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# **Inventory Management Innovations and Organizational Performance of Oil and Gas Firms in Rivers State**

**Prof. Ezirim, A.C<sup>1</sup>, Prof Amadi Lawrence<sup>2</sup>, Adama Sanusi Idakwo<sup>3</sup> & Chinwe De. Amadi<sup>4</sup>**

**Department of Marketing, Faculty of Management Sciences  
Ignatius Ajuru University of Education,  
Rumuolumeni, Port-Harcourt, Nigeria.**

**Email: Aisanusi11@gmail.com, chinweamadi556@gmail.com, asizebu@yahoo.com  
Phone; 07060941978**

## **ABSTRACT**

This study examines the relationship between Inventory Management Innovation and Organizational Performance of Oil and Gas Firms in Rivers State. The dimensions of inventory management innovations adopted under the study were vendor-third party logistics, just-in-time inventory management and measures of organizational performance were performance, marketing performance with organizational culture as the moderating variable. Three research questions and hypotheses were postulated to guide the study. Correlational survey design was adopted for this study. The population of the study will consist of one hundred (100) Oil and Gas firms operating in Rivers State. The sample size is 80 multiply by 2 respondents from each firm give us a total of 160 respondents structured questionnaire instrument was adopted for the study. The result of the Cronbach's Alpha reliability test indicate .800 which is above .70 which implies that the items are reliable. univariate analysis was analysed with the aid of descriptive statistics using mean and standard deviation while bivariate analysis was tested using Pearson Product Moment Correlation and multivariate analysis was analyse using partial correlation on SPSS. The study revealed that there is a significant relationship between vendor-third party logistics and measures of organizational performance of oil and gas firms in Rivers state and organizational culture significantly moderate the relationship between inventory management innovations and organizational performance of oil and gas firms in Rivers state. In conclusion, the implementation of inventory management innovations such as vendor-third party logistics and just-in-time inventory management can significantly enhance the organizational performance of oil and gas firms in Rivers State. The study recommended among others that Oil and gas firms in Rivers State should consider partnering with reliable third-party logistics providers to streamline their supply chain operations.

**Keywords:** Inventory Management, Innovation, Organizational Performance, Oil and Gas, Firms

## **INTRODUCTION**

Inventory management innovations in the oil and gas industry are crucial for ensuring efficient operations and cost-effective supply chain management. Rivers State, located in the Niger Delta region of Nigeria, is a significant hub for oil and gas activities, making it an important area for studying inventory management practices within the industry. The study on inventory management innovations of oil and gas firms in Rivers State aims to explore the various strategies and technologies employed by these firms to optimize their inventory processes, reduce costs, and improve overall operational efficiency (Simchi-Levi., et al 2008).

Inventory management innovations in terms of vendor-third party logistics and just-in-time inventory management are crucial for the efficient operation of oil and gas firms in Rivers state. Rivers state,

located in the Niger Delta region of Nigeria, is a major hub for the oil and gas industry in the country. The state is home to numerous oil and gas companies, and efficient inventory management is essential for their operations. Vendor-third party logistics (3PL) refers to the outsourcing of logistics functions to third-party providers. In the context of inventory management, this can involve outsourcing activities such as warehousing, transportation, and distribution to specialized third-party logistics providers. By leveraging the expertise and resources of 3PL providers, oil and gas firms in Rivers state can optimize their inventory management processes, reduce costs, and improve overall operational efficiency. Just-in-time (JIT) inventory management is a strategy aimed at minimizing inventory holding costs by receiving goods only as they are needed in the production process. JIT inventory management requires close coordination with suppliers to ensure timely delivery of materials and components. For oil and gas firms in Rivers state, implementing JIT inventory management can lead to reduced inventory carrying costs, improved cash flow, and streamlined production processes (Chopra & Meindl 2015).

