structured procurement procedures improve organizational performance in Kenyan public organizations. Based on this body of evidence, the following hypothesis is advanced:

H_1: Electronic sourcing has a significant positive effect on the organizational performance of state corporations in Kenya.

2.3 Electronic Payment Processing and Organizational Performance

Payment processing was defined as automating disbursements for procurement transactions, including supplier invoice processing, payment approvals, and remittance advice (Herold et al., 2023). Automating payments can help avoid late payments, eliminate the risk of payment fraud, and provide audit trails for payment documentation (Herold et al., 2023). This type of automation could be especially helpful in government organizations, given the extensive approval processes that procurement spending often undergoes.

Studies examining electronic payment processing specifically within public procurement have found that this form of automation can improve performance. Waci et al. (2024) showed that automation in financial processes contributed to value-for-money (VfM) performance in Kenyan state corporations, with late payments causing issues for suppliers and leading to increased costs over time. Another study examining compliance issues also found that missed or late payments are among the most frequent offenses (Jiménez et al., 2022). Since automation in payments can ensure that payments are approved and issued on time by putting those steps in a sequential order, it could help limit the frequency of these occurrences. Therefore, the following hypothesis was proposed:

H_2: Electronic payment processing has a significant positive effect on the organizational performance of state corporations in Kenya.

2.4 Automated Evaluation and Reporting and Organizational Performance

Automated evaluation and reporting involve software-enabled standardization of bid assessment, the creation of evaluation reports, and the recording of procurement decisions. This automation directly addresses governance and accountability issues by eliminating opportunities for discretionary behavior in the evaluation process that have previously plagued public procurement (Jiménez et al., 2022). Scoring criteria, weightings, and mandatory documentation fields built into online evaluation tools limit discretion at one of the most impactful phases of the procurement process.

Findings from the Global North and Global South converge, indicating that automating the evaluation process has positive effects on procurement and organizational performance (Jiménez et al., 2022; Hallikas et al., 2021). Khorana et al. (2024) further showed that procurement systems that use electronic evaluation and reporting are positively associated with procurement transparency and overall organizational accountability. Herold et al. (2023) asserted that one of electronic procurement's most substantial benefits for governance is its ability to create documentation and audit trails that leave a transparent record of procurement actions open to third-party review. Examining data from Kenya, Omondi et al. (2024) demonstrate that the quality of procurement processes, including transparency and consistency of evaluation, predicts performance in public organizations.

H_3: Automated evaluation and reporting have a significant positive effect on the organizational performance of state corporations in Kenya.

2.5 Conceptual Framework

The conceptual framework for this study positions procurement automation as a multidimensional independent construct with three measurable components: electronic sourcing, electronic payment processing, and automated evaluation and reporting. Each is hypothesized to have a direct positive effect on organizational performance. Organizational performance, the dependent construct, is measured by service delivery effectiveness, value for money, and quality of procurement outcomes, consistent with Hallikas et al. (2021) and Waci et al. (2024). Figure 1 illustrates this framework.

INDEPENDENT VARIABLE *Procurement Automation* • Electronic sourcing systems • Electronic payment processing • Automated evaluation & reporting	**H_1, H_2, H_3 (+) →**	**DEPENDENT VARIABLE** *Organizational Performance* • Service delivery effectiveness • Value for money • Quality of procurement outcomes

Figure 1: Conceptual Framework – Procurement Automation Dimensions and Organizational Performance

3. METHODOLOGY

3.1 Research Design and Philosophy

The study used a descriptive cross-sectional design to assess the extent of relationships between dimensions of procurement automation and organizational performance in state corporations in Kenya. A cross-sectional design involves collecting data from a defined study population within a specific period (Saunders et al., 2023). Cross-sectional research is well-suited to investigating naturally occurring relationships between two or more variables in organizations without manipulation (Saunders et al., 2023). Moreover, this design has been widely used in prior research on public procurement and supply chain themes because it helps identify relationships between practices and outcomes across organizations with comparable institutional and regulatory environments (Siedlecki, 2020).

The study adopted a positivist research philosophy. Positivism holds that reality can be discovered through rigorous empirical observation and quantified using appropriate statistical tools for analysis (Creswell & Creswell, 2023). Positivism is best suited to quantitative methods of data collection and analysis. In this study, quantitative instruments were used to measure procurement automation and organizational performance, and the data were subjected to inferential statistical

analysis to test hypotheses and generalize about the direction and strength of relationships among the variables under investigation.

