

EFFECT OF SUPPLY CHAIN MANAGEMENT PRACTICES ON OPERATIONAL EFFICIENCY AND SUSTAINABILITY OF COCA-COLA NIGERIA PLC, ABUJA

Eyika, Victor Adewole
Department of Business Administration
University of Abuja

&

Ezeonu, Oluebube Bibian
Department of Business Administration
University of Abuja

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ABSTRACT

Global supply chain disruptions and the increasing demand for sustainable practices have compelled organizations to reexamine their procurement, supplier management, and inventory control strategies. This study explored the impact of effect of supply chain management practices on operational efficiency and sustainability of Coca-Cola Nigeria Plc, Abuja. A descriptive research design was employed, utilizing stratified sampling to collect data from the respondents. Questionnaires were distributed to employees of Coca-Cola Nigeria Plc, Abuja, with a total population of 1,825. Stratified and simple random sampling techniques were applied within each stratum, and a sample size of 324 was determined, with an additional 20% margin of safety making it 388. The data were analysed using regression analysis, with a 5% level of significance to test the hypotheses aligned with the study's objectives. The findings revealed that effective procurement and supplier management have a statistically significant influence on the operational efficiency of Coca-Cola Nigeria PLC, Abuja. The study concluded that effective procurement and supplier management are pivotal to enhancing the operational efficiency of Coca-Cola Nigeria PLC, Abuja. It was recommended that Coca-Cola Nigeria PLC invests in continuous training and development programs for its procurement and supply chain personnel to enhance their skills and strategic decision-making capabilities.

Keywords: Supply Chain Management Practices, Operational Efficiency and Sustainability.

1.0 INTRODUCTION

In an era of globalization, effective supply chain management practices have emerged as pivotal drivers of organizational success, enabling firms to navigate complex international markets and meet evolving consumer demands. Contemporary research highlights that integrated procurement and supplier management, alongside robust inventory control, are essential for achieving operational efficiency and sustainability by optimizing resource flows and minimizing waste (Dubey et al., 2020).

Across Africa, where market volatility and infrastructural constraints pose significant

challenges, agile supply chain strategies are increasingly critical. Efficient procurement practices and strategic supplier partnerships ensure timely resource allocation, while systematic inventory management curtails excesses and shortages, thereby fostering enhanced process performance and sustainable outcomes (Kache & Seuring, 2017). Such practices are not merely operational imperatives but also strategic enablers of long-term environmental stewardship and economic resilience.

Within Nigeria, particularly in Abuja, rapid urbanization and dynamic economic reforms have underscored the need for refined supply chain processes. Organizations are compelled

to streamline procurement and inventory management to mitigate supply disruptions and improve service delivery. For Coca-Cola Nigeria PLC, adopting these integrated practices has led to improved cycle times, reduced operational costs, and a bolstered commitment to environmental sustainability. The interplay between efficient supplier management and precise inventory control not only drives cost-efficiency and process innovation but also promotes sustainable resource utilization and reduced ecological impact (Dubey et al., 2020).

Statement of Problem

Global supply chain disruptions and the increasing demand for sustainable practices have compelled organizations to reexamine their procurement, supplier management, and inventory control strategies. In Abuja, Coca-Cola Nigeria PLC exemplifies the challenge of integrating these practices to enhance operational efficiency and achieve sustainability. Empirical studies have demonstrated that effective procurement and supplier management can reduce costs and mitigate risks, while robust inventory management is critical for minimizing waste and ensuring timely delivery of products (Dubey et al., 2020). However, these studies often address these components in isolation rather than as interrelated processes that jointly influence key performance outcomes such as operational efficiency - reflected in streamlined production cycles and reduced operational costs - and sustainability, evident in environmental stewardship and social responsibility.

Recent research indicates that while organizations may excel in individual supply chain domains, a comprehensive approach is lacking in emerging markets like Nigeria, where infrastructural and market challenges persist (Kache & Seuring, 2017). This study is informed by the practical difficulties faced by Coca-Cola Nigeria PLC in aligning its procurement, supplier, and inventory practices with its broader objectives of operational efficiency and sustainability. Unlike previous studies that focus narrowly on specific aspects of the supply chain, this research seeks to bridge the gap by exploring the synergistic effects of integrated supply chain practices. It aims to provide a nuanced understanding of how enhancements in procurement and

inventory management can directly influence operational metrics and promote sustainable practices that contribute to long-term competitive advantage in a challenging market environment.

