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INVENTORY MANAGEMENT PRACTICES AND SUPPLY CHAIN PERFORMANCE OF MIDSTREAM OIL AND GAS COMPANIES IN RIVERS STATE

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ABSTRACT
This study focused on inventory management techniques and supply chain performance of midstream oil and gas companies in Rivers State. The study reviewed literatures on inventory management techniques and supply chain performance and anchored the study on the contingency theory. This theory states that organizations adapt their structures to maintain fit with changing contextual factors. Failure to attain a proper fit between structure and environment results in inferior outcomes (typically, the outcomes are some aspects of performance). The study concludes that inventory management techniques positively and significantly relates with supply chain performance of midstream oil and gas firms in River State, and recommends amongst others that, managers of midstream oil and gas companies should position strategically, ABC inventory techniques and vendor managed inventory to their firms' cycle time of delivery and order processing to achieve definitive supply chain performance.

Key Words: Inventory management Techniques, Supply Chain Performance, Vendor Managed Inventory

INTRODUCTION
Characteristically, warehouse optimization ought to be within reach, but, as foresight would have it, this is not the case, as the rising material and operational cost in medical device industry is of concern to many organizations (Mord, Songappenm, Nadarajon & Ibrahim, 2017). Besides, for decades warehouse optimization has been attracting great attention from practitioners, academicians and researchers due to poor performance resulting from nonadherence to proper processes and procedures as noted by Magutu, Njihia & Mose (2013).

In addition, the warehouse departments are faced with the problem of not having enough information about the procedures, their inputs, outputs, resource consumption and results and are therefore unable to determine their efficiency and effectiveness. This problem requires establishment of clear inventory procedures and performance standards. Inventory management techniques when adopted provide the decision-makers in the warehouse department with unbiased and objective information regarding warehouse optimization and how this affects operations in the company. This can be successfully handled by a well packaged inventory management technique.
Besides, the abysmal performance of oil and gas firms can be attributed to inadequate inventory management techniques. An inventory system provides the operating policies and organizational structure for sustaining and regulating goods to be stocked. Inventory is a key determinant of warehouse optimization success in either private or public organizations given that inventory is an asset and an expenditure to hold.
While studies have been conducted to relate inventory control practices with various aspects of warehouse optimization such as financial, economic and operational performance, most of such studies have only focused on manufacturing organizations and chain stores neglecting the oil and gas industry. Moreover, though there were a lot of international and local empirical studies on inventory management technique and warehouse optimization, none of these studies focused on order picking and accumulation/sortation as metrics of warehouse optimization. Likewise, most of these studies have been conducted in other countries with varying contexts of demographics,

economic, political and environmental factors and institutional settings than Nigerian oil and gas sector. Hence their findings couldn't be generalized to the Nigerian midstream oil and gas sector as subject of the study. This study sought to fill this research gap by assessing the influence of inventory management techniques on warehouse optimization of oil and gas companies in Rivers State.

Contingency Theory

In its most rudimentary form, this theory states that organizations adapt their structures to maintain fit with changing contextual factors. Failure to attain a proper fit between structure and environment results in inferior outcomes (typically, the outcomes are some aspects of performance). A contingency research approach rests on two assumptions. First, there is no one best way to organize; Second, the most effective organizational structure should be appropriate for the environmental conditions facing the organization. The major theoretical view on such organizational contingencies is contingency theory (Lawrence &Lorsch, 1967; Thompson, 1967; Woodward, 1958).

Already in the early days of contingency theory, performance was incorporated in the theory. For example, one of its pioneers, Woodward (1965), argued that where the organizational structure fits the organizational technology this caused superior performance compared to those organizations whose organizational structure is in misfit to the technology.

Also, Lawrence and Lorsch (1967), who initiated the term contingency theory, demonstrated that organizations whose structures fitted their environment had higher performance. In Dubin's (1976) terms, the "law of interaction" in contingency theory states that organizational performance depends on the fit between organization context and its structure and process. Many of the principles of contingency theory have permeated other fields of study, such as strategic management, operations management, learning, marketing, and information systems. Central to contingency theory is the concept of fit between structural and environmental characteristics (contingencies) of organizations (Donaldson, 2001).