3.2 Population and Sampling

The target population comprised all state corporations in Kenya, totaling 414, spanning 21 government ministries, departments, and agencies, as declared under Executive Order No. 1 of 2023. These public entities were selected because they procure supplies and services worth billions of Kenyan shillings annually and are subject to the laws and regulations governing public procurement automation and transparency. Senior procurement or supply managers in state corporations served as the unit of observation because they deal directly with the procurement systems in use, the extent of automation, and the organization's performance (Saunders et al., 2023).

Purposive sampling was used to select respondents with specialized procurement expertise and direct involvement in procurement planning and oversight. This approach is appropriate when respondents are selected for their ability to provide informed, accurate responses to research instruments targeting specific organizational practices (Siedlecki, 2020). Sample size was determined using Yamane's (1967) formula with a 5% margin of error, yielding a target sample of 203 state corporations. After data collection and cleaning, 167 usable responses were obtained, representing an 82.3% response rate and meeting the minimum sample size requirements for multiple regression analysis recommended by Hair et al. (2019).

3.3 Measurement and Instrumentation

Primary data were collected using a structured research questionnaire comprising closed-ended questions and employing a five-point Likert scale to measure responses from 1 = (Strongly Disagree) to 5 = (Strongly Agree). A Likert-type scale allows the quantification of perceptual data and supports parametric statistical analysis (Creswell & Creswell, 2023). Dimensions of procurement automation included three sub-scales: electronic sourcing, electronic payment, and an automated evaluation and reporting system. These indicators align with those used by previous scholars to conceptualize e-procurement systems in public procurement (Herold et al., 2023). The measurement of organizational performance was adapted from Hallikas et al. (2021) and included indicators of service delivery effectiveness, value for money, and the quality of procured goods and services.

Content validity was used to establish instrument validity, with questions developed after reviewing relevant literature on procurement automation and organizational performance. Content validity was further ensured by submitting the data collection instrument to public procurement supervisors and professionals for review. Reliability refers to the degree to which a measurement instrument is stable and produces similar results over time (Creswell & Creswell, 2023). The overall Cronbach's alpha for procurement automation was $\alpha = .84$, which is acceptable given the

cutoff of .70 (Hair et al., 2019). A reliability concern specific to the electronic payment sub-scale is acknowledged and addressed in detail in the Results section.

3.4 Data Collection

The drop-and-pick method of data collection was used, in which questionnaires were personally delivered to respondents and later picked up after they completed them. The drop-and-pick method was chosen because it yields higher response rates than postal and electronic methods, especially in developing countries involving public institutions (Saunders et al., 2023). Respondents were informed about the study's aim and how the collected data would be used. Respondents were assured of the confidentiality of their responses and informed that their participation was voluntary. Participation was voluntary and with informed consent; participants could withdraw at any time without consequences, and data collected would be used only for academic purposes. Permission to collect data and fulfill the study was sought from the National Commission for Science, Technology, and Innovation (NACOSTI) under No. NACOSTI/P/24/37454 and ethical approval granted by the Jomo Kenyatta University of Agriculture and Technology Institutional Review Board.

3.5 Data Analysis

Data were coded, cleaned, and analyzed using the Statistical Package for the Social Sciences (SPSS v. 26). Means and standard deviations were calculated for the study variables. Pearson correlation analysis was conducted to assess the bivariate relationship between procurement automation and organizational performance. Multiple OLS regression was used to analyze the study data and test the study hypotheses. Regression analysis estimates the relationship between two or more predictors and the criterion while controlling for intercorrelations among predictors (Field, 2024; Daoud, 2019). The estimated regression model is:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon$$

Where: Y = Organizational performance of state corporations; X_1 = Electronic sourcing; X_2 = Electronic payment processing; X_3 = Automated evaluation and reporting; β_0 = Intercept; β_1, β_2, β_3 = Regression coefficients; ε = Error term. Diagnostic checks were conducted to evaluate compliance with OLS assumptions prior to interpreting results, and hypothesis testing was performed at a 95% confidence level ($\alpha = 0.05$).