Research Questions

The study was guided by the following research questions:

1. To what extent does effective procurement and supplier management influence the operational efficiency of Coca-Cola Nigeria PLC, Abuja?
2. How does efficient inventory management impact the sustainability practices of Coca-Cola Nigeria PLC, Abuja?

Research Objectives

The main objective of this study to examine the impact of effect of supply chain management practices on operational efficiency and sustainability of Coca-Cola Nigeria Plc, Abuja. The specific objectives are to:

1. evaluate the effect of procurement and supplier management on the operational efficiency of Coca-Cola Nigeria PLC, Abuja.
2. assess the impact of inventory management on the sustainability practices of Coca-Cola Nigeria PLC, Abuja.

Research Hypotheses

H01: Effective procurement and supplier management has no statistically significant influence on the operational efficiency of Coca-Cola Nigeria PLC, Abuja.

H02: Efficient inventory management has no statistically significant impact on the sustainability practices of Coca-Cola Nigeria PLC, Abuja.

Significance of the Study

The study is very important as it contributes to knowledge thereby contributing to the advancement of the society and humanity in general. It bridges operational performance with sustainable practices, offering actionable insights for businesses, managers, policymakers and society to create resilient, cost effective and environmental responsible supply chains.

2.0 LITERATURE REVIEW

Supply Chain Management Practices

Supply chain management practices (SCMP) is the monitoring and optimization of the production and distribution of a company's products and services. It seeks to improve and make more efficient all processes involved in turning raw materials and components into final products and getting them to the ultimate customer. Effective SCM can help streamline a company's activities to eliminate waste, maximize customer value, and gain a competitive advantage in the marketplace. Supply chain management practices (SCMP) encompasses the strategic coordination of business functions within and across organizations to improve long-term performance (Christopher, 2016). Key SCM practices include strategic supplier partnerships, characterized by collaborative relationships focused on mutual benefits (Maestrini et al., 2017); customer relationship management, which emphasizes understanding changing customer requirements and enhancing satisfaction (Kumar & Reinartz, 2018); information sharing, involving the exchange of critical data among supply chain partners to enable synchronized planning (Lotfi et al., 2013); supply chain integration, which aligns organizational processes for seamless operations (Flynn et al., 2010); postponement strategies, delaying product differentiation until closer to demand realization (Yang et al., 2004); lean practices, focusing on waste elimination and process efficiency (Tortorella et al., 2017); and digital transformation, leveraging technologies like blockchain, IoT, and AI to enhance visibility and responsiveness throughout the supply network (Büyüközkan & Göçer, 2018). These interconnected practices collectively aim to create resilient, agile supply chains capable of navigating disruptions while delivering sustainable competitive advantage in increasingly complex global markets (Ponomarov & Holcomb, 2009).

Procurement and Supplier Management

Procurement and Supplier Management represents a critical business function encompassing the strategic acquisition of goods and services while developing and maintaining effective supplier relationships (Johnsen et al., 2019). Modern procurement extends beyond traditional purchasing to

include strategic sourcing, which involves systematically analyzing spend categories and supply markets to develop optimal sourcing strategies (Monczka et al., 2020). Supplier relationship management (SRM) focuses on developing collaborative partnerships with key suppliers to drive innovation, improve quality, and reduce costs through structured engagement processes (Foerstl et al., 2018). Strategic supplier segmentation enables organizations to allocate resources appropriately by categorizing suppliers based on value, risk, and strategic importance (Rezaei et al., 2015). Supplier development programs aim to enhance supplier capabilities through knowledge transfer, training, and performance improvement initiatives (Modi & Mabert, 2007). Digital procurement technologies, including e-procurement platforms, spend analytics, and blockchain applications, are transforming traditional processes by enhancing transparency, efficiency, and compliance (Srai & Lorentz, 2019). Sustainable procurement practices incorporate environmental, social, and governance (ESG) criteria into supplier selection and management processes, reflecting growing stakeholder expectations for responsible business conduct (Yawar & Seuring, 2017). Risk management in procurement involves identifying, assessing, and mitigating potential supply disruptions through diversification, contractual provisions, and continuous monitoring (Fan & Stevenson, 2018).

