
REQUIREMENTS OF MATERIAL PLANNING AND SUPPLY CHAIN PERFORMANCE OF OIL AND GAS FIRMS IN PORT HARCOURT, NIGERIA

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ABSTRACT

This study examined the requirements of Material planning and Supply Chain performance of Oil and Gas Firms in Port Harcourt., Nigeria. The study adopted correctional design to establish a relationship between material requirement planning and the measures of supply chain performance. Both primary and secondary methods of data collection were used to obtain relevant data for analysis. The instrument of data collection employed was the questionnaire. The study population comprised of two hundred and ninety-three (293) oil and gas servicing firms operating in Rivers State as enlisted in the Nigerian oil and gas industry annual report (2020). The sample size for the study comprised 149 oil and gas firms in Port Harcourt, Rivers state. The sample size was determined using the Taro Yamene formula. Furthermore, the researcher selected one management staff from each of the oil and gas firms operating in Rivers State as respondents for the study hence a total of one hundred and forty nine (149) respondents were used for the study. The data was analyzed using the Pearson's Product Moment Correlation statistic through the aid of statistical packages for social science version 23.0. The result of the findings revealed the existence of significant and positive relationship between material requirement planning and supply chain performance of oil and gas firms in Rivers State. The researchers conclude that material requirement planning affect supply chain performance of oil and gas firms in Rivers state and therefore recommended that managers of oil and gas firms should strategically manage their material and inventory processes in other to improve their supply chain performance.

Key Words: Material Requirement Planning, Supply Chain Performance, Product Quality, Customer Satisfaction, Cost Reduction.

Introduction

Material Requirement Planning (MRP) is a method of inventory management that entails the sequencing and application of coherent techniques for developing and identifying unique inventory and material requirements for each company's production components in order to ensure efficient and appropriate product delivery. Since the 1970s, material requirements planning has been a very popular and frequently utilized form of multilevel inventory control. The widespread use of this popular material management solution has resulted in significant inventory reduction and increased productivity.

Inventory management is critical to the operation of businesses. Inventory accounts for approximately 60% of current assets in most manufacturing businesses (Hills, 2000). Due to the high volume of inventory maintained by manufacturing enterprises, substantial expenditures are required to commit to them. The considerable risk associated with investing such a huge percentage of cash demonstrates the importance of organizations using effective and efficient inventory management systems in order to achieve a high rate of return on investment and increased productivity. When it comes to inventory management, you have to make sure that your stock is well-managed so that your working capital is at the right level.

Since the 1970s, material requirements planning has been a very popular and frequently utilized form of multilevel inventory control. Adoption of this widely used technique in material management has resulted in significant inventory reduction and increased productivity (Singh & Garg, 2011).

Material Requirements Planning (MRP) is a production planning and inventory control system that serves three primary functions: (1) it assists in ensuring that the appropriate materials are available for production and necessary products are available to customers in order to avoid shortages; (2) it minimizes waste by stocking only the bare minimum of materials and products; and (3) it assists in planning manufacturing functions, delivery schedules, and purchasing (Rouse, 2014). A master production schedule is generated for each end item, establishing delivery dates and order quantities based on expected demand, and when the item's inventory position falls below the defined level, a fresh replenishment begins via a buy or manufacture process (Segerstedt, 2006). Inventory management's objective is to develop a relationship between a product's full production and distribution channels in order to confirm or meet consumer expectations (Chu, 2001). The MRP system helps the company make more accurate estimates about how long it will take to deliver products to customers, which in turn helps the company be more successful.

The output of the material requirements planning system is acceptable for inventory and production managers. It aids in inventory planning and control by addressing the issues of what, how much, and when to order, as well as when manufacturing should be scheduled and items delivered. It establishes the precise planning of power and materials required to meet the primary production table's requirements. It plays a critical role in prioritizing production or purchasing based on anticipated demand for product components and parts. It aids in statistical forecasting for product components and maintains inventory to ensure materials are received on time. It prioritizes long-term material planning and uses safety inventory to manage production changes.

