Relationship between Vendor Managed Inventory and Operational Performance of Stores Function in Commercial State Corporations in Kenya.

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ABSTRACT

Vendor Managed Inventory practices play a major role in the operation of many organizations. These practices help to improve firm’s production scheduling, Information sharing, Stock replenishment and ultimately increase its operational performance. With the reported 46.4% of state corporations making losses, achieving Vision 2030 would be impossible without a critical look into how some of the practices including Vendor Managed Inventory. This study intended to fill this knowledge gap by examining the influence of Vendor Managed Inventory on operational performance of stores function in commercial state corporations in Kenya. The study was anchored on the Network Theory. The target population for the study was 906 Senior Management, Procurement Managers and Inventory Management Officers in the 54 Commercial State Corporations in Kenya. The researcher used the sampling formula recommended by Nassiuma to arrive at 99 sample size. Data collection was done through a structured open and closed ended questionnaire. Before embarking on data collection, the instruments were piloted to ensure they are valid and reliable. The study established significant influence of maintained Vendor Managed Inventory practices on operational performance of stores functions. The study recommendation that Kenyan commercial state enterprises to continue allowing their inventory providers to participate in inventory management. The vendors should synchronize inventory classification with the companies, supply goods based on demand forecasts, and advise on inventory control. These guidelines will help vendors manage inventory to meet store operating requirements for the corporations’ smooth operation. The companies should also create internal vendor-managed inventory management procedures to improve inventory flow and store operations. This can be achieved by corporations giving vendors with replenishment information on agreed timelines and integrating suppliers in product design processes to develop acquired inventories that meet their ultimate goal. Inventory and demand data should be provided to vendors in advance for timely delivery. The organizations should also allow vendors to develop products in time for shop operations. Corporate partners should provide technical support to vendors to achieve quality inventories and store function operations performance.

Key Words: Vendor Managed Inventory, Operational Performance

I.0 INTRODUCTION

1.1 Background of the Study

The significance of supply chain management (SCM) has experienced significant growth within organizations, particularly in relation to Vendor Managed Inventory (VMI). VMI plays a crucial role in SCM, contributing to its overall effectiveness and efficiency. The growth observed in this context can be attributed to the persistent pursuit of improved quality, enhanced operational performance, and ultimately, elevated levels of customer satisfaction (Kolias, Dimelis & Filios, 2011). Supply Chain Management (SCM) is an essential field that focuses on efficiently coordinating and optimizing a wide range of activities within intricate supply chain networks (Mogaka, Njiru, & Arani, 2020). The primary aim of this initiative is to establish and maintain standards and benchmarks that promote the achievement of an optimal balance between the supply of goods and their consumption. The strategic management of resources, information, and products is a critical aspect in which Supply Chain Management (SCM) excels. SCM plays a pivotal role in improving operational efficiency and overall
performance within supply chains. The primary goal of Supply Chain Management (SCM) is to enhance the efficiency and effectiveness of material utilization, thereby resulting in enhanced operational performance for organizations (Nyile, Shale, & Osoro, 2022). Moreover, it is crucial to highlight that the central objective of Supply Chain Management (SCM) is centered on the effective and smooth transmission of precise and relevant information between suppliers and their customers. This process plays a pivotal role in guaranteeing a steady and punctual provision of materials (Ganeshan, Boone & Stenger, 2010).

The success of Supply Chain Management (SCM) is contingent upon the development of certain capabilities by firms. These capabilities encompass various aspects such as the implementation of adaptable organizational structures, the establishment of trustworthy relationships with suppliers, the promotion of collaboration within the supply chain, the enhancement of communication channels to address uncertainties, the strategic outsourcing of non-core competencies, and the proficient management of inventory levels (Ngari, & Namusonge, 2023). By refining and developing these capabilities, organizations have the opportunity to improve their supply chain management practices, thereby increasing the probability of attaining positive results.

The significance of Vendor Managed Inventory (VMI) is of utmost importance, particularly in the realm of store operations, especially when examining the unique circumstances surrounding commercial state corporations (Hugos, 2018). State-owned enterprises (SOEs), which operate in various sectors, possess a distinct position that is accompanied by a set of unique challenges and responsibilities. The imperative of achieving an optimal equilibrium between supply and demand is of utmost importance in the pursuit of success and the realization of public objectives. Demand forecasting has become an indispensable tool that carries significant implications for operational strategies (Naidoo & Gasparatos, 2018).

Commercial state corporations possess a unique accountability framework, as they are responsible to both their shareholders and the wider public. The research conducted by Charles and Onwenga (2018) highlights the significant impact of the interconnectedness between various aspects of operations, such as procurement, inventory management, and customer service, on both the economic stability and public welfare of the nation.

