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EVALUATION OF THE EFFECT OF MATERIAL CONTROL SYSTEM ON REVENUE GENERATION IN GUINNESS NIGERIA PLC

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Abstract

Given that fast moving consumer goods companies experience material waste in the course of production, there is therefore the need for fast moving consumer goods companies to have improved ways and strategies of managing material resources in order to reduce wastage in value chain and thus augmenting productivity. Unfortunately, scanty empirical evidences on materials management and productivity, particularly of Fast-Moving Consumer Goods (FMCG) companies in Nigeria are available. This study therefore was carried out with the view to assessing the effect of materials control system on revenue generation of Guinness Nigeria Plc. This study data was obtained from primary sources. They were gathered using questionnaire structured on the basis of the research hypothesis, which was presented to the respondents to express their views, opinions, and observations. The researcher sampled the employees in procurement department of Guinness Nigeria Plc using simple random sampling. The researcher however made use of 200 respondents for this study. Following the major findings of this study, a correlation of .977 which showed a strong direct correlation between material control system and revenue generation while p-value of 0.001 which is considered less than 0.05. On the backdrop of the aforementioned analyses the null hypothesis is at 5% level of significance is rejected while the alternative hypothesis is accepted. Thus the analysis inferred that there is significant relationship between material control system and revenue generation in Guinness Nigeria Plc Based on the findings of this research study, the following recommendations are made, applying general safety principles such as proper work practices, equipment, and controls will help reduce workplace accidents involving the moving, handling, and storing of materials. Employees should know and understand the potential hazards associated with the task at hand and how to control their workplaces to minimize the danger when moving materials either manually or mechanically. Unquantifiable number of injuries can arise from improperly handling and storing materials, so workers should also be aware of accidents that may result from the unsafe or improper handling or management of equipment as well as from inappropriate work practices.

Keywords: Evaluation, Effect, Material Control System, Revenue Generation, Guinness Nigeria PLC.

Introduction

Materials control was previously identified as a cost center because the purchasing department spent money on material while the store held massive material inventories, consuming space and money (Ramakrishna, 2005; Jeruto Keitany, Wanyoike &Richu, 2014). Nonetheless, with the advent of globalization and the expansion of information technology (IT), a drastic change occurred in the business environment, exposing organizations to stern competition in the marketplace (Oba, Ayoola, Ademola, &Obadeji, 2017; Dagim, 2018; Garba, 2020), necessitating the use of material resources for effective productivity. According to Sturkhart (2007), the total cost of materials may be 60% or more; however, in most cases, the cost of materials may exceed 50% of the total cost of goods. As a result, large investments in material resources necessitate effective control and planning in order to minimize material waste, which has a wide-ranging impact on company productivity (Ondiek & Odera, 2012).
Companies that engage in efficient material control are more likely to perform better than those that do not and realize significant savings in total costs of production; thus, effective materials control can result in cost reduction, savings, and overall productivity, according to Song, Haas, and Caldas (2006); Cross (2019); Kisioya and Moronge (2019); Oteki and Sakwa (2020).

Raw materials, work-in-progress (WIP), and finished goods were among the various types of materials that needed to be managed, according to Banjoko (2009).

Materials control implicitly refers to the management of raw materials, WIP, and finished goods in order to reduce production costs. Previous studies (Ondiek, 2009; Asaolu, Agorzie&Unam, 2012; Dagim, 2018; Cross, 2019; Kisioya&Moronge, 2019; Muchaendepi, Mbohwa, Hamandishe&Kanyepe, 2019; Nyongesa& Shale, 2019; Oteki&Sakwa, 2020; Garba, 2020) have shown that materials control accounts for more than annual turnover. This implies that in order to avoid excessive production costs, fast moving consumer goods companies should prioritize material control.Given that fast moving consumer goods companies encounter material waste during production, there is a need for fast moving consumer goods companies to improve their methods and strategies for managing material resources in order to reduce wastage in the value chain and thus increase productivity.