Notably, the oil and gas industry is not immune to the adoption of material requirement planning in order to maximize production. As such, it is critical for an organization to have a sound, effective, and well-coordinated material planning system and strategy in place, as the business environment is rapidly evolving, dynamic, and unpredictable, as well as highly

competitive, and it is having a significant impact on the performance of many organizations. The critical decisions in every organization's inventory management process relate to material requirement planning, the timing of replenishment orders, and the quantity of such orders. Failure to manage these two issues effectively has resulted in a large increase in the total cost of organizational performance, particularly in the oil and gas industry. Increased demand for the company's products, along with advanced manufacturing technologies, has resulted in a plethora of different forms of inventory and material needs planning control becoming a complex function or process. The majority of the issues related to material requirement planning and their impact on the oil and gas industry's supply chain performance have not been thoroughly examined. Therefore the researcher's point of departure is to investigate the nexus between material requirement planning and supply chain performance of oil and gas firms in Port Harcourt.

A conceptual framework depicting the relationship between the variables is depicted below.

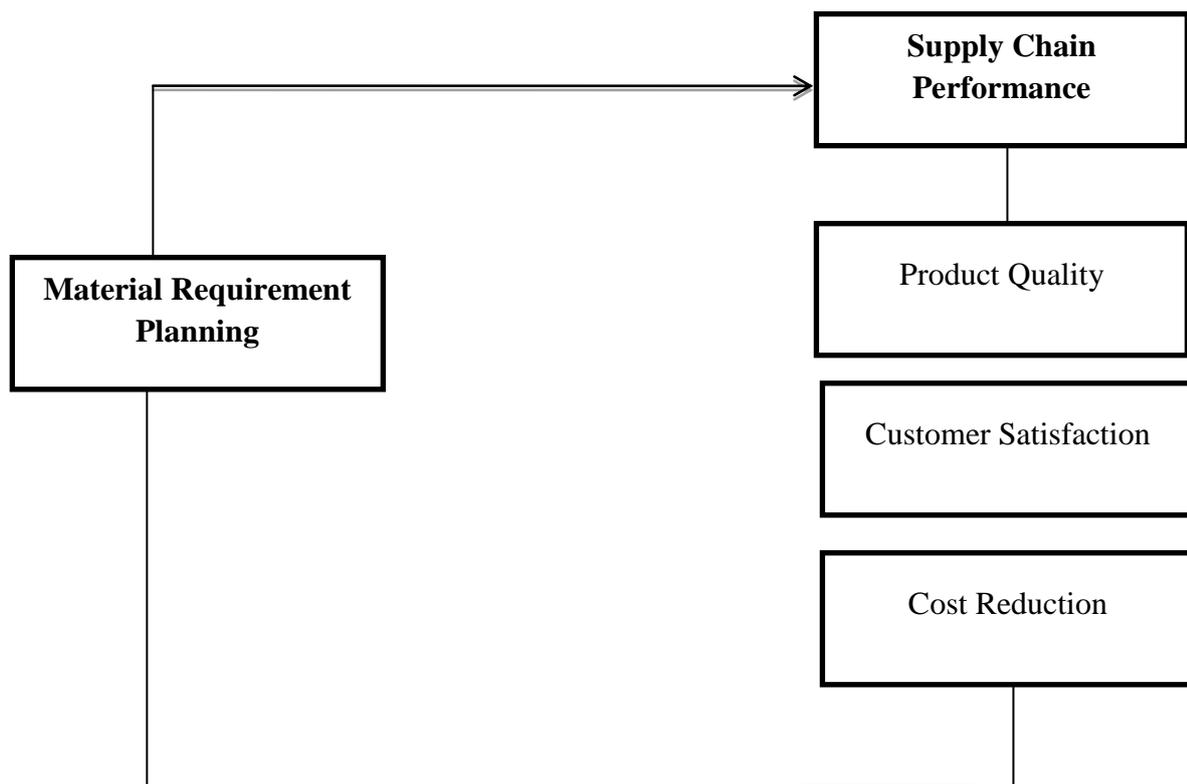


Figure 1: Conceptual Framework of the relationship between material requirement planning and supply chain performance of Shipping firms in Rivers State, Nigeria

Source: Authors' conceptualization from the review of related literature, 2022.

