
Influence Of Electronic Procurement on Performance of County Governments in Lake Region Economic Bloc, Kenya

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Abstract:

Purpose: The study aimed to determine the influence of electronic procurement on the performance of county governments within Kenya's Lake Region Economic Bloc (LREB). Specifically, it examined the effects of e-sourcing, e-ordering, e-payment, and e-invoicing on county government performance.

Material/methods: The study was guided by the Transaction Cost Theory, Technology Acceptance Theory, Innovation Diffusion Theory, and Unified Theory of Acceptance and Use of Technology. It adopted a descriptive survey research design targeting 267 top and middle-level procurement/supply chain employees across 14 LREB counties. Using stratified and simple random sampling, 159 respondents were selected. Data collection involved structured questionnaires. Validity was assessed through construct validity, and reliability was measured using Cronbach's Alpha. Descriptive statistics (means, standard deviations, frequencies, percentages) and inferential statistics (Pearson correlation, multiple regression) were used for data analysis and hypothesis testing.

Findings: The study found that e-sourcing, e-ordering, e-payment, and e-invoicing each had a positive and statistically significant effect on county government performance. These findings suggest that e-procurement adoption contributes to improved transparency, efficiency, and accountability in public procurement processes.

Conclusion: Despite progress in the implementation of e-procurement systems, challenges remain—particularly in digital capacity, staff training, and system integration. These gaps limit the full realization of e-procurement benefits in county governments.

Value: The study highlights the importance of sustained investment in ICT infrastructure, capacity building, and policy enforcement. It also underscores the need for national oversight agencies to develop tailored support and monitoring frameworks to enhance procurement performance through digital transformation at the county level.

Keywords: Electronic Procurement, E-sourcing, E-ordering, E-payment, and E-invoicing, Performance

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1.1.Introduction

The effectiveness of government agencies plays a crucial role in attracting investors, meeting stakeholder expectations and sustaining economic growth. Strong performance is essential across public sector institutions to efficiently address citizen needs, fulfill policy mandates, and ensure prudent utilization of taxpayer funds for public services (Stiel, 2023). However, critics argue that many government entities struggle to meet quality and efficiency benchmarks, leading to concerns over underperformance (Berman & Hijal-Moghrabi, 2022). Technological advancements have paved the way for modernized public sector procurement, with electronic procurement (e-Procurement) emerging as a key component of e-Government strategies worldwide. Many government agencies have either implemented or are in the process of integrating electronic procurement to enhance efficiency, transparency and accountability in public procurement (Mandala et al., 2024). By streamlining procurement processes, EPS enables organizations to minimize inefficiencies, ensure fair supplier participation and promote open competition.

E-procurement adoption refers to the integration of digital tools and automated systems into procurement operations, replacing conventional purchasing methods with electronic processes (Chan & Owusu, 2022). This transition involves the use of web-based platforms and software solutions to manage procurement functions, including supplier selection, contract management, purchasing and sourcing (Zakari et al., 2023). The automation of these activities significantly reduces paperwork, enhances process efficiency and strengthens transparency, enabling organizations to optimize procurement workflows and ensure compliance with procurement regulations (Ali, 2025). Key components of e-procurement include e-invoicing, e-sourcing, e-payments and e-ordering, all of which contribute to streamlined procurement processes (Ali, 2025). E-invoicing facilitates seamless information exchange among stakeholders, ensuring that procurement-related data is accessible, accurate and timely (Mwangata & Hapompwe, 2024). This transparency strengthens decision-making, enhances collaboration and allows procurement strategies to align with broader organizational objectives. E-sourcing, on the other hand, leverages digital platforms to identify and assess suppliers, fostering competition and improving supplier selection efficiency. Additionally, e-payments and e-ordering further optimize procurement by enabling cost-effective supplier negotiations and automating order placements.

One of the primary advantages of e-procurement is its ability to provide audit trails and tracking mechanisms that enhance accountability while ensuring adherence to regulatory requirements. Public sector entities implement e-procurement to reduce transaction costs, broaden supplier access and foster better relationships between procurement agencies and suppliers (Mwalukasa, 2024). According to an OECD (2024) report, all member countries have adopted E-procurement solutions to support various stages of the procurement cycle, such as publishing procurement notices, storing procurement data, issuing tenders and announcing contract awards on national digital platforms. However, the level of transactional capability varies across jurisdictions. Existing research on e-procurement has predominantly explored its impact on procurement activities such as e-tendering, e-invoicing and e-payment (Ngugi et al., 2024), along with practices like e-auctions, e-tendering and e-ordering (Munyao & Moronge, 2018; Obiero & Ngugi, 2024). These studies suggest a positive relationship between e-procurement adoption and the performance of public procurement entities. However, limited research has examined the specific influence

of e-sourcing, e-invoicing and e-payments on the performance of county governments within the Lake Region Economic Block (LREB).

1.2. Statement of the Problem

County governments are mandated to operate efficiently by optimizing revenue collection, executing budgets effectively, and streamlining procurement processes to enhance service delivery and economic growth. However, performance in county governments remains a critical concern, as many counties continue to struggle with financial sustainability, budget execution and service delivery inefficiencies (Mutangili et al., 2023). Financial underperformance, largely attributed to revenue shortfalls and poor expenditure management, has hindered development efforts. Counties experience recurrent revenue deficits, with some collecting less than 50% of their projected revenue targets (Ochuodho & Ngaba, 2020). The rising cost of governance, coupled with inefficient procurement processes, further exacerbates financial constraints. The inefficiencies in county operations have also contributed to Kenya's GDP growth rate decline from 7% in 2009 to 5.8% in 2021, signaling broader economic implications (Office of the Controller of Budget, 2021).