Inventory Management

Inventory management encompasses the systematic planning, organizing, and controlling of inventory throughout the supply chain to optimize performance while minimizing total costs (Dolgui & Proth, 2010). Economic Order Quantity (EOQ) models determine optimal order sizes by balancing holding and ordering costs to minimize total inventory expenses (Silver et al., 2017). Just-in-Time (JIT) strategies aim to reduce waste by receiving goods only when needed in the production process, thereby decreasing holding costs and improving quality (Kootanaee et al., 2013). ABC analysis categorizes inventory items based on annual consumption value, allowing focused management of high-value items while employing simpler controls for less critical

items (Erasmus et al., 2019). Safety stock calculations incorporate demand and lead time variability to establish buffer inventory levels that protect against stockouts while maintaining service levels (Chopra & Meindl, 2016). Vendor Managed Inventory (VMI) shifts inventory planning responsibilities to suppliers, who monitor and replenish customer stock based on agreed parameters (Akhtar et al., 2018). Cycle counting provides ongoing inventory accuracy verification through systematic partial counts rather than disruptive annual physical inventories (Sari, 2012). Inventory optimization software leverages advanced algorithms and machine learning to balance conflicting objectives across complex multi-echelon supply chains, dynamically adjusting inventory policies in response to changing conditions (Beheshti et al., 2020).

Operational Efficiency and Sustainability

Operational efficiency and sustainability represent interconnected management paradigms essential for modern organizational competitiveness and environmental responsibility (Garza-Reyes, 2015). Operational efficiency encompasses the optimization of business processes to maximize output while minimizing resource inputs, encompassing practices such as lean management, waste reduction, and continuous improvement methodologies that enhance overall productivity and cost-effectiveness (Slack et al., 2016). Triple Bottom Line (TBL) frameworks integrate economic, environmental, and social performance metrics to evaluate organizational sustainability beyond financial indicators alone (Elkington, 1998). Life Cycle Assessment (LCA) provides systematic analysis of environmental impacts across a product's entire existence from raw material extraction through disposal, enabling data-driven sustainability decisions (Guinée et al., 2011). Circular economy principles reimagine traditional linear production models, emphasizing resource regeneration, waste elimination, and product life extension through strategies like remanufacturing and recycling (Geissdoerfer et al., 2017). Green supply chain management extends environmental considerations throughout the value chain by incorporating sustainability criteria into supplier selection, logistics optimization, and product design (Sarkis et al., 2011). ISO 14001 and similar standards provide structured

frameworks for implementing environmental management systems that enhance compliance and performance (Testa et al., 2014). Industry technologies including IoT sensors, advanced analytics, and automation increasingly enable simultaneous operational efficiency and sustainability improvements through real-time monitoring, predictive maintenance, and resource optimization (Ghobakhloo, 2020).

Operational Efficiency

Operational efficiency refers to the strategic optimization of business processes, systems, and resources to maximize productivity while minimizing waste, costs, and effort (Slack et al., 2016). Key performance indicators (KPIs) serve as quantifiable metrics that assess operational performance against predetermined benchmarks, enabling data-driven decision-making and continuous improvement initiatives (Parmenter, 2015). Lean manufacturing principles, derived from Toyota Production System, focus on eliminating non-value-adding activities through techniques like value stream mapping, standardized work, and pull systems (Womack & Jones, 2003). Six Sigma methodology employs statistical tools to identify and eliminate process variations, thereby enhancing quality and reducing defects to 3.4 per million opportunities (Antony et al., 2017). Total Quality Management (TQM) integrates quality-focused principles throughout organizational processes to foster continuous improvement and customer satisfaction (Aquilani et al., 2017). Overall Equipment Effectiveness (OEE) measures equipment productivity by analyzing availability, performance, and quality factors to identify improvement opportunities (Singh et al., 2013). Business Process Reengineering (BPR) involves fundamental rethinking and radical redesign of processes to achieve dramatic performance improvements (Hammer & Champy, 2009). Theory of Constraints (TOC) focuses on identifying and managing system bottlenecks to improve throughput and overall operational flow (Goldratt & Cox, 2004). Process automation leverages technology to execute repetitive tasks with minimal human intervention, reducing errors and cycle times while increasing throughput and consistency (Lacity & Willcocks, 2016).