Unfortunately, empirical evidence on materials management and productivity, particularly in Fast Moving Consumer Goods (FMCG) firms in Nigeria, is limited.
The purpose of this study was

i. To assess the impact of material wastage on the revenue generation of the organization in Nigeria using Guiness Nigeria Plc as a case study.
ii. To assess the effect of materials control (using material control components – raw and work-in-progress materials) on organizational productivity dimensions (material efficiency and yield) of FMCG companies in Nigeria. Material inputs are raw materials and work-in-progress, while material output measures are material efficiency and yield.

Literature Review

Concept of material Control

Materials control has been widely recognized in the literature as an important tool for increasing organizational productivity because it reduces costs and makes the best use of existing resources.

According to Cross (2019), materials control is an integral method of proper planning of materials activities and total material price. According to Ogbadu (2009), organizations can keep adequate inventories of materials in various forms to ensure profit. Material inventories, in this regard, may serve as a link between the production and consumption of goods in organizational settings (Oba, et al 2017; Dagim, 2018). In recent years, organizations have invested heavily in materials control in order to reduce material waste (Ondiek&Odera, 2012), save money (Cross, 2019), and increase productivity (Asaolu, et al, 2012). According to management literature, materials control accounts for more than yearly turnover that organizations record (Cross, 2019;), and as such, materials control is regarded as a dynamic strategy for improving turnover, performance, and productivity.

According to Linton, Klassen, and Jayaraman (2007), the five major functional areas of materials control are purchasing, inventory and quality controls, warehousing/storage, distribution, and production (raw materials conversion to work-in-progress and finished goods).

Materials control refers to the purchasing, warehousing, and controlling of an organization's materials in an optimal manner so that a predetermined service to customers at the lowest cost can be realized (Banjoko (2009) asserts that for organizations to improve productivity, materials control must be viewed as the lifeblood of the production process. Material control is the system that guarantees the provision of required quantity of materials of the required quality at the required time with the minimum principal investment. This means that organizations' production materials must be available at a reasonable price, quantity, and quality, and they must be able to coordinate and schedule production activity. Under-stock and overstock are two key issues that organizations avoid in order to improve productivity, according to materials control literature. According to Jeruto Keitany et al. (2014), the fundamental goal of materials management is to purchase the right items and make them available to the production unit at the right time and at the lowest possible cost.

Materials management has a significant impact on an organization's performance and productivity. Preceding research (Ondiek&Odera, 2012; Asaolu, et al 2012; JerutoKeitany, et al 2014; Oba, et al, 2017; Dagim, 2018; Cross, 2019) revealed that overall focus of material control is on increasing productivity and reducing large capital value usually locked up for long periods of time in the form of inventories. More emphasis is placed on achieving material economy for the project while not interfering with the flow of materials as and when required. Once the material is procured and delivered by the organization, its value continues to rise. Along with the cost of materials, the cost of storage, maintenance, movement, and use is added to the cost of materials. Because material is such an important resource for construction in all aspects, a proper materials control system is essential.

Concept of Revenue Generation

Revenue is associated with an organization's products and services as a source of expected cash inflows. The value of a firm's assets increases as a result of the firm engaging in certain business activities or economic activities. Pandey defined revenue as the monetary event of asset values increasing in the organization as a result of the physical event of the organization's products or services being produced or sold. The majority of organizations derive their revenue from interest, dividends, or royalties paid by other organizations. In other words, he sees it as revenue generated by selling products to the right customers at the right time and at the right price.

Duru and Njoku define revenue as the amount of money that the government expects to earn during the fiscal year (Duru EJC, Njoku R 2014). In other words, these are cash inflows from various sources into the government's coffers.

In general, revenue is defined as an organization's income in the form of cash or its equivalents. Sales revenues are the profits made from the sale of goods and services over a specific time period. It is also referred to as turnover. Revenue is defined as any income realized from the sale of goods and services, or through the use of capital and assets, coordinated through the main operations of an organization before any costs or expenses are deducted. It is typically shown as the main item in the profit and loss account, from which all other costs, charges, and expenses are subtracted to arrive at net income.