Despite the enactment of the Public Procurement and Asset Disposal Act of 2015, procurement inefficiencies persist across county governments, particularly in major urban counties that drive economic activities (Public Procurement Regulatory Authority [PPRA], 2016). Office of the Auditor-General (2022) indicate widespread irregularities, including unauthorized payments, missing tender documentation and poor contract management. Additionally, procurement-related fraud remains prevalent, with an estimated Kshs 370 billion in county procurement funds unaccounted for due to bribery, fraud and embezzlement (Ethics and Anti-Corruption Commission [EACC], 2021). Specific cases, such as the arrest of six senior officials in Vihiga County in 2022 for awarding an irregular tender worth Kshs 21 million, highlight the magnitude of procurement malpractice. Structural challenges—including lengthy approval processes, inadequate procurement planning and limited stakeholder engagement—contribute significantly to procurement inefficiencies, leading to delays, budget overruns and compromised service delivery (Obiero, 2024).

Electronic procurement (e-procurement) has been widely recognized as a strategic approach to mitigating procurement inefficiencies and enhancing performance. Studies indicate that e-procurement tools—such as e-auctions, e-bidding, e-ordering and e-invoicing—can increase transparency, reduce costs and accelerate procurement processes (Obiero, 2024; Awuor, 2024). Research by Obunde (2019) found that electronic tendering, automated ordering systems and e-supplier management significantly improve supply chain performance in Busia County. However, despite these documented benefits, the adoption of e-procurement remains limited among county governments (Nyamai & Ismail, 2018; Isaack, 2025). Persistent procurement fraud and inefficiencies suggest that the potential advantages of e-procurement have yet to be fully realized.

Moreover, while previous studies have examined various aspects of public procurement reforms, there remains limited body of research directly linking e-procurement adoption to the overall performance of county governments. The extent to which e-procurement can address procurement inefficiencies and enhance service

delivery in county governments remains an open question. Given these gaps, this study sought to investigate the influence of e-procurement on the performance of county governments in the Lake Region Economic Bloc.

1.3. Objectives of the Study

The general objective of the study was to determine the influence of electronic procurement on the performance of county governments in the Lake Region Economic Bloc

1.3.1. Specific objectives

The study was guided by the following objectives

- 1) To determine the influence of e-sourcing on the performance of county governments in the Lake Region Economic Bloc
- 2) To assess the influence of e-ordering on the performance of county governments in the Lake Region Economic Bloc
- 3) To establish the influence of e-payment on the performance of county governments in the Lake Region Economic Bloc
- 4) To determine the influence of e-invoicing on the performance of county governments in the Lake Region Economic Bloc

2.1. Theoretical Review

The theoretical framework for this study is anchored in four complementary theories that explain how technology-driven procurement strategies influence organizational performance. Transaction Cost Theory (TCT), first articulated by Coase (1937) and expanded by Williamson (1975), argues that firms choose governance structures—market versus hierarchy—based on the transaction costs of searching for suppliers, negotiating, monitoring and enforcing agreements. In procurement, e-sourcing platforms reduce these costs by automating supplier discovery, streamlining negotiations and enhancing contract management (Langat, 2019; Ahomies, 2020; Gopalakrishnan & Bierly, 2021). By lowering transaction costs, county governments can allocate resources more efficiently, improve accountability and ultimately enhance service delivery and financial management (Maalim & Barasa, 2025).

Technology Acceptance Theory (TAT), developed by Davis (1986), complements TCT by explaining individual adoption of e-procurement tools—specifically e-ordering—through perceptions of usefulness and ease of use. When procurement officers believe that automated ordering systems will streamline paperwork, reduce delays and improve accuracy, they are more likely to integrate these technologies into their workflows (Vaidya et al., 2019; Laryea et al., 2021). Conversely, perceived risks such as cybersecurity threats can hinder uptake (Kamau & Wambui, 2022). User-friendly interfaces and seamless integration with existing processes have been shown to enhance both adoption rates and operational outcomes, reducing order-processing times and mitigating fraud (Gunasekaran et al., 2020).

To account for broader diffusion dynamics, this study also draws on Rogers' Innovation Diffusion Theory (IDT) and Venkatesh et al.'s Unified Theory of Acceptance and Use of Technology (UTAUT). IDT's five attributes—relative advantage, compatibility, complexity, trialability and observability—explain e-payments' uptake in public

procurement, highlighting how transparency and cost efficiencies drive adoption despite infrastructure and expertise gaps (Boer et al., 2002; Gopalakrishnan & Bierly, 2021). UTAUT further integrates performance expectancy, effort expectancy, social influence and facilitating conditions to explain e-invoicing adoption: counties that perceive automated invoicing as efficient and easy to use are more likely to implement it successfully, reaping benefits in error reduction, faster payments and improved financial reporting (Bakar et al., 2021; Karjalainen et al., 2018). Together, these theories provide a robust lens for analyzing how e-procurement dimensions—sourcing, e-ordering, e-payment and e-invoicing—interact to improve procurement performance in county governments performance.