Sustainability

Sustainability is broadly defined as meeting the present needs without compromising the ability of future generations to meet their own, encompassing environmental, economic, and social dimensions (Brundtland Commission, 1987, as cited in Purvis et al., 2019). It integrates ecological balance, equitable resource distribution, and long-term economic viability while addressing global challenges like climate change and inequality (IPCC, 2023; UN, 2023). Recent frameworks emphasize circular economies, renewable energy transitions, and inclusive governance to achieve the United Nations Sustainable Development Goals (SDGs) by 2030 (World Bank, 2022; Ellen MacArthur Foundation, 2021). Corporate sustainability now prioritizes ESG (Environmental, Social, Governance) metrics, aligning profitability with planetary boundaries (WEF, 2023). Scholars also highlight "just sustainability," centering justice and equity in environmental decision-making (Agyeman et al., 2021). Verified through peer-reviewed and institutional sources, these evolving definitions reflect interdisciplinary approaches to global systemic challenges.

Theoretical Framework

Resource-Based View (RBV)

The Resource-Based View (RBV) of the firm, developed by scholars such as Jay Barney (1991) and Birger Wernerfelt (1984), is a strategic management theory that emphasizes how a company's internal resources and capabilities drive its competitive advantage. According to RBV, these resources must be valuable, rare, difficult to imitate, and non-substitutable (VRIN) to sustain long-term success. For Coca-Cola Nigeria PLC, this means leveraging its strong brand equity, extensive distribution network, and advanced production capabilities to outperform competitors in Nigeria's beverage market. The company's iconic brand recognition, built through decades of localized marketing campaigns like "*Share a Coke Nigeria*," serves as a rare and inimitable asset. Additionally, its well-established supply chain and partnerships with wholesalers and retailers create a non-substitutable advantage, ensuring widespread availability of its products across urban and rural areas.

However, while RBV provides a useful framework for identifying internal strengths, critics argue that it may overlook external market dynamics, such as shifting consumer preferences and regulatory changes. In Nigeria, Coca-Cola faces challenges like rising health consciousness, sugar taxes, and competition from local brands (e.g., Chivita and Bigi), which require adaptive strategies beyond just resource control. Furthermore, the temporary nature of competitive advantage means that Coca-Cola Nigeria must continuously innovate such as expanding into low-sugar and non-carbonated beverages to maintain market leadership (Eisenhardt & Martin, 2000). Thus, while RBV helps Coca-Cola Nigeria capitalize on its core strengths, integrating dynamic capabilities and external environmental analysis remains essential for long-term resilience in a rapidly evolving industry.

Empirical Review

Kepher et al. (2015), investigated the influence of supplier management on procurement performance within Kenya's manufacturing sector, specifically using East African Breweries as a case study. A descriptive research design was adopted, targeting 461 employees from which a sample of 160 respondents was determined using Cochran's sampling formula and selected through simple random sampling. Structured questionnaires served as the primary data collection tool, and the analysis was carried out using SPSS. Results demonstrated a strong positive relationship between effective supplier management practices—such as supplier development, collaborative planning, and long-term partnerships—and procurement performance. However, the scope was restricted to a single firm, thereby limiting the applicability of the findings to broader sectors or regions.

In a similar study, Yamoah et al. (2021), explored how supplier relationship management impacts operational efficiency at Seahorse Oil Company Limited. Employing a descriptive survey design, the researchers focused on staff in procurement and operational departments and randomly selected 60 participants. Data were gathered through a combination of structured interviews and close-ended questionnaires, with descriptive

and regression analyses conducted to interpret results. The study concluded that strategic supplier engagement, such as timely communication and financial support, significantly enhances operational efficiency. Nonetheless, limitations such as cultural differences, trust deficits, and difficulties in data access affected a comprehensive understanding of supplier dynamics.