LITERATURE REVIEW

Theoretical Foundation: Theory of Constraints

Constraints theory is a management philosophy that seeks to improve manufacturing output efficiency or system performance as measured by sales by identifying the activities that compel the manufacturing system (Goldratt, 2006). The notion of constraints is based on the belief that a sequence is only as strong as its weakest link or constraint, and that it is critical

to both uplift and manage the constraint. The difficulties associated with the theory of constraints include extremely long lead times, a large number of unsatisfied orders, a high level of preventable inventories or inadequate inventories, insufficient customer commitment, and recurrent changes or nonexistence of control over interrelated significant orders, indicating that schedule conflicts of resources may exist. Thus, the theory of constraints underlines the importance of successfully focusing by managing the capacity and competence of these constraints if an organization wishes to increase its operational performance (Umble, 2006).

However, available literature on strategic inventory management indicates that the theory of constraints is critical for reducing waste by recognizing all various stages within the value stream and eliminating non-value adding actions and procedures, leaving only a torrent of value adding activities that increase performance (Mukherjee, 2010). Additionally, the theory of constraints is critical because it assists manufacturing organizations in creating order fulfillment techniques that enable them to respond effectively to snowballing product variability and consumer expectations.

Similarly, theory of limitations minimizes stock investment and optimally distributes holdings through the employment of multiple inventory control techniques and systems to achieve optimal inventory levels. Additionally, the theory of constraint is critical in ensuring quantifiable value enhancement for each process and stage, while measurements should be conducted on a regular basis by analyzing the value of the product prior to and following the process in terms of increased sales and market share in order to boost manufacturing output efficiency or system performance (Mukherjee, 2010)

Material Requirement Planning's Characteristics.

Material requirement planning is defined and conceptualized in a variety of ways. O'Grady (2012), one of the earliest system designers, defines material requirements planning as a collection of sequential, fundamental, and coherent techniques for deciphering the primary production arrangement to the desired needs of each component of the inventory and categorizing appropriate approaches for them through scheming special boundaries. This system is defined as a collection of sequencing, essential, and logical techniques for converting the primary creation planning to the constituent parts of the final product, including the issuance of purchase or manufacture orders in order to implement primary scheduling within the specified cost and time constraints.

MRP is an inventory management strategy that utilizes computer software tools to manage inventories. It divides inventory requirements into exact time intervals in order to maintain optimal inventory levels and ensure continuous output (Ince et al, 2013, Oztemel & Gursev, 2020). It is intended to address what is required, when it is required, and in what quantity. MRP aids in forecasting capacity requirements and assigning production periods to ensure customer satisfaction. Additionally, this method has been shown to aid in inventory management in order to meet production needs such as speed, dependability, and flexibility (Kallunki, Laitinen and Silvola .2011, Banerjee 2018). Thus, MRP has been linked to operational success by preventing inventory obsolescence, stock outs, and excess stock levels while simultaneously enhancing material flow, customer happiness, and product quality (Oztemel & Gursev, 2020., Musi, Mukulu & Oloko, 2018, Katuu 2020).

