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Procurement Risk Management Practices and Service Delivery in Level Five Hospitals in Western Region, Kenya

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ABSTRACT

Purpose: The general objective of this study was to examine the influence of procurement risk management practices on service delivery in Level five hospitals in Western region. Specifically the study assessed the influence of supplier diversification, supplier relationship management, strategic inventory management and procurement automation on service delivery in Level five hospitals in Western region. The study was guided by efficiency theory, resource dependence theory, transaction cost theory and diffusion of innovations theory.

Methodology: The descriptive survey design was employed. This study targeted 116 stores and procurement staff from level five hospitals in Western region. These included Vihiga, Kakamega, Busia, TransNzoia and Bungoma County referral hospitals. Purposive sampling was used to select 86 staffs of the level five hospitals. Structured questionnaire were used to collect data. The study assessed validity through content, and construct validity. Reliability was evaluated using internal consistency of the instrument with the aid of Cronbach's Alpha coefficient. Data analysis involved descriptive statistics, including means and standard deviations. Additionally, inferential statistics, such as Pearson correlation and multiple regression were employed to analyze and test the hypotheses.

Findings: The findings of the study revealed that all the independent variables had a significant positive influence on service delivery of level five hospitals. Specifically, the results showed that supplier relationship management had the greatest contribution to service delivery in the hospitals.

Unique Contribution to Theory, Policy and Practice: The study, therefore, recommends that supplier diversification, relationships, inventory management, and automation be fully embraced to improve procurement performance and service delivery to hospital clients.

Keywords: *Procurement Automation, Service Delivery, Supplier Diversification, Relationship Management, Inventory Management*

INTRODUCTION

Background of the Study

Service delivery is a concept that describes the means of getting goods and services to the citizenry in a way that meets their expectations (Li & Shang, 2020). Hospitals play a critical role in providing healthcare services, making the efficiency of their service delivery a matter of public importance. Effective service delivery ensures that patients receive timely, quality care, which contributes to improved health outcomes and patient satisfaction (Erhabor, 2024). However, the healthcare sector globally has faced significant challenges in maintaining high service delivery standards, partly due to procurement inefficiencies and risks (Yu & Guo, 2024). Issues such as delayed delivery of medical supplies, procurement fraud, and poor supplier performance have hindered hospitals' ability to respond to patient needs effectively. For example, delayed delivery of critical medicines and equipment during emergencies has often exacerbated health crises, underscoring the need for robust procurement risk management practices to mitigate these challenges.

Procurement risk management practices are essential for ensuring the smooth operation of healthcare services (Repo, 2023). Effective management of procurement risks—such as supplier defaults, price volatility, and quality concerns—can directly impact the availability of essential resources in hospitals (Getele, & Ruoliu, 2023). Procurement is central to service delivery, as it ensures timely access to medical supplies, equipment, and services required for patient care. In implementing risk management strategies such as supplier evaluation, contract management, and contingency planning, hospitals can enhance their operational efficiency and reduce disruptions in service delivery. Studies have shown that hospitals with proactive risk management frameworks experience fewer procurement-related delays, leading to better service outcomes and patient satisfaction (Getele & Ruoliu, 2023; Senna, et al., 2024)

In Kenya, hospitals face unique challenges related to procurement risk management, which have been exacerbated by limited resources, regulatory gaps, and inefficiencies in procurement processes (Owich & Odero, 2023). County-level referral hospitals, particularly those classified as Level Five, often struggle with inconsistent supply chains, fraud risks, and lack of transparency in procurement. The absence of lack of empirical evidence on procurement risk management practices that contribute to service delivery. Addressing these issues requires a thorough understanding of the procurement risks hospitals face and the implementation of tailored risk management practices to enhance service quality and operational reliability.

Procurement risk management is a key aspect of supply chain resilience worldwide. In the US, companies leverage AI-driven risk assessment models and predictive analytics to mitigate risks like supplier defaults and geopolitical uncertainties (Gustavsson, 2023). In Germany, the focus is on sustainability and compliance with EU regulations, with technologies like blockchain used for ethical sourcing (Rhode, 2019). In Asia, China utilizes blockchain for supply chain transparency,

while Thailand emphasizes diversifying supply chains to reduce risks (Nguyen et al., 2022).

In Africa, procurement risk management varies by region. South Africa's health sector uses risk assessment frameworks and digital platforms to address political instability and fraud (Omoruyi & Quayson, 2023). East Africa, including Kenya, has adopted digital tools and reforms like e-procurement to enhance transparency (Omondi & Wanyama, 2023). In West Africa, oil-exporting nations face risks from exchange rate volatility and militant activities, with local sourcing and supplier relationship management emphasized (Akintoye et al., 2023).

Locally, studies in Kenya highlight the importance of competitive procurement practices, strategic planning, and supplier appraisal to mitigate procurement risks and improve service delivery, particularly in public hospitals and mega projects in the energy sector (Gituru, 2018; Mwau et al., 2018). Effective procurement risk management is essential for improved performance and service delivery across sectors.

