

# THE INTERNATIONAL JOURNAL OF BUSINESS & MANAGEMENT

## Influence of Adopting Electronic Procurement Practices on Performance of Supply Chain Management for Hospitals in Kenya

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### **Abstract:**

Technology has become an integral part of modern business, facilitating transactions and operations in many areas, including procurement. Businesses, clinics, and hospitals in Kenya have been quick to embrace E-Procurement strategies. In Kenyan hospitals, where e-procurement accounts for as much as 30% of operational expenses, this study seeks to evaluate the effect of this trend on supply chain management success. Companies that want to survive in today's cutthroat healthcare market must embrace e-procurement strategies if they want to keep up with the ever-changing industry. By facilitating more efficient inventory management, faster purchasing cycles, increased transparency, and higher quality services, e-procurement practices are essential for improving performance and competitiveness in the market. The health industry is facing severe competition and financing constraints, making it imperative that it reorganizes its service delivery system to adapt to the complicated business climate. The purpose of this empirical study is to investigate how hospitals in Kenya are using electronic tendering and electronic invoicing to improve their supply chain management. The study found that Kenyan hospital administrators have a highly positive perception of electronic procurement practices, with e-tendering scoring an average mean of 4.75, significantly enhancing SCM performance through efficiency and cost savings. The findings concluded that e-invoicing also positively impacts procurement processes, promoting transparency and operational effectiveness. The study further recommended that legislators integrate these electronic procurement practices into healthcare policies, provide financial assistance and training, and encourage hospitals to invest in robust systems and strategic partnerships to improve patient care and system efficiency.

**Keywords:** E-Procurement, supply chain management, efficiency, transparency, healthcare

### **1. Background of the Study**

Access to high-quality healthcare significantly influences a country's standard of living, with hospitals leveraging new technologies to enhance competitiveness and efficiency (Chegugu & Yusuf, 2017). The adoption of electronic medical records, electronic prescriptions, and e-procurement strategies like e-tendering is advocated to improve supply chain efficiency, reduce medical errors, and lower costs (Tiwari, 2019). Research shows that e-tendering can streamline supplier access and enhance procurement performance, although data on its specific impacts in Kenya is limited. Globally, electronic invoicing and payment methods have been shown to improve inventory management and service delivery, while electronic reverse auctions foster transparency and competition among suppliers (Tiwari, 2019; Wu, Kao & Ho, 2021). Despite slower technological adoption in Africa, e-procurement practices are gaining traction in Kenya, aiming to improve healthcare supply chain management and enhance overall efficiency.

#### **1.1. Statement of the Problem**

Maintaining social and economic progress and human welfare in Kenya depends on access to high-quality healthcare, as poor health exacerbates poverty and economic instability. Over 46% of Kenyans live on less than \$1 a day (Deolitte, 2020), facing significant financial obstacles to healthcare, which impacts national productivity and GDP. Enhancing healthcare access through improved internet connectivity and ICT services can foster job creation, innovation, and economic prosperity. E-procurement practices like electronic reverse auctions, e-tendering, e-payment, and e-invoicing are expected to improve supply chain management efficiency in Kenyan hospitals. While various studies have explored aspects of electronic procurement and its impact on SMEs and public hospitals (Mutunga & Makhmara, 2020; Fahleri & Alharbi, 2021), limited research exists on its effects on hospital supply chain management in Kenya, highlighting the importance of this study in filling the existing knowledge gap.

### 1.2. Study Objectives

- To establish the effect of e-tendering on the performance of supply chain management in Hospitals in Kenya.
- To determine the effect of e-invoicing on the performance of supply chain management in Hospitals in Kenya.

### 1.3. Research Hypotheses

The study tested the following hypothesis.

- H<sub>01</sub>: There is no relationship between e-tendering and the performance of supply chain management in Hospitals in Kenya.
- H<sub>02</sub>: There is no relationship between e-invoicing and the performance of supply chain management in Hospitals in Kenya.

## 2. Methodology

This study employed a mixed-methods approach using a cross-sectional survey design to examine the impact of electronic procurement practices on supply chain management (SCM) performance in Kenyan hospitals. Quantitative data were collected through structured questionnaires from hospital managers, while qualitative insights were obtained via semi-structured interviews. Statistical methods and thematic analysis were used to analyze the data, ensuring adherence to ethical considerations such as informed consent and confidentiality.