2.2. Empirical Review

2.2.1. E-Sourcing and Organization Performance

Research across diverse sectors consistently shows that e-sourcing drives sustainability outcomes by embedding environmental considerations into procurement decisions. In the manufacturing SME context, Junejo et al. (2024) used a 279-respondent SEM analysis to demonstrate that digital supplier identification and selection significantly enhance environmental performance, not only by streamlining operations but by fostering partnerships with eco-responsible vendors. Similarly, Chukwuemeka and Poi (2023) conducted a correlational study of nine oil and gas firms in Nigeria—using five-point Likert surveys and Pearson correlation—and found strong, statistically significant links between e-sourcing adoption and supply chain sustainability, indicating that automated sourcing tools reduce waste, improve transparency and bolster overall environmental stewardship.

Beyond environmental gains, e-sourcing has been shown to elevate public-sector service delivery and institutional performance. Maalim and Barasa (2025) applied Transaction Cost Theory in a descriptive survey of 149 employees at Kenya's Judiciary Headquarters, finding via multiple regression that e-sourcing practices substantially improve case processing times, resource allocation and accountability. In parallel, Murithi et al. (2024), grounding their work in Dynamic Capabilities Theory, surveyed 153 state corporation staff and used regression modeling to reveal that e-sourcing enhances audit trails, operational cost optimization and service responsiveness—underscoring digital procurement's role in strengthening institutional agility and performance. Cost reduction remains a core benefit of e-sourcing in both public and commercial enterprises. Langat (2019) employed a census of procurement and finance officers across 33 Kenyan state corporations to show that key e-sourcing components—such as electronic supplier prequalification, evaluation and negotiation—yield significant decreases in procurement expenses. Descriptive and inferential analyses confirmed that these practices not only cut transaction costs but also improve purchasing efficiency, reinforcing e-sourcing's critical contribution to fiscal prudence and procurement excellence across sector.

2.2.2. E-Ordering on Organization Performance

Electronic ordering consistently demonstrates a positive impact on procurement efficiency and relational outcomes across diverse industries. In Jordan's pharmaceutical sector, Al-Ma'aitah et al. (2024) used SEM on data from 171 managers to show that e-ordering significantly strengthens buyer-supplier relationships by streamlining order

placement, reducing errors and fostering collaborative planning. Similarly, Oshoma et al. (2024) applied SEM-PLS to responses from 150 Nigerian SME managers and found that e-ordering adoption correlates positively with overall business performance, particularly by accelerating procurement cycles and improving inventory accuracy. These studies underscore e-ordering's role in enhancing operational effectiveness and deepening supplier engagement in both large-scale manufacturing and SME contexts.

In the public and energy sectors of Kenya, e-ordering likewise boosts procurement outcomes. Gichuhi (2021), drawing on the Technology Acceptance Model, surveyed 97 procurement and logistics staff at the Geothermal Development Company and identified a significant positive relationship between e-ordering use and procurement performance—evidenced by faster order processing, tighter cost controls and fewer stockouts. Wako et al. (2024) extended these insights to higher education, analyzing data from 136 employees across 34 public universities and demonstrating that electronic ordering markedly improves tendering efficiency, reducing paperwork, minimizing approval delays and enhancing transparency. Collectively, these findings illustrate that e-ordering is a powerful lever for optimizing procurement operations across both private and public institutions.

2.2.3. E-payment on Organization Performance

Across the financial services and public-sector procurement realms, e-payment systems have demonstrably boosted organizational performance and accountability. Gikonyo (2023) surveyed 393 managers across 39 Kenyan commercial banks to assess how mobile payments, debit card usage, and real-time gross settlement (RTGS) impact financial performance. Using descriptive analysis and regression coefficients, the study found that all three e-payment components significantly enhanced bank revenues and operational efficiency, with debit card transactions exerting the strongest effect ($\beta = 0.827$). E-payment adoption was shown to streamline transaction workflows—reducing paperwork, shortening processing times, and minimizing manual errors—while real-time data capture improved internal controls and regulatory compliance. Similarly, Luhanga (2022) employed a stratified sample of 133 respondents at the Tanzania Ports Authority to demonstrate that digital payment systems accelerate supplier payments, shorten procurement cycles, and strengthen financial reporting. Enhanced audit trails and transparency fostered greater trust among stakeholders, thereby elevating the authority's reputation and overall procurement performance.

In the retail, hospitality, and service sectors, mobile and electronic payments have also driven notable gains in efficiency, customer satisfaction and profitability. Kiettikunwong (2020) conducted a cross-sectional survey of SMEs in Thailand, revealing that mobile payment adoption significantly increased transaction volumes, improved service delivery and accelerated cash flows, all of which contributed to higher sales growth and cost efficiency. The reduction in cash-handling risks and administrative burdens enabled businesses to reallocate resources toward core operations. Complementing these findings, Gathoni (2020) examined Sarova Hotels in Kenya and reported that e-payment methods—including mobile money, card payments and online banking—enhanced revenue performance by speeding transactions, enabling real-time financial monitoring and cutting revenue leakages. Operational efficiencies such as reduced customer queues, faster account reconciliation and lower fraud incidence further underscored e-payment's role in creating a more secure and customer-centric hospitality environment. Collectively, these studies illustrate that

across diverse industries and geographies, digital payment technologies are pivotal for streamlining processes, elevating stakeholder trust and driving sustainable performance improvements.