The study on inventory management innovations in terms of vendor-third party logistics and just-in-time inventory management of oil and gas firms in Rivers state is significant for several reasons. Firstly, it addresses the specific challenges and opportunities faced by oil and gas companies operating in a dynamic and complex industry environment. Secondly, it contributes to the body of knowledge on supply chain management practices in the context of the oil and gas sector, particularly within the unique operational context of Rivers state.

Investigating inventory management innovations and organizational performance in the oil and gas firms of Rivers State holds significant academic and practical relevance. The findings of this study can potentially inform strategic decision-making processes within these firms, contribute to academic literature on supply chain management in the oil and gas industry, and offer insights for policymakers seeking to support sustainable development in the region's energy sector.

#### **Statement of the Problem**

Inventory management innovations in the oil and gas industry in Rivers State face several challenges, particularly in the areas of vendor-third party logistics and just-in-time (JIT) inventory management. These challenges can significantly impact the efficiency and effectiveness of operations within the sector. Vendor-Third Party Logistics: One of the key problems affecting inventory management innovations in the oil and gas industry in Rivers State is related to vendor-third party logistics. This refers to the reliance on external vendors and third-party logistics providers for the procurement, storage, and transportation of inventory. The challenges associated with this aspect include issues such as limited visibility into the supply chain, potential delays in delivery, lack of control over inventory, and difficulties in coordinating with multiple vendors. These challenges can lead to disruptions in the supply chain, increased lead times, higher carrying costs, and potential stockouts or overstock situations.

Just-in-Time (JIT) Inventory Management: Another significant challenge facing inventory management innovations in the oil and gas industry in Rivers State is related to JIT inventory management. JIT is a strategy aimed at optimizing inventory levels by receiving goods only as they are needed in the production process, thereby minimizing holding costs and reducing waste. However, implementing JIT in the oil and gas industry presents unique challenges due to the critical nature of materials required for exploration, drilling, production, and distribution activities. Factors such as unpredictable demand patterns, long lead times for specialized equipment and components, geopolitical risks, and complex supply chains can hinder the effective implementation of JIT practices. Additionally, fluctuations in oil prices and market dynamics can further complicate JIT inventory management efforts.

#### **Aim and Objectives of the Study**

The aim of this study is to determine the relationship between inventory management innovations and organizational performance of oil and gas firms in Rivers state. Specifically, the objectives were to:

- 1) examine the relationship between vendor-third party logistics and operational performance of oil and gas firms in Rivers state.
- 2) determine the relationship between vendor-third party logistics and marketing performance of oil and gas firms in Rivers state.

- 3) Find out the relationship between Just-in-time (JIT) Inventory Management and operational performance of oil and gas firms in Rivers state.

### Research Questions

The following research questions were raised to guide the study:

- 1) What is the relationship between vendor-third party logistics and operational performance of oil and gas firms in Rivers state?
- 2) What is the relationship between vendor-third party logistics and marketing performance of oil and gas firms in Rivers state?
- 3) What is the relationship between Just-in-time (JIT) Inventory Management and operational performance of oil and gas firms in Rivers state?

### Research Hypotheses

The following null hypotheses were formulated to guide the study:

**Ho<sub>1</sub>:** There is no significant relationship between vendor-third party logistics and operational performance of oil and gas firms in Rivers state.

**Ho<sub>2</sub>:** There is no significant relationship between vendor-third party logistics and marketing performance of oil and gas firms in Rivers state.

**Ho<sub>3</sub>:** There is no significant relationship between Just-in-time (JIT) Inventory Management and operational performance of oil and gas firms in Rivers state.