In the regional context, numerous studies have extensively examined inventory management practices, yielding a wide range of findings. In the Nigerian context, a study conducted by Nsikan, Etim, and Imec (2015) examined the inventory management practices specifically within the flour milling firms located in Lagos. This research aimed to critically analyze and evaluate the strategies employed by these firms in managing their inventory. The study conducted by the researchers brought attention to the notable differences in inventory management strategies among different types of firms. Specifically, the findings revealed that medium-sized firms tend to deviate from scientific models in their approach, whereas large manufacturing companies tend to adhere more closely to established practices. These variations in strategies have important implications for the overall effectiveness and efficiency of inventory management in different organizational contexts. This study has identified several noteworthy best practices in inventory management that have proven to be effective in various industries. These practices include just-in-time (JIT) inventory management, Vendor Managed Inventory (VMI), collaborative planning, forecasting and replenishment (CPFR), automatic replenishment, agile systems, and material requirement planning (MRP). These practices have been widely adopted by organizations seeking to optimize their inventory management processes and achieve greater efficiency and cost-effectiveness. By implementing these practices, businesses can enhance their supply chain operations, minimize stockouts and excess inventory, improve customer satisfaction, and ultimately drive profitability.

In a study conducted by Mulumba (2016) in Kenya, an investigation was undertaken to explore the correlation between inventory management practices and the financial performance of manufacturing firms. The findings of the study indicate that various approaches, such as the net transaction approach, just-in-time, and vendor-managed inventory (VMI), have a substantial impact on financial performance. It is worth mentioning that the net transactions approach has been widely recognized for its emphasis on resource planning in order to improve operational performance. The implementation of Just-in-Time (JIT) methodology has proven to be effective in reducing production costs. Additionally, Vendor-Managed Inventory (VMI) has demonstrated its ability to optimize inventory management in agrochemical firms through the use of contractual agreements. These approaches have shown great potential in enhancing the overall efficiency and effectiveness of operations in the agrochemical industry.

The study conducted by Ochere, Adzimah, and Aikens (2016) in Ghana aimed to evaluate the inventory management practices implemented by various companies. The researchers discovered that these practices were hindered by the presence of lengthy lead times, primarily caused by bureaucratic ordering procedures. The study found that the companies examined demonstrated commendable inventory management practices.
and internal controls. However, it is recommended that these companies implement pragmatic measures and adopt efficient inventory management software to further enhance their operational efficiency.

In the context of Vendor Managed Inventory (VMI) and supply chain management (SCM), plays a crucial role, especially within the unique context of commercial state corporations. The significance of supply chain management (SCM) and the need for effective inventory management practices, such as vendor-managed inventory (VMI), are underscored by the interconnectedness of their operations with broader public objectives. By optimizing operational performance through sound inventory management, organizations can achieve their overarching goals. The insights derived from regional studies provide valuable illumination on the crucial significance of efficient inventory management practices in fostering operational excellence within organizations.

1.2 Statement of the Problem

Inventories held by an organization take on an even more critical role as they form the foundation of an efficient and cost-effective supply chain. Within commercial state corporations, where vast sums of capital are invested in materials and resources, the implementation of a robust material management system is of paramount importance. Johnson, Leenders, and Flynn (2011) emphasize the significance of effective stock management within this context. Inadequate inventory management practices can have dire consequences on the profitability and overall performance of these organizations. As Johnson et al. (2011) note, the inability to control both the physical location of products or raw materials and their corresponding records can lead to inaccuracies in inventory, potentially resulting in financial losses and operational disruptions.

To address these challenges, it is imperative for commercial state corporations to establish a comprehensive stores management system built upon a suite of inventory control mechanisms. Among these mechanisms, Vendor Managed Inventory (VMI) stands out as a strategic approach to inventory management. VMI involves a collaborative partnership between suppliers and organizations, where suppliers take on the responsibility of managing inventory levels at the customer's location. This approach not only enhances inventory accuracy but also streamlines the procurement process, reduces holding costs, and minimizes the risk of stockouts.

However, despite the potential benefits of VMI and other inventory control mechanisms, the lack of effective control in procurement systems can go unnoticed, leading to inefficiencies and financial losses (Johnson & Flynn, 2015). In fact, inventory control expenses can account for a substantial portion of total expenses for commercial state corporations, ranging from 45% to 90% (Score, 2014). These inefficiencies in inventory management have, in part, contributed to the overall inefficiency and non-profitability of commercial state corporations (McCrudden, 2014).

The primary objective of inventory management, particularly within the unique context of commercial state corporations, is to strike a delicate balance between maintaining an adequate stock level to meet demand while minimizing holding, administrative, and stock out costs. This becomes even more crucial in Kenya, where the central government allocates a significant portion of its budget to procurement, with the annual losses attributed to inflated procurement quotations amounting to billions of Kenyan shillings (KISM, 2010).

A striking example of the financial stakes involved is illustrated by KenGen, where inventory management is an integral component of its supply chain operations. Stocks represent a substantial share of the company's assets, amounting to approximately Kenya Shillings 4.9 Billion (GoK, 2016). Nonetheless, despite the considerable budgetary support from the national government, a staggering 46.4% of state corporations reported deficits in the financial year 2016/2017 (GoK, 2017). The choice to focus on Commercial State Corporations in Kenya for this study arises from the prevalent deficits that many of these organizations face, often running into millions or even billions of shillings.

For instance, East African Portland Cement, Postal Corporation of Kenya, Kenyatta National Hospital, Kenya Civil Aviation Authority, Kenya Wildlife Services, National Environmental Management Authority, Kenya Broadcasting Corporation, National Oil Corporation, Kenya Film Classification Board, Kenya National Museums of Kenya, Kenya Safari Lodges and Hotels, among others, reported significant deficits. These financial setbacks can be partly attributed to suboptimal inventory management practices within these corporations.