Statement of the Problem

Scholars widely agree that improving public service delivery in the public sector is neither a simple nor a short-term endeavor but a continuous and complex process that requires bureaucratic reinforcement (Agboola, 2015). Public organizations, designed to serve the public, face significant challenges that necessitate thorough investigations into their operations (Anane *et al*., 2019). Despite increased resource allocations, the quality-of-service delivery in the public sector especially in health sector continues to decline in many developing countries (Leni *et al*., 2012). The performance of public hospitals, particularly during global pandemics like COVID-19, has become a critical concern. In Kenya, Level 5 hospitals contribute 22% of healthcare services and significantly impact economic growth (Kenya Association of Private Hospitals, 2023). These hospitals are preferred due to their high-quality services, advanced equipment, skilled medical personnel, and robust infrastructure. As a result, assessing the performance of Level 5 hospitals and identifying its determinants is crucial for maintaining service quality and achieving organizational objectives (Mohamoud & Mash, 2022).

However, the growth rate of Level 4, 5, and 6 hospitals has declined steadily, dropping to 5.2%, 3.5%, and 2.3% in 2008, 2009, and 2010, respectively (Kenya Association of Private Hospitals, 2023). This decline mirrors a broader deterioration in public hospital performance (Kelvin & Morrisson, 2023). Many Level 5 hospitals face significant procurement challenges, including insufficient suppliers of medicine, supplier defaults, price instability, and quality issues (Kenya Medical Supplies Authority, 2021). Approximately 40% of private hospitals report procurement risks, which adversely affect their performance (Bwire, 2018; Kenya Medical Practitioners and Dentists Council, 2019; Kaguthi, Nduba & Adams, 2020). These risks are often linked to ineffective procurement risk management strategies.

Studies on procurement risk management highlight its critical influence on organizational

performance. For example, Mwau et al. (2018) examined procurement risk management in the energy sector, while Gituru (2018) explored competitive procurement practices and service delivery in public hospitals in Nakuru County. Muinde *et al.* (2020) investigated procurement risk management in Kenyan public universities, and Okonjo (2016) connected procurement risk management to performance outcomes. Despite the growing interest in procurement risk management, researchers such as Kalvert and Lember (2011) and Murray (2013) observe limited attention to this subject in the public sector. Although existing studies have emphasized the relationship between procurement risk management and procurement performance, there remains a gap in understanding its direct impact on service delivery especially in health sector. The current study therefore, sought to address this gap and contribute to the growing body of knowledge on procurement risk management within the Level five public hospitals in Western region.

General Objective

The general objective of this study was to examine the influence of risk management practices on service delivery in Level five hospitals in Western region.

Specific Objectives

The study was guided by the following specific objectives:

i. To assess the influence of supplier diversification on service delivery in Level five hospitals in Western region.

ii. To establish the influence of supplier relationship management on service delivery of Level fivehospitals in Western region.

iii. To establish the influence of strategic inventory management on service delivery in Level five hospitals in Western region.

iv. To assess the influence of procurement automation on service delivery in Level five hospitalsin Western region.

LITERATURE REVIEW

Theoretical Framework

Efficiency Theory

Richard Efficiency theory was first conceptualized by Richard Posner in the 1970s as part of his work on the economic analysis of law. Posner argued that legal and organizational systems should prioritize efficiency by allocating resources in ways that maximize output while minimizing costs. His work emphasized the importance of rational decision-making processes in achieving economic and operational efficiency. The theory draws heavily from principles in microeconomics, particularly the concept of Pareto efficiency, which occurs when resources cannot be reallocated to make one party better off without making another worse off (Posner, 1973). Over time,

efficiency theory has been expanded and applied to various fields, including public administration, supply chain management, and healthcare service delivery.

Scholars have extensively debated and refined efficiency theory to incorporate modern organizational dynamics. Williamson (1981) incorporated it into transaction cost economics, arguing that organizations optimize efficiency by minimizing the costs of transactions within and across firms. Kaplan and Norton (1996) explored efficiency in strategic performance management, emphasizing the balance between financial and operational measures. In supply chain contexts, Chopra and Meindl (2021) highlight how efficiency aligns with cost reductions, streamlined logistics, and enhanced supplier management. Critics of the theory, such as Freeman (1984), argue that efficiency-focused strategies must balance profitability with ethical and social considerations, particularly in sectors like healthcare, where service quality directly impacts lives.

Efficiency theory is particularly relevant when analyzing the influence of supplier diversification on service delivery in Level 5 hospitals. Supplier diversification, a strategy to mitigate risks associated with dependence on a single supplier, aligns with efficiency principles by ensuring a consistent supply of medical equipment and drugs, thereby minimizing service disruptions. According to Posner's framework, diversified suppliers can enhance resource allocation efficiency, leading to improved patient outcomes through reduced delays and optimized costs. Moreover, the theory supports the need for dynamic supplier relationships in healthcare to address the unpredictable nature of demand for medical supplies and services. In leveraging efficiency theory, hospital administrators can evaluate and implement supplier strategies that balance cost, quality, and reliability, ensuring that service delivery meets the expectations of Kenya's growing healthcare demands.