### Significance of the Study

The categories of persons that will benefit from this study include:

1. **Oil and Gas Industry Professionals:** Professionals working within the oil and gas industry in Rivers State can benefit from insights into effective inventory management strategies that can enhance operational efficiency and cost-effectiveness.
2. **Supply Chain Managers:** Professionals responsible for managing supply chain operations within oil and gas firms can gain valuable knowledge about implementing vendor-third party logistics and JIT inventory management practices.
3. **Academicians and Researchers:** Scholars and researchers focusing on supply chain management, logistics, and operations can utilize the findings of this study to further their understanding of inventory management innovations within the context of the oil and gas industry.
4. **Government Agencies:** Regulatory bodies and government agencies involved in overseeing the oil and gas sector in Rivers State can benefit from understanding how inventory management innovations can contribute to industry sustainability and competitiveness.
5. **Investors and Stakeholders:** Investors and stakeholders interested in the oil and gas sector in Rivers State can gain insights into how effective inventory management practices can impact the financial performance and long-term viability of companies operating in this industry.

### Scope of the Study

The scope of this study is delimited to inventory management innovations with dimensions of vendor-third party logistics, just-in-time inventory management while measures of organizational performance were operational performance and marketing performance with organizational culture as the moderating variable. The geographical scope of this study is delimited to oil and gas firms in Rivers state. This study adopted a macro level analysis, this implies that the respondents will be managerial staff that have adequate knowledge on inventory management innovations.

## LITERATURE REVIEW

### Concept of Inventory management Innovations

Inventory management innovations have significantly evolved over the years, driven by technological advancements and the need for more efficient and effective inventory control. These innovations encompass a wide range of strategies, technologies, and methodologies aimed at optimizing the entire inventory management process, from procurement to storage, tracking, and distribution (Chopra & Meindl 2015).

Another significant innovation in inventory management is the integration of artificial intelligence (AI) and machine learning algorithms. AI-powered inventory management solutions can analyze historical sales data, demand forecasts, and market trends to predict future demand more

accurately (Ivanov & Dolgui 2019). In addition to technology-driven innovations, there have been significant advancements in inventory optimization methodologies. Just-in-time (JIT) inventory management, popularized by companies like Toyota, focuses on minimizing inventory holding costs by synchronizing production with customer demand (Ivanov & Dolgui 2019). The adoption of omnichannel inventory management is another notable innovation that has gained traction in response to changing consumer behaviors. With the rise of e-commerce and multichannel retailing, businesses are increasingly challenged to manage inventory across various sales channels seamlessly (Sheffi & Rice 2005).

### **Dimensions of Supply Chain Management strategies**

#### **Vendor-third party logistics (3PL)**

Vendor-third party logistics (3PL) refers to the outsourcing of logistics and supply chain management functions to a third-party provider. In this arrangement, a company (the vendor) contracts with a specialized logistics provider (the 3PL) to handle various aspects of its supply chain operations, such as transportation, warehousing, distribution, and freight forwarding. (Adebayo, 2017).

One of the key benefits of vendor-3PL relationships is the access to specialized expertise and resources that the 3PL brings to the table. 3PL providers are typically equipped with advanced technology, industry knowledge, and extensive networks that enable them to streamline logistics operations, reduce costs, and improve overall efficiency for their vendor clients. By leveraging the capabilities of a 3PL, vendors can benefit from enhanced supply chain visibility, better inventory management, and improved customer service levels. Another advantage of vendor-3PL partnerships is the potential for cost savings (Adebanjo & Kayode-Ojo, 2018). Furthermore, vendor-3PL relationships can also lead to increased flexibility and scalability in logistics operations. (Adebanjo, 2015).

#### **Just in time Inventory management**

Just-in-time (JIT) inventory management is a strategy used by businesses to optimize the efficiency of their production and inventory processes. The JIT system aims to minimize waste, reduce carrying costs, and improve overall productivity by ensuring that materials are only ordered and received as they are needed for production. This approach requires close coordination between suppliers and manufacturers to deliver materials and components at the exact time they are required for production (Simchi-Levi, et al., 2008).