Agbeka et al. (2024), examined the impact of procurement strategies on operational performance, using a sample of 329 manufacturing firms in a developing economy. The study employed a quantitative research approach and used stratified random sampling to ensure industry-wide representation. Structured questionnaires were used for primary data collection, and regression analysis was performed to test both linear and curvilinear relationships. Findings indicated that practices such as e-procurement, supplier integration, and strategic sourcing initially boost operational efficiency but may eventually yield diminishing returns. The study's generalizability was constrained due to its geographical and sector-specific focus.

Okolocha et al. (2022), in their empirical assessment of inventory management and sustainability of SMEs in Enugu State, adopted a survey research design. The target population comprised 760 SMEs selected through purposive sampling. Structured questionnaires were used for data collection, while regression analysis via SPSS 20.0 facilitated data analysis. Results confirmed a significant positive link between inventory control and sustainable development, urging SMEs to adopt inventory systems that improve storage and monitoring. However, the regional concentration of the study posed limitations to its external validity.

Kareem (2018) explored the effect of inventory practices on SME performance in Oyo State, Nigeria. Using a survey research design, the study sampled 129 SMEs across Ibadan, Ogbomoso, and Oyo, and collected data via structured questionnaires. Descriptive statistics were applied in analyzing the data. Results showed that inventory practices positively influenced SME productivity, despite challenges such as manual inventory systems, slow material delivery, and outdated storage infrastructure. A key recommendation

was the integration of digital tools in inventory control. However, the focus on a single geographical area limited the general scope of the study's findings.

Ugwu and Nwakoby (2020) studied inventory management's effect on organizational performance in Nigeria by employing a survey design across ten firms, totalling 710 employees. A sample of 400 was derived using Taro Yamane's formula and purposive sampling. Data collection relied on questionnaires, with Pearson correlation and OLS regression used for analysis. Findings indicated that inventory techniques like ABC analysis, Economic Order Quantity (EOQ), and Low-Medium-High (LMH) classification significantly improved organizational efficiency. Despite these insights, the reliance on grassroots perspectives introduced an element of subjectivity, potentially affecting the objectivity of the findings.

Pattnaik et al. (2021), in their literature-based study, analyzed 36 previous research works related to sustainable inventory practices in supply chains. The review highlighted an increasing trend toward integrating environmental considerations into inventory models but noted a considerable gap in incorporating social sustainability dimensions. The authors emphasized the importance of holistic approaches that unify economic, environmental, and social elements for sustainable inventory management. The limitation of this study was its conceptual nature, as it lacked primary empirical data but offered valuable directions for future scholarly inquiry.

Literature Gap

Despite the increasing number of studies on inventory management, a critical gap exists in the empirical literature regarding its direct relationship with sustainability practices, particularly in developing economies. Most prior research, such as that by Kepher et al. (2015), Yamoah et al. (2021), and Agbeka et al. (2024), has predominantly focused on procurement and supplier management and their influence on operational efficiency, with minimal emphasis on environmental or social sustainability dimensions. While studies by Okolocha et al. (2022) and Kareem (2018) explored inventory management within Nigerian SMEs, their limited geographic

coverage and sector-specific scope constrain the generalizability of findings. Similarly, Ugwu and Nwakoby (2020) emphasized performance implications of inventory models but did not examine their alignment with sustainability outcomes. Furthermore, Pattnaik et al. (2021) conducted a conceptual review that, although rich in theoretical insight, lacked empirical validation and highlighted a scarcity of studies integrating environmental, economic, and social sustainability. Most of these studies employed quantitative approaches, neglecting the depth that qualitative or mixed-method designs might offer, and failed to consider contextual factors such as regulatory policies, technological infrastructure, or organizational culture. Therefore, there is a pressing need for empirical research that holistically examines how inventory management practices influence all three pillars of sustainability; economic, environmental, and social within a broader organizational context to inform sustainable business strategies, especially in Nigeria and similar developing regions.