Resource Dependence Theory

Resource dependence theory, Resource Dependence Theory (RDT) was introduced by Jeffrey Pfeffer and Gerald Salancik in their seminal 1978 work, *The External Control of Organizations: A Resource Dependence Perspective*. The theory emphasizes how organizations depend on external resources to function and succeed, such as suppliers, customers, and funding sources. Pfeffer and Salancik argued that organizations aim to minimize dependency and manage uncertainty by forming strategic alliances, diversifying resource sources, or exerting control over critical resources. RDT highlights the strategic importance of managing relationships and dependencies to reduce vulnerabilities and ensure operational stability, which is particularly significant in sectors like healthcare, where access to reliable supplies is critical.

Subsequent studies have extended RDT to various organizational contexts. Hillman, Withers, and Collins (2009) explored how inter-organizational relationships, such as joint ventures or partnerships, help organizations mitigate resource dependence. Carter and Rogers (2008) examined its application in supply chain management, arguing that strong supplier relationships can reduce operational risks and enhance efficiency. In the healthcare context, scholars like Singh

and Power (2020) emphasized the role of supplier management in ensuring the availability of critical resources and maintaining service quality. Critics, however, argue that excessive reliance on external resources can lead to power imbalances, making organizations susceptible to exploitation by dominant suppliers (Casciaro & Piskorski, 2005).

Resource Dependence Theory is highly relevant to understanding how supplier relationship management influences service delivery in Level 5 hospitals. Effective supplier relationship management allows hospitals to reduce dependency on single suppliers, ensuring consistent availability of essential medical supplies and equipment. RDT suggests that fostering collaborative and mutually beneficial supplier relationships can help mitigate risks associated with resource shortages or price fluctuations. This is crucial for Level 5 hospitals, where delays in acquiring critical resources directly impact patient care. Additionally, the theory underscores the importance of diversifying supply chains and negotiating favorable terms with suppliers to enhance service reliability and efficiency. In applying RDT, hospitals can strategically manage supplier dependencies to achieve better service delivery outcomes and optimize resource utilization.

Transaction Cost Theory (TCT)

Transaction Cost Theory (TCT) was developed by Ronald Coase in 1937 through his groundbreaking article The Nature of the Firm. Coase introduced the concept that firms exist to minimize transaction costs, such as the costs of negotiating, monitoring, and enforcing contracts. Later, Oliver Williamson expanded the theory in the 1970s and 1980s, providing a robust framework for understanding the trade-offs between using markets and hierarchies for economic transactions. Williamson emphasized factors like asset specificity, uncertainty, and frequency as determinants of transaction costs. This theory has since become a cornerstone of organizational economics, widely applied in supply chain and inventory management contexts to evaluate cost-efficiency in transactions.

Scholars like Williamson (1985) have highlighted how TCT applies to inventory management by emphasizing the cost-effectiveness of strategic decisions regarding stock procurement and holding. Hobbs (1996) explored its application in supply chain management, noting that organizations often balance transaction costs against operational efficiency. Recent studies, such as those by Masteika and Čepinskis (2020), argue that TCT is pivotal in reducing operational inefficiencies and ensuring resource availability through proper inventory management. Critiques of TCT include its assumption of rational decision-making and its neglect of social and relational dimensions in organizational interactions (Ghoshal & Moran, 1996).

Transaction Cost Theory is highly relevant for examining how strategic inventory management influences service delivery in Level 5 hospitals. In healthcare, efficient inventory management minimizes wastage and ensures the timely availability of critical medical supplies, directly impacting patient care quality. TCT suggests that hospitals can lower transaction costs by adopting centralized inventory systems, reducing reliance on intermediaries, and improving procurement

processes. For Level 5 hospitals, implementing strategic inventory practices—such as just-in-time inventory and vendor-managed inventory systems—aligns with TCT principles by optimizing costs and ensuring a seamless flow of supplies. In leveraging TCT, hospitals can identify cost-efficient procurement and storage strategies, leading to enhanced service delivery and reduced resource bottlenecks.

Diffusion of Innovations Theory

The Diffusion of Innovations Theory (DOI), first introduced by Everett Rogers in 1962, explains how new ideas, technologies, and practices spread within a social system. Rogers identified five key attributes that influence the adoption of innovations: relative advantage, compatibility, complexity, trialability, and observability. According to DOI, innovations are adopted over time through a process that begins with innovators and early adopters, followed by the majority and laggards. The theory has been widely applied in fields such as healthcare, business, and technology to understand how new practices are accepted and integrated into organizational structures.

Scholars have further developed and applied DOI in various contexts. For example, Greenhalgh et al. (2004) extended the theory by emphasizing the role of contextual factors such as organizational culture and leadership in the diffusion process. In the context of procurement automation, DOI suggests that the adoption of automated systems can be influenced by factors like the perceived benefits of reducing administrative costs, enhancing transparency, and improving procurement efficiency (Kwon & Zmud, 2020). The theory has been particularly relevant in healthcare, where the adoption of technology is often slow due to resistance to change, lack of resources, or perceived complexity (Agarwal et al., 2018).