Often, a supply chain business's performance is contingent upon the effectiveness of its inventory strategy. Without a solid plan in place, businesses risk running out of goods or

ending up with excess inventory. To improve efficiency and satisfy consumer demand, oil and gas companies should educate themselves on the various inventory options available (Dubois 2016). This indicates that inventory management solutions may be associated with increased efficiency and production. There are two types of inventory management strategies: classical and non-classical. There are three traditional inventory management strategies: Conventional Manufacturing Strategy (CMS), Economic Order Quantity (EOQ), and Economic Production Quantity (EPQ) (EPQ). Material Requirements Planning (MRP), Just-in-Time (JIT), and Hybrid Push-Pull (HPP) or Lean Inventory Systems are non-traditional inventory management strategies. However, one may argue that traditional inventory management practices are being phased out by some industrial organizations due to constraints such as downtime and idle capacity while supplies are replenished, or due to congestion caused by inventory surpluses. The next section covers the performance of the supply chain.

Supply Chain Performance

Organizations are constantly attempting to improve their performance in response to volatile business marketplaces and the necessity to manage their business activities properly. Shin, Benton & Jun, (2009) have become critical components of remaining competitive in global competition and boosting performance (Shin, Benton & Jun, 2009). Most firms have recognized that it is not sufficient to enhance internal efficiency; rather, they have realized that increasing supply chain management competitiveness among competitors will significantly increase their chances of survival.

Hammami, Temponi & Frein (2014) argue that any company organization's development and long-term survival in today's competitive market environment is highly dependent on its capacity to provide value in the form of high-quality products and services that satisfy customers at a relatively low cost (Hammami, Temponi & Frein, 2014). Customers define and patronize what they see as valuable, and this patronage manifests itself in a variety of benefits that can be viewed as the supply chain performance of the organization (Inemek & Matthyssens, 2013). Chain of distribution Performance is defined as a firm's efficacy in attaining its objectives. According to Inemek and Matthyssens (2013), "performance" is a business jargon or concept that is used to determine an organization's wellbeing condition.

The competition is now between supply chains, not between enterprises. Modi and Mabert (2007) define supply chain performance as the difference between an organization's actual output or outcomes and its anticipated outputs (or goals and objectives) targeted at surviving and remaining in business in the face of competition. Numerous academics have identified various characteristics as the main variables that contribute to supply chain performance. The performance of the overall supply chain can be classified into three categories: financial performance, product performance, and operational performance (Inayatullah, 2012; adopted in Inemek & Matthyssens, 2013). As a result, this study focuses on operational supply chain performance metrics.

Supply chain performance refers to an organization's ability to accomplish both market-oriented and financial objectives (Askoy & Ozturk, 2011). The short-term objectives of supplier relationship management are to increase productivity and decrease inventory cycle time, while the long-term objectives are to increase market share and profit for all supply chain members by delivering high-quality products and satisfying customers in an efficient manner (Askoy & Ozturk, 2011). According to Inemek and Matthyssens (2013), supply chain performance is determined by the effectiveness and efficiency of purchasing.

The term "supply chain performance" refers to the degree to which a previously set goal is attained through the selection of a certain course of action. Both financial and non-financial indicators have been used to compare and evaluate enterprises throughout time (Gong, 2008). Shin, Benton, and Jun (2009) define supply chain performance as the extent to which the supplier relationship management function is able to accomplish predefined goals with the fewest possible resources and to the delight of consumers (Shin, Benton, and Jun, 2009).

Defining Performance Parameters for the Supply Chain

According to Waters and Waters (2007), performance measurement of a complete supply chain is critical for managing and improving the supply chain itself. This is especially true in contexts where supply chains are viewed as critical to business success (adopted from Inemek & Matthyssens, 2013). Additionally, performance measurement is critical for supplier relationship management, which is the process of managing supplier evaluation, segmentation, and selection (Pohl & Forstl, 2011).

Successful supply chain performance measurement is contingent upon the adoption of proper metrics capable of encapsulating the supply chain process as a whole. In this regard, performance measurement measures should give information for internal reasons and the purposes of external stakeholders as well as facilitate ongoing organizational improvement. Among these criteria, product quality, customer happiness, and cost reduction have long been considered as critical indicators of a supply chain's efficiency. Thus, the study's supply chain performance measures are product quality, customer happiness, and cost reduction, as proposed by Pohl & Forstl (2011) and Panayides & Venus (2009). The previous section gives an in-depth discussion of supply chain performance metrics.