3.0 METHODOLOGY

This section outlines the methodology used in this study, which aims to examine the impact of supply chain management practices on operational efficiency and sustainability at Coca-Cola Nigeria Plc, Abuja. A descriptive survey design was adopted to collect relevant data from employees across various departments at Coca-Cola Nigeria Plc, Abuja, which has a workforce of 1,825 employees. This company was chosen due to its significant role in the beverage sector in Nigeria, making it an ideal subject for gaining

insights into supply chain management practices. The sample size was calculated using Yamane's formula, resulting in an initial sample size of 324 employees. To account for potential non-responses, the sample size was adjusted to 388, which included a 20% margin of safety. Stratified sampling was employed to ensure a representative selection from different departments within the company. Within each stratum, simple random sampling was used to select individual participants. Primary data was collected using structured questionnaires that featured a 5-point Likert scale. The questionnaires were divided into two sections: the first section focused on demographic information, while the second section addressed the impact of supply chain management practices, including procurement and supplier management on operational efficiency, and inventory management on sustainability practices. Data analysis was conducted using both descriptive and inferential statistics, with multiple regression analysis used to examine the relationship between supply chain management practices (independent variables) and operational efficiency and sustainability (dependent variables). The analysis was facilitated using SPSS software. The validity of the research instruments was established through a pilot study involving 20 employees at Coca-Cola Nigeria Plc, while reliability was assessed using Cronbach's alpha. All constructs yielded Cronbach's alpha values above the accepted threshold of 0.70, ensuring the internal consistency and reliability of the instruments used in the study.

4.0 RESULTS AND DISCUSSION

Response Rate

Questionnaire Distributed	388
Returned Questionnaire	354
Percentage of returned Questionnaire	91%
Unreturned Questionnaire	34
Percentage of not returned Questionnaire	9%

Source: field Survey, (2025)

The questionnaire distribution and return rate analysis indicates a high level of respondent engagement, with 388 questionnaires distributed and 354 returned, yielding a strong return rate of 91%. This exceptionally high

response rate enhances the reliability and validity of the collected data, as it minimizes non-response bias and provides a robust sample for analysis. The low non-return rate of 9% (34 questionnaires) suggests that the

survey design, distribution method, or participant motivation strategies were effective in encouraging participation. Such a high return percentage is particularly favourable for research accuracy, as it reduces sampling errors and increases the likelihood that the results are representative of the target

population. However, researchers should still examine whether the 9% non-response group differs significantly from respondents to assess potential biases. Overall, the 91% return rate demonstrates excellent survey participation, strengthening the study's findings and conclusions.

Testing of hypotheses

Testing of hypothesis one

H01: Effective procurement and supplier management has no statistically significant influence on the operational efficiency of Coca-Cola Nigeria PLC, Abuja.

$$OES = \alpha_0 + \beta_1 PSM + \epsilon \dots \dots \dots 3.1$$

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.585 ^a	.342	.341	.42448

a. Predictors: (Constant), PSM

Source: SPSS Output Version 27

The model summary indicates a moderate relationship between the predictors and the dependent variable, with an R value of 0.585, suggesting that Procurement and Supplier Management (PSM) explains a fair portion of the variance in the outcome. The R Square value of 0.342 reveals that approximately 34.2% of the variability in the dependent variable is accounted for by PSM, while the Adjusted R Square (0.341) confirms minimal overfitting, indicating a stable model. The

standard error of the estimate (0.42448) demonstrates reasonably accurate predictions, though some unexplained variance remains. Given these results, the model is statistically significant, but decision-makers should consider additional predictors to improve explanatory power, as PSM alone explains only about one-third of the variance. Further research could explore other influential factors to enhance the model's predictive capability.

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	33.034	1	33.034	183.340	.000 ^b
	Residual	63.423	352	.180		
	Total	96.458	353			

a. Dependent Variable: OE

b. Predictors: (Constant), PSM

Source: SPSS Output Version 27

The ANOVA results demonstrate that the regression model is statistically significant in predicting Operational Efficiency based on Procurement and Supplier Management (PSM). With an F-statistic of 183.340 and a highly significant p-value (0.000), the model confirms that SCM has a substantial linear relationship with OE. The regression sum of squares (33.034) indicates meaningful explained variance, while the residual sum of

squares (63.423) suggests some unexplained variability remains. Given these findings, PSM is a valid predictor of OE, and organizations should prioritize continuous training and development programs for its procurement and supply chain personnel to enhance their skills and strategic decision-making capabilities. However, since only 34.2% of the variance is explained (as per the Model Summary), future studies should incorporate additional factors to

improve predictive accuracy. This model provides a foundational understanding but warrants further exploration for comprehensive insights.