Local studies, including those conducted by Mulumba (2016), Munyao et al. (2015), and Kimaiyo and Ochiri (2014), emphasize the critical role that sound inventory management practices play in providing accurate information to decision-makers within firms, facilitating informed and effective decision-making. Despite the Kenyan government's efforts to monitor demand patterns and ensure inventory accuracy through the Integrated Financial Management Information System (IFMIS), challenges persist within the stores function.

Ondiek and Odera (2012) investigated inventory management's impact on customer service levels in the National Health Insurance Fund (NHIF) and found a positive correlation between inventory management practices and customer satisfaction, primarily driven by a reduction in stock-outs. Gitau (2016), in contrast, delved into the impact of inventory management practices on the productivity of Commercial Parastatals in...
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Kenya. However, none of these studies explored the effect of inventory management practices on the operational performance of Commercial State Corporations in Kenya, a gap that this current study aims to fill. The relationship between Vendor Managed Inventory (VMI) and the operational performance of commercial state corporations warrants further investigation, especially in light of the reported deficits. To achieve the goals outlined in Vision 2030, it is imperative to scrutinize practices such as Vendor Managed Inventory (VMI) and their influence on the operational performance of these organizations. This study thus seeks to bridge this knowledge gap by examining the intricate interplay between Vendor Managed Inventory (VMI) and the operational performance of the stores function in commercial state corporations within Kenya.

1.3 Objectives of the Study
The general objective of this study was to examine the relationship between vendors managed inventory and operational performance of stores function in commercial state corporations in Kenya.

1.4 Research Hypotheses
H0: Vendor managed inventory has no significant relationship with operational performance of stores function in commercial state corporations in Kenya.

1.5 Scope of the Study
The study analyzed the relationship between Vendor managed inventory and operational performance of stores function in commercial state corporations in Kenya. The study was based on the following Network Theory. The study was conducted in the 54 commercial state corporations in Kenya and will be targeting 906 employees working in the Commercial State Corporations in Kenya. The study used sampling formula recommended by Nassiuma (2000) to arrive at 99 employees who formed the sample size. The study will also cover vendor managed inventory. The dependent variable of the study was operational performance of stores function in commercial state corporations in Kenya measured in terms of delivery time, delivery cost and inventory carrying cost. The study was undertaken December 2020 with an estimated budget of Ksh 180,000.

LITERATURE REVIEW

2.1 Theoretical Review
A theoretical framework refers to the manner in which the researcher develops thoughts on what the possible answers could be and these thoughts and theories are then clustered into themes that frame the subject. Different theories have been employed to help bring out clarity to the study of the effects of Vendor managed inventory on performance of operational performance of stores function in state corporations. The study was based on the following theory Network Theory, to build on the critical concerns on relationship between Vendor managed inventory and operational performance of stores function in commercial state corporations in Kenya.

2.1.1 Network Theory
The main proponents of Network Theory are Katz, Lazer, Arrow, & Contractor (2004). The Network Theory is one of the theories that emphasize on the importance of maintaining downstream and upstream relationships for the optimization of value within organizations. The theory explains that for an organization to succeed, it must establish a network with other firms to increase its value and operation (Katz, Lazer, Arrow, & Contractor, 2004). The theory suggests organization networking with other firms will give them an advantage of each company complementing each other especially in area where one company lacks capacity which is available in the other. The Network Theory explains that firms within a network interact with other companies by exchanging resources and adapting new processes that result to added value for these companies (Daastol & Stensrud, 2016).

However, firms need to build mutual trust and openness with each other for successful performances (Katz 2014). For firms to from a strong network they must have shared interests, different resource and effective two-way communication. The Network Theory will be useful in terms of providing concepts for measuring the relationship that exists between the stores function in commercial state corporations in Kenya and suppliers of the inventory from the stores. The theory suggests that for stores function in commercial state corporations in Kenya to establish a working relationship with suppliers there must be mutual trust, shared interest, differing resources, two-way symmetrical communication, and cognitive ties, this theory supports the variable of strategic partnership since for an organization to succeed it requires that network or strong chain of supply chain partners. This theory therefore will be the basis of examine the influence of vendor managed inventory on operational performance of stores function in commercial state corporations in Kenya.
Vendor Managed inventory
- Information sharing
- Stock replenishment
- Timely Replenishment

Operational Performance
- Cost efficiency
- Production turnaround time
- Customers satisfaction

2.3 Review of Literature on Study Variables

2.3.1 Vendor Managed Inventory
Vendor managed inventory is a collaborative strategy between a customer and a supplier to optimize the availability of products at a minimal cost to the two firms. The supplier takes the responsibility for the operational management of the inventory within a mutually agreed framework of performance targets which are constantly monitored and updated to create an environment of continuous improvement. VMI is where the manufacturer is given the responsibility for monitoring and controlling inventory levels at the retailer’s distribution center and in some instances, at the retail store as well. Specific inventory targets are agreed and it is the responsibility of the manufacturer to ensure that suitable inventory is always available. Ordinarily, the store controls its own stocks, and orders more from a wholesaler when it wants them (Cocker, Jessop & Morrison, 2012).