The study targeted 529 hospitals across Kenya, including government, faith-based, and private hospitals registered with the Ministry of Health. The sample size was determined using Yamane's formula, resulting in 228 participants selected through stratified random sampling. This approach ensured representation across different hospital types, enhancing the study's comprehensiveness. Data were gathered using self-administered semi-structured questionnaires chosen for their efficiency and confidentiality.

### 2.1. Research Findings

#### Effect of E-Tendering on the Performance of Supply Chain Management in Hospitals in Kenya

The high average scores for statements on e-tendering, particularly 4.82 for the use of online systems in supplier order evaluation, indicate strong adoption of this technology by hospitals in Kenya. Administrators perceive e-tendering as efficient, with a score of 4.73 suggesting quick bidding processes, which enhances supply chain efficiency. An overall mean score of 4.75 reflects positive attitudes toward its impact on procurement speed and supplier management. Supporting studies, like those by Nyokabi et al. (2023) and Rotich et al. (2015), confirm the beneficial effects of e-tendering on organizational performance and procurement efficiency. However, Makhamara's (2022) research highlights that while e-tendering can improve certain metrics for SMEs, its overall impact may vary based on organizational capacity.

E-tendering	N	Mean	Std. Deviation
Our hospital receives and evaluates orders from suppliers in an online system	171	4.82	.513
Our hospital uses an online system for bidding.	171	4.82	.456
Our hospital bidding process takes less than 30 minutes	171	4.73	.592
Our hospital has a pool of qualified suppliers for real-time requests, which improves our performance	171	4.64	.742
Averages		4.75	.576

Table 1: Descriptive Statistics for E-tendering

#### 2.1.1. Effect of E-invoicing on the Performance of Supply Chain Management in Hospitals in Kenya

The average scores indicate a very favorable attitude toward electronic invoicing in Kenyan hospitals, with the highest mean score of 4.94 reflecting the efficiency of online pro-forma invoice preparation. High ratings for statements about data security, accuracy, and market share highlight the perceived benefits of e-invoicing. Administrators believe that e-invoicing enhances supply chain efficiency and customer satisfaction, supported by Knudsen's (2019) findings on cost-saving and security advantages. Additionally, Mutunga and Makhamara (2020) emphasize that e-invoicing positively impacts SMEs' business performance and customer satisfaction. The studies recommend thorough adoption strategies to maximize the benefits of electronic invoicing in both healthcare and business contexts

E-Invoicing	N	Mean	Std. Deviation
Our pro forma invoices are prepared through an online system	171	4.94	.259
E-invoicing has helped prevent invoice errors and enhance accuracy.	171	4.91	.432
The market share has increased due to the adoption of a reliable e-invoicing system	171	4.91	.409
E-invoicing has highly enhanced data security at my business.	171	4.88	.495

<b>E-Invoicing</b>	<b>N</b>	<b>Mean</b>	<b>Std. Deviation</b>
Our e-invoicing system is fast and efficient	171	4.88	.409
Our hospital uses online data to price goods and services	171	4.86	.438
Our e-invoicing process has increased customer satisfaction	171	4.84	.571
Averages		4.88	.459

Table 2: Descriptive Statistics for E-invoicing

### Regression Analysis of the Study Variables

#### Coefficients of the Regression Model

The study yielded the regression model's coefficient, which was then displayed. Down below, you can see the regression equation:

$$Y = 0.517 + 0.662X_1 + 0.193X_2 + \dots + \Sigma$$

Y – Supply Chain Management Performance

X<sub>1</sub>– E-tendering

X<sub>2</sub>– E-invoicing

Σ--- Error Term

There will be no supply chain management performance (0.517, or 51.7% of the time) if all of the independent variables are set to zero. With (X<sub>2</sub>) held constant, E-tendering would account for 0.662 (or 66.2% of the total) of the success or failure of the supply chain management strategy. For the sake of this analysis, (X<sub>1</sub>) was kept constant. It is estimated that electronic invoicing would add 0.193 percent, or 19.3%, to the efficiency of supply chain management.

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.517	.089		5.802	.000
E-tendering	.662	.029	.809	2.851	.000
E-invoicing	.193	.037	.186	5.265	.000

Table 3: Coefficients of the Regression Model

The regression analysis reveals a significant positive relationship between the four electronic procurement practices—e-tendering and e-invoicing supply chain management (SCM) performance in Kenyan hospitals, leading to the rejection of the null hypotheses (H<sub>01</sub> and H<sub>02</sub>). The positive standardized coefficients (Beta values) for all electronic procurement procedures indicate that their increased usage correlates with improved SCM performance. Specifically, e-tendering (Beta = 0.519) and e-invoicing (Beta = 0.193) all show significant positive associations with SCM performance (p < 0.001), suggesting that hospitals employing these practices experience better SCM outcomes.

