VENDOR-MANAGED INVENTORY ON PROCUREMENT PERFORMANCE OF UPSTREAM OIL AND GAS COMPANIES IN SOUTH-SOUTH, NIGERIA

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Abstract
This study investigated the relationship between vendor-managed inventory and procurement performance of upstream oil and gas companies in South-South, Nigeria. The independent variable was vendor-managed inventory, while material availability, timeliness, and cost reduction served as measures of the dependent variable (procurement performance). The study population comprised twenty-four (24) upstream oil and gas companies in South-South Nigeria as enlisted in the finelib.com Nigerian Directory and Search Engine. A census method was adopted in selecting the sample size, administering three copies of a structured questionnaire to Operations Managers, Procurement/Logistics Managers, and Marketing Managers from each of the 24 companies, yielding 72 respondents. Data were analyzed using Pearson's Product Moment Correlation and Linear Regression Analysis with the aid of Statistical Package for Social Sciences (SPSS) version 23.0. The analysis revealed statistically positive and significant relationships between vendor-managed inventory and all measures of procurement performance. Specifically, vendor-managed inventory showed a moderate positive relationship with material availability ($r = 0.440$, $p < 0.05$), a strong positive relationship with timeliness ($r = 0.603$, $p < 0.05$), and a moderate positive relationship with cost reduction ($r = 0.471$, $p < 0.05$). Regression analysis further confirmed that vendor-managed inventory significantly predicts procurement performance ($R^2 = 0.412$, $F = 23.456$, $p < 0.05$). The study concluded that vendor-managed inventory significantly relates to procurement performance of upstream oil and gas companies in South-South, Nigeria. It was recommended that managers should constantly evaluate current inventory practices to ensure VMI applicability, integrate environmental protection considerations, and adopt advanced demand forecasting techniques to improve material availability and timely delivery.
Keywords: Vendor-Managed Inventory, Material Availability, Timeliness, Cost Reduction, Procurement Performance

Introduction

Prior research on inventory management techniques and procurement performance has not provided adequate knowledge for managers in the Nigerian context regarding how inventory management techniques affect firms' procurement performance. This gap exists because most studies are foreign and conducted using different measures of procurement performance. For instance, Mbugi and Lutego (2022) explored the effect of inventory control management systems

on organization performance in Tanzania's manufacturing industry. Alhassan, Halima, and Muhammad (2022) examined the impact of inventory management on the financial performance of Nigerian listed manufacturing companies. Akinlabi (2021) examined the effect of inventory management practices on operational performance of selected flour mills companies in Nigeria. Hassan, Aminu, and Bello (2020) examined the effect of inventory management practices on the organizational performance of Food and Beverage companies in Kwara State, Nigeria. Kehinde, Ogunnaike, Adegbuyi, and Ibidunni (2020) analyzed inventory management practices for optimal economic performance using ABC and EOQ models. Nwamgbebu, Oketa, Nweke-Charles, and N.C.O. (2019) investigated the impact of inventory management on the performance of public health institutions in Nigeria. The oil and gas sector has tremendously improved the socio-economic wellbeing of Nigeria. Oil is essential to the lifestyle of Nigerians and humanity in many ways. Hantoush, Ibrahim, Al Mahdi, Ali, Abdullah, and Hasan (2022) have accounted that oil remains the lifeline of human existence since oil and its related products are used in practically every sector of daily activity. Without oil, the industrial sector cannot function, and machines and other automotive equipment cannot operate. Today, Nigeria is regarded as one of the strongest economies in sub-Saharan Africa due to the influence of oil exploration activities. The oil and gas industry has contributed significantly to the socio-economic comfort of Nigerians despite challenges such as fluctuating oil prices, security issues, and regulatory uncertainties (Atnafu & Balda, 2018). Wamoto, Kwasira, and Ndolo (2023) note that the oil and gas sector fosters a great impact on the economy through inter-sectoral linkages via provision of energy, employment generation, and foreign exchange earnings. The industry is divided into three sectors: upstream, midstream, and downstream.

The upstream sector (the main focus of this study) refers to the searching of potential underground crude oil and natural gas fields and drilling of exploratory wells. The midstream involves transportation of oil by pipeline, rail, barge, or truck, storage, and wholesale marketing, while the downstream sector involves refining and processing. However, midstream operations are often embedded in the downstream sector (Osoro, Muturi, & Ngugi, 2016). According to Agu, Obi-Anike, and Eke (2016), the basic objective of inventory management is to achieve a balance between low inventory and high sales performance. This study investigated the influence of

vendor-managed inventory on procurement performance of oil and gas multinational companies in South-South, Nigeria.