Vendor managed systems contracting, or stockless buying is more sophisticated and merging of the ordering and inventory function than blanket. With vendor managed inventory, the supplier controls the stocks, and sends more along when they are needed. The benefits of such arrangements are that the supplier can co-ordinate stocks over a wider area, use optimal inventory policies, organize transport more efficiently, increase integration in the supply chain, collect more information about demand patterns, and give a consistent customer service. Such arrangements depend on accurate and timely, and suitable computerized systems have become available in recent years. The main advantage for retailers lies in the reduction of operating costs and also the delay in payment for the products in question. For manufacturers, it is suggested that running a VMI system for a retailer provides the opportunity to develop a much closer, and hopefully more binding relationship with the retailer as well as giving a much better visibility of real demand. This can make the planning of production much easier and can lead to significant reductions in inventory holding right through the supply chain (Rushton, Croucher, & Baker, 2013).

Further, according to Flynn and Johnson (2015) with VMI systems, the supplier is responsible for maintaining the buying organization’s inventory levels. The supplier has access to inventory and generates purchase orders. Typically, the supplier manages the buyer’s inventory at the buyer’s location. The supplier pulls stock, packs, ships and invoices. This procedure reduces cycle time by reducing the number of people/functions touching the process. These systems are tools do managing small orders. VMI may also be used for consignment inventory wherein payment is made after inventory is used. According to Rushton, Croucher and Baker (2013) where VMI is used, the vendor takes responsibility for the inventory held in the client’s premises. The vendor monitors inventory levels and organizes replenishment. Ownership of the inventory passes to the client when inventory is utilized. For VMI to be effective, the management of information is crucial.

According to Rushton et al., (2013), the main advantage of VMI is that the level of overall inventory in the client’s warehouse can be reduced. The vendor is able to schedule deliveries efficiently, as it has better visibility of the client’s requirements and it can incorporate these requirements at an early stage into its production schedules. For the process to work, there need to be high levels of trust between the two partners. This often derived from the cultural compatibility of the companies involved. Where the client retains an element of involvement in managing the vendor’s inventory, this is referred to as co-managed inventory. The decision to place a certain volume of business with a supplier should always be placed on a sound set of criteria. When purchasing decisions are largely viewed as operational rather than strategic, the analysis of the supplier’s ability to meet quality, quantity, delivery, price/cost and service objectives are governed the supplier selection decision. Some of the most important supplier attributes related to these prime criteria may include past history, facilities and technical strength, financial status, organizational and management, reputation, systems, procedural compliance, communications, labor relations and location.

According to Johnson and Flynn, (2015); it is important to consider the selection decision as part of a chain of events, rather than as an isolated instance. Supply chain must be able to manage effectively information flows
both internal and external partners in the supply chain. Information systems enable the efficient flow of information and support effective decision making including supplier pricing, market conditions, deliveries, etc. In the multi-agent supply network, control, transparency and visibility are the key issues to be managed. They directly affect the cooperative efforts between agents and the principal, and, if deteriorated, they will drive the agent’s relationships to becoming an agency relationship. These factors can be managed through mitigating risk, building trust between agents and aligning goals. If those factors are managed, the expected benefit will be an improved overall performance. Trust or confidence in each other’s voluntary contribution in business relationships is often claimed to have a positive association with improved communication and information exchange. By comparison, lack of transparency in decision making processes and poor communication and information sharing, particularly when there is goal conflict (either deliberate or by default), can breed mutual distrust and loss of confidence in supply chain relationships, leading to politically motivated be (Stock and Lambert, 2001).

2.3.2 Operational Performance of Stores Functions

Operational performance is the measurable aspect of an organization’s process. It most encompasses production reliability and defect rates, production cycle time, on time delivery, cost of quality and scrap minimization, productivity, and inventory. Inayatullah et al., (2012) points out that overall organizational performance can be divided into three parts: financial performance, product performance, and operational performance. Operational performance includes: product/service quality, lead time/service completion time, product development time, utilization of resources, responsiveness to customer demand, and operational costs. Different organizations develop different metrics for measuring their business performance. Operation performance of stores function contributes immensely towards entire organization performance by holding issuing stocks as well as the control of all inventories making it possible for quality control measures to be carried out by competent staff efficient inventory management.

Operation performance of stores function can be measured through various indicators such as: quality production, productivity efficiency, costs efficiency, production time efficiency and through put. According to Ondieki and Kismombo (2012) factory time efficiency in the context of the sugar industries in Kenya is the index that measures the ability of a factory to sustain operations throughout the year without interruptions. This is the time taken from when customers make an order to the time they receive their order. According to Birech, (2011), standard individual performance measures include: productivity measures, quality measures, inventory measures, lead-time measures, preventive maintenance, performance to schedule, and utilization leading to customers’ satisfaction. The current study adopted the approach proposed by Birech (2011) in measuring operational performance in commercial state corporations.