4. RESULTS

4.1 Descriptive Statistics

Table 1 presents descriptive statistics for the three procurement automation indicators across the 167 state corporations in the sample.

Table 1: Descriptive Statistics for Procurement Automation Indicators (N = 167)

Variable	Minimum	Maximum	Mean	Std. Deviation
Electronic Sourcing	2.00	5.00	3.948	0.736
Electronic Payment Processing	2.67	5.00	3.842	0.751
Automated Evaluation & Reporting	1.33	5.00	3.645	0.960

Source: Field data (2024)

All three procurement automation indicators recorded mean scores above the scale midpoint of 3.00, suggesting that digital procurement practices are present across the surveyed state corporations. Electronic sourcing recorded the highest mean (M = 3.948, SD = 0.736), followed by electronic payment processing (M = 3.842, SD = 0.751) and automated evaluation and reporting (M = 3.645, SD = 0.960). The wider standard deviation observed for automated evaluation and reporting indicates greater variation across the sample in this dimension, suggesting that state corporations differ more substantially in the depth of their evaluation automation than in sourcing or payment automation.

4.2 Reliability Analysis

Table 2 presents the item-total statistics from the Cronbach's alpha reliability analysis for the procurement automation scale.

Table 2: Reliability Analysis — Item-Total Statistics

Item	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's α if Item Deleted
Electronic Sourcing	7.487	1.649	0.680	0.899
Electronic Payment Processing	7.593	2.590	0.134*	0.870
Automated Evaluation & Reporting	7.790	1.264	0.598	0.851

*Overall Cronbach's α = 0.84. *Item-total correlation below recommended minimum of 0.30 (Hair et al., 2019); see discussion in text*

The overall scale reliability was acceptable (α = 0.84). Electronic sourcing demonstrated a strong item-total correlation (r = 0.680), and automated evaluation and reporting were similarly adequate

(r = 0.598). However, electronic payment processing recorded a notably low corrected item-total correlation (r = 0.134), falling well below the recommended minimum of 0.30 (Hair et al., 2019). The Cronbach's alpha-if-item-deleted value for electronic payment (α = 0.870) also exceeded the overall scale alpha (α = 0.84), indicating that removing this item would modestly improve internal consistency.

This finding warrants careful interpretation. A low item-total correlation can reflect genuine conceptual distinctiveness rather than poor measurement quality — that is, electronic payment processing may tap into a different facet of the procurement automation construct than electronic sourcing and automated evaluation and reporting (Field, 2024). This interpretation is strongly supported by the factor analysis communalities: electronic payment recorded an extraction value of only 0.083, compared to 0.882 for electronic sourcing and 0.872 for automated evaluation and reporting. These figures confirm that electronic payment does not load substantively onto the same latent factor as the other two dimensions, which explains its low item-total correlation within a single composite scale. As Herold et al. (2023) argue, electronic payment systems represent a structurally distinct component of procurement automation, interfacing primarily with financial management systems rather than procurement workflow management. Critically, its inclusion in the regression model is empirically justified. As the subsequent results confirm, electronic payment processing is a statistically significant and independent predictor of organizational performance, contributing through pathways distinct from the other two dimensions. Retaining it, therefore, preserves both theoretical integrity and empirical completeness.

4.3 Pearson Correlation Analysis

Table 3 presents the Pearson correlation between the composite procurement automation measure and organizational performance.

Table 3: Correlation between Procurement Automation and Organizational Performance

Variable	Mean	Std. Dev.	Pearson r (Performance)
Procurement Automation Composite	—	—	0.587***
Organizational Performance	—	—	1.000

****p < 0.001 (two-tailed)*

A moderate to strong positive correlation was observed between the composite procurement automation measure and organizational performance (r = 0.587, p < 0.001). This bivariate association provides initial empirical support for the proposition that state corporations with higher levels of procurement automation tend to report better organizational performance outcomes, consistent with Waci et al. (2024) and Omondi et al. (2024).

4.4 Regression Assumption Diagnostics

Before interpreting the regression results, the data were examined for compliance with OLS assumptions. Table 4 summarizes the diagnostic outcomes.