2.2.4. E-invoicing on Organization Performance

Asender and Sapkota (2024) demonstrate that e-invoicing delivers substantial efficiency and sustainability gains for Finnish businesses, cutting costs, streamlining operations and reducing paper use and carbon emissions—even as full adoption remains a work in progress. Awan (2023) extends these insights to the logistics sector, where case studies reveal that digital invoicing accelerates billing cycles, boosts accuracy, enhances transparency, and generates significant cost savings by fostering faster payments and stronger stakeholder relationships. Meanwhile, Gunaratne and Pappel (2020) identify lingering inefficiencies in the Baltic region's e-invoicing systems—such as processing bottlenecks and security gaps—and advocate for AI and robotic process automation to drive faster, more accurate and more secure invoice handling, thereby increasing both adoption rates and operational effectiveness.

Mutunga and Makhamara (2020) bring the focus to Nairobi County's SMEs, showing through survey and regression analysis that e-invoicing adoption correlates positively with firm performance. Their findings highlight improvements in financial record-keeping, reductions in transaction costs and overall boosts to organizational efficiency and profitability. Taken together, this body of work underscores e-invoicing's role as a versatile tool that not only enhances procedural efficiency and cost management across industries but also contributes to broader sustainability and performance objectives in both developed and emerging markets.

3.1. Material and methods

3.1.1. Research design

Research design is an outline or approach that a study takes to address the various research objectives. It is the framework within which the research is carried out in a systematic manner (Kothari, 2017). The study design should be thorough enough to allow the research to be conducted in a smooth and structured manner by collecting all necessary information. This study utilized a descriptive survey research design. This approach involved identifying key variables to systematically describe the characteristics of the phenomena being studied. According to Creswell (2021), descriptive survey research design is effective in providing a comprehensive overview of the variables in question. Consequently, this design investigated the causal effects, specifically examining why, how and when the interplay of e-procurement and performance of county governments in the Lake Region Economic Bloc.

3.1.2. Target Population and Sample Design and Sampling Techniques

The study targeted all 267 senior and mid-level procurement and supply-chain officials (CECs, directors, and procurement managers) across the 14 counties of the Lake Region Economic Bloc—Bomet, Bungoma, Busia, Homa Bay, Kakamega, Kericho, Kisii, Kisumu, Migori, Nandi, Nyamira, Siaya, Trans Nzoia, and Vihiga—chosen for its economic significance, substantial public procurement budgets, varied e-procurement adoption, and decentralization-related challenges. Applying Yamane's (1967) adaptation of Slovin's formula yielded a sample size of 159, and a stratified sampling

approach—dividing the 267 officials into strata by county and management level, then selecting respondents via simple random sampling proportional to each stratum—ensured an equitable, representative cross-section for analyzing e-procurement’s performance effects.

3.1.3. Research Instruments

Data collection for this study relied exclusively on primary data gathered via a structured questionnaire designed to address the research objectives and hypotheses (Sekaran & Bougie, 2013; Kumar, 2014). The questionnaire was under five-point Likert scale items across chosen for their robustness and data richness (Cooper & Schindler, 2011). Before full deployment, a pilot test involving 15 procurement and supply-chain staff in Baringo County (5–10% of the planned sample) assessed the instrument’s clarity and feasibility; responses were self-administered, coded and analyzed in SPSS to refine the tool. To ensure measurement accuracy, face validity was established through expert review and content adjustments, while construct validity was confirmed via factor analysis (Shrotryia & Dhanda, 2019; Creswell & Hirose, 2019). Reliability was evaluated using Cronbach’s Alpha, with all constructs exceeding the 0.70 threshold for internal consistency (Cronbach, 1951; Cooper & Schindler, 2018).

3.1.4. Data Analysis and Presentation

Data analysis began with preparing, coding, editing and cleaning the completed questionnaires before importing them into SPSS for examination. Following Sekaran and Bougie’s (2011) guidelines—to understand the data, assess model fit and test hypotheses—the study first conducted descriptive analyses (frequencies, percentages, means, and standard deviations) and normality checks (skewness and kurtosis) to ensure suitability for multivariate testing (Zikmund et al., 2013). These descriptive statistics provided an overview of each variable and informed the selection of the appropriate regression model. Results were then presented via tables, charts and summary measures and inferential analyses—using a 5% significance threshold—applied regression techniques to evaluate the impact of e-procurement on county government performance in the Lake Region Economic Bloc.

$$Y = \beta_0 + \beta_1x_1 + \beta_2x_2 + \beta_3x_3 + \beta_4x_4 + \varepsilon_1$$

Where

Y is performance of county governments in the Lake Region Economic Bloc;

β_0 = constant (coefficient of intercept);

X_1 = E-sourcing;

X_2 = e-ordering;

X_3 = e-payment;

X_4 = e-invoicing.

ε =Error Term; B_1, B_2, B_3, B_4 = regression coefficient of four variables

4.1. Findings and Discussion

This section details how the study's data were processed and analyzed to address its objectives and test its hypotheses. After summarizing and tabulating the data, both descriptive and inferential techniques were applied. The chapter unfolds in the following order: response rate, data screening (including cleaning and handling missing values), respondent background characteristics, descriptive statistics, assessments of reliability and validity, followed by correlation and multiple regression analyses. Of the 159 questionnaires distributed to procurement and supply-chain staff across the 14 LREB counties, 124 were returned—a 77.99% response rate, comfortably above the 60% threshold recommended by Cooper and Schindler (2014). This high level of participation was achieved through proactive field visits, personalized follow-ups, and a drop-and-pick-later approach, bolstering the study's statistical robustness and the generalizability of its findings.