According to Rittenberg and Schwieger, revenue generation is the inflow or enhancement of an entity's assets or the settlement of that entity's liabilities from the period of delivery or production of goods to the rendering of services, as well as all other activities that comprise the entity's ongoing central or major operations (Rittenberg LE, Schwieger BJ 2005). In other words, they defined revenue as the inflow of assets received in exchange for goods or services rendered to customers. In order to generate more revenue, businesses must critically examine the best ways to meet the needs of their customers and other stakeholders in the business.

Theoretical Framework

Queuing Theory

The investigation of the relationship between material handling equipment and effective inventory management will be guided by this theory. The mathematical study of waiting lines or queues is known as queuing theory (Shingo, 2005). The theory allows for the mathematical analysis of several related processes, such as arriving at the back of the queue, waiting in line (a storage process), and being served at the front of the queue. The theory allows for the development and calculation of several performance measures, such as the average waiting time in the queue or system, the expected number of people waiting or receiving service, and the likelihood of encountering the system in various states, such as empty, full, with an available server, or having to wait a certain amount of time to be served (Houtzeel,1999).

The Theory of Constraints (TOC)

This is a management paradigm that considers any manageable system to be constrained in achieving more of its objectives by a small number of constraints. A focusing process is used to identify the constraint and also to restructure the rest of the organization around it in

Theory of Constraint (TOC). Internal or external system constraints can exist. When the market expects more from the system than it can provide, an internal constraint is present. If this is the case, the organization's focus should be on identifying the constraint and implementing the five focusing steps to overcome it (and potentially remove it). According to Scheinkopf (1999), these are prerequisite steps, so the Process of Continuous Improvement is a combination of the Five Focusing Steps and the two prerequisites for implementation (Watson et al., 2007).

Empirical Review

According to A. L. Adeyemi and A. O. Salami (2010), the materials management unit should pay attention to sales growth over time and thus take into account the obvious relevance of sales and production costs when making inventory decisions.

A paper titled 'review on the Harris's Economic Order Quantity (EOQ) model in inventory management' published by JaroslavKral(2010) reviews the oldest inventory model introduced by F. W. Harris. Harris' formula, which computes EOQ and is discussed here, is typically included in decision support systems or advanced planning modules of an enterprise resource planning system. Inventory is an important factor in the logistics behavior of manufacturing systems, but inventory modeling is a very poor field of enterprise practices. Dimitrios P. Koumanakos' research paper titled 'the effect of inventory management on firm performance' investigated the results using cross-section linear regression, that the higher the level of inventories preserved (departing from lean operations) by a firm, the lower its rate of return. Furthermore, by employing more sophisticated statistical tests on a large and recent sample of Greek manufacturers from various industries, this study sheds more light on the issue. Even though the paper does not directly address store management, it implies that a higher level of inventories preserved may be putting the firm into Mecalux (2013) offers a Last-In, First-Out (LIFO) or First-In, First-Out(FIFO) installation for drive-in system of pallet rack.It provides a specific design for the warehouse strategy that we will use, but there is no cost associated with it. A Canadian manufacturing company (2011) provides a specific design for storage with a single-deep rack; however, the company only provides the design with no further explanation. Johnson also discusses slip sheet as an option in today's industry (1980). The researcher discusses the advantages and disadvantages of using this slip sheet instead of a standard pallet.

Shapiro and Wagner's strategic inventory optimization (2009). This journal is one of the business logistics journals that tells us about integrating the inventory model and simulation to get the output and holding cost of the inventory within the supply chain. Some information about optimizing storage without sacrificing cost could be obtained from this journal to help support the research.

Dekker et al. (2004) published a study on order-picking response time. This research is appropriate for use in this project to calculate inventory accuracy and optimize goods picking within a warehouse. Heuristic simulation, which simulates route choices calculated in several steps, is one of the methods used by writers.

H_0there is no significant relationship between material control system and revenue generation in Guiness Nigeria Plc.