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1	(Constant)	2.157	.158	13.663	.000
	PSM	.543	.040	.585	.000

a. Dependent Variable: OE

Source: SPSS Output Version 27

The coefficients analysis reveals that both the constant Procurement and Supplier Management (PSM) are statistically significant predictors of Operational Efficiency (OE), with p-values of 0.000. The unstandardized coefficient (B = 0.543) indicates that for every one-unit increase in PSM, OE increases by 0.543 units, holding other factors constant. The standardized coefficient (Beta = 0.585) confirms PSM's strong positive influence on OE, aligning with the model's earlier R² value

Testing of hypothesis two

H02: Efficient inventory management has no statistically significant impact on the sustainability practices of Coca-Cola Nigeria PLC, Abuja.

$$SP = \alpha_0 + \beta_1 IM + \epsilon \dots \dots \dots 3.2$$

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.740 ^a	.548	.547	.34613

a. Predictors: (Constant), IM

Source: SPSS Output Version 27

The model summary indicates a strong positive relationship between the predictor variable (IM) and the outcome, with a high correlation coefficient (R = 0.740) showing that IM accounts for substantial variation in the dependent variable. The R Square value of 0.548 reveals that approximately 54.8% of the variance in the outcome is explained by IM, while the adjusted R Square (0.547) confirms the model's robustness with minimal overfitting. The standard error of 0.34613

of 0.342. The significant t-values (13.540 for PSM and 13.663 for the constant) further validate these relationships. These results suggest that effective procurement and supply chain management practices can significantly improve operational efficiency and sustainability. Leaders should thus invest in PSM-driven initiatives, such as mission alignment and value-based training, while acknowledging that additional factors may further explain OE's remaining variance.

suggests relatively precise predictions. These results demonstrate that IM is a highly significant predictor, providing organizations with empirical evidence to prioritize IM-related strategies. However, since about 45% of the variance remains unexplained, future research should incorporate additional variables to enhance the model's explanatory power while maintaining focus on IM as a key driver of outcomes.

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	51.137	1	51.137	426.822	.000 ^b
	Residual	42.173	352	.120		
	Total	93.309	353			

a. Dependent Variable: SP

b. Predictors: (Constant), IM

Source: SPSS Output Version 27

The ANOVA results demonstrate that the regression model examining the relationship between IM (independent variable) and SP (dependent variable) is statistically significant ($F = 426.822, p < 0.001$). The extremely low p-value (0.000) confirms that IM is a highly significant predictor of SP. The model explains a substantial portion of variance in SP, as evidenced by the large regression sum of squares (51.137) relative to the residual sum of squares (42.173). This strong predictive relationship suggests that interventions

targeting IM would likely lead to significant improvements in SP. Organizations should therefore prioritize IM-related strategies to enhance SP outcomes. However, the presence of residual variance (42.173) indicates that additional factors beyond IM may influence SP, suggesting value in exploring other potential predictors in future research to develop a more comprehensive understanding of SP determinants. The model's high significance level provides robust evidence for the importance of IM in relation to SP.

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.402	.128		10.952	.000
	IM	.652	.032	.740	20.660	.000

a. Dependent Variable: SP

Source: SPSS Output Version 27

The coefficients analysis reveals that both the constant ($B=1.402, p<0.001$) and IM ($B=0.652, p<0.001$) are statistically significant predictors of SP. The unstandardized coefficient for IM (0.652) indicates that each one-unit increase in IM leads to a 0.652-unit increase in SP, demonstrating a strong positive relationship. This is further supported by the large standardized coefficient ($Beta=0.740$), showing IM's substantial influence on SP. The highly significant t-values (10.952 for the constant and 20.660 for IM) confirm these robust relationships. These findings strongly suggest that enhancing IM would lead to meaningful improvements in SP. Organizations should therefore implement targeted strategies to develop IM, as it appears to be a key driver of SP performance. The model's strength, evidenced by these coefficients, provides compelling evidence for focusing on IM development initiatives, though practitioners should consider

complementary factors to address the remaining unexplained variance in SP.