Diffusion of Innovations Theory offers valuable insights into how procurement automation can influence service delivery in Level 5 hospitals. As healthcare facilities look to improve service delivery, automating procurement processes is seen as a way to streamline operations, reduce human error, and improve inventory management, ultimately leading to better patient outcomes. DOI suggests that hospitals may adopt procurement automation when they perceive a relative advantage in terms of cost savings, efficiency, and accuracy. For example, automated systems reduce procurement delays, minimize stockouts, and ensure timely availability of medical supplies, which directly impacts service delivery. However, factors such as organizational culture, the complexity of implementation, and the availability of resources can influence the speed and extent of adoption. As hospitals move toward digital systems, understanding the adoption curve of innovation can help policymakers and healthcare leaders effectively manage the transition and improve service delivery outcomes (Vasquez et al., 2021).

Conceptual Framework

Independent Variable **Dependent Variable**

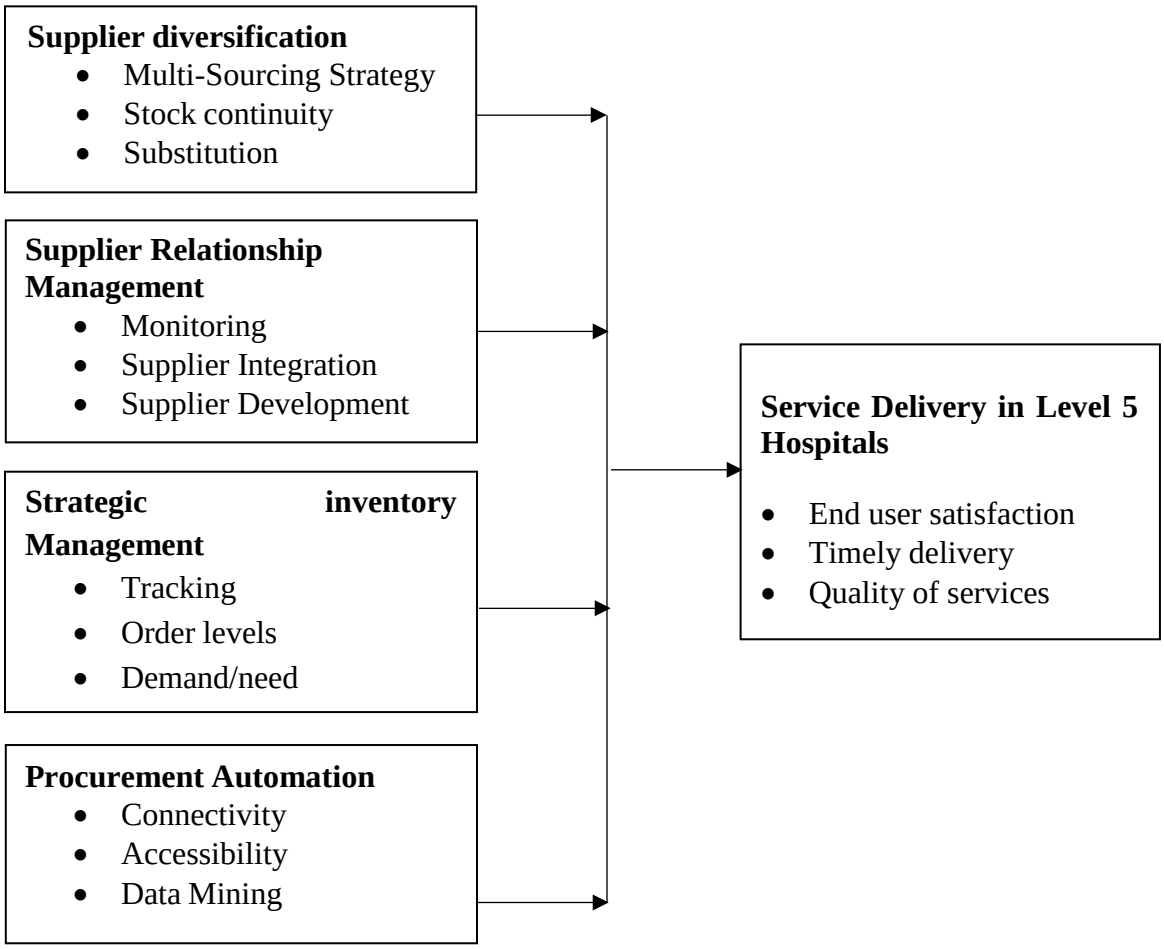


Figure 1: Conceptual Framework

Empirical Review of Literature

The review of literature provides valuable insights into procurement risk management practices and their potential to improve service delivery in various sectors, including healthcare. For instance, studies by Kusi and Appiah (2023), Tiwari and Gupta (2023), and Weller and Palmer (2023) highlight the importance of supplier diversification, strategic inventory management, and procurement automation, respectively, in enhancing service delivery. However, most of these studies were conducted in different sectors, such as manufacturing, retail, or the foodservice industry, with limited emphasis on healthcare and hospitals. For example, Oduro and Awuah (2022) focused on supplier diversification in manufacturing, while Lee and Lee (2020) explored retail settings, making their findings less directly applicable to hospitals. Additionally, studies like Yin and Ran (2022) and Alvarado and Krivkovich (2021) emphasize broader operational

efficiencies rather than directly linking these practices to service delivery in healthcare facilities.