The purpose of this study was to investigate the empirical relationship between vendor-managed inventory and procurement performance of upstream oil and gas companies in South-South, Nigeria. The specific objectives were to:

i. Ascertain the extent of relationship between vendor-managed inventory and material availability.
ii. Ascertain the extent of relationship between vendor-managed inventory and timeliness.
iii. Ascertain the extent of relationship between vendor-managed inventory and cost reduction.

Research Questions

i. To what extent does vendor-managed inventory relate with material availability?
ii. To what extent does vendor-managed inventory relate with timeliness?
iii. To what extent does vendor-managed inventory relate with cost reduction?

Hypotheses

H_{01}: There is no significant relationship between vendor-managed inventory and material availability.

H_{02}: There is no significant relationship between vendor-managed inventory and timeliness.

H_{03}: There is no significant relationship between vendor-managed inventory and cost reduction.

H_{04}: There is no significant predictive effect of vendor-managed inventory on procurement performance.

Literature Review

Theory of Constraints

The Theory of Constraints is an approach connected to achieving reduction in organizational inventory. It seeks to expand manufacturing throughput proficiency by identifying procedures that constrain the industrial system (Panizzolo, 2016). Challenges in its application include long lead times, unsatisfied requests, meaningless inventories, wrong material requests, crisis requests, and lack of client engagement (Onchoke & Wanyoike, 2016). The theory focuses on dealing with limitations to enhance efficiency. Since the 1980s, it has been critical in operations management, suggesting global performance improvement by focusing on leverage points. The

theory recognizes organizations as systems with goals, and actions must be judged by their impact on the whole system (Panizzolo, 2016). Within this study, the Theory of Constraints offers insights for improving inventory management and procurement performance by identifying constraints and integrating processes.

Network Theory

Network Theory, proposed by Katz, Lazer, Arrow, and Contractor (2004), emphasizes maintaining downstream and upstream relationships for value optimization. It explains that organizations must establish networks with other firms to increase value and operation (Katz *et al*., 2004). Networking provides advantages where companies complement each other (Adekoya & Olumayokun, 2019). Firms within networks interact by exchanging resources and adapting processes that add value (Darun, Roudaki, & Radford, 2015). The theory suggests that working supplier relationships require mutual trust, shared interest, differing resources, symmetrical communication, and cognitive ties (Wamoto *et al*., 2023). This theory supports examining vendor-managed inventory and procurement performance.

Vendor-Managed Inventory

Vendor-Managed Inventory (VMI) is a supply chain technique where the supplier actively manages inventory at the customer's location (Akinlabi, 2021). It is a collaborative strategy to optimize product availability at minimal cost (Maina & Were, 2018). VMI involves the supplier taking responsibility for inventory management within agreed performance targets. Benefits include coordinated stocks, optimal inventory policies, efficient transport, increased supply chain integration, and better demand visibility (Muyundo, 2018). VMI provides manufacturers closer customer relationships and real demand visibility (Wamoto *et al*., 2023). According to Mwangi and Kitheka (2018), the supplier maintains inventory levels, accesses data, and generates orders, reducing cycle time. For VMI to be effective, information management is crucial (Poi & Okwandu, 2021).

Procurement Performance

Performance is defined as behaviors exhibited when workers perform duties, including quality, execution, and technical expertise (Hugos, 2018). Procurement performance includes standards for measuring operating performance through market share or supply and demand (Muyundo, 2018; Poi & Okwandu, 2021). Procurement involves unpredictable supply conditions

and uncertainty (Charles & Omwenga, 2018). Procurement performance is the process of developing criteria to determine outcomes and quality of actions (Wamoto *et al*., 2023). This study examined three measures:

Material Availability refers to the extent necessary materials are accessible when needed (Inan, Bahar, & Zumrut, 2018). It involves obtaining and accessing resources for production (Hassan *et al*., 2020). Ensuring material availability requires effective material management practices (Inegbedion, Eze, Asaleye, & Lawal, 2019).