4.1.1. Demographic Characteristics

Table 1 presents the demographic characteristics of the respondents who participated in the study on the influence of electronic procurement on the performance of county governments in the Lake Region Economic Bloc (LREB), Kenya. Among the 124 procurement and supply-chain staff who responded, gender was nearly balanced (54% male, 46% female), supporting the inclusivity and reliability of the findings. Educationally, most respondents held an undergraduate degree (35.5%), with sizable shares possessing diplomas (32.3%) or postgraduate qualifications (26.6%), and only 5.6% reporting secondary education as their highest level—indicating a well-qualified workforce capable of engaging with electronic procurement systems. Experience levels were also substantial: 57.3% had served six to ten years in their counties, 31.5% over ten years, and just 11.3% one to five years, suggesting that most participants possessed the institutional knowledge needed to provide informed insights on e-procurement adoption and its effects.

Table 1: Gender of the Respondents

		Frequency	Percent
Gender	Male	67	54
	Female	57	46
	Total	124	100
Highest level of education qualification	Secondary Education	7	5.6
	Diploma	40	32.3
	Undergraduate degree	44	35.5
	Postgraduate	33	26.6
	Total	124	100
Job tenure in county governments	1-5 years	14	11.3
	6-10 years	71	57.3
	Over 10 years	39	31.5
	Total	124	100

4.1.2. Descriptive Statistics

Descriptive analysis of e-sourcing adoption among the 14 LREB county governments revealed a generally modest and uneven uptake across key practices. Counties reported moderate use of electronic supplier identification ($M = 3.24$, $SD = 1.42$) and digital supplier evaluation ($M = 3.10$, $SD = 1.48$), but struggled more with automated prequalification ($M = 2.68$, $SD = 1.27$) and digital transparency tools ($M = 2.74$, $SD = 1.30$). Efficiency gains from electronic evaluation also scored low ($M = 2.73$, $SD = 1.06$), whereas ensuring fairness in prequalification emerged as the strongest practice ($M = 3.98$, $SD = 0.91$). Integration of e-sourcing into broader procurement decision-making was only moderate ($M = 3.00$, $SD = 1.42$), and the overall composite adoption score ($M = 2.89$, $SD = 0.96$) highlights significant variability between counties. These findings underscore the need for targeted policy guidance, training programs and infrastructure investment to achieve more consistent and effective e-sourcing implementation—thereby enhancing transparency, efficiency and fairness in public procurement.

Table 2: Descriptive Statistics for E-sourcing

	Mean	Std. Dev
Our county government electronically identifies potential suppliers.	3.24	1.42
Our county government uses electronic systems to evaluate suppliers for bidding.	3.10	1.48
Our county government adopts electronic processes to prequalify suppliers.	2.68	1.27
Our county government applies digital tools to enhance transparency in supplier selection.	2.74	1.30
Our county government utilizes electronic systems to improve the efficiency of supplier evaluation.	2.73	1.06
Our county government leverages electronic platforms to ensure fairness in supplier prequalification.	3.98	0.91
Our county government integrates electronic sourcing to enhance procurement decision-making.	3.00	1.42
e-sourcing	2.89	0.96

Descriptive statistics for e-ordering reveal generally low to moderate adoption of digital requisition processes: counties report limited use of electronic requisition processing (mean = 2.44, $SD = 1.21$), digital submission platforms (mean = 2.66, $SD = 1.38$), and electronic approval tools (mean = 2.31, $SD = 1.35$), while automated monitoring systems are rated highly (mean = 3.94, $SD = 1.08$). Completing purchases electronically remains underutilized (mean = 2.36, $SD = 1.17$), though digital solutions are increasingly seen as improving requisition efficiency (mean = 3.25, $SD = 1.31$) and fostering transparency (mean = 2.75, $SD = 1.30$). The overall e-ordering score (mean = 2.81, $SD = 0.85$) points to an emerging but uneven level of digital maturity, highlighting the need for stronger e-ordering systems, standardized digital workflows and targeted staff training to enhance efficiency, accountability and transparency in county procurement.

Table 3: Descriptive Statistics for E-ordering

	Mean	Std. Dev
Our county government processes requisitions through electronic systems.	2.44	1.21
Our county government utilizes digital platforms for submitting requisitions.	2.66	1.38
Our county government approves requisitions using electronic tools.	2.31	1.35
Our county government relies on automated systems to monitor requisition approvals.	3.94	1.08
Our county government completes purchases through electronic processes.	2.36	1.17
Our county government enhances requisition handling efficiency using digital solution	3.25	1.31
Our county government ensures transparency in requisition processing through electronic systems.	2.75	1.30
E-ordering	2.81	0.85

Respondents perceive banks' e-payment ethics and transparency as moderately adequate but uneven: employee accountability mechanisms scored a mean of 3.08 (SD = 1.39) and legal compliance a 3.03 (SD = 1.40), indicating basic structures are in place. Transparency in business practices (mean = 2.98, SD = 1.34) and honesty in dealings (mean = 2.85, SD = 1.13) rated lower, revealing concerns over communication and integrity. In contrast, the ability to report unethical behavior without fear scored higher (mean = 3.29, SD = 1.34), as did leadership's role-modeling of ethics (mean = 3.25, SD = 1.36), suggesting some progress in fostering an ethical culture. The overall e-payment ethics index was 3.08 (SD = 0.87), underscoring the need for stronger policy enforcement, clearer transparency measures and enhanced integrity safeguards within digital payment systems.