2.5 Empirical Review for Relationship between vendors managed inventory and operational performance

According to Otundo and Bichanga (2015) in the study on the effects of inventory management practices on operational performance of Kisi County government, Kenya, inventory management remains a significant challenge for county governments in relation to timely provision of high quality service to the public. They noted that despite all the efforts by the central government and County governments in Kenya still inadequacies are observed in the operational performance among counties. The study adopted a case study design with a sample size of 38 respondents. A structured questionnaire was used for collecting primary and secondary data was collected from both published and unpublished certified reports. Data collected was analyzed using descriptive statistics. The study established that supply dependability affect operational performance to a moderate extent 44.7%, effects of inventory categorization in terms of inventory for customer service is rated as the most influential on operational performance and free flow of order fulfillment of supplies, reduced inventories and timely replenishment of inventory to user departments influenced operational performance. They recommend monitoring of demand forecasting of inventory for efficient operational performance and service delivery to the general public. The study was carried out in county government sector as opposed to Commercial State Corporations in Kenya, a literature gap that the current study will fill by analyzing the influence of vendor managed inventory on operational performance of stores function in commercial state corporations in Kenya.

Migwi and Kwasira (2016) studied the success factors for the implementation of vendor managed inventory systems in retail supermarkets in Nakuru Town, Kenya. This study aimed at examining the effect of supplier relationship on successful implementation of VMI. Target population was employees of procurement departments of ten retail supermarkets in Nakuru town. A census of all the procurement employees in the retail supermarkets was undertaken. The study utilized descriptive design. Data was collected using structured questionnaires and analyzed using both descriptive (measures of central tendencies) and inferential statistical techniques (Pearson correlation). Analysis was done using Statistical Package for Social Sciences (SPSS) version 24. The study established that supplier relationship was significant in determining the success of VMI implementation.
Maina and Were (2018) studied the influence of vendor managed inventory on performance of retail outlets in Kenya, a case of Tuskys supermarket limited. The main objective of the study was to investigate the influence of vendor managed inventory on performance of retail outlets in Kenya with specific reference to Tuskys supermarkets Limited. The study reviewed relevant design with survey of a total of 400 employees working at Tuskys supermarket headquarters offices situated in Nairobi. The employees were selected from; supply chain management department, focusing on top management, middle level management and junior staff. The study adopted a descriptive research design, with stratified random sampling technique to select a sample size of 80 respondents. Questionnaires were used as the main data collection instruments and a pilot study were conducted to pre-test questionnaires for validity and reliability. Data were analyzed using descriptive statistics and inferential statistics. This was done by the use of SPSS Version 23. The findings indicated that Information sharing, Strategic Partnerships information communication technology and Inventory control limits shared a variation of 52.8% of performance of retail outlets.

Muyundo (2018) carried out a study on the effect of inventory management practices and organizational performance of the Cement manufacturing Firms in Kenya. The target population comprised of 6 cement manufacturing firms in Kenya. A census was used with the 35 respondents. The study established that the firm used Vendor Managed Inventory to allow flexibility of the customers demand. Just-in-Time, ABC analysis, Fixed order quantity and Vendor managed inventory all had positive and significant relationship with organizational performance. The study concludes that most cement manufacturing firms used JIT to reduce the stock and the carrying cost associated in the firm. The firm only stored what was being required in the production process. The firm used ABC analysis to assess the status of the items in the stocks. The firm used FOQ to ensure that there was an efficient and effective level of inventory in the firm. The firm used Vendor Managed Inventory to allow flexibility of the customers demand. The study recommends that cement manufacturing firms in Kenya should use JIT to reduce the stock and the carrying cost associated in the firm. All the cement manufacturing firms in Kenya should adopt JIT, ABC Analysis, Fixed Order Quantity and Vendor managed inventory systems in managing of inventories. This study did not analyze the influence of material categorization on operational performance, a research gap that the current study will fill by assess the influence of material categorization on operational performance of stores function in commercial state corporations in Kenya.

Ahmad and Zabri (2016) sought to establish the effect of the inventory management practices and operational performance of the micro retailing enterprises in Malaysia. The researcher administered the questionnaires to the 100 micro retailing enterprises and was able to receive all the 100-questionnaire translating to a response rate of 100%. The results from the analysis of the data established that most of the micro retailing enterprises has employed both the unsystematic and unsystematic inventory management approaches in the operation of their businesses. Although, it was established that only 33% of the micro retailing enterprises have adopted the systematic inventory control models, which include the EOQ models, Vendor Managed Inventory (VMI) and Bar Code Tagging. It was further established that the systematic control models were an effective inventory control practices that influences the operational performance of the micro retailing enterprises, for it led in the reduction of the operational cost, increased flexibility, enhanced customer service delivery and the increased profitability. This study did not analyze the influence of Vendor Managed Inventory (VMI) on operational performance, a research gap that the current study will fill by assess the influence of Vendor Managed Inventory (VMI) on operational performance of stores function in commercial state corporations in Kenya.