One of the key principles of JIT inventory management is the elimination of excess inventory. Traditional inventory management systems often involve holding large quantities of raw materials, work-in-progress, and finished goods in stock as a buffer against potential shortages or delays (Chopra & Meindl 2015). Furthermore, JIT inventory management requires strong partnerships with reliable suppliers. Since materials are ordered in small quantities and delivered precisely when needed, businesses must have robust relationships with suppliers who can consistently meet these requirements (Ivanov & Dolgui 2019).

#### **Organizational Performance**

Organizational performance refers to the ability of an organization to achieve its strategic objectives and deliver value to its stakeholders. It encompasses various aspects such as financial performance, operational efficiency, innovation, customer satisfaction, and employee engagement (Oke, 2013). Effective leadership is crucial for driving organizational performance. Leaders play a key role in setting the strategic direction of the organization, aligning the efforts of employees towards common goals, and creating a positive work environment that fosters innovation and high performance (Oke & Gbadamosi, 2015).

Skilled and motivated employees are a valuable asset for any organization. Investing in employee training and development, providing opportunities for career advancement, offering competitive compensation and benefits, and creating a supportive work environment can help attract and retain top talent. Engaged employees are more likely to contribute their best efforts towards achieving organizational goals (Oke, & Gbadamosi, 2015).

## **Measures of Organizational Performance**

### **Operational performance**

Operational performance refers to the measurement of a company's efficiency in utilizing its resources to produce goods and services. It encompasses various aspects such as production processes, supply chain management, quality control, and cost management. On the other hand, marketing performance relates to the effectiveness of a company's marketing activities in achieving its objectives, including sales growth, brand awareness, customer satisfaction, and market share. Both operational and marketing performance are crucial for the success of any organization (Slack, et al., 2016). Effective operational performance enables companies to reduce costs, improve customer satisfaction, and gain a competitive edge in the market (Krajewski, et al., 2018). One of the key elements of operational performance is supply chain management (Kotler, & Keller 2016).

### **Marketing Performance**

Marketing performance is a key determinant of a company's ability to attract customers, generate sales, and build brand equity. It encompasses various activities such as market research, product development, pricing strategies, promotional campaigns, and customer relationship management (Armstrong & Kotler 2015). Pricing strategies also impact marketing performance. Companies must carefully determine pricing levels that reflect the value offered to customers while remaining competitive in the market. Marketing performance is often evaluated based on the effectiveness of advertising, public relations, digital marketing, and other promotional activities in reaching target audiences and generating positive returns on investment (Christopher & Peck 2004).

## **Theoretical Review**

### **Economic Order Quantity (EOQ) Theory**

The Economic Order Quantity (EOQ) theory was propounded by Ford W. Harris in 1913. The theory is a mathematical model used to determine the optimal order quantity that minimizes total inventory costs. It provides a framework for balancing the costs of holding inventory and the costs of ordering or replenishing inventory. Assumptions of the EOQ theory include Demand is constant and known with certainty over the planning period, Lead time (time between placing an order and receiving it) is constant and known, The order quantity arrives in a single delivery, There are no quantity discounts or price breaks, Costs are constant and known, including holding costs, ordering costs, and unit costs., The replenishment of inventory occurs instantaneously.

### **Relevance of the theory to the study**

Relevance of the EOQ theory to a study on Inventory Management Innovations and Organizational Performance of oil and gas firms in the South-South region of Nigeria: The EOQ theory can provide a foundation for understanding and analyzing inventory management practices in oil and gas firms. By considering the assumptions and critiques of the theory, researchers can assess the applicability and limitations of the EOQ model in the context of the oil and gas industry. This can help identify areas where innovations in inventory management can be implemented to improve organizational performance, such as reducing costs, minimizing stockouts, optimizing order quantities, and enhancing supply chain efficiency.