Table 4: Descriptive Statistics for E-payment

	Mean	Std. Dev
The bank has effective mechanisms for holding its employees accountable for ethical conduct.	3.08	1.39
The bank strictly follows all applicable laws and regulations in its operations.	3.03	1.40
The bank is transparent about its business practices and decision-making processes.	2.98	1.34
The bank demonstrates honesty and ethical behavior in all its business dealings.	2.85	1.13
Employees feel comfortable reporting unethical behavior without fear of retaliation.	3.29	1.34
The bank's leadership consistently upholds and models ethical behavior for all employee	3.25	1.36
E-payment	3.08	0.87

County governments in the Lake Region Economic Bloc show uneven adoption of e-invoicing practices, with outbound invoicing being the most established (mean = 3.62, SD = 1.39) and digital receipt and automated processing lagging behind (mean = 2.68, SD = 1.21 for digital receipt; mean = 2.59, SD = 1.20 for automated processing). Electronic storage of invoices is relatively well embraced (mean = 3.48, SD = 1.45), yet the seamless integration of e-invoicing with financial management systems remains limited (mean = 2.98, SD = 1.43). Confidence in accuracy and efficiency gains from digital tools is modest (mean = 2.80, SD = 1.37 for accuracy; mean = 2.78, SD = 1.37 for efficiency), reflecting inconsistencies that may lead to errors and delays. Overall, the composite e-invoicing score of 2.98 (SD = 0.66) indicates moderate but variable implementation across counties, highlighting the need to strengthen digital receipt, automation and system integration to fully realize the benefits of electronic invoicing.

Table 5: Descriptive Statistics for E-invoicing

	Mean	Std. Dev
Our county government sends invoices through electronic systems.	3.62	1.39
Our county government receives invoices using digital platforms.	2.68	1.21
Our county government stores invoices electronically for easy retrieval.	3.48	1.45
Our county government processes invoices through automated systems.	2.59	1.20
Our county government ensures accuracy in invoicing using digital tools.	2.80	1.37
Our county government enhances efficiency by managing invoices through electronic platforms	2.78	1.37
Our county government integrates electronic invoicing with financial management systems.	2.98	1.43
E-invoicing	2.98	0.66

Table 6 presents the descriptive statistics on the performance of county governments within the Lake Region Economic Bloc (LREB). The items measured include aspects such as service quality, responsiveness, efficiency, use of technology, and the ability to meet citizen expectations. Respondents' ratings of county government performance in the LREB reveal a generally moderate but uneven picture. High-quality service delivery scored a mean of 3.06 (SD = 1.37), reflecting variability across counties, while timeliness and reliability averaged 3.21 (SD = 1.08). Counties were viewed more favorably on meeting citizen expectations (M = 3.51, SD = 1.31) and addressing customer needs (M = 3.65, SD = 1.31), indicating strong responsiveness. Resource efficiency earned a mean of 3.28 (SD = 1.30), but continuous process improvement lagged at 2.97 (SD = 1.22), suggesting gaps in internal innovation. Technology integration in performance enhancement was modest (M = 3.03, SD = 0.97). The overall composite performance score of 3.25 (SD = 1.04) points to a solid foundation in service responsiveness, alongside clear opportunities to bolster service quality consistency, drive process reforms and deepen digital adoption.

Table 6: Descriptive Statistics for the Performance of County Governments

	Mean	Std. Dev
Our county government provides high-quality services through its operations.	3.06	1.37
Our county government ensures timely and reliable service delivery.	3.21	1.08
Our county government meets the expectations of citizens in service provision.	3.51	1.31
Our county government effectively addresses customer needs and concerns.	3.65	1.31
Our county government utilizes resources efficiently to enhance service delivery.	3.28	1.30
Our county government continuously improves its processes to maximize efficiency	2.97	1.22
Our county government leverages technology to enhance performance.	3.03	0.97
Organization performance	3.25	1.04

4.1.3: Correlation Analysis

Table 7 presents that all four e-procurement dimensions exhibit significant positive associations with county government performance at the 1% level. E-sourcing correlates most strongly ($r = .558$, $p < .01$), closely matched by e-payment ($r = .557$, $p < .01$), indicating that digital supplier management and transparent payment systems are critical drivers of efficiency and accountability. E-invoicing shows a moderate positive relationship ($r = .437$, $p < .01$), while e-ordering's impact is smaller yet still significant ($r = .265$, $p < .01$), suggesting that automated requisition processes support performance but to a lesser extent.

Table 7: Correlation Analysis

		Organizational performance	e-sourcing	e-ordering	e-payment	e-invoicing
Organizational performance	Pearson Correlation	1				
	Sig. (2-tailed)					
E-sourcing	Pearson Correlation	.558**	1			
	Sig. (2-tailed)	0.000				
e-ordering	Pearson Correlation	.265**	.542**	1		
	Sig. (2-tailed)	0.003	0			

e-payment	Pearson Correlati on Sig. (2- tailed)	.557** 0.000	.557** 0.000	.391** 0.000	1
e-invoice	Pearson Correlati on Sig. (2- tailed)	.437** 0.000	.497** 0.000	.395** 0.000	.440** 0.000

** Correlation is significant at the 0.01 level (2-tailed).

4.1.4. Regression Analyses

Table 8 presents the model summary for the multiple regression analysis conducted to determine the combined effect of e-procurement practice specifically e-sourcing, e-ordering, e-payment and e-invoicing—on the performance of county governments in the Lake Region Economic Bloc (LREB).