Furthermore, many studies, such as those by Kang and Park (2021) and Kumar and Singh (2021), examine procurement risk management's impact on firm performance rather than explicitly on service delivery, which is a critical outcome for healthcare institutions. Most existing studies are also geographically skewed, with a predominant focus on developed or industrialized contexts, as observed in the works of Choi and Krause (2022) and Li and Zhang (2020). This limits the applicability of their findings to hospitals in resource-constrained environments. Additionally, many of these studies rely heavily on quantitative results, offering limited qualitative insights into practical implementation challenges and contextual factors.

Research Gaps

Despite the contributions of the existing studies, significant gaps remain. There is limited research directly addressing the combined impact of procurement risk management practices—supplier diversification, supplier relationship management, strategic inventory management, and procurement automation—on service delivery within hospitals, particularly Level Five hospitals. Most studies focus on individual procurement practices in isolation, overlooking how these strategies interact to influence service delivery outcomes. Additionally, many studies prioritize firm performance over service delivery, which is a critical metric in healthcare settings. Furthermore, there is a lack of research focusing on healthcare systems in developing regions such as Kenya, where resource-constrained environments present unique challenges. Existing studies also provide limited qualitative insights into the practical challenges and contextual factors that influence the implementation of procurement risk management strategies. This study seeks to address these gaps by focusing on the healthcare sector in Kenya, integrating multiple procurement risk management practices, and emphasizing their collective influence on service delivery outcomes in Level Five hospitals.

RESEARCH METHODOLOGY

The descriptive survey design was employed where data was collected one point in time. This study targets 116 stores and procurement staff from Level Five hospitals in the Western region, specifically Vihiga, Kakamega, Busia, Trans Nzoia, and Bungoma County referral hospitals. The target population consists of these five hospitals, which form the unit of analysis as they represent the organizations where procurement risk management practices and service delivery outcomes are being assessed. The unit of observation, however, is procurement and stores employees within these hospitals. For this study, Slovin’s formula (2018) also developed by Yamane (1967), will be used to calculate the sample size of 89 . This study sampled the 89 staffs of the level four hospitals. The respondents were selected purposively.

This study adopted the use of primary data collection methods. This study used a semi- structured questionnaires to obtain primary data for analysis. A pilot study was done on 10% of the sample

(8 respondents) in Jaramogi Oginga Odinga Teaching and Referral hospital who were then excluded from the main study to avoid response bias. This study applied quantitative approaches to process and analyze the data. Quantitative data processing involved coding the closed-ended data, entry, cleaning, transformation, analysis andinterpretation. Quantitative data was sorted, coded and input into SPSS Version 24 for generation of descriptive statistics and inferential statistics. Descriptive statistics involved frequencies, means and standard deviation while inferential statistics were measured at significance level of 0.05. A multiple linear regression model was used to test the significanceof the influence of the independent variables on the dependent variable.

PRESENTATION AND DISCUSSION OF RESULTS

Response Rate

In order to conduct the study, eighty nine (89) questionnaires were distributed to sample respondents, out of which eighty six (86) were duly filled and collected, representing 96.6% return rate. This study's response rate of 96.6% was good enough to proceed with analysis, make conclusions and consequent reporting. The high response rate was realized due to the researcher's personal participation in distributing, following up and picking the completed questionnaires.

Table 1: Response Rate

Response	Frequency	Percentage (%)
Returned	86	96.6
Not returned	3	3.4
Total	**89**	**100**

Descriptive Statistics

The general objective of the study was to examine the influence of risk management practices on service delivery of level five hospitals. The research instrument was based on a five-point Likert scale which had applicable codes to enable rating of responses which were premised on assigned values where 1 denoted strongly disagree, 2 denoted disagree, 3 denoted neither agree nor disagree, 4 denoted agree while 5 denoted strongly agree. Standard deviation values greater than two (>2) indicated that there was marked divergence in responses to the questionnaire items.

Supplier Diversification

Opinion was sought from study respondents regarding statements about supplier diversification and its influence on service delivery in level five hospitals and the obtained results are shown in Table 2;

Table 2: Descriptive Statistics of Supplier Diversification

Statement	N	Mean	Std. Dev
The hospital has multiple suppliers from whom goods or services are sourced	86	3.76	.830
All risks related to suppliers are assessed and handled in good time	86	4.13	.729
The hospital is able to effectively substitute a supplier in case of failure or disruption	86	3.98	.808
The hospital acquires a greater variety of goods since it has several supplier sources	86	3.81	.933
Stock availability has been maintained due to multiple sourcing	86	4.04	.724
The hospital ensures continuity of supplies and any stock outs do not result from supplier delays	86	3.78	.931
Valid N (listwise)	86		

Results in Table 2 show that standard deviation values for all items were less than two (<2) demonstrating that the opinions by respondents were converging. The strongest convergence in opinion was on the statement that all risks related to suppliers are assessed and handled in good time (M=4.13, SD=.729).

