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Abstract

Material handling is concept that is widely used to reduce or eliminate the need for human elements in the production process by most organizations around the world. Companies that control their inventories effectively are likely to address customer demands on a timely basis, reduce overall operation costs, enhance employee teamwork and promote supplier synergies. This has seen modern organizations combine techniques of handling material in order to sustain customer demands. This paper sought to examine the influence of material handling on performance of pharmaceutical companies in Kenya. Descriptive research design was used in this study. One hundred and fifty workers designated from the procurement department for fifty Pharmaceutical corporations in operation in Kenya were used in this study. Purposive sampling technique was accustomed to choose half (75) of the staff of the pharmaceutical corporations working within the procurement department. SPSS version 21 was used analyze data gathered. Regression and correlation methods were used in establishing existence of relationships present between the management performance and systems and also to determine existence of hypothetical relationships between variables. It was established that material handling process of majority of the Pharmaceutical companies were manual in nature and were not automated. It emerged that automating process was considered to be expensive and there was lack of technological culture in the system and know-how. Therefore, this study recommends that top leaders of Pharmaceutical companies operating in Kenya should seek to prioritize in investing in modern systems of handling materials to enhance efficiency and effectiveness.

Introduction

Local and international pharmaceutical companies can maximize revenue and minimize costs through efficient systems of monitoring the inflow and outflow of goods and services. However, it emerged that despite the benefits associated with inventory control, majority (73%) of the pharmaceutical have continued to underperform due to inventory related challenges. According to Lyons and Gillingham (2011) material handling is regarded as activities that seek to facilitate the distribution of goods and services from one point to another with less process mechanization. It involves movement and storage of materials (Kulak, 2005). Manzini et al. (2005) opines that automation of logistic systems will automatically facilitate the handling of materials. With automation, production activities are likely to be more efficient and effective in the long run (Roumiantsev, 2005). Ogbo and Ukpe (2014) postulate that automation of logistical activities of an organization result to increased profitability and vice versa. Effective managerial management is determined by organization logistical structures According to Grant et al. (2006) automated systems provide a number
benefits like elimination of labour and non-value-adding processes. Further, some of the benefits described by Stevenson and Hojati (2007) with regard to automated materials handling models include: minimal labour costs, improved output, enhanced reliability and time management. On the other hand, some of the weaknesses include: high initial capital downtime risk related issues, software problems and lack employee training. Furthermore, Kulak (2005) argue that effective use of technology in inventory management is directly correlated with minimal labour costs, high system flexibility, enhanced productivity and reduced lead times. Baudin (2004) also established that 70% of the organizations were forced to incur on costs associated with employee accidents and environments conservation.

**Objective of the Study**

To determine the influence of Material Handling systems on performance of Pharmaceutical companies in Kenya.

**Theoretical Framework**

**Theory of Constraints**

The theory was established by Goldratt (1984). It is based on the management philosophy that emphasize on increasing manufacturing efficiency through minimizing internal and external constraints. Kazim (2008) further suggests that the theory is founded on the philosophy that regard managers to be watchdogs of inventory decisions. It is argued that inventory managers to excel, system constraints must be minimized using scientific techniques. A number of constraints that affect inventory decisions in most organizations can be: non-fulfilment of orders, inability to adapt to changes, lack of resources and employees resistance. Agus (2006) postulates that strategic inventory management can result to minimizing constraints like reduction of waste and enhance order fulfilment. Further, He argues that maximization of profits and minimization of overall costs of production is the key objective of inventory management (Ajeet, 2008).

This theory was applicable in this study by based on the notion that pharmaceutical companies were likely to experience operational performance if only they invest in employee training, adopt appropriate management techniques and integrate appropriate technology to enhance efficiency and effectiveness.

Application of scientific models like Economic Order Quantity led to reduced inventory levels, lead time and improved productivity of the entire system. Elimination of non-adding value activities from the supply chain also contributed to operational performance of the pharmaceutical firms.

**Material Handling Systems and Performance of Pharmaceutical Companies**

Material handling entails activities performed by companies when they receive customer orders, process the information, produce the product or service and finally dispatch it to the intended customers (Dimitrios, 2008). It comprises all activities of storage, warehouse and movement of materials. It further involves; raw materials and supplies, management of inventories and maintenance of equipment (Eckert, 2007). According to Lyons and Gillingham (2011) material handling is regarded as activities that seek to facilitate the distribution of goods and services from one point to another with less process mechanization. It involves movement and storage of materials (Kulak, 2005).

Mathuva (2013) indicated that companies that control their inventories effectively are likely to address customer demands on a timely basis, reduce overall operation costs, enhance employee teamwork and promote supplier synergies. Nyabwanga (2012) suggest that mechanical devices and machines are integral components of any organization that deals with materials. In addition, modern organizations should combine techniques of handling material in order to sustain customer demands. Both mechanical and manual handling of materials techniques should be considered whenever possible to minimize lifting and bending requirements. Automated materials handling is concept that is regarded to reduce or eliminates the need for human elements in the production process (Pine, 2006).