Table 8: Multiple Regression Model Summary for e-Procurements on Performance of County Governments

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.837a	0.7	0.69	0.40764

a Predictors: (Constant), e-invoice, e-sourcing, e-payment, e-ordering

The regression results reveal an R value of 0.837, indicating a strong positive relationship between the combined e-procurement variables and performance. The R-squared (R^2) value is 0.700, meaning that 70.0% of the variability in the performance of county governments can be explained by the four e-procurement components. This demonstrates a high explanatory power of the model, suggesting that the adoption and integration of digital procurement systems significantly influences how counties perform in terms of service delivery, efficiency and citizen satisfaction.

The Adjusted R-squared value is 0.690, which accounts for the number of predictors and adjusts for any potential overfitting. The minimal difference between R^2 (0.700) and Adjusted R^2 (0.690) implies that each independent variable contributes meaningfully to the model and that the results are robust. The standard error of the estimate (0.40764) indicates the average distance that the observed values fall from the regression line, suggesting a relatively good model fit. These findings underscore the substantial impact of e-procurement systems on county government performance. They suggest that investments in electronic sourcing, ordering, payment and invoicing can collectively enhance efficiency, transparency and responsiveness in public service delivery.

Table 9 presents the ANOVA results used to test the overall significance of the multiple regression model examining the influence of e-procurement practices—namely e-sourcing, e-ordering, e-payment and e-invoicing—on the performance of county governments in the Lake Region Economic Bloc (LREB). The purpose of this F-test is

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to determine whether the model provides a better fit to the data compared to a model with no predictors.

Table 9: ANOVA for E-Procurement on Performance of County Governments

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	46.112	4	11.528	69.374	.000b
	Residual	19.774	119	0.166		
	Total	65.886	123			

a Dependent Variable: organizational performance

b Predictors: (Constant), e-invoice, e-sourcing, e-payment, e-ordering

The results show F-statistics is 69.374 and its associated p-value is 0.000, which is well below the 0.05 threshold, indicating that the regression model is statistically significant. This means that at least one of the e-procurement variables significantly predicts the performance of county governments. In other words, the probability that the relationship between the predictors and the dependent variable is due to chance is very low. These results confirm that the model has a good fit, and collectively, e-sourcing, e-ordering, e-payment and e-invoicing significantly affect the performance of county governments in the LREB. This finding supports the relevance of adopting integrated electronic procurement systems to enhance public sector efficiency and service delivery.

Table 10 presents the regression coefficients assessing the individual contributions of each e-procurement dimension—e-sourcing, e-ordering, e-payment and e-invoicing—to the performance of county governments in the Lake Region Economic Bloc (LREB). The analysis includes unstandardized coefficients (B), standard errors, standardized beta coefficients (β), t-values and significance levels (p-values).

Table 10: Coefficients for E-Procurement and Performance of county governments

Mode		Unstandardized Coefficients		Standardized Coefficients		
1		B	Std. Error	Beta	t	Sig.
1	(Constant)	0.879	0.212		4.144	0.000
	E-sourcing	0.282	0.086	0.317	3.290	0.001
	E-ordering	0.200	0.097	0.222	2.066	0.011
	E-payment	0.167	0.087	0.181	1.933	0.016
	E-invoicing	0.181	0.064	0.208	2.803	0.006

a Dependent Variable: performance of county governments

The study found that e-sourcing has a positive and statistically significant effect on the performance of county governments ($\beta = 0.317$, $p = 0.001$). This implies that digital tools used for supplier identification, tendering and prequalification contribute

substantially to improved efficiency, transparency and value-for-money in public procurement. These results are supported by Junejo et al. (2024), who emphasize the strategic value of integrating sustainability into procurement through e-sourcing, thereby improving operational efficiency and promoting collaboration with environmentally conscious suppliers. Similarly, Chukwuemeka and Poi (2023) report a strong correlation between e-sourcing and supply chain sustainability, highlighting how digital sourcing tools enhance both environmental and operational performance. Further, Maalim and Barasa (2025) confirm that e-sourcing significantly boosts service delivery in public sector institutions through process automation and better vendor management. Likewise, Langat (2019) identifies a direct link between e-sourcing practices—such as supplier evaluation and prequalification—and procurement cost reduction in state corporations. Finally, Murithi et al. (2024) underscore the role of e-sourcing in enhancing audit trails and optimizing operational costs, positioning it as a key driver of transparency and performance in public procurement.

The study found that e-ordering has a positive and significant effect on the performance of county governments ($\beta = 0.222$, $p = 0.011$). This suggests that the use of digital tools for creating, tracking and approving purchase orders enhances the speed, accuracy and transparency of procurement operations. Empirical evidence from Al-Ma'aitah et al. (2024) supports this view, showing that e-ordering significantly improves buyer-supplier relationships and facilitates efficient procurement coordination. Oshoma et al. (2024) also highlights the role of e-ordering in boosting business performance and procurement effectiveness in SMEs. According to Gichuhi (2021), e-ordering systems strengthen procurement performance by ensuring faster approvals and reducing manual errors. Wako et al. (2024) adds that e-ordering improves tendering efficiency and minimizes bureaucracy in public institutions. These findings collectively demonstrate that e-ordering systems not only streamline procurement workflows but also promote accountability and reduce lead times in government procurement.