Product Quality

Due to the intense competition that exists across many industries today, quality has been viewed as an entry-level attribute of the market since companies place a premium on it when making purchase decisions (Lee, Rhee & Cheng, 2013; cited in Hammami, Temponi & Frein, 2014). On this point, we regard quality as a critical component of the market mix that firms can leverage to effectively differentiate their products and services from those of competitors. For example, many large procurement businesses have encouraged their suppliers to enhance their quality management systems and embrace a continuous improvement attitude during the last decades, assisting in the elimination of substandard or non-value-adding items within the organization (Shin, Benton & Jun, 2009).

Quality is a factor that contributes to the value of a product. Shin, Benton, and Jun (2009) describe quality as a collection of features and characteristics that indicate how well a product meets the consumer's needs. According to Araz and Ozkarahan (2007), quality is the sum of a product's or service's qualities and characteristics, particularly in meeting specific inferred or explicit needs. According to Panayides and Venus (2009), quality does not imply goodness but rather adherence to predefined needs or expectations. Panayides and Venus (2009) emphasize further that a definition of quality will never make sense unless it is based on what the client wants; that is, a product is qualitative only if it complies with the customer's needs. The goal of product quality is to meet or exceed consumer expectations through value creation. According to Araz and Ozkarahan (2007), a product that satisfies consumer taste requirements has the potential to become the market leader in its product category. Numerous businesses choose prevention-based approaches to enhance product quality. It is critical that suppliers ensure the quality of their offers (Panayides & Venus, 2009). As a result, product quality is a critical aspect of supply chain performance. In the twenty-first century, providing

high-quality products and services is critical not only for customer satisfaction, but also for maintaining a secure market position. Product quality and availability are essential components of supply chain performance improvement.

Customers Satisfaction

Without a customer, no business can exist. This truism implies that the success of any company or organization is contingent upon the consumer. When a business is just getting started, clients always come "first," followed by profit. If a customer's contentment is earned, the business is certain to function well. Shin, Benton & Jun, 2009). Companies that are successful in completely satisfying their clients will maintain their market leadership position (Shin, Benton & Jun, 2009). Surprisingly, today's enterprises are realizing that customer happiness is critical to the business's performance and, at the same time, plays a critical role in increasing market value. Customers are often defined as those who purchase goods and services from a market or business that suit their needs and desires. Customers acquire things that live up to their expectations (Lee, Rhee & Cheng, 2013).

Customer happiness has long been recognized as a critical component of business success. Customer satisfaction, as defined by Tao (2014) and Hammami, Temponi, and Frein (2014), is an overall evaluation based on the whole purchase and consumption experience with the good or service throughout time. Customer satisfaction in marketing refers to performance exceeding expectations; that is, it ascertains the customer's expectations regarding how goods and services are facilitated by businesses (Vouzaz & Psychogios, 2012). Satisfaction refers to a person's feeling of contentment following the accomplishment of a goal or ambition. Because it is difficult to determine whether customers are satisfied with a business's product or service offering, ensuring customer satisfaction must be a deliberate effort on the part of the organization.

According to Panayides and Venus (2009), satisfying the customer is dynamic and relative due to the client's complexity. Only the concept of "customer-centricity" enables businesses to increase customer happiness and retention. While enhancing customer pleasure, it is necessary to consider client expectations. Customer satisfaction is influenced by specific product or service features and perceptions of quality. Therefore, increased customer satisfaction can result in a variety of benefits for the business, including improved supplier relationships, increased customer repurchases, and increased positive word-of-mouth communication from customers (Tao, 2014). When a customer is satisfied with a company's product or service, the client is more likely to make subsequent purchases and to promote the product or service to other potential customers.