Table 4: Regression Assumption Diagnostics

Assumption	Test / Indicator	Value	Interpretation
Linearity	Deviation from linearity (p)	0.923	Linear relationship supported
Independence of errors	Durbin–Watson statistic	2.155	No autocorrelation detected
Homoscedasticity	Breusch–Pagan test (p)	0.312	Homoscedasticity supported
Normality of residuals	Shapiro–Wilk test (p)	0.241	Normality supported
Multicollinearity	VIF range (all predictors)	1.021–2.761	Within acceptable range (< 10)

All tests confirmed compliance with OLS assumptions at the 0.05 significance level.

The Durbin–Watson statistic of 2.155 falls within the acceptable range of 1.5 to 2.5, confirming independence of residuals (Field, 2024). The Breusch–Pagan test (p = 0.312) and the Shapiro–Wilk test (p = 0.241) confirm homoscedasticity and normality of residuals, respectively. VIF values ranged from 1.021 (Electronic Payment Processing) to 2.761 (Electronic Sourcing), all well below the threshold of 10, indicating that multicollinearity did not distort the regression estimates (Daoud, 2019). The markedly low VIF for electronic payment processing (1.021) additionally confirms its near-complete structural independence from the other two predictors, providing further context for the low item-total correlation discussed in Section 4.2.

4.5 Multiple Regression Results

Tables 5, 6, and 7 present the model summary, ANOVA, and coefficient estimates from the multiple OLS regression analysis.

Table 5: Model Summary

R	R^2	Adjusted R^2	Std. Error of Estimate
0.591	0.349	0.337	0.387

Predictors: Electronic Sourcing, Electronic Payment Processing, Automated Evaluation & Reporting. Dependent variable: Organizational Performance.

Table 6: ANOVA

Source	df	SS	MS	F	Sig.
Regression	3	13.120	4.373	29.130	< .001
Residual	163	24.471	0.150		
Total	166	37.590			

Dependent variable: Organizational Performance.

Table 7: Regression Coefficients

Predictor	B	SE	β	t	Sig.	95% CI Lower	95% CI Upper	Tol.	VIF
Constant	3.594	0.212	—	16.957	.000	3.175	4.012	—	—
Electronic Sourcing	0.194	0.068	0.300	2.858	.000	0.060	0.328	0.362	2.761
Electronic Payment Processing	0.154	0.040	0.243	3.802	.000	0.074	0.234	0.979	1.021
Automated & Eval. Reporting	0.380	0.052	0.767	7.334	.000	0.043	0.478	0.365	2.739

Dependent variable: Organizational Performance. β = standardized coefficient. SE = standard error

The overall regression model was statistically significant $F(3, 163) = 29.130$, $p < .001$), and the three procurement automation dimensions collectively explained 34.9% of the variance in organizational performance ($R^2 = 0.349$, Adjusted $R^2 = 0.337$). This level of explanatory power aligns with prior quantitative studies examining e-procurement and public sector performance, in which R^2 values of 0.20-0.50 are commonly reported, reflecting the inherently multi-causal nature of performance outcomes in complex public organizations (Herold et al., 2023; Cohen, 1988).

Electronic sourcing was a statistically significant predictor of organizational performance ($B = 0.194$, $SE = 0.068$, $\beta = 0.300$, $t = 2.858$, $p < .001$; 95% CI [0.060, 0.328]). Each one-unit increase in electronic sourcing was associated with a 0.194-unit improvement in organizational performance, holding the other predictors constant. H_1 is therefore supported.

Electronic payment processing was also a statistically significant predictor ($B = 0.154$, $SE = 0.040$, $\beta = 0.243$, $t = 3.802$, $p < .001$; 95% CI [0.074, 0.234]). This finding is particularly noteworthy given the low item-total correlation observed for this dimension in the reliability analysis. The significant beta coefficient confirms that electronic payment processing carries genuine

independent predictive value for organizational performance — it contributes through pathways distinct from those of electronic sourcing and automated evaluation, consistent with Herold et al.'s (2023) conceptualization of payment automation as structurally separate from procurement workflow management. H_2 is supported.

Automated evaluation and reporting was the strongest predictor in the model (B = 0.380, SE = 0.052, $\beta = 0.767$, $t = 7.334$, $p < .001$; 95% CI [0.043, 0.478]). The standardized coefficient of 0.767 substantially exceeds those of electronic sourcing ($\beta = 0.300$) and electronic payment processing ($\beta = 0.243$), indicating that this dimension has by far the largest independent association with organizational performance when the other predictors are held constant. This finding is consistent with arguments that evaluation integrity is the most governance-sensitive stage of the procurement cycle, and that automation at this stage delivers the greatest gains in accountability and outcome consistency (Bosio et al., 2022; Khorana et al., 2024). H_3 is supported.