Timeliness is measured by the percentage of orders delivered "on time and in full" (Nyile, Shale, & Osoro, 2022). Cycle time from order placement to delivery completion is a significant factor showing delivery system performance (Mbugi & Lutego, 2022).

Cost Reduction is a planned approach to reduce expenditure through continuous cost analysis without impairing product quality (Nwulu & Hamilton-Ibama, 2022). It involves reducing costs associated with production without affecting quality (Nwamgbebu *et al*., 2019). Strategies include value engineering, budgetary control, target costing, and life cycle costing (Atnafu & Balda, 2018).

Empirical Review

Several empirical studies affirm the significance of vendor-managed inventory on procurement performance. Mbugi and Lutego (2022) explored the effect of inventory control management systems on organization performance in Tanzania's manufacturing industry, revealing that inventory control management systems using principles of Economic Order Quantity (EOQ) affect organizational performance in terms of cost reduction, production efficiency, flexibility, and profitability. Akinlabi (2021) examined the effect of inventory management practices on operational performance of selected flour mills companies in Nigeria. Findings revealed that automated inventory systems, inventory investment, inventory record accuracy, and inventory turnover were positively and significantly related to operational performance. The study concluded that inventory management practices significantly influenced operational performance. Hassan *et al*. (2020) examined the effect of inventory management practices on the organizational performance of Food and Beverage companies in Kwara State, Nigeria, revealing that inventory management practices had significant positive effects on organizational performance. Alhassan *et al*. (2022) examined the impact of inventory management on the financial performance of Nigerian listed manufacturing companies and revealed that

inventory control has a considerable favorable effect on financial performance. Sporta (2018) examined the effect of inventory control techniques on organizational performance of Kenya Medical Supplies agencies, finding that all inventory control techniques have significant and positive influence on organizational performance. Atnafu and Balda (2018) empirically examined the impact of inventory management practices on firms' competitiveness and organizational performance in micro and small enterprises in Ethiopia, indicating that higher levels of inventory management practice lead to enhanced competitive advantage and improved organizational performance. Musau, Namusonge, Makokha, and Ngeno (2017) investigated the effect of inventory management practices on the performance of textile manufacturing firms in Kenya, indicating that all inventory management practices have a positive significant influence on performance. Kehinde *et al*. (2020) analyzed inventory management practices for optimal economic performance using ABC and EOQ models, finding that effective inventory management minimizes total costs. Nwamgbebu *et al*. (2019) investigated the impact of inventory management on the performance of public health institutions in Nigeria, revealing that inventory management dimensions have positive significant impact on performance. Agum, Awogbemi, and Taimako (2018) investigated the impact of inventory management practices on organizational performance, revealing that inventory planning, valuation, and control have significant impacts on operational efficiency, timely delivery, cost reduction, and profitability. Phebe and Njoku (2018) studied inventory management and organizational performance of Dansa Food Limited, Nigeria, indicating that inventory management has significant positive impacts on performance parameters. Therefore, the study operationalized the following concepts:

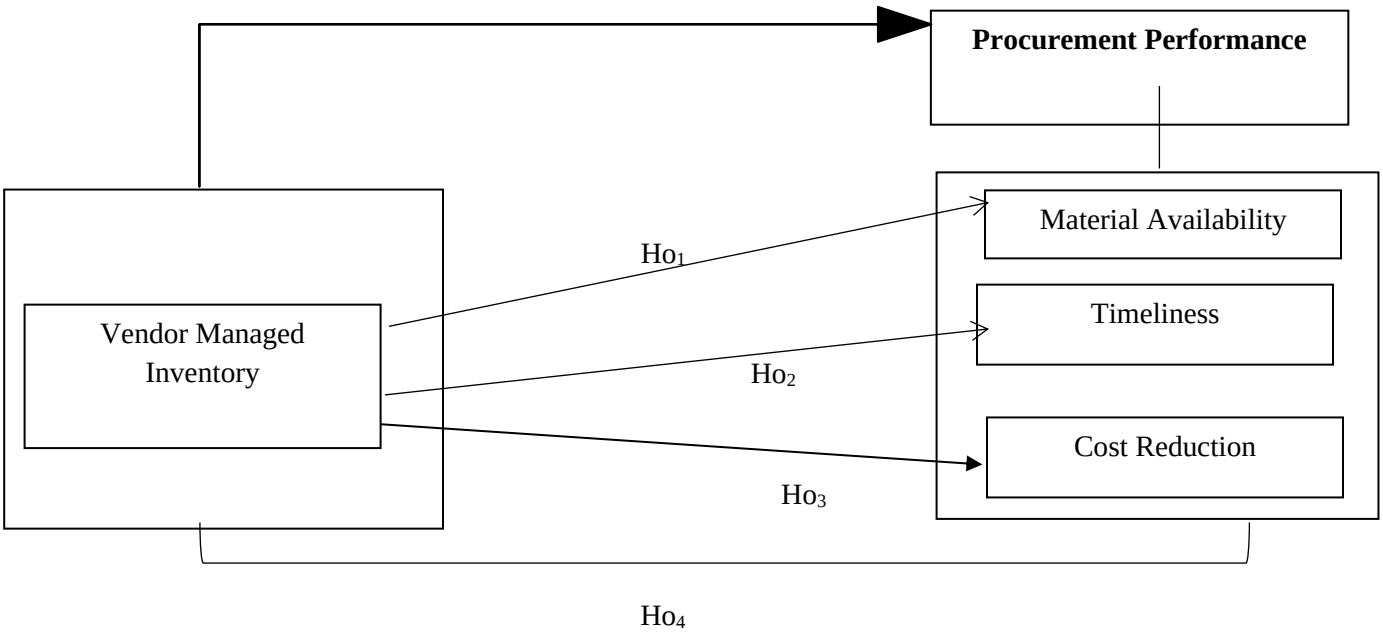

Figure 1: Operational framework of the relationship between vendor-managed inventory and procurement performance of upstream oil and gas companies in South-South, Nigeria.
Source: Researcher's Operationalization Model, 2025.

The operational framework illustrates the relationship between the independent variable (vendor-managed inventory) and the dependent variable (procurement performance) measured through material availability, timeliness, and cost reduction. The framework also shows the three hypotheses (H_{o1}, H_{o2}, H_{o3}, H_{o4}) guiding the investigation of these relationships.

Methodology

This study adopted a cross-sectional survey research design, where all variables were investigated as a one-time observation. The explanatory or hypothesis testing research design type was employed with a correlational method of investigation to examine the extent of relationships among the hypothesized variables. The study population comprised the twenty-four (24) upstream oil and gas companies operating within South-South Nigeria as enlisted in the finelib.com Nigerian Directory and Search Engine (Finelib, 2022). The sample size of this study was the same as the population, since the population was not too large. This study adopted a Census Method, administering three copies of a structured questionnaire to Operations Managers, Procurement/Logistics Managers, and Marketing Managers from each of the 24 upstream oil and gas companies in South-South, Nigeria. This yielded a total of 72 respondents. The primary source of data collection method included a well-structured questionnaire administered to the

respondents. This study was analyzed at three basic statistical levels: univariate, bivariate, and multivariate statistics. Univariate descriptive statistics used included Frequency Distribution Tables, Percentages, Mean, Standard Deviation, Skewness and Kurtosis. Bivariate statistics employed Pearson Product Moment Correlation (PPMC) to ascertain correlations between the predictor and criterion variables. Multivariate statistics employed linear Regression Analysis to determine the predictive effect of vendor-managed inventory on procurement performance. Analysis was aided by the Statistical Package for Social Sciences (SPSS), version 23.0.

Results

A total of 72 copies of the questionnaire were administered to respondents across the 24 upstream oil and gas companies in South-South, Nigeria. Sixty-seven (67) copies were properly filled and returned, representing a retrieval rate of 93.1%, which was considered adequate for analysis.

Descriptive Statistics

Table 1: Descriptive Statistics of Vendor-Managed Inventory

Statement	N	Sum	Mean	Std. Deviation	Skewness	Kurtosis
To what extent does your organization collaborate with vendors to manage inventory levels effectively?	67	315	4.70	0.551	-2.268	7.267
To what extent does your organization share inventory data with vendors to facilitate VMI?	67	306	4.57	0.679	-1.896	4.389
To what extent does your organization establish clear agreements with vendors regarding inventory management responsibilities?	67	268	4.00	1.087	-0.948	-0.076
To what extent does your organization monitor vendor performance in maintaining optimal inventory levels?	67	291	4.34	0.789	-1.463	3.457
Valid N (listwise)	67					

Source: SPSS Output, 2025.