At a glance, customer happiness is critical for corporate strategy, customer retention, and product repurchase; it serves as a barometer for future customer behavior (Caridi, Pero & Sianesi, 2012). Yet, no corporate organization can expand or improve its supply chain performance if it ignores or disregards client needs (Tao, 2014). As a result, enterprises must guarantee that their product or service offerings meet the expectations of their customers. This increases customer happiness and the long-term relationship between the customer and the business, as well as the firm's ability to attract new customers through positive word of mouth (Vouzaz & Psychogios, 2012). Satisfied consumers frequently repurchase. Apart from purchasing more, they act as a network, reaching out to other potential customers through shared experiences. Hence, the value of retaining a client is just one-tenth that of acquiring another (Caridi, Pero & Sianesi, 2012).

Cost Reduction

With increased global competition reducing profit margins for the majority of businesses, cost-saving has become an option and is being concentrated on logistics, which has grown to be the single largest and most significant activity for the majority of organizations, both public and private (Robert, 2016). As a result, these activities consume a sizable percentage of companies' expenditures. Supplier relationships, in particular, are critical for supply chain management. Cost is one of the most fundamental and critical considerations for buyers and businesses.

Any organization's objectives must be achieved at the expense of resources. From a literary standpoint, cost is defined as a resource that is forgone in order to accomplish a given purpose. This can be described in terms of the monetary sum required to obtain goods and services. The word "cost reduction" refers to actual or genuine savings in manufacturing, administration, sales, and distribution costs as a result of the elimination of superfluous and inessential aspects of the product's design and associated procedures and practices (Gong, 2008). When profit margins need to be raised without increasing sales, cutting costs is necessary (Robert, 2016).

The purpose of cost reduction in any organization is to determine whether there is any chance of reducing costs incurred for material, labor, overheads, and so forth. Groves, Collins, Gini, and Ketter (2014) define cost reduction as the achievement of a significant and stable reduction in the unit costs of manufactured items without affecting their fitness for the intended application. A global economy has made low production costs an important way for businesses to compete. Managers must keep cost-cutting at the top of their minds (McWatters, Morse, & Zimmerman, 2001).

According to Gong (2008), cost reduction is a deliberate strategy for reducing expenses. Cost reduction is the constant process of critical analysis of all cost items and all aspects of the business with the goal of increasing business efficiency; cost reduction is a corrective function. Cost reduction is the process of lowering an organization's costs in order to increase profits. It begins when cost control is complete and assumes that no cost is operating at its optimal level. According to Adeniyi (2001) and Gong (2008), cost reduction begins with the presumption that existing or planned costs are excessive, despite the fact that cost control may be effective and the company is operating at a high level of efficiency.

Adeniyi (2000) defines cost reduction as a deliberate action plan adopted by firms in order to reduce the costs associated with doing business (adopted in Gong, 2008). This entails attempting to minimize the cost per unit of goods or services without jeopardizing the intended use of such products. By contrast, it is the process of attaining and maintaining long-term savings without compromising the quantity or quality of products or services given. Adeniyi (2000) stressed the need for corporations to adopt crash programs while preparing for cost reduction.

Adeniyi (2000) defined cost reduction as a process that focuses on existing products, in which costs are reduced by reducing the materials required in production or by employing service delivery methods that do not compromise both quantity and quality. Thus, inventory management costs are reduced by minimizing the costs of stocking, shipping, storing, and delivery. Cost reduction occurs at the unit level, where the accumulation of expenses contributes to the modification of physical features, causing the unit to become increasingly efficient.

Material Requirement Planning and Supply Chain Performance

Materials requirements planning employ computer software applications to manage inventory. MRP applications break down inventory requirements into specific periods to keep production running smoothly while maintaining minimum inventory levels. Designed to answer what is needed, how much is needed and when it is needed, this model works backward from the planned finished product to determine the components and raw materials needed to create it. While costly to implement, MRP systems help managers plan for capacity needs and allocate production times. MRP is what Scutter (2014) and Telsang (2010) also described as Push inventory management strategy. Most companies have a better profit and satisfy customers when inventory managers develop an effective and efficient inventory management strategy such as Just-in Time (JIT).