**Empirical Review**

Empirical studies on inventory management innovation and organizational performance

| S/n | Author                                   | Location | Title of work   | Methodology  | Findings  |
|-----|--|----------|---|--|---|
| 1   | Oke, Ayo, and Olomolaiye (2015)          | Nigeria  | The authors examined the impact of inventory management innovation on organizational performance in the Nigerian manufacturing sector | The study utilized a quantitative approach, collecting data through structured questionnaires distributed to manufacturing firms in Nigeria. | The findings revealed a positive relationship between inventory management innovation and organizational performance, indicating that innovative inventory management practices can significantly enhance a firm's overall performance. |
| 2   | Adeleye, Olokundun, and Ibidunni (2018), | Nigeria  | the influence of inventory management innovation on the financial performance of selected manufacturing firms in Nigeria.             | The researchers employed a mixed-methods approach, combining both quantitative and qualitative data collection methods.                      | Their findings indicated that effective inventory management innovation positively impacts the financial performance of manufacturing firms in Nigeria.   |
| 3   | Aremu and Adeyemi (2011)                 | Nigeria  | the impact of inventory management practices on organizational performance in Nigeria.  | The authors conducted a comprehensive survey to collect data from a sample of 150 companies located in United State.                         | The study revealed that efficient inventory management practices significantly contribute to improved organizational performance.   |
| 4   | Ogunnaike and Adetunji (2017)            | Nigeria  | explored the relationship between inventory management innovation and operational performance in Nigerian manufacturing firms         | Their research employed a survey-based methodology to gather data from a sample of manufacturing firms                                       | The findings indicated that innovative inventory management practices positively influence operational performance, leading to enhanced overall organizational performance.   |
| 5   | Oladele and Adebisi (2019)               | Nigeria  | the impact of technological innovation in inventory management on the operational performance of Nigerian manufacturing firms         | The authors utilized a quantitative research design, collecting data through structured questionnaires administered to manufacturing firms   | Their findings demonstrated that technological innovations in inventory management significantly improve operational performance in Nigerian manufacturing firms.   |

**Gap in literature**

Various studies such as (Srivastava, 2007, Walker et al. 2014) have been carried out as reviewed in the empirical studies , however, it is observed that none of this study were centred on inventory management innovations adopting the dimensions of just-in-time inventory management, vendor-third party logistics, it is in this regards this study seek to fill this lacuna by providing empirical evidence on the relationship between inventory management innovations and organizational performance of oil and gas firms in Rivers state.

**Summarize the Review**

Inventory management innovation refers to the adoption of new and advanced techniques, technologies, and strategies to efficiently control and optimize the flow of goods and materials within an organization. In Nigeria, inventory management plays a crucial role in determining the overall

performance and competitiveness of businesses. Effective inventory management innovation can lead to improved organizational performance by reducing costs, minimizing stockouts, enhancing customer satisfaction, and increasing operational efficiency. In Nigeria, the relationship between inventory management innovation and organizational performance has been a subject of interest for researchers and practitioners. The adoption of innovative inventory management practices has the potential to positively impact various aspects of organizational performance, such as profitability, productivity, and customer service. However, the specific ways in which inventory management innovation influences organizational performance in the Nigerian context require thorough investigation and analysis.

Several factors influence the successful implementation of inventory management innovation in Nigeria, including technological infrastructure, organizational culture, government policies, and market dynamics. Additionally, the unique challenges faced by Nigerian businesses, such as infrastructure limitations and economic volatility, must be considered when examining the impact of inventory management innovation on organizational performance. Overall, understanding the relationship between inventory management innovation and organizational performance in Nigeria is essential for businesses seeking to gain a competitive edge in the market. By leveraging innovative inventory management practices, Nigerian organizations can enhance their operational efficiency and ultimately achieve sustainable growth and success.