2.6 Research Gap

Different gaps have emerged from the existing studies on the vendor managed inventory on and performance. For instance, Otundo and Bichanga (2015) noted that despite all the efforts by the central government and County governments in Kenya still inadequacies are observed in the operational performance among counties. The study established that supply dependability affect operational performance to a moderate extent 44.7%, effects of inventory categorization in terms of inventory for customer service is rated as the most influential on operational performance and free flow of order fulfillment of supplies, reduced inventories and timely replenishment of inventory to user departments influenced operational performance. They recommend monitoring of demand forecasting of inventory for efficient operational performance and service delivery to the general public. The importance of commercial state corporations to the economy and in meeting Vision 2030 cannot be understated and thus a critical analysis of factors influencing their operational performance including inventory management practices is paramount. All these studies however did not focus on commercial state corporations which receive substantial funding from the national government. Similarly, there is little or no evidence showing investigations on the link between vendor managed inventory on operational performance. Furthermore, a number of these studies are case studies which may not be used to generalize across different sectors. Furthermore, none of these studies have factored in the intervening role of
the regulatory framework on the relationship between vendor managed inventory and various performance outcomes. The present study will therefore seek to fill this knowledge gap.

3.0 METHODOLOGY OF THE STUDY

The research philosophy encompasses a collection of underlying ideas that inform the strategy and methodologies employed in a study, with a particular emphasis on positivism. The study adopted cross-sectional survey research design, which has been selected due to its capacity to assess the present condition of the research participants. The study targets a total of 906 employees working in the 54 Commercial State Corporations in Kenya which was the unit of analysis for the study. The sampling frame encompasses the personnel affiliated with the aforementioned firms, with a sample size of 99 being established by the use of statistical methodologies. The data gathering devices utilized in this study comprise of questionnaires that encompass both structured and open-ended inquiries. The process of data collection entails acquiring necessary research licenses and distributing self-administered questionnaires to the selected employees. The process of data analysis encompasses the utilization of both descriptive and inferential statistical techniques to investigate the associations between inventory management strategies and operational performance. Linear regression and hierarchical regression models are employed to examine and evaluate these associations. Furthermore, the moderating influence of the competence of inventory management personnel is taken into account. The assessment of goodness of fit in regression models is typically performed using analysis of variance (ANOVA).

4.0 RESULTS AND DISCUSSIONS

4.1 Descriptive statistics on Vendor Managed Inventory

This section presents the findings of the descriptive statistics on vendor managed inventory practice of the corporations. The major variables analyzed include; the corporations provide the vendors with information necessary for replenishment, the vendors replenish the stocks according to agreed timelines, the corporations also involves their suppliers in product design processes, their vendors are often given access to their inventory and demand information, the corporations provide the vendors with opportunities to improve the products to be supplied and the corporations shares information and where possible they provide technical support to their vendors.

Table 4.1: Descriptive statistics on Vendor Managed Inventory

<table>
<thead>
<tr>
<th>Vendor managed inventory</th>
<th>SD (%)</th>
<th>D (%)</th>
<th>U (%)</th>
<th>A (%)</th>
<th>SA (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vendors given adequate information</td>
<td>2</td>
<td>7</td>
<td>6</td>
<td>60</td>
<td>25</td>
</tr>
<tr>
<td>Vendors replenish stock according</td>
<td>4</td>
<td>10</td>
<td>7</td>
<td>52</td>
<td>27</td>
</tr>
<tr>
<td>Suppliers are involved in product design</td>
<td>5</td>
<td>14</td>
<td>12</td>
<td>47</td>
<td>22</td>
</tr>
<tr>
<td>Vendors accessible to demand forecast</td>
<td>3</td>
<td>6</td>
<td>19</td>
<td>43</td>
<td>29</td>
</tr>
<tr>
<td>Vendors given opportunity to improve products</td>
<td>4</td>
<td>6</td>
<td>9</td>
<td>53</td>
<td>28</td>
</tr>
<tr>
<td>Technical support given to vendors</td>
<td>13</td>
<td>7</td>
<td>17</td>
<td>42</td>
<td>21</td>
</tr>
</tbody>
</table>

The results from table 4.10 on descriptive statistics on Vendor managed inventory reveal that majority of the respondents 84% agreed that the corporations provided vendors with adequate information necessary for replenishment compared to 9% who disagreed and 6% who were undecided. The findings on whether the vendors replenish stocks according to agreed timelines observed that majority of the respondents 79% agreed on replenishment of stock according to agreed timelines compared to 14% who disagreed and 7% who were undecided. Further findings on whether the suppliers are involved in product design processes reveal that majority of the respondents 69% agreed that the suppliers are involved in product design processes compared to 19% who disagreed and 9% who were undecided. This finding is supported by Otundo and Bichanga (2015) in the study on the effects of inventory management practices on operational performance of Kisii County government, Kenya and found that supply dependability affect operational performance to a moderate extent 44.7%, effects of inventory categorization in terms of inventory for customer service is rated as the most influential on operational performance and free flow of order fulfillment of supplies, reduced inventories and timely replenishment of inventory to user departments influenced operational performance. In determining whether vendors are given access to their inventory and demand information, majority of the respondents 72% agreed that they are given access to inventory and demand information compared to 9% who disagreed and 19% who were undecided. Findings on opportunities to improve products to be supplied ascertain that majority of the respondents 81% agreed on the corporations providing the vendors with opportunities to
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improve the products to be supplied compared to 10% who disagreed and 9% who were undecided. Finally, findings on technical support given to vendors reveal that majority of the respondents 63% agreed that the corporations shares information and where possible they provide technical support to their vendors compared to 20% who disagreed and 17 who were undecided.