A survey study of manufacturing companies in Virginia and Tennessee was conducted to evaluate the current use and performance of computer systems to support manufacturing applications by Patrick, Brian and Ralph (1997). The study explores the reasons why organizations chose to use these systems, the problems and benefits derived from the MRP/ERP systems, and the characteristics of the types of companies that have benefited from the use of MRP-type systems. The survey participants evaluated the performance of their manufacturing or enterprise planning systems on the basis of data accuracy, customer satisfaction, user satisfaction, systems effectiveness, convenience, information relevance, and software reliability. Furthermore, success factors associated with organizational performance were tested and evaluated. The correlation between perceived performances was tested against the influence of upper management support, the level of emphasis on training, sources of technical expertise, and organizational experience with MRP-type systems.

According to Dean (2015), no matter what industry, it is advantageous for every manufacturer or supplier to increase sales performance, reduce the cost of selling, and ensure their survival. By evaluating sales performance, managers can make amendments so as to boost sales going forward (Farris *et al*, 2010). Evidence in literature indicates that, sales performance is a combination of sales effectiveness and the aptitude of a company's sales professionals to become effective at each stage of the customer's buying process, and eventually earn the business on the right terms and in the right time period and sales efficiency, the speed at which each task in the sales process is carried out. When this is efficiently executed, it enhances supply chain performance (Farris *et al*, 2010).

Moreover, Farris *et al* (2010), posits that sales performance is not just a sales function issue; it's an organization wide issue, as it necessitates profound cooperation between sales and marketing to appreciate what's working and not working, and how to ensure uninterrupted improvement of knowledge, information, skills, and strategies that sales people must utilize as they encounter sales opportunities. Notably, it is important to state that effective material requirement planning (MRP) has an influence on supply chain performance of oil and Gas firms as it engenders adequate inventory planning that facilitates consistency in the production process. Based on the review of empirical literature, it appears that a relationship exists between material requirements planning and supply chain performance. On the basis of this assertion, the researcher therefore, hypothesizes that;

H01: Material requirements planning significantly relates with supply chain performance of Oil and Gas Firms in Rivers State.

Methodology

The research design adopted for this study is correlation. Correlational research design is a survey method that indicates the magnitude or strength and nature or direction of linear relationship that exists between two or more variables or set of data in a single group of subjects (Kpolovie, Joe & Okoto, 2014 as cited in Akpomi & Kayii, 2021). This study is correlational because the researcher gathered two sets of scores. The study population comprised of two hundred and ninety-three (293) oil and gas servicing firms operating in Rivers State as enlisted in the Nigerian oil and gas industry annual report (2020). The sample size for the study comprised 149 oil and gas firms in Port Harcourt, Rivers state. The sample size was determined using the Taro Yamene formula. Furthermore, the researcher selected one management staff from each of the oil and gas firms operating in Rivers State as respondents for the study hence a total of one hundred and forty nine (149) respondents were used for the study. Categories of persons that constituted the respondents were Operations Managers and Procurement Managers. The 149 copies of questionnaire were used for the data analysis. The validity of the scales used in this study was assessed for content, construct and face validity, the content validity was ensured based on review of similar constructs from major variables of the study- Material requirement planning and supply chain performance of oil and gas firms operating in Port Harcourt, Rivers State Nigeria. In construct validity, the questionnaire used by Telsang (2010), Owuor *et al*, (2015) and especially Farris *et al*, (2010) on the effect of Material requirement planning on the effectiveness of supply chain management in the united Kingdom manufacturing firms was adapted, modified and refined to suit our study. Similarly, the researcher used the Cronbach's Alpha analysis to ascertain the reliability and internal consistency of the measurement instrument while the Pearson Product Moment Correlation (PPMC) was used in testing the relationship between Material Requirement planning and supply chain performance of oil and gas firms in Port Harcourt of Nigeria and the analysis was conducted with the aid of the Statistical Package for Social Sciences (SPSS) version 23.0. Table 1 depicts the instrument reliability values for the study variables