Table 1 depicts high mean scores of questionnaire items ranging above 3.00, indicating that a greater number of respondents agreed and strongly agreed with the research questions regarding

vendor-managed inventory. Question 1, which sought to determine the extent to which upstream oil and gas companies collaborate with vendors to manage inventory levels effectively, had the highest mean score of 4.70, showing the strongest influence on the variable.

Table 2: Descriptive Statistics of Material Availability

Statement	N	Sum	Mean	Std. Deviation	Skewness	Kurtosis
To what extent do you believe that your organization ensures the availability of necessary materials to meet production demands?	67	290	4.33	1.106	-2.145	4.073
To what extent do you believe that your organization maintains adequate safety stock levels to prevent material shortages?	67	298	4.45	0.724	-1.419	2.268
To what extent do you believe that your organization collaborates with suppliers to ensure a consistent supply of materials?	67	315	4.70	0.779	-3.583	14.301
To what extent do you believe that your organization has contingency plans in place for material availability disruptions?	67	258	3.85	1.246	-0.580	-1.165
Valid N (listwise)	67					

Source: SPSS Output, 2025.

Table 2 depicts high mean scores of questionnaire items ranging above 3.00, indicating that a greater number of respondents agreed and strongly agreed with the research questions regarding material availability. Question 3, which sought to determine the extent to which upstream oil and gas companies collaborate with suppliers to ensure consistent supply of materials, had the highest mean score of 4.70.

Table 3: Descriptive Statistics of Timeliness

Statement	N	Sum	Mean	Std. Deviation	Skewness	Kurtosis
To what extent do you believe that your organization ensures timely delivery of materials from suppliers?	67	297	4.43	1.104	-2.192	3.998
To what extent do you believe that your organization sets and meets deadlines for procurement processes?	67	307	4.58	0.838	-2.580	7.015
To what extent do you believe that your organization tracks and improves on-time performance of suppliers?	67	315	4.70	0.628	-3.462	17.341
To what extent do you believe that your organization prioritizes urgent procurement requests to avoid production delays?	67	315	4.70	0.759	-3.291	11.707
Valid N (listwise)	67					

Source: SPSS Output, 2025.

Table 3 depicts high mean scores of questionnaire items ranging above 3.00, indicating that a greater number of respondents agreed and strongly agreed with the research questions regarding timeliness. Questions 3 and 4, which sought to determine the extent to which upstream oil and gas companies track and improve on-time performance of suppliers and prioritize urgent procurement requests to avoid production delays, had the highest mean scores of 4.70 each.

Table 4: Descriptive Statistics of Cost Reduction

Statement	N	Sum	Mean	Std. Deviation	Skewness	Kurtosis
To what extent do you believe that your organization achieves cost savings through effective procurement strategies?	67	278	4.15	1.004	-1.791	3.662
To what extent do you believe that your organization negotiates favorable terms with suppliers to reduce material costs?	67	301	4.49	0.746	-2.229	7.372
To what extent do you believe that your organization implements cost-saving initiatives in the procurement process?	67	300	4.48	0.612	-1.139	2.374
To what extent do you believe that your organization balances cost reduction with maintaining quality and reliability of materials?	67	297	4.43	0.783	-1.138	0.292
Valid N (listwise)	67					

Source: SPSS Output, 2025.

Table 4 depicts high mean scores of questionnaire items ranging above 3.00, indicating that a greater number of respondents agreed and strongly agreed with the research questions regarding cost reduction. Question 2, which sought to determine the extent to which upstream oil and gas companies negotiate favorable terms with suppliers to reduce material costs, had the highest mean score of 4.49.

Test of Hypotheses

H_{01}: There is no significant relationship between vendor-managed inventory and material availability of upstream oil and gas companies in South-South, Nigeria.

Table 5: Correlation Analysis showing the Relationship between Vendor-Managed Inventory and Material Availability

		Vendor-Managed Inventory	Material Availability
Vendor-Managed Inventory	Pearson Correlation	1	0.440**
	Sig. (2-tailed)		0.000
	N	67	67
Material Availability	Pearson Correlation	0.440**	1
	Sig. (2-tailed)	0.000	
	N	67	67

****Correlation is significant at the 0.01 level (2-tailed).**
Source: SPSS Output, 2025.

The SPSS output in Table 5 reveals a correlation coefficient of 0.440** between vendor-managed inventory and material availability, indicating a moderate positive relationship. The probability value (0.000) is less than the critical value (0.05), showing a moderate significant relationship. Therefore, the null hypothesis (H_{01}) is rejected, and the study accepts that there is a significant relationship between vendor-managed inventory and material availability of upstream oil and gas companies in South-South, Nigeria.