### 3. Conclusion

#### 3.1. Effect of E-Tendering on SCM Performance

The study reveals a highly positive perception of e-tendering among Kenyan hospital administrators, with an average mean score of 4.75. E-tendering significantly enhances procurement efficiency, evidenced by the swift bidding process (mean = 4.73) and effective supplier management (mean = 4.64). These findings indicate that e-tendering contributes to operational effectiveness and cost savings, making it a valuable tool for improving supply chain management (SCM) in hospitals.

E-tendering is positively correlated with SCM performance in Kenyan hospitals, enhancing procurement cycles, reducing administrative burdens, and improving transparency in supplier selection. It fosters cost savings by creating a competitive bidding environment, demonstrating its key role in streamlining procurement processes and enhancing overall SCM performance. E-tendering also promotes digital transformation and innovation in hospital supply chains, positioning it as a promising strategy for operational improvement and high-quality patient care.

#### 3.2. Effect of E-invoicing on SCM Performance

The results indicate a highly favorable view of e-invoicing, with an average mean score of 4.88. Key benefits include reduced invoice errors (mean = 4.91), enhanced data security (mean = 4.88), and improved accuracy and efficiency in invoice management (mean = 4.94). E-invoicing positively impacts market share and customer satisfaction, aligning with previous studies highlighting its cost-saving benefits and overall enhancement of hospital SCM performance.

E-invoicing moderately correlates with SCM performance, improving operational efficiency, financial management, and invoice processing accuracy. By transitioning to paperless invoicing, hospitals can save time, reduce errors, and enhance payment transparency. Despite a weaker correlation compared to other electronic procurement forms, e-invoicing remains an effective method for enhancing procurement transparency and efficiency, supporting hospitals' digital transformation initiatives and improving supply chain operations.

#### 4. Recommendation

In light of the study's findings and conclusions, it is recommended that legislators prioritize the integration of electronic procurement practices—such as e-tendering and e-invoicing, e-payment, into healthcare procurement policies and guidelines to enhance efficiency, reduce costs, and improve SCM performance. Lawmakers should consider financial assistance, training programs, and legislative frameworks that promote accountability and transparency. Researchers should focus on expanding empirical research on e-procurement, addressing adoption challenges, and developing theoretical models to aid hospitals in achieving SCM goals. Hospital practitioners should prioritize implementing and optimizing electronic procurement systems by investing in robust platforms, employee training, and change management while also forming strategic alliances with technology providers and suppliers. Emphasizing innovation and collaboration will position hospitals as leaders in procurement processes, ultimately enhancing patient care and system efficiency.

#### 5. References

- i. Awan, K. (2023). *Impact of electronic invoicing on cost saving and operational efficiency in logistics* (Unpublished bachelor's thesis). LAB University of Applied Sciences, Finland.
- ii. Chegugu, N. R., & Yusuf, K. G. (2017). Effect of electronic procurement practices on organizational performance in public hospitals in the county government of Uasin Gishu, Kenya. *International Academic Journal of Procurement and Supply Chain Management*, 2(3), 16–32.
- iii. Kilay, A. L., Simamora, B. H., & Putra, D. P. (2022). The influence of e-payment and e-commerce services on supply chain performance: Implications of open innovation and solutions for the digitalization of micro, small, and medium enterprises (MSMEs) in Indonesia. *Journal of Open Innovation: Technology, Market, and Complexity*, 8(3), 119. <https://doi.org/10.3390/joitmc8030119>
- iv. Majanga, S. (2021). *Electronic reverse auctions and procurement performance in multinational pharmaceutical corporations in Kenya* (Unpublished master's thesis). University of Nairobi.
- v. Makhamara, F. H. (2022). E-tendering and performance of small and medium enterprises in Nairobi County, Kenya. *IOSR Journal of Business and Management (IOSR-JBM)*, 24(4), 119–128.
- vi. Mutunga, J. M., & Makhamara, F. H. (2020). E-invoicing and the performance of small and medium enterprises in Nairobi City County, Kenya. *The Strategic Journal of Business & Change Management*, 7(3), 1404–1415.
- vii. Nyokabi, W. R., Biraori, O. E., & Wacera, N. G. (2023). Electronic tendering and organizational performance of parastatals in Nakuru County. *East African Journal of Business and Economics*, 6(1), 290–299. <https://doi.org/10.37284/eajbe.6.1.1376>