Supplier Relationship Management

Respondents presented their sentiments on the item supplier relationship management and its influence on service delivery in level five hospitals and the derived results are shown;

Table 3: Descriptive Statistics for Supplier Relationships

	N	Mean	Std. Dev
The department engages with suppliers to create a warm and conducive work environment	86	3.98	.794
The hospital monitors and evaluates supplier activities at all times to ensure conformity to standards	86	3.88	.729
The department integrates its suppliers into its processes to gain trust	86	3.54	.939
The hospital has supplier development programs which are executed quite frequently	86	3.86	.803
The procurement staff strive for effective communication with suppliers to ensure continuity in improvement of services/relationships.	86	3.73	.957
The hospital suppliers work with us through trust and very transparently	86	3.91	.712
Procurement staff seek solutions to supplier challenges through collaboration	86	3.88	.771
Valid N (listwise)	86		

Results in Table 3 show that all questionnaire items had appropriate mean scores tilting towards confirmatory views on the questions and returned standard deviation values below two (<2) indicating that there was convergence in views and the item that department engages with suppliers to create a warm and conducive work environment (M=3.98, SD=.794).

Strategic Inventory Management

Respondents gave their answers on statements relating to strategic inventory management and obtained the results as presented in Table 4.

Table 4: Descriptive Statistics for Strategic Inventory Management

Statement	N	Mean	Std. Dev
The hospital keeps track of inventory levels each time withdrawals or purchases are made	86	3.86	.720
The hospital relies on the same level of orders each time purchases are made	86	3.98	.740
The hospital makes orders depending on user needs only	86	3.75	1.026
The hospital considers both financial and space constraints when making purchases	86	3.93	.811
Perishable items are ordered only when there is surety that they will be consumed by the users	86	3.66	.916
The hospital minimizes orders of items which are larger than their demand	86	3.76	.750
Valid N (listwise)	86		

Results in Table 4 show that all statements had high mean scores and low standard deviation values denoting that there was convergence in opinion by respondents, which was more on the statement that the hospitals rely on the same level of orders each time purchases are made (M=3.98, SD=.740). The result shows that there is need for public hospitals to allow for flexibility in ordering based more on need as opposed to uniform ordering levels.

Procurement Automation

Respondents provided their opinions on questionnaire statements about procurement automation and the findings are shown in Table 5;

Table 5: Descriptive Statistics for Procurement Automation

Statement	N	Mean	Std. Dev
Procurement staff are familiar with and use the automated procurement processes	86	3.98	.740
Electronic procurement processes enable streamlined sourcing, ordering, and transactions.	86	3.95	.701
The hospital adopts large-scale data analysis to uncover insights and patterns, enhancing decision- making.	86	3.97	.774
There is a network of interconnected devices collecting and exchanging data for informed actions.	86	3.90	.801
Decentralized and secure digital ledger ensures transparency and trust in transactions.	86	3.57	.992
Simulation of human intelligence in machines, enables data-driven insights and optimized decisions.	86	3.52	.973
Valid N (listwise)	86		

The results in Table 5 indicate that the mean scores were notably high and the standard deviation values for the statements were below two (< 2), demonstrating general convergence of opinions around the mean. The item regarding hospitals adopting large-scale data analysis to uncover insights and patterns, thereby enhancing decision-making, returned the highest score (M=4.01, SD=761). However, the relationship between these scores and actual purchases may not be clear.

Service Delivery in Level Five Hospitals

Respondents provided their opinions on the statements relating to the dependent variable; service delivery. The results are shown in Table 6 below;

Table 6: Descriptive Statistics for Implementation of Service Delivery

	N	Mean	Std. Dev
The hospital participates in engagements that lead to dialogue, information sharing and transparency	86	3.65	.951
We receive positive feedback on satisfactory user experiences	86	3.71	.845
The hospital provides dependable and satisfactory services.	86	3.64	.860
The hospital provides dependable and satisfactory services.	86	4.01	.733
I have knowledge, courtesy and the ability to inspire trust and confidence in customers.	86	3.87	.837
Staffs provide caring, individualized attention to the hospital customers.	86	3.92	.749
The hospital has visible medical facilities, equipment, communication materials and technology that provide enough hints to customers about the quality of service	86	3.79	.820
Valid N (listwise)	86		

Derived statistics had standard deviation values for all the items under implementation of road construction projects being less than two (< 2) validating that there was convergence in opinion and more so on the item about the hospital providing dependable and satisfactory services. (M = 4.01, SD = .733).

Correlation Analysis

Correlational analysis is a statistical procedure that quantifies the strength of a linear relationship between two variables and computes their association. The correlation coefficient, represented by the symbol (r), is a measure of the strength of the linear relationship between the variables. It is expressed as a value without units and falls between -1 and 1. A low correlation suggests a weak relationship between two variables, whereas a high correlation suggests a strong relationship.