Collectively, all three hypotheses are confirmed. Automated evaluation and reporting emerge as the dominant performance driver among the three procurement automation dimensions, a finding that carries significant theoretical and practical implications discussed in the following section.

5. DISCUSSION

The data strongly support the hypothesis that procurement automation significantly predicts organizational procurement performance among Kenyan state corporations. Beyond confirming this strong overall relationship between procurement automation and procurement performance of state corporations, this study also demonstrates that procurement automation dimensions contribute differentially. This finding extends the prior literature that has predominantly treated procurement automation as a composite variable rather than a multidimensional phenomenon. The finding revealed that the three dimensions collectively explain 34.9% of the variation in performance, which is in line with the typical range reported in quantitative studies on e-procurement and public sector performance, as noted by Cohen (1988).

Automated evaluation and reporting emerged as the strongest predictor ($\beta = 0.767$), which is the central finding of the study. Evaluation represents the phase in the procurement cycle where corrupt and other forms of discretionary behavior are most consequential: it is where suppliers are chosen, and mistakes most transparently undermine procurement objectives and lead to value-for-money failures (Jiménez et al., 2022). Automating evaluation forces decision makers to follow prespecified scoring rules and weighting algorithms. Decisions can be recorded in real-time, and audit trails become complete and reliable. Automated evaluation standardizes procurement at the point where informal intervention is most concentrated (Jiménez et al., 2022). In other words, corporations that digitize evaluation most comprehensively experience stronger performance overall.

The effect of electronic sourcing, while positive, is moderate (β = 0.300) and consistent with international evidence on the performance contributions of digital tendering systems. Herold et al. (2023) argue that digital sourcing enables organizations to perform better because transaction costs are lower, more suppliers can be reached, and procurement activities can be launched more quickly. However, unlike automated evaluation and reporting, electronic sourcing does not affect governance mechanisms at the heart of the public procurement problem. Therefore, its standardized regression coefficient is expected to be smaller than that of automated evaluation and reporting. Sourcing captures the front end of procurement, whereas problems typically arise in downstream activities such as evaluation. Empirically, Omondi et al. (2024) reported that improvements in procurement processes contribute to enhanced organizational performance in Kenyan public entities through greater efficiency rather than any discontinuous improvement in governance mechanisms, consistent with the pattern observed here.

The coefficient for electronic payment processing warrants a caveat, given the reliability issue discussed in Section 4.2. Its low item-total correlation coefficient (r = 0.134) could indicate that the predictor's significant effect on performance in the regression is a spurious rather than substantive finding. Several considerations, however, support the conclusion that electronic payment processing is a genuinely distinct and valuable predictor of organizational performance. Firstly, the communalities extracted in the factor analysis confirm that electronic payment uniquely accounts for variance not shared with either of the study's other two dimensions; its value of 0.083, relative to 0.882 and 0.872 for electronic sourcing and automated evaluation, respectively. The low item-total correlation indicates that it was measured with a three-item scale. Secondly, electronic payment has a VIF of 1.021 in the regression model, indicating it is statistically independent of the other two predictors. Therefore, when it significantly predicts performance (β = 0.243, $p < .001$), it can be confidently noted that the finding is not due to shared variance with other constructs in the model. Finally, Waci et al. (2024) find that the automation of financial processes is associated with value-for-money outcomes among Kenyan state corporations. Future research should attempt to measure electronic payment processing with a larger pool of indicators to overcome this study's limitation.

Taken together, these results suggest that automating procurement enhances performance by reducing opportunities for discretion across different but related phases of the procurement process. Jiménez et al. (2022) noted that violations of procurement protocols are possible at every step of the procurement cycle, from sourcing to payment. As such, the solution to non-compliance is not limited to installing better controls at a single point in the procurement process, but rather rebuilding transparency by automating as many steps as possible. Doing so aligns with Harland et al. (2021) contention that public sector managers can learn useful procurement practices from private sector organizations, including adopting digital tools that capture every stage of the procurement cycle.