Summary of Findings

The study found that effective procurement and supplier management have a statistically significant influence on the operational efficiency of Coca-Cola Nigeria PLC, Abuja, with procurement and supplier management practices explaining approximately 34.2% of the variance in operational efficiency. Additionally, efficient inventory management was found to have a strong positive impact on sustainability practices, accounting for 54.8% of the variance in sustainability outcomes. These findings suggest that improvements in procurement processes, supplier relationships, and inventory optimization can lead to enhanced operational performance, cost optimization, reduced waste, and improved environmental responsibility for the organization. The results highlight the critical role of supply chain management practices as

both operational and strategic functions that contribute directly to the company's competitive advantage, sustainable growth, and long-term business success.

Discussion of Findings

The study revealed that effective procurement and supplier management have a statistically significant influence on the operational efficiency of Coca-Cola Nigeria PLC, Abuja, implying that improvements in procurement practices and supplier management strategies can lead to enhanced operational performance, cost optimization, and overall business success for the organization. By ensuring efficient procurement processes, such as the timely acquisition of quality materials at competitive prices, and fostering strong relationships with reliable suppliers, Coca-Cola Nigeria PLC can streamline its operations, reduce bottlenecks, and achieve higher productivity levels. This highlights the critical role of procurement and supplier management as strategic functions that contribute directly to the company's competitive advantage and sustainable growth, underscoring the need for continued focus on these areas to drive long-term success. This is in line with Kepher, Shalle, and Evans (2015) and Yamoah, Yornu, and Dadzie (2021) whom results demonstrated a strong positive relationship between effective supplier management practices such as supplier development, collaborative planning, and long-term partnerships and procurement performance and regression analysis revealed that strategic supplier engagement, such as timely communication and financial support, significantly enhances operational efficiency.

The study revealed that efficient inventory management has a statistically significant impact on the sustainability practices of Coca-Cola Nigeria PLC, Abuja. This implied that optimizing inventory levels, reducing waste, and ensuring the timely replenishment of materials can significantly enhance the company's ability to adopt sustainable operations. By minimizing overstocking, spoilage, and obsolescence, Coca-Cola Nigeria PLC can reduce its environmental footprint while simultaneously improving cost efficiency and resource utilization. Furthermore, effective inventory management supports sustainability goals by promoting responsible consumption and production practices, aligning with global environmental

standards. To strengthen these efforts, the company should integrate advanced inventory tracking systems, adopt just-in-time (JIT) methodologies where feasible, and prioritize eco-friendly sourcing and storage practices. These measures will not only bolster sustainability but also contribute to long-term operational resilience and corporate social responsibility. The finding agrees with Okolocha, Anuri, and Anugwu (2022) and Ugwu and Nwakoby (2020) whom results confirmed a significant positive link between inventory control and sustainable development, urging SMEs to adopt inventory systems that improve storage and monitoring and findings indicated that inventory techniques like ABC analysis, Economic Order Quantity (EOQ), and Low-Medium-High (LMH) classification significantly improved organizational efficiency.

5.0 CONCLUSION AND RECOMMENDATIONS

The study concluded that effective procurement and supplier management are pivotal to enhancing the operational efficiency of Coca-Cola Nigeria PLC, Abuja, as these functions ensure the timely availability of quality resources while significantly contributing to cost reduction, process optimization, and overall organizational performance. By fostering strong supplier relationships and implementing robust procurement strategies, the company can achieve a competitive edge and sustain long-term growth in a dynamic market environment. Additionally, the study underscored the critical role of efficient inventory management in enhancing sustainability practices, as optimizing inventory processes enabled the company to reduce waste, lower operational costs, and minimize its environmental impact, aligning with global sustainability standards. This highlighted that inventory management is not only a logistical function but also a strategic tool for achieving sustainability goals and ensuring organizational resilience, ultimately fostering a balance between operational efficiency, environmental responsibility, and long-term business success.

Based on these findings, it is recommended that:

- i. Coca-Cola Nigeria PLC invests in continuous training and development programs for its procurement and supply chain personnel to enhance their skills and strategic decision-making capabilities.
- ii. Coca-Cola Nigeria PLC adopt advance inventory management technologies, such as real-time tracking systems and data analytics, to monitor stock levels, predict demand accurately, and prevent overstocking or understocking. The company should also implement just-in-time (JIT) inventory practices where applicable to further reduce waste and improve efficiency.

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