Table 7: Correlation Analysis

		Y	X_1	X_2	X_3	X_4
Y	Pearson Correlation	1				
	Sig. (2-tailed)					
	N	86				
X_1	Pearson Correlation	.439*	1			
	Sig. (2-tailed)	.001				
	N	86	96			
X_2	Pearson Correlation	.719**	-.062	1		
	Sig. (2-tailed)	.000	.547			
	N	86	86	86		
X_3	Pearson Correlation	.508**	.008	.034	1	
	Sig. (2-tailed)	.001	.937	.740		
	N	86	86	86	86	
X_4	Pearson Correlation	.603**	.043	.116	.103	1
	Sig. (2-tailed)	.000	.661	.261	.317	
	N	86	86	86	86	86

*. Correlation is significant at the 0.05 level (2-tailed).
**. Correlation is significant at the 0.01 level (2-tailed).

Key: Y = Service Delivery in Level 5 Hospitals; X_1 = supplier diversification; X_2 = supplier relationships; X_3 = strategic inventory management; X_4 = Procurement automation

The correlation results in Table 7 indicate that there was a positive and significant linear relationship between the dependent variable and the independent variables namely supplier diversification r = 0.439, p-value =.001; supplier relationship management r = 0.719, p-value .000; strategic inventory management r = .508, p-value = .001 and procurement automation r = .603, p-value = .000. This indicated that the independent variables positively and significantly correlated with the variable on service delivery.

Regression Analysis Results

Regression analysis denotes statistical methods used to estimate the relationships between a dependent variable and one or more independent variables. These techniques can be used to assess the strength of current relationships and model future relationships between variables (Kulaylat *et al.,* 2023). A positive coefficient suggests that the dependent variable's mean tends to increase along with the independent variable's value. A negative coefficient indicates a tendency for the dependent variable to decrease as the independent variable rises.

Model Summary

Table 8: Multiple Regression Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.744[a]	.553	.511	.44458	1.947

a. Predictors: (Constant), Supplier Diversification, Supplier Relationship Management, Strategic Inventory Management and procurement Automation.
b. Dependent Variable: Service Delivery

Table 8 presents results on the correlation coefficient, denoted as R, which was .744, indicating that the relationship between procurement risk management practices and service delivery in level five hospitals had a strong and positive association. The joint independent variables accounted for 55.3% of the variation in service delivery in level five hospitals, as confirmed by an R Square value of .553. With an adjusted R square of .511, it was determined that after controlling for the variables in the model, the joint variables accounted for 51.1% of the variation in service delivery, while the remaining 48.9% of the variation could be explained by other factors not included in the model. The standard error of .44458 indicated the deviation from the line of best fit.

Analysis of Variance (ANOVA)

Table 9 presents results indicating that the adopted model was significant given that the p-value was .000 which was less than the chosen significance level of .05, implying that the model was significant in establishing the relationship between the variables.

Table 9: ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	10.578	4	2.644	28.127	.000[b]
	Residual	8.551	81	.094		
	Total	19.129	85			

a. Dependent Variable: Service delivery in level five hospitals
b. Predictors: (Constant), Supplier Diversification, Supplier Relationship Management, Strategic Inventory Management and procurement Automation.

The regression model of independent variables and the dependent variable was significant (F (4, 91) = 28.127, p-value = .000). The F-calculated value was 28.127 being greater than the F-critical (F (4, 91 = 2.471), therefore indicating that the joint independent variables were effective predictors in the model thus the regression model perfectly fitted the data.

Regression Coefficients

Table 10: Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	2.754	.708		3.890	.000
	Supplier diversification	.112	.049	.103	2.285	.024
	Supplier relationships	.420	.122	.382	3.442	.000
	Strategic Inventory	.166	.073	.168	2.273	.025
	Procurement Automation	.296	.119	.290	2.487	.014

a. Dependent Variable: Service delivery in level five hospitals

Results in Table 10 present the beta coefficients of the independent variables operationalizing procurement risk management practices and how they predicted the dependent variable being service delivery. The regression model equation is;

$$\mathbf{Y = 2.754 + .112X_1 + .420X_2 + .166X_3 + .296X_4}$$

Discussion of Findings

The descriptive and inferential statistical analyses were undertaken and overall study findings showed that the joint independent variables significantly and positively influenced service delivery in level five hospitals. However, there is discordance in the findings which is normal and happens often due to the varying dynamics under which service delivery is implemented across the facilities. Therefore, this study's overall findings showed that procurement risk management practices indeed influenced service delivery in the public sector in Kenya, which were represented by level five hospitals in Kenya.