The results also contribute to the literature on the automation of procurement in the public sector of developing countries. Herold et al. (2023) caution that capacity constraints, system integration issues, and inconsistent application of procurement automation have limited its implementation in the developing world. Variation in score on the automated evaluation and reporting dimension across state corporations (this dimension had the highest standard deviation (SD = 0.960) among the three automation dimensions) shows that implementation gaps do still exist. However, the fact that this dimension has the largest performance effect demonstrates that state corporations that have progressed beyond a halfway point in implementing evaluation automation are realizing significantly better performance, supporting the idea that implementation mediates automation's effect on performance.

5.1 Implications for Policy and Practice

The study findings have several important implications for procurement policy and practice in Kenya. For a start, policy-makers driving Kenya's ongoing eProcurement agenda, automated evaluation/reporting's outsized contribution to performance relative to electronic sourcing and electronic payment automation suggests that procurement leaders should treat this area as a priority investment. Electronic sourcing and e-payment automation are both important components of procurement automation. However, the automation of evaluation stands out in this study as having the largest impact on procurement function performance among the three major areas of automation. This is likely due to its positive impact on governance through decreasing discretion, improving documentation, and enabling accountability. Policies should therefore make special note of compliance expectations and targets for the automation of evaluation systems, rather than focusing solely on e-tendering or e-payment adoption.

For managers of state corporations, the results underscore the importance of implementation depth over mere technology acquisition. An organization that has adopted electronic sourcing and payment platforms but retains manual or inconsistent evaluation processes is unlikely to achieve the governance-related performance gains identified in this study. The integration of automated evaluation tools with existing procurement management systems, supported by adequate training for procurement officers, is a priority investment area. The reliability findings regarding electronic payment processing further suggest that managers should ensure payment automation systems are integrated with broader financial reporting and audit functions to maximize their performance contribution, consistent with recommendations in Khorana et al. (2024).

6. CONCLUSION

This paper tested the hypothesis that procurement automation predicts organizational performance among state corporations in Kenya. Using multiple OLS regressions with data from 167 senior procurement managers, the findings revealed that procurement automation is a multidimensional construct comprising electronic sourcing, electronic payment processing, and automated evaluation and reporting, and that all collectively contribute to variance in organizational

procurement performance. The three dimensions of procurement automation independently predict organizational performance and, together, account for 34.9% of the variance in performance. Further, automated evaluation and reporting was by far the strongest predictor ($\beta = 0.767$), followed by electronic sourcing ($\beta = 0.300$) and electronic payment processing ($\beta = 0.243$), all three dimensions of which were statistically significant at $p < .001$.

Theoretically, the study extends socio-technical and organizational capability perspectives by demonstrating that procurement automation is not a homogeneous construct. Its constituent dimensions contribute to performance through structurally and functionally distinct mechanisms. This differentiation is a valuable addition to the literature on automation's impact on procurement performance, which has historically treated automation as a unidimensional, single-item composite measure. Automated evaluation and reporting had the greatest impact on performance, adding to the literature on digital procurement reforms in developing countries by illuminating how automation can improve accountability, particularly given the historically weak evaluation function in these countries' public procurement systems.

The study acknowledges a few limitations; for example, the cross-sectional design precludes causal inference, and longitudinal research would more rigorously establish directionality in the automation-performance relationship. Longitudinal data would allow stronger causal inferences and better enable researchers to determine the direction of the causal arrow between automation and performance. While this study sampled from among senior procurement managers, other stakeholders within organizations may have differing perspectives on automation and its performance impacts. Finance, internal audit, and service recipient respondents would be especially valuable in future research. Future studies should identify any moderating or mediating factors in the relationship between procurement automation and performance, including the possible effects of procurement automation on mediating variables such as procurement compliance and supplier performance.

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Author Contributions (CRediT Taxonomy)

Miano. B. M: Conceptualization, Methodology, Data collection, Formal analysis, Writing original draft. Chege. D: Supervision, review, and guidance. Ndeto. C: Supervision, review, and guidance.

Conflict of Interest

The authors declare no conflict of interest in connection with this manuscript. The study was conducted independently, and no party had any influence over the study design, data collection, analysis, interpretation of findings, or the decision to submit the manuscript for publication.

Data Availability Statement

The data that support the findings of this study are available from the corresponding author upon reasonable request, subject to applicable institutional data governance and privacy protocols.

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