The fourth objective of the study was to examine the influence of vendor managed inventory on operational performance of stores function in commercial state corporations in Kenya. Based on descriptive statistics the study established that Vendor Managed Inventory influenced the operations within the state corporations in Kenya. This is based on the evidence that: the corporations provide the vendors with information necessary for replenishment, the vendors replenish the stocks according to agreed timelines, the corporations also involves their suppliers in product design processes, the vendors are often given access to inventory and demand information, the corporations provide vendors with opportunities to improve the products to be supplied, the corporations shares information and where possible they provide technical support to their vendors.

4.2 Inferential Statistics

4.2.1 Regression Statistics of Relationship between Vendor Managed Inventory and Operational Performance of Stores Function in Commercial State Corporations in Kenya.

The correlation coefficient, denoted as "R", is a statistical metric that quantifies the degree and direction of the linear association between the dependent variable and the predictor(s). In the present scenario, the observed value is ".783a." The findings indicate the presence of a reasonably robust positive linear correlation between the dependent variable, which pertains to the operational performance of stores function in commercial state corporations in Kenya, and the predictor variables. In this particular study, the predictor variables consist of a constant term and the implementation of Vendor Managed Inventory.

The coefficient of determination, also referred to as R-squared, is a statistical metric used to assess the extent to which the independent variables, also known as predictors, account for the variation observed in the dependent variable. A coefficient of determination (R²) equal to 1 signifies that the model accounts for the entirety of the variance observed in the dependent variable, whereas a R² value of 0 shows that the model does not account for any of the observed variance. The R² value obtained is 0.612, indicating that around 61.2% of the variance in operational performance can be accounted for by the predictor(s) included in the model. This metric has resemblance to R², however, it incorporates the number of predictors present in the model and makes appropriate adjustments accordingly. The inclusion of superfluous predictors is subject to penalties. The modified R² value of 0.587 suggests that, when accounting for the number of predictors, roughly 58.7% of the variation in operational performance can be accounted for by the predictors included in this model. The quantity being referred to is the standard error of the residuals, which quantifies the average discrepancy between the observed values and the anticipated values inside the model. A smaller numerical value signifies a stronger degree of alignment. In this instance, the standard error of the estimate is calculated to be approximately 0.48762 units. This implies that, on average, the projected values inside the model deviate by approximately 0.48762 units from the actual values.

Table 4.2 : Regression Statistics of Relationship between Vendor Managed Inventory and Operational Performance of Stores Function in Commercial State Corporations in Kenya.

<table>
<thead>
<tr>
<th>Model Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
</tr>
<tr>
<td>-------</td>
</tr>
<tr>
<td>1</td>
</tr>
</tbody>
</table>

a. Dependent Variable: Operational Performance of Stores Function in Commercial State Corporations in Kenya
b. Predictors: (Constant: Vendor Managed Inventory

4.2.2 ANOVA of Relationship between Vendor Managed Inventory and Operational Performance of Stores Function in Commercial State Corporations in Kenya.

In the "Regression" component, the sum of squares is 34.562. This metric quantifies the extent to which the regression model accounts for the overall variability in the data. The sum of squares for the "Residual" component is 21.875. This word denotes the unexplained variability or the residual term in the model, which encompasses the variability that is not explained by the predictors. The row labeled "Total" displays the sum of squares for the complete dataset, which amounts to 56.437. The quantity in question is the summation of the squared deviations between the observed data points and the mean value of the entire dataset. The concept of degrees of freedom pertains to the quantity of independent values within a statistical computation that possess the ability to fluctuate. The "Regression" component is associated with 1 degrees of freedom, which aligns with
the number of predictors, including the constant. The "Residual" component of the analysis possesses 97 degrees of freedom, which is determined by subtracting the number of predictors from the total number of data. The row labeled "Total" conventionally displays the aggregate degrees of freedom for the complete dataset, which, in this particular instance, amounts to 98. The calculation involves dividing the sum of squares by the degrees of freedom. In the "Regression" component, the mean square is 34.562. The mean square for the "Residual" component is 0.238. The F-statistic serves as a statistical measure employed to ascertain whether the variance accounted for by the regression model is significantly larger than the variance that remains unexplained. A larger F-statistic indicates that the model exhibits a strong degree of fit to the observed data. In the present scenario, the F-statistic value for the "Regression" component is 24.225. This column presents the p-value that is linked to the F-statistic. The F-statistic provides information regarding the statistical significance of a given variable. A p-value that is below the conventional threshold of 0.05 is indicative of statistical significance in the regression model. The p-value associated with the "Regression" component is ".000," indicating a statistically significant relationship. The p-value is extremely near to zero, suggesting strong evidence against the null hypothesis. This finding suggests that the regression model exhibits statistical significance.

Table 4.2 : ANOVA of Relationship between Vendor Managed Inventory and Operational Performance of Stores Function in Commercial State Corporations in Kenya.