Correlation analysis results showed that all the independent variables had a significant relationship with the dependent variable having returned p-values less than 0.05 (p-value <.05). From the results, supplier relationship management had the highest positive and significant correlation with service delivery in level five hospitals (r = .719, p-value = .000), followed by procurement automation with a positive and significant correlation (r = .603, p = 0.000); then strategic inventory management had a positive and significant correlation with implementation of road construction projects (r = 0.508, p = 0.001) and lastly, a moderate positive and significant correlation (r = 0.439, p = 0.001) between supplier diversification and service delivery. The results showed a general correlation between subsets of procurement risk management practices and service delivery.

The findings concur with Mohammed (2024) who noted that supplier relationship management has emerged as a critical strategy for organizations aiming to enhance collaboration and optimize performance in the increasingly competitive and globalized marketplace. The findings of Kimwaki (2022) also revealed that supplier relationship management significantly and positively influenced the performance of manufacturing firms in Kenya.

Furthermore, the findings were confirmed by Temitope (2025) who asserted that by adopting a proactive, multi-tiered approach to supplier and manufacturing diversification, companies can build agile, flexible, and resilient supply chains that withstand future disruptions, maintain operational continuity, and sustain competitive advantage in an increasingly volatile global market. Agaba and Emenike (2022) also noted that procurement practices have positive and significant influence on public service delivery. A major managerial implication of these findings therefore is that procurement practices is a key driver of service delivery in public institutions.

Manyathi (2022) aimed to ascertain the degree to which public sector procurement processes can be modelled to that of the private sector to improve service delivery. The study established that the current procurement legislation to acquire goods, works and services for the public at large are said to be ineffective and inefficient, hindering the accelerated provision of public services. Anane et l (2019) determined the effect of procurement policy, procurement planning and sustainable procurement on service delivery with their results revealing a strong significant positive correlation between procurement policy and service delivery.

Regression result indicated that the joint independent variables could account for 51.1% of the variation in service delivery, after taking into account every component of the model. This was indicated by the value of adjusted r square which was .511 meaning that the remaining 48.9% represented other variables that influenced implementation of road construction projects but were not taken into account by the model. Based on the findings, there was a strong and positive relationship between the joint independent variables and the dependent variable as indicated by the correlation coefficient (r) of 0.744.

The results concur with Sassaoui *et al* (2023) who observed that if not properly managed, the risks associated with procurement activities can have a severe effect on the performance of the business. As a result, there is an increasing need for systematic and organized frameworks that help businesses in mitigating procurement risks and achieve profitable outcomes. Asasira and Namuyonga (2024) also confirmed that contract administration through procurement planning, record keeping and contract execution assist the entity in achieving value for money procurement.

CONCLUSION AND RECOMMENDATION

Conclusions of the Study

The study concluded that supplier diversification had significant positive influence on service delivery in level five hospitals. Supplier diversification strategy helps in spreading out sourcing

and procurement across multiple suppliers to reduce risk and increase flexibility. The study concludes that supplier diversification is important since it mitigates risks such as supply chain disruptions, quality issues, and price fluctuations.

The study concluded that supplier relationship management had a positive and significant influence on service delivery. The type of relationships that should be formed with suppliers depends on the criticality of the goods or services being purchased and supplied into the organization. The study concludes that the hospitals should have the right levels of contact to ensure that the relationship remains on track for both parties. Supplier relationship management can in turn lead to benefits within the relationship.

Strategic inventory management played a positive and significant role in enhancing the service delivery. The study concludes that finalization of purchase orders in a timeous manner is necessary to maintain inventory levels and ensure that all relevant materials are available when required. Procurement teams need to identify goods and services required in order to have the requisite fit for purpose materials that are deployed. Teams can negotiate contract terms with identified suppliers to ensure that prices settled on are agreeable to all relevant parties.

The study concluded that procurement automation positively and significantly influenced service delivery. The goal of automating procurement processes is to enhance service delivery by reducing manual intervention and improving the speed and accuracy of procurement processes. By automating repetitive tasks, hospital managers can allocate their time and resources toward more strategic activities such as planning, decision-making, and managing stakeholders.

Recommendations of the Study

The following are the recommendations of this study;

There is need to embrace supplier diversification as a key driver for service delivery since it reduces vulnerability to disruptions associated with relying on a single supplier. Working with multiple suppliers can provide access to new ideas and technologies. Furthermore, competition among suppliers can lead to better quality products, allowing for more flexibility in sourcing and may aid in negotiating better terms, prices, and service levels.

Supplier relationship management should be maintained as they lead to working collaboratively and sharing forward forecasts which can open a discussion to remove cost from the procurement process, or any other areas of the supply chain. Highly regarded customers are often offered priority in key processes.

This study has shown that strategic inventory management influences service delivery in hospitals. With solid inventory management, the procurement department would know what is available in stock and order only the amount of inventory needed to meet demand. Better planning and management helps can help hospitals minimize the number of days that an item would be out of

stock and avoid carrying too much inventory. This would result in saving time that could be spent on other organizational activities.

Based on the findings of this study regarding procurement automation, the study recommends that automation should be embraced as it significantly reduces the need for more manual labour that leads to cost savings. This also provides real time visibility into procurement processes that may allow tracking of activities and monitoring of supplier performance. Automated processes ensure adherence to regulations and internal policies.

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