According to Donaldson (2001), three main elements form the core paradigm of structured contingency theory: (1) there is an association between contingency and the organizational (2) contingency impacts the organizational structure; and (3) there is a fit of some level of the structural variable to a level of the contingency, where a high fit leads to effectiveness and a low fit leads to ineffectiveness. More specifically, Sousa and Voss (2008) state that contingency studies involve three types of variables: (1) contingency variables, which represent the context; (2) response variables, which represent the organizational or managerial actions taken in response to contingency factors, and (3) performance variables, which measure the effectiveness of the organization. Donaldson (2001) emphasizes that effectiveness in contingency theory has a wide-ranging meaning that includes efficiency, profitability, and employee satisfaction. Applying the contingency perspective in our study, we thus propose that the performance of a distribution center is dependent upon the fit between Warehouse Management structure and warehouse context.

As noted above, the fit-performance relationship has been investigated empirically in contingency theory research from the earliest studies onward (Donaldson, 2001). Performance variables in contingency studies are the dependent measures and represent specific aspects of effectiveness that are appropriate to evaluate the fit between structure and context variables for the situation under consideration. In the contingency literature, there is no undisputed way to measure management structure and context of operations. Blackburn (1982) states that given the number of proposed structural dimensions and the variety of their definitions, identifying a definitive set of organizational dimensions or managerial actions is difficult without its specific context and objectives. This implies that each application of contingency theory should thus specify the

structures that fit its contingency, so that fits and misfits are unique to that application (Donaldson, 2001).
Demand Unpredictability refers to a business's immediate environment that is uncontrollable by management and affects business management structure through the predictability of the work to be done. Faber et al. (2013) also decomposed business management structure into three structural dimensions: Planning Extensiveness, Decision Rules Complexity, and Control Sophistication. Planning Extensiveness is related to the time and resources put into preparing tactical plans, such as stock, storage location assignment, transport, and capacity (personnel and equipment) plans. Warehouses draw up tactical plans to make efficient use of resources and to fulfill market demand. Tactical plans define a framework for the operational planning level. Decision Rules Complexity refers to the complexity of operational decisions typically dealing with sequencing, scheduling, and routing of order picking and storage/retrieval operations.

Control is the process of coping with changes to plans and schedules, and Control Sophistication relates to the speed of the feedback and corrective action function of the management system. For the purpose of the current study, we argue that the structural dimensions and context variables developed by Faber et al. (2013) capture structure and context as defined in contingency literature and are therefore appropriate for studying the drivers of warehouse performance.

Contingency theory holds that the effect of business management structure (i.e., levels of Planning Extensiveness, Decision Rules Complexity, and Control Sophistication) on supply chain performance depends on its contingencies (Task Complexity and Demand Unpredictability). Thus, fitting inventory management structure to contingencies leads to higher performance. This implies that when contingencies change, the inventory management structure should also change to fit the new level of the contingencies to avoid loss of supply chain performance.

Inventory Management Practicies
Inventory comprises one of the biggest and most material investments of any retailer or manufacturing business. Sharp inventory management techniques can not only help increase profit, but they can mean the disparity between a business flourishing or scarcely existing. Holding inventories at the lowest possible cost and giving the objectives to guarantee uninterrupted supplies for on-going operations is the aim of inventory management. Inventory is the availability of any stock or resources used in an organization. An inventory system is the deposit of policies that controls and observes inventory level and sets on what level should be sustained, how large orders should be made and when stock should be replenished. Inventory control is the supervision of the storage, supply and accessibility of items to guarantee a sufficient supply devoid of too much oversupply (Miller, 2010).
Inventory management policies as opined by Reid and Sanders (2010) affect all functional areas of a business in that accounting is anxious of the cost implications of inventory; marketing is anxious about how stocking decision affect the level of customer service and information systems trails and controls inventory records.
Inventory Management is well thought-out imperative as it provides tolerable level of customer service (i.e. on-time delivery), permits cost-efficient operations and curtails inventory investment. Egberi and Egberi (2011) delineate that it is not unnecessary to have a fitting deposit of policies regarding the items to carry in inventory, the level of inventory control and management of stocks since it comprises a significant part of current assets of manufacturing companies.

It encompasses the raw materials, component parts, work-in-process, and/or finished products that are held at a location in the supply chain backed by substantial amount of funds committed to them. Hence, the fundamental goal of manufacturing concern is to sustain a level of inventory that will provide optimum stock at lowest cost. Inventory management provides the materials and supplies

required to prop up actual manufacturing or service operations. Inventory replenishment policies guide the master production scheduler when determining which jobs and what quantity should be scheduled. Inventory management policies also affect the layout of the facility. A policy of small lot sizes and recurrent shipments trims down the space needed to store materials while longer throughput times diminish an organization's aptitude to take action swiftly to changing customer demands. Each business thus designs pertinent policy for determining suitable order quantity per period.