### METHODOLOGY

The realistic/objectivist ontology and empiricist epistemology contained in the positivist paradigm requires a research methodology that is objective or detached where the emphasis is on measuring variable and testing hypotheses that are linked to general causal explanation. This study adopted a positivist approach because it allows the researcher to collect data from the environment without manipulation by the researcher. Correlational survey design was adopted for this study. The study involves the analysis of the relationships between the dimensions of inventory management innovations and organizational performance. The population of the study will consist of one hundred (100) Oil and Gas firms operating in Rivers State. See appendix C for Details of the population. The Taro Yamane sampling formula is used to determine the sample size required for a given population with a specified level of precision. The formula is expressed as:  $n = \frac{N}{1 + N(e^2)}$  Where:  $n$  = sample size  $N$  = population size  $e$  = level of precision (expressed as a decimal) In this case, the population size ( $N$ ) is 100 and the level of precision ( $e$ ) is 0.05. Using the Taro Yamane sampling formula, we can calculate the sample size as follows:  $n = \frac{100}{1 + 100(0.05^2)}$   $n = \frac{100}{1 + 100(0.0025)}$   $n = \frac{100}{1 + 0.25}$   $n = \frac{100}{1.25}$   $n \approx 80$ . 80 multiply by 2 respondents selected from each firm gives us a total 160 respondents.

Structured questionnaire instrument title “Inventory management innovations and organizational performance questionnaire” was developed on four point likert scale with items of lean supply chain management and just in time supply chain management. The Inventory management innovations and organizational performance questionnaire was independently subjected to content and construct validity by three Lecturers in the Department of Marketing, Faculty of Management Sciences, Ignatius Ajuru University of Education, Port Harcourt. The corrections and suggestions of the validators were effected on the finale copy of the instrument. The reliability of empirical measurement is indicated by the internal consistency, One of the most commonly used indicators of internal consistency is Cronbach’s alpha coefficient. Questionnaire item statements with Cronbach’s alpha reliability coefficient below the 0.70 threshold were eliminated. the test-re-test method was used. 20 copies of the questionnaire instrument were issue and some das later same copies were issue through electronic media. the results were used in computation using Cronbach’s alpha test of reliability.

#### Reliability Statistics

| Cronbach's Alpha | N of Items |
|------------------|------------|
| .800             | 5          |

Source: Researcher computation via SPSS version 25

The result of the Cronbach's Alpha reliability test indicates .800 which is above .70 which implies that the items are reliable. Primary data were collected expressly for a specific purpose by the investigator himself. This data gives the exact information wanted. Primary data mainly come from direct observation of events, manipulation of variables, performance of experiments and responses to questionnaire. The primary data for this study were generated through questionnaire. Univariate analysis was analysed with the aid of descriptive statistics using mean and standard deviation while bivariate analysis was tested using Pearson product moment correlation and multivariate analysis was analyse using partial correlation on SPSS.