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>34.562</td>
<td>1</td>
<td>34.562</td>
<td>152.9292</td>
<td>.000b</td>
</tr>
<tr>
<td>Residual</td>
<td>21.875</td>
<td>97</td>
<td>.226</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>56.437</td>
<td>98</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. Dependent Variable: Operational Performance of Stores Function  
b. Predictors: (Constant), Vendor Managed Inventory

4.2.3 Coefficients of Relationship between Vendor Managed Inventory and Operational Performance of Stores Function in Commercial State Corporations in Kenya

The unstandardized coefficients (B) represent the coefficients that correspond to each predictor variable in the regression equation. The coefficients signify the anticipated alteration in the reliant variable for a single-unit modification in the predictor variable, while keeping all other variables same. The unstandardized coefficient (B) for the "Constant" (intercept) term is 1.997. The aforementioned number denotes the estimated value of the dependent variable when all predictor variables are assigned a value of zero. The predictor "Vendor Managed Inventory" exhibits an unstandardized coefficient (B) of 0.470. This finding indicates that there is a positive relationship between the Vendor Managed Inventory variable and the operational performance of stores function, with an estimated rise of 0.470 units for every one-unit increase in the previous variable. Standardized coefficients, also known as Beta coefficients, are valuable in assessing the relative significance of various predictors within a model. This is due to their scaling, which ensures a uniform unit of measurement for comparison purposes. The provided information denotes the extent to which the dependent variable is anticipated to vary in terms of standard deviations for every one-standard-deviation alteration in the predictor variable.

The standardized coefficient (Beta) for the "Vendor Managed Inventory" prediction is 0.789. This finding indicates that a one-standard-deviation rise in Vendor Managed Inventory is correlated with a 0.789 standard deviation increase in the operational performance of stores function. This predictor offers insight into the degree of significance it holds in elucidating the variability observed in the dependent variable. The t-value (t) is a statistical measure used in hypothesis testing to determine the significance of the difference between sample means. The t-value represents the number of standard errors by which the coefficient estimate deviates from zero. Greater statistical significance is shown by larger absolute t-values. The t-value for the "Constant" term is 7.681, suggesting a substantial magnitude and indicating that the intercept considerably deviates from zero. The predictor "Vendor Managed Inventory" exhibits a t-value of 8.946, which suggests a high level of statistical significance. The significance column, denoted as "Sig.", presents the p-value corresponding to each coefficient. A p-value that is tiny, usually below 0.05, indicates statistical significance for the coefficient.
The p-values for the coefficients of both the "Constant" and "Vendor Managed Inventory" variables in this table are recorded as ".000," indicating a high level of statistical significance for both variables.

### Table 4.3 Coefficients of Relationship between Vendor Managed Inventory and Operational Performance of Stores Function in Commercial State Corporations in Kenya

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td>1.997</td>
<td>.260</td>
<td>7.681</td>
<td>.000</td>
</tr>
<tr>
<td>Vendor Managed Inventory</td>
<td>.470</td>
<td>.053</td>
<td>.789</td>
<td>8.946</td>
</tr>
</tbody>
</table>

a. Dependent Variable: Operational_Performance_of_Stores_Function

### Conclusions and Recommendations

#### 5.1 Conclusions Of the Study

Based on descriptive statistics the study established that Vendor Managed Inventory influenced the operations within the state corporations in Kenya. This was based on the evidence that; the corporations provided the vendors with information necessary for replenishment, the vendors replenished the stocks according to agreed timelines, the corporations also involved their suppliers in product design processes, the vendors were often given access to inventory and demand information, the corporations provided vendors with opportunities to improve the products to be supplied, the corporations shared information and where possible they provided technical support to their vendors had enhanced operations of the stores functions in commercial state corporations in Kenya. Vendor Managed Inventory has no significant relationship with operational performance of stores function in commercial state corporations in Kenya was rejected; therefore, the study concludes that Vendor Managed Inventory had a significant influence on operations performance of stores function in commercial state corporations in Kenya.

#### 5.2 Recommendations of the Study

Vendor managed inventory had a strong positive significant relationship with operational performance of stores function in commercial state corporations in Kenya. The study recommends that commercial state corporations in Kenya should continue in empowering the vendors who supply inventory of the operations of the corporations to continue to be part and parcel of the dynamics in inventory management. The vendors should synchronize inventory categorization with that of the corporations, supply the inventory based on demand forecast provided by the corporations and advice on the best measures for inventory control. Vendor managed inventory based on these recommendations will enable the corporations achieve the required operational performance of stores for the efficient running of the corporations. The corporations should also develop internal policies for effective vendor managed inventory management which is key in efficient inventory flow targeting operation performance of the store functions. This can be achieved through corporations providing vendors with information necessary for replenishment according to agreed timelines, involving suppliers in product design processes in order to make the acquired inventories that are exactly required to achieve their overall objective. Vendors also should be given access to inventory and demand information in good time for also timely delivery. The corporations should also provide the vendors with opportunities to improve the products to be supplied in good time for the benefit of operations performance of the store functions. The corporations should provide technical support to vendors as a partnership strategy of achieving quality inventories that can help in achieving the desired operations performance of the store functions.

#### 5.3 Areas for Further Research

A comparative study should be carried out on examine the influence of Vendor managed inventory on operational performance of stores function in both the commercial and non-commercial state corporations in Kenya. This is because Vendor managed inventory is very important in controlling the quality inventories used...
by the state corporations in producing finished goods and services for public consumption, the inventories being important current asset. This is because the current study only examined the influence of Vendor managed inventory on operational performance of stores function in commercial state corporations in Kenya leaving out the non-commercial state corporations.

References