The regression results indicate that e-payment has a positive and significant relationship with county government performance ($\beta = 0.181$, $p = 0.016$). This shows that digital payment platforms, such as mobile money, bank transfers or online gateways, improve timeliness, accuracy and auditability of financial transactions. Gikonyo (2023) confirms that e-payment enhances customer satisfaction and streamlines internal processes, particularly in commercial banks, by reducing paperwork and minimizing transactional errors. Similarly, Luhanga (2022) finds that e-payment strengthens audit trails and internal controls, thereby fostering stakeholder trust and improving organizational performance. Kiettikunwong (2020) provides additional evidence, showing that mobile payment systems improve customer satisfaction, transaction volume and financial efficiency, leading to better profitability. Likewise, Gathoni (2020) reports that e-payment platforms improve real-time monitoring, reduce queues and enhance financial transparency, all of which positively impact organizational performance.

The findings indicate that e-invoicing significantly and positively affects the performance of county governments ($\beta = 0.208$, $p = 0.006$). This implies that automation of invoicing processes improves financial accuracy, expedites payments and enhances reporting, which collectively support better service delivery. This is echoed by Asender and Sapkota (2024), who find that e-invoicing reduces operational costs, improves efficiency and aligns sustainability goals by minimizing paper use.

Awan (2023) also notes that e-invoicing speeds up invoice processing, reduces errors and improves cash flow, fostering stronger relationships with suppliers. In the Baltic region, Gunaratne and Pappel (2020) identify key automation opportunities within e-invoicing systems that help address inefficiencies and strengthen information security. Mutunga and Makhamara (2020) further demonstrate that e-invoicing enhances SME performance by improving financial record-keeping, lowering transaction costs and boosting compliance.

5.1. Conclusion

The study concludes that each dimension of e-procurement, e-sourcing, e-ordering, e-payment and e-invoicing—fundamentally enhances county government performance by driving transparency, efficiency and accountability across the procurement lifecycle. E-sourcing tools for -supplier identification, tender management and prequalification—streamline engagement, reduce delays, minimize corruption risks and strengthen audit trails, thereby delivering better value for money. E-ordering systems, while exerting a more moderate effect, still accelerate requisition cycles, cut paperwork, improve inventory control and enable real-time tracking, all of which support smoother internal workflows. E-payment platforms—from mobile money to integrated online gateways—digitize transactions, shorten settlement times, curb manual errors and fraud and maintain auditable financial records, leading to more reliable supplier relationships and budget execution. Finally, e-invoicing automates billing processes, speeds transaction cycles, ensures data accuracy and generates standardized records for easier budgeting, auditing and regulatory compliance, while reducing paper use in line with sustainability goals. Together, these findings underscore the strategic imperative for counties to invest in robust e-procurement infrastructures, comprehensive staff training and seamless system integration to optimize resource utilization, fortify financial governance and elevate public service delivery.

6.1. Recommendations

County governments in the Lake Region Economic Bloc should pursue a holistic digital-procurement strategy by first investing in robust e-sourcing platforms—complete with supplier prequalification, e-tendering and automated evaluation modules—and by funding continuous, hands-on training to build staff proficiency. Simultaneously, they must modernize e-ordering systems with end-to-end requisition and purchase-order tracking, seamless integration into inventory and budgeting modules, and clear electronic approval protocols to eliminate bottlenecks and errors. Financial accountability will be strengthened by embedding comprehensive e-payment solutions—mobile money, online banking portals and government-grade financial management systems—alongside rigorous audit guidelines and public-private partnerships to ensure security, regulatory compliance and timely supplier disbursements. Finally, full automation of e-invoicing—enabling real-time invoice creation, approval and reconciliation within budgeting and accounting platforms—should be mandated, with green-procurement policies that favor paperless workflows and digital archival, thereby enhancing sustainability, transparency and overall operational efficiency.

7.1. Areas for Further Studies

While this study provides robust evidence that e-sourcing, e-ordering, e-payment, and e-invoicing significantly boost efficiency, transparency and accountability in Lake Region Economic Bloc (LREB) county governments, its findings are bounded by several limitations. First, by focusing only on LREB counties, the results may not fully extrapolate across Kenya's 47 devolved governments or other public entities—future research should broaden the sample to include all counties as well as ministries, state departments and parastatals to capture wider administrative dynamics. Second, by examining only four core e-procurement dimensions, the study overlooks critical areas such as e-contract management, supplier relationship management and performance-monitoring systems; incorporating these in subsequent studies would yield a more holistic view of digital procurement's impact on sustainability and stakeholder satisfaction. Third, the absence of moderating and mediating factors—such as governance structures, leadership styles, staff capacities, regulatory environments and macroeconomic conditions—limits understanding of the contextual enablers or barriers to e-procurement effectiveness; future research should integrate these variables to tailor implementation strategies more precisely. Finally, the cross-sectional design offers only a snapshot in time, so longitudinal studies are needed to track adoption trajectories, long-term outcomes and evolving challenges, thereby informing adaptive, forward-looking policies that sustain e-procurement benefits across the public sector.

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