## ANALYSIS OF DATA

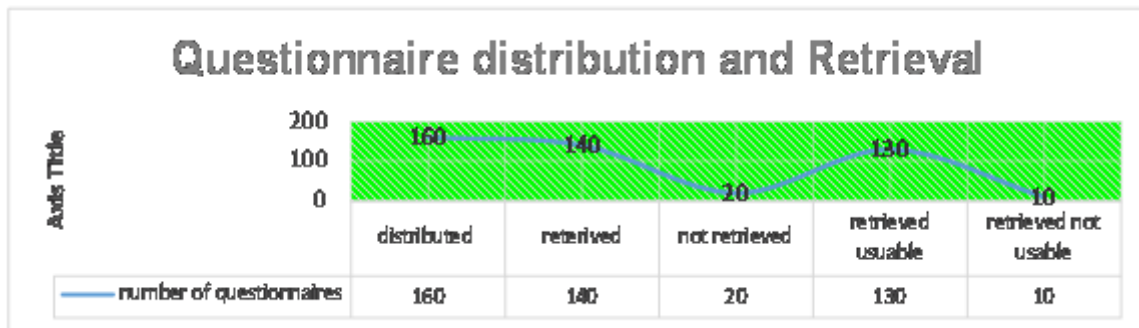


Figure 2: Questionnaire Distributed and Retrieval

### Univariate analysis

Table 2: Descriptive Statistics on vendor-third party

|   | N   | Min | Max | Sum | Mean | Std. Dev |
|---|-----|-----|-----|-----|------|----------|
| Our firm have been implementing Vendor-third party logistics in our oil and gas firm                        | 130 | 1   | 4   | 392 | 3.02 | 1.121    |
| The level of collaboration between our firm and the vendors in managing inventory is on the increasing side | 130 | 1   | 4   | 387 | 2.98 | 1.089    |
| Vendor-third party logistics has impacted our firm's inventory holding costs                                | 130 | 1   | 4   | 407 | 3.13 | 1.037    |
| Vendor-third party logistics has improved our firm's supply chain efficiency                                | 130 | 1   | 4   | 404 | 3.11 | 1.029    |
| Our firm encountered challenges in implementing Vendor-third party logistics in your oil and gas firm       | 130 | 1   | 4   | 400 | 3.08 | 1.076    |
| Valid N (listwise)  | 130 |     |     |     |      |          |

Source: Researcher field computation via SPSS (2023)

Table 2 revealed descriptive statistics on vendor-third party. Our firm have been implementing Vendor-third party logistics in our oil and gas firm have a mean score of 3.02, The level of collaboration between our firm and the vendors in managing inventory is on the increasing side have a mean score of 2.98, Vendor-third party logistics has impacted our firm's inventory holding costs have a mean score of 3.13, Vendor-third party logistics has improved our firm's supply chain efficiency have a mean score of 3.11, Our firm encountered challenges in implementing vendor-third party logistics in your oil and gas firm have a mean score of 3.08.



**Table 3: Descriptive Statistics on Just-in-time management inventory**

|   | N   | Min | Max | Sum | Mean | Std. Deviation |
|---|-----|-----|-----|-----|------|----------------|
| implementing JIT inventory management in our firm help in Cost reduction.                   | 130 | 1   | 4   | 379 | 2.92 | 1.135          |
| implementing JIT inventory management in our firm help in Improving efficiency              | 130 | 1   | 4   | 373 | 2.87 | 1.102          |
| implementing JIT inventory management in our firm help in Waste reduction                   | 130 | 1   | 4   | 393 | 3.02 | 1.060          |
| implementing JIT inventory management in our firm help in enhancing supply chain management | 130 | 1   | 4   | 390 | 3.00 | 1.049          |
| JIT inventory management impacted our firm's overall performance Significantly              | 130 | 1   | 4   | 386 | 2.97 | 1.092          |
| Valid N (listwise)  | 130 |     |     |     |      |                |

**Source: Researcher field computation via SPSS (2023)**

Table 3 revealed descriptive statistics on Just-in-time management inventory. implementing JIT inventory management in our firm help in Cost reduction have a mean score of 2.92, implementing JIT inventory management in our firm help in Improving efficiency have a mean score of 2.87, implementing JIT inventory management in our firm help in Waste reduction have a mean score of 3.02, implementing JIT inventory management in our firm help in enhancing supply chain management have a mean score of 3.00, JIT inventory management impacted our firm's overall performance Significantly have a mean score of 2.97.

**Bivariate analysis**

**Hypotheses**

**Ho<sub>1</sub>:** there is no significant relationship between vendor-third party logistics and operational performance of oil and gas firms in Rivers state.

**Correlations 1**

|                              |                     | vendor-third party logistics | operational performance |
|------------------------------|---------------------|------------------------------|-------------------------|
| vendor-third party logistics | Pearson Correlation | 1                            | .939**                  |
|                              | Sig. (2-tailed)     |                              | .000                    |
|                              | N                   | 130                          | 130                     |
| operational performance      | Pearson Correlation | .939**                       | 1                       |
|                              | Sig. (2-tailed)     | .000                         |                         |
|                              | N                   | 130                          | 130                     |

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

Correlation 1 reveals that there is a significant relationship between vendor-third party logistics and operational performance of oil and gas firms in Rivers state (where rho = .939 and p =0.000) and based on the decision rule of p < 0.05 for null rejection; we reject the null hypothesis and restate *that there is a significant relationship between vendor-third party logistics and operational performance of oil and gas firms in Rivers state.*

**Ho<sub>2</sub>:** there is no significant relationship between vendor-third party logistics and marketing performance of oil and gas firms in Rivers state.