Manzini et al (2005) opines that automation of logistic systems will automatically facilitate the handling of materials. With automation, production activities are likely to be more efficient and effective in the long run (Roumiantsev, 2005). Ogbo and Ukpere (2014) postulate that automation of logistical activities of an organization result to increased profitability and vice versa. Effective managerial management is determined by organization logistical structures According to Grant et al. (2006) automated systems provide a number benefits like...
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Methodology

The researched adopted a descriptive research design to establish the influence of inventory management systems on performances of Pharmaceutical firms in Kenya. 150 workers designated from the procurement department of fifty Pharmaceutical corporations in operation in Kenya were the targeted population. This study utilized purposive sampling technique to pick half (75) of the staff in the 50 pharmaceutical firms working within the procurement department. According to Cooper and Schindler (2006) a sample is explained to be a representative of the whole population. Primary data was collected through questionnaires as the key data collection tool whereas secondary information was derived from printed materials like client orders and records in the inventory. To determine validity, the researcher sought expert opinion in procurement and also of University Lecturers. Construct, criterion, and content validity of the instruments were measured to work out the accuracy of the instrument. During this study, Cronbach’s alpha methodology was accustomed confirm reliability of the variables. Thus, this method was most suitable in determining the reliability of the instrument used. Therefore, the critical value 0.7 was used the acceptable reliability constant as explained by Borg and Gall (2003). This study adopted SPSS (21) in the analysis of data collected. Regression and correlation methods were used to determine the relationships between inventory management systems and performance. Further, to when checking the hypothetical relationships of the variables, the Logit model was most suitable as it helped to minimize heteroscedasticity and linearity challenges (Sekeran, 2006).

Empirical Findings

Material Handling Systems and Performance of Pharmaceutical Companies

The respondents of the study were asked to indicate the influence of material handling on the performance of their Pharmaceutical companies and the following were the findings as shown in Table 1.1:

<table>
<thead>
<tr>
<th>Indicators of Measurement</th>
<th>N</th>
<th>Mean</th>
<th>S.D</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>The firms has adequate automated machines for movement of materials from one point to another</td>
<td>68</td>
<td>3.98</td>
<td>.781</td>
<td>98%</td>
</tr>
<tr>
<td>The firm has effective facilities that protect goods from damage</td>
<td>68</td>
<td>3.98</td>
<td>.744</td>
<td>91%</td>
</tr>
<tr>
<td>The firm has modern storage facilities that maintain the integrity of goods</td>
<td>68</td>
<td>3.71</td>
<td>.687</td>
<td>73%</td>
</tr>
<tr>
<td>The firm has systems that regulate the inflow and outflow of goods</td>
<td>68</td>
<td>3.72</td>
<td>.671</td>
<td>72%</td>
</tr>
<tr>
<td>The firm has insurance policies against goods in stock</td>
<td>68</td>
<td>2.96</td>
<td>.574</td>
<td>63%</td>
</tr>
<tr>
<td>The firm has mechanisms of controlling understocking or overstocking</td>
<td>68</td>
<td>2.77</td>
<td>.543</td>
<td>53%</td>
</tr>
<tr>
<td>Employees are conversant on generating computer aided decisions on inventory management</td>
<td>68</td>
<td>2.56</td>
<td>.443</td>
<td>47%</td>
</tr>
<tr>
<td>There is minimal damage of products in the store</td>
<td>68</td>
<td>2.46</td>
<td>.421</td>
<td>38%</td>
</tr>
<tr>
<td>Policies of controlling procurement of substandard goods are implemented</td>
<td>68</td>
<td>2.31</td>
<td>.413</td>
<td>33%</td>
</tr>
<tr>
<td>Employees are trained on best material handling practices</td>
<td>68</td>
<td>2.31</td>
<td>.314</td>
<td>29%</td>
</tr>
</tbody>
</table>

Source: Research Data
As illustrated in Table 1.1, it was indicated that more than 53% of the respondents agreed to a larger extent that their pharmaceutical companies advocated for advanced or automated material handling facilities to enhance their performance. For instance, firms had automated machines for moving goods and protected goods with a mean of 3.98, firms had modern facilities to store goods with a mean of 3.71, firms had machines that regulated the inflow and outflow of goods with a mean of 3.72, firms insured stocked goods with a mean of 2.96, firms had mechanisms of regulating over stocking and understocking with a mean of 2.77, employees were conversant in generating computer aided decisions with regard to inventory management decisions with a mean of 2.56, minimization of damage of goods with a mean of 2.46, implementation of procurement policies that controlled substandard goods with a mean of 2.31 and employees were trained on best material handling practices with a mean of 2.31.

These findings implied that most of the pharmaceutical companies were willing to adopt improve methods of handling their products even though their systems were not automated fully. These findings corresponds with Jacob (2010) who revealed that the only way firms can control understocking and overstocking was through improving material handling processes. Furthermore, Kombo, Obonyo and Ogutu (2015) Nyabwanga (2012) and Temeng (2010) concur that organization will only enhance their productivity by improving their processes of handling materials from the source to the point of consumption.

**Conclusion and Recommendations**

It can be concluded from the findings of the study that unless pharmaceutical companies invest in material handling processes competitiveness will be an uphill task. It was also established that material handling process of majority of the Pharmaceutical companies were manual in nature Therefore, this study recommends that Pharmaceutical companies operating in Kenya should seek to prioritize in investing in modern systems of handling materials to enhance efficiency and effectiveness.

**References**