H_{02}: There is no significant relationship between vendor-managed inventory and timeliness of upstream oil and gas companies in South-South, Nigeria.

Table 6: Correlation Analysis showing the Relationship between Vendor-Managed Inventory and Timeliness

		Vendor-Managed Inventory	Timeliness
Vendor-Managed Inventory	Pearson Correlation	1	0.603**
	Sig. (2-tailed)		0.000
	N	67	67
Timeliness	Pearson Correlation	0.603**	1
	Sig. (2-tailed)	0.000	
	N	67	67

****Correlation is significant at the 0.01 level (2-tailed).**
Source: SPSS Output, 2025.

The SPSS output in Table 6 reveals a correlation coefficient of 0.603** between vendor-managed inventory and timeliness, indicating a strong positive relationship. The probability value (0.000) is less than the critical value (0.05), showing a strong significant relationship. This implies that vendor-managed inventory can be used to achieve timeliness among upstream oil and gas companies. Therefore, the null hypothesis (H_{02}) is rejected, and the study accepts that there is a significant relationship between vendor-managed inventory and timeliness of upstream oil and gas companies in South-South, Nigeria.

H_{03}: There is no significant relationship between vendor-managed inventory and cost reduction of upstream oil and gas companies in South-South, Nigeria.

Table 7: Correlation Analysis showing the Relationship between Vendor-Managed Inventory and Cost Reduction

		Vendor-Managed Inventory	Cost Reduction
Vendor-Managed Inventory	Pearson Correlation	1	0.471**
	Sig. (2-tailed)		0.000
	N	67	67
Cost Reduction	Pearson Correlation	0.471**	1
	Sig. (2-tailed)	0.000	
	N	67	67

**Correlation is significant at the 0.01 level (2-tailed).
Source: SPSS Output, 2025.

The SPSS output in Table 7 reveals a correlation coefficient of 0.471** between vendor-managed inventory and cost reduction, indicating a moderate positive relationship. The probability value (0.000) is less than the critical value (0.05), showing a moderate significant relationship. Therefore, the null hypothesis (H_{03}) is rejected, and the study accepts that there is a significant relationship between vendor-managed inventory and cost reduction of upstream oil and gas companies in South-South, Nigeria.

H_{04}: Vendor-managed inventory has no significant predictive effect on procurement performance of upstream oil and gas companies in South-South, Nigeria.

Table 8: Linear Regression Analysis Showing the Predictive Effect of Vendor-Managed Inventory on Procurement Performance

	Model	R	R^2	Adjusted R^2	Std. Error of the Estimate	Sum of Squares	df	Mean Square	F	Sig.	B	Std. Error	Beta	t	Sig.
Model Summary	1	0.642	0.412	0.403	0.4187										
ANOVA	Regression					8.234	1	8.234	23.456	0.000					
	Residual					22.816	65	0.351							
	Total					31.050	66								
Coefficients[a]	(Constant)										1.876	0.423		4.435	0.000
	Vendor-Managed Inventory										0.583	0.120	0.642	4.843	0.000

a. Dependent Variable: Procurement Performance

Source: SPSS Output, 2025.

Table 8 presents the linear regression analysis results for the predictive effect of vendor-managed inventory on procurement performance. The R value of 0.642 indicates a strong positive correlation between vendor-managed inventory and procurement performance. The R^2 value of 0.412 shows that vendor-managed inventory explains 41.2% of the variance in procurement performance, indicating a substantial predictive capacity. The F-statistic of 23.456 with a significance value of 0.000 confirms that the regression model is statistically significant. The unstandardized coefficient (B = 0.583) indicates that a one-unit increase in vendor-managed inventory leads to a 0.583 unit increase in procurement performance. The standardized coefficient (Beta = 0.642) confirms the strong predictive power. The t-value of 4.843 with a significance of 0.000 further validates the significant predictive effect. Therefore, the null hypothesis (H_{04}) is rejected, and the study accepts that vendor-managed inventory has a moderate significant predictive effect on procurement performance.