**Correlations 2**

|                              |                     | vendor-third party logistics | marketing performance |
|------------------------------|---------------------|------------------------------|-----------------------|
| vendor-third party logistics | Pearson Correlation | 1                            | .772**                |
|                              | Sig. (2-tailed)     |                              | .000                  |
|                              | N                   | 130                          | 130                   |
| marketing performance        | Pearson Correlation | .772**                       | 1                     |
|                              | Sig. (2-tailed)     | .000                         |                       |
|                              | N                   | 130                          | 130                   |

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

Correlation 2 reveals that there is a significant relationship between vendor-third party logistics and marketing performance of oil and gas firms in Rivers state (where rho = .772 and p =0.000) and based on the decision rule of p < 0.05 for null rejection; we reject the null hypothesis and restate *that there is a significant relationship between vendor-third party logistics and marketing performance of oil and gas firms in Rivers state.*

**Ho<sub>3</sub>:** there is no significant relationship between Just-in-time (JIT) Inventory Management and operational performance of oil and gas firms in Rivers state.

**Correlations 3**

|   |                     | Just-in-time (JIT) Inventory Management | operational performance |
|---|---------------------|---|-------------------------|
| Just-in-time (JIT) Inventory Management | Pearson Correlation | 1                                       | .701**                  |
|   | Sig. (2-tailed)     |   | .000                    |
|   | N                   | 130                                     | 130                     |
| operational performance                 | Pearson Correlation | .701**                                  | 1                       |
|   | Sig. (2-tailed)     | .000                                    |                         |
|   | N                   | 130                                     | 130                     |

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

Correlation 3 reveals that there is a significant relationship between Just-in-time (JIT) Inventory Management and operational performance of oil and gas firms in Rivers state.(where rho = .701 and p =0.000) and based on the decision rule of p < 0.05 for null rejection; we reject the null hypothesis and restate *that there is a significant relationship between Just-in-time (JIT) Inventory Management and operational performance of oil and gas firms in Rivers state.*

**Ho<sub>4</sub>:** there is no significant relationship between Just-in-time (JIT) Inventory Management and marketing performance of oil and gas firms in Rivers state.

**CONCLUSION**

In conclusion, the implementation of inventory management innovations such as vendor-third party logistics and just-in-time inventory management can significantly enhance the organizational performance of oil and gas firms in Rivers State. These innovations can lead to improved efficiency, reduced costs, and better supply chain management. By outsourcing logistics to third-party vendors, oil and gas firms can focus on their core competencies while benefiting from the expertise and resources of specialized logistics providers. Additionally, adopting a just-in-time inventory management approach can minimize inventory holding costs and reduce the risk of obsolescence.

## RECOMMENDATIONS

The following recommendations were proposed:

1. Oil and gas firms in Rivers State should consider partnering with reliable third-party logistics providers to streamline their supply chain operations. This collaboration can lead to cost savings, improved delivery times, and enhanced overall efficiency.
2. Implementing Just-in-Time Inventory Management: The adoption of a just-in-time inventory management system can help oil and gas firms in Rivers State optimize their inventory levels, reduce carrying costs, and minimize the risk of excess or obsolete inventory.
3. Oil and gas firms in Rivers State should Leveraging advanced technology such as inventory management software and real-time tracking systems can further enhance the effectiveness of inventory management practices in oil and gas firms. This investment can lead to improved visibility across the supply chain and better decision-making capabilities.
4. Oil and gas firms in Rivers State should continuously monitor and evaluate the performance of their inventory management initiatives.

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