Inventory management is first and foremost about spelling out the size and placement of stocked goods. Inventory management is essential at different locations within a facility or within multiple locations of a supply network to shield the normal and planned course of production against the random disturbance of running out of materials or goods. The reach of inventory management also concerns the fine lines between replenishment lead time, carrying costs of inventory, asset management, inventory forecasting, inventory valuation, inventory visibility, future inventory price forecasting, physical inventory, available physical space for inventory, quality management, replenishment, returns and defective goods and demand forecasting.

Balancing these competing requirements leads to optimal inventory levels, which is an on-going process as the business needs shift and react to the wider environment (Ghosh& Kumar, 2003). The foremost objective of inventory management and control is to update managers on how much of a good to re-order, when to reorder the good, how recurrently orders should be placed and what the fitting safety stock is, for curtailing stock-outs (Ogbo, 2011). Thus, the overall goal on inventory is to have what is required, and to curtail the number of times one is out of stock. Lucey (2003) recognized the following reasons for holding inventory.

Supply Chain Performance

Performance is the measurement that organizations have used to identify whether the task or activities are achieving their goals. In short, performance measures the failure and success of all tasks, including productivity and profitability. Agami et al. (2012) believed that performance measurements in SCM can be regarded as an access process as to whether the supply chain companies have increased or lowered. Thus, short network supply performance can be streamlined as an approach to evaluate the performance of the supply chain system. Since the late '90s, performance rating issues at SCM have attracted many researchers and companies around the world (Beamon, 1999).

However, measuring network supply performance is a complicated task, mainly due to the many factors included in the network supply. The study by Gunasekaran et al. (2004) mentioned that SCM plays a big responsibility in gaining a competitive advantage to enhance organizational productivity and profitability. Therefore, it is necessary to have an effective performance measurement. Gunasekaran et al. (2004) added that nowadays, many firms are constantly overlooked in continuous improvement in the supply chain. One of the reasons some businesses cannot succeed in exploiting their supply chain's perspective is failing in the first place to outline performance metrics and indicators. In 1999, Beamon (1999) creates a framework for performance measures in the supply chain, and it includes three types of performance measures of flexibility, resources and output.

However, Ibrahim and Ogunyemi (2012) believed that there is still no single statement among previous researchers regarding the best supply chain performance measures. For example, Jeong & Hong (2007) adopted delivery reliability, responsiveness, flexibility, cost, and efficiency as indicators to measure supply chain performance. Meanwhile, Lee et al. (2007) used cost containment and reliability indicators to perform the same measurement in the same year. Sezen (2008) measured supply chain performance by looking at flexibility, output, and resource performance. Vanichchinchai and Igel (2009) preferred to use the variable of cost, flexibility, relationship, and responsiveness to measure supply chain performance. In line with this literature, researchers decided to adopt three

supply chain performance indicators. Firstly, resource measures related to the efficiency of using resources in network supplies such as cost and inventory levels. Next is production output such as filing rates, timely delivery time, customer response time, and flexibility measures.

CONCLUSION

The study examined inventory management practices and supply chain and supply chain performance of oil and gas companies in Rivers State River States by several estimates, and there is reasonable assurance that new inventory management practices component material has been discovered. Existing research has strongly linked industrial performance, providing the best solution to claim that the so-called variables studied enabled the midstream oil and gas companies mentioned in the study in doing business. The study therefore concludes that, there is a significant relationship between inventory management practices and supply chain performance of midstream oil and gas companies in Rivers State

RECOMMENDATIONS

In line with the observations and conclusions highlighted above, the following recommendations are made:

1. The management of oil and gas companies should maintain or improve inventory management practices that structured their business in line with cycle time of delivery and order processing as part of strategies for effective operation of business in the 21st century.
2. The management of midstream oil and gas companies should acquire the latest technology for their operations to enhance supply chain performance. In this light, the inventory management practices of the firms must be highly ICT compliance to stay competitive and enhance operations efficiency.
3. The management of midstream oil and gas companies should ensure that collaborative awareness supports inter and intra-organizational relationships. Hence, they should employ synergy and collaboration among supply chain partners, and this could enhance all aspects of the business to attain supply chain performance.

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