Table 1: Table Depicting Result of the Cronbach Alpha Reliability Test

S/NO	DIMENSION/MEASURES OF THE STUDY	NUMBER OF ITEM	CRONBACH'S ALPHA
1	Material Requirement planning	5	0.85
2	Product Quality	5	0.70
3	Customer Satisfaction	5	0.86
4	Cost Reduction	5	0.78

Statistical Packages for Social Sciences (SPSS) version 23.

Table 1 above shows the reliability values for 4 constructs of the study. Based on the results obtained, all the reliability values were above 0.70 bench mark as posited by Nunally (1974). The result further depicts that the instruments used for the study had sufficient constructs reliability

RESULTS

H_{01} : There is no significant relationship between material requirement planning and supply chain performance oil and gas firms in Rivers State.

Table 2: Relationship between Material Requirement Planning and Supply Chain Performance

		Material Requirement Planning	Product Quality
Material Requirement Planning	Pearson Correlation	1	.761**
	Sig. (2-tailed)		.000
	N	149	149
Product Quality	Pearson Correlation	.761**	1
	Sig. (2-tailed)	.000	
	N	149	149

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

From the result in Table 2 it is observed that there is a correlation coefficient of 0.761** between supplier evaluation and product quality, indicating a very strong and positive relationship between Material Requirement Planning and Supply Chain Performance. More so, the probability value (0.000) is less than the critical value (0.05), this shows that there is a very strong significant relationship between Material Requirement Planning and Supply Chain Performance. This further implies that Material Requirement Planning can be used to achieve Supply Chain Performance among oil and gas firms in Rivers State. Based on this, we reject the null hypothesis and accept that a significant relationship exists between Material Requirement Planning and supply chain performance of oil and gas firms Rivers State.

Discussion of Findings

The analysis of the study revealed a correlation coefficient of 0.761** between Material Requirement Planning and supply chain performance of oil and gas firms Rivers State, indicating a very strong and positive relationship between the study constructs. More so, the probability value (0.000) is less than the critical value (0.05), this shows that there is a very strong significant relationship between Material Requirement Planning and supply chain performance.

This finding agrees with the views of Dean (2015), who posited that no matter what industry, it is advantageous for every manufacturer or supplier to increase sales performance, reduce the cost of selling, and ensure their survival. By evaluating sales performance, managers can make amendments so as to boost sales going forward (Farris *et al*, 2010). Evidence in literature indicates that, sales performance is a combination of sales effectiveness and the aptitude of a company's sales professionals to become effective at each stage of the customer's buying process, and eventually earn the business on the right terms and in the right time period and sales efficiency, the speed at which each task in the sales process is carried out. When this is efficiently executed, it enhances supply chain performance (Farris *et al*, 2010).

More so, Farris *et al* (2010), posits that sales performance is not just a sales function issue; it's an organization wide issue, as it necessitates profound cooperation between sales and marketing to appreciate what's working and not working, and how to ensure uninterrupted improvement of knowledge, information, skills, and strategies that sales people must utilize as they encounter sales opportunities. Notably, it is important to state that effective material requirement planning (MRP) has an influence on supply chain performance of oil and Gas firms as it engenders adequate inventory planning that facilitates consistency in the production process. Based on the review of literature and empirical findings the researcher conclude that material requirements planning affect supply chain performance of oil and gas firms in Port Harcourt.

CONCLUSION

In line with the findings of this study, the researchers conclude that material requirements planning affect supply chain performance of oil and gas firms in Port Harcourt, Rivers state Nigeria. Based on the theoretical and empirical findings, the researcher therefore, recommends that managers of oil and gas firms in Port Harcourt, Rivers state should strategically plan and implement efficient material requirement strategies in order to improve their level of supply chain performance.

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