Discussion of Findings

Relationship between Vendor-Managed Inventory and Material Availability

The study found a moderate positive relationship between vendor-managed inventory and material availability ($r = 0.440$, $p < 0.05$), indicating that effective VMI practices enhance the accessibility of necessary materials. This aligns with Hassan *et al*. (2020), who reported that inventory management positively affects organizational performance, and Kehinde *et al*. (2020), who linked effective inventory control to cost minimization and material availability. The consistency of these findings across contexts confirms VMI as a robust strategy for ensuring material availability.

Relationship between Vendor-Managed Inventory and Timeliness

A strong positive relationship was found between vendor-managed inventory and timeliness ($r = 0.603$, $p < 0.05$). This finding corroborates Nwamgbebu *et al*. (2019) and Sporta (2018), who established that inventory management practices significantly enhance timely delivery and overall organizational performance. The strong association underscores VMI's critical role in meeting procurement deadlines, which is vital in the upstream oil and gas sector where delays can cause significant operational disruptions.

Relationship between Vendor-Managed Inventory and Cost Reduction

The analysis revealed a moderate positive relationship between vendor-managed inventory and cost reduction ($r = 0.471$, $p < 0.05$). This finding is consistent with Alhassan *et al*. (2022), who reported that inventory control significantly influences financial performance, and Akinlabi (2021), who linked automated inventory systems to operational efficiency. The result suggests VMI is an effective mechanism for achieving cost efficiencies in procurement.

Predictive Effect of Vendor-Managed Inventory on Procurement Performance

Regression analysis confirmed that vendor-managed inventory significantly predicts procurement performance ($R^2 = 0.412$, $F = 23.456$, $p < 0.000$). The unstandardized coefficient ($B = 0.583$) indicates that each unit improvement in VMI yields a 0.583 unit increase in procurement performance. This predictive capacity is supported by the Theory of Constraints (Panizzolo, 2016) and Network Theory (Katz *et al*., 2004), which emphasize constraint management and collaborative value creation. The findings validate VMI as a strategic tool for enhancing procurement outcomes in Nigeria's upstream oil and gas sector.

Conclusion

This study investigated the relationship between vendor-managed inventory and procurement performance of upstream oil and gas companies in South-South, Nigeria. The

findings revealed strong, moderate, and strong positive relationships between vendor-managed inventory and the procurement performance components. Specifically, vendor-managed inventory showed moderate positive relationships with material availability and cost reduction, and a strong positive relationship with timeliness. Regression analysis further confirmed that vendor-managed inventory significantly predicts procurement performance, explaining 41.2% of its variance.

In the upstream sector, where operations depend heavily on continuous equipment and materials availability, effective inventory management through VMI helps ensure that critical components are always on hand, reducing the risk of operational downtime. By maintaining optimal inventory levels, companies can avoid both overstocking (which ties up capital) and stockouts (which can lead to costly delays). The study concludes that vendor-managed inventory significantly relates to procurement performance of upstream oil and gas companies in South-South, Nigeria.

Recommendations

Based on the conclusions drawn from the study findings, the following recommendations are made:

i. Managers of upstream oil and gas companies in South-South, Nigeria should constantly evaluate current inventory practices to ensure the applicability of vendor-managed inventory within the specific context of upstream oil and gas operations. Regular assessment and adaptation of VMI strategies will boost procurement performance by aligning inventory management with operational requirements.

ii. Managers should integrate advanced demand forecasting techniques with vendor-managed inventory systems to improve material availability and timely delivery. Utilizing predictive analytics and real-time data sharing with vendors will enhance the accuracy of inventory planning and reduce the risk of stockouts or delays.

iii. Managers should factor environmental protection considerations into their procurement activities, as this will impact the quality of product delivery. Sustainable procurement practices, including vendor selection based on environmental compliance, will ensure that materials meet quality standards while minimizing environmental impact.

iv. Organizations should invest in information and communication technology infrastructure to support effective VMI implementation. Robust ICT systems enable real-time inventory tracking, seamless data sharing with vendors, and automated

replenishment processes, thereby enhancing procurement performance across all dimensions.

v. Management of organizations should establish clear performance metrics and monitoring mechanisms for vendor-managed inventory arrangements. Regular evaluation of vendor performance in maintaining optimal inventory levels, meeting delivery timelines, and contributing to cost reduction will ensure continuous improvement in procurement outcomes.

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