Methodology

The descriptive research design has been chosen for this study. The study will be carried out in Guinness Nigeria Plc, Lagos and it will be composed of company's staff and procurement staff especially. The population of staff in procurement department is 500. The sample size for the study was determined by the statistical formula for selecting from finite population as formulated by Yamane (1964). Therefore, based on Taro Yamane's formula, the sample size for this study is approximately (222) respondents, two hundred and twenty two. The data for this research work was primarily sourced using questionnaire.

$$n = \frac{N}{1 + N(e)^2}$$

Where:

n= Sample size required for the study;

N= number of people in the population;

e= allowable error (%) which is 5% or 0.05

Using this formula, we can estimate the sample size of this study thus:

$$n = \frac{500}{1 + 500\,(0.05)^2} = \frac{500}{1 + 500(0.0025)}$$

$$n = \frac{500}{2.25} = 222$$

Therefore, based on Taro Yamane's formula, the sample size for this study is approximately two hundred and twenty two.

Descriptive Statistics was used to analyze the data generated from the socio–demographic variables. All the hypotheses for the study were subjected to statistical analysis and tested at 0.05 level of significance. Data were analyzed using SPSS software version 20.0. This shows the frequency distribution and percentage of all important variables.

Findings

This chapter focuses on the analysis of data collected based on questionnaires administered to respondents' in company. The responses were presented using frequency distribution table and percentage.

4.1 Socio-Demographic Characteristics of Respondents

Table 4.1: Socio-Demographic Characteristics of Respondents

S/N	Variables	Frequency	Percentage
	Age:		
	21-30	84	42.0
	31-40 years	52	26.0
	41-50 years	40	20.0
	51 and above	24	12.0
	Total	**200**	**100.0**

	Marital status:		
	Single	94	47.0
	Married	88	44.0
	Divorced	18	9.0
	Total	**200**	**100.0**
	Academic Qualification:		
	OND/NCE	28	14.0
	B.SC/HND	120	60.0
	M.SC/MBA	48	24.0
	OTHERS	4	2.0
	Total	**200**	**100.0**

What are the effects of material control system and revenue generation in Guiness Nigeria Plc

S/N	What are the effects of material control system and revenue generation in Guiness Nigeria Plc	Strongly Agree	Agree	Indifference	Disagree	Strongly Disagree
	Effective material handling will reduce material wastage to the barest minimum in this company	72 36%	72 36%	20 10%	14 7%	22 11%
	Effective material handling will help in making use of most material purchased for production purpose in this company	74 37%	76 38%	32 16%	18 9%	
	Effective material handling contributes to enhancing profitability in this company	82 41%	72 36%	16 8%	14 7%	16 8%
	Maintaining Optimal stock level enhances profitability in Guinness Nigeria Plc, Lagos	60 30%	98 49%	10 5%	20 10%	12 6%

Respondents' opinion revealed that; 36% of respondents strongly agreed that effective material handling will reduce material wastage to the barest minimum in this company, 36% agreed, 10% were indifferent, 7% disagreed while 11% strongly disagreed. The table also

revealed that; 37% of respondents strongly agreed that effective material handling will help in making use of most material purchased for production purpose in this company, 38% agreed, 16% were indifferent while 9% disagreed. The table revealed that; 41% of respondents strongly agreed that effective material handling contributes to enhancing profitability in this company, 36% agreed, 8% were indifferent, 7% disagreed while 8% strongly disagreed. The table revealed that; 30% of respondents strongly agreed that maintaining Optimal stock level enhances profitability in Guinness Nigeria Plc, Lagos, 49% agreed, 5% were indifferent, 10% disagreed while 6% strongly disagreed.

H_0 there is no significant relationship between material control system and revenue generation in Guiness Nigeria Plc.

Pearson correlation

	Value	Asymp. Std Error[a]	Approx. T[b]	Approx. Sig.
Interval by Pearson's R	.876	.034	8.331	.000[c]
Interval Ordinal by Spearman Correlation	.977	.066	11.332	.001[c]
N of Valid Cases	200			

Table below gives a correlation of .977 which showed a strong direct correlation between material control system and revenue generation while p-value of 0.001 which is considered less than 0.05. On the backdrop of the aforementioned analyses the null hypothesis is at 5% level of significance is rejected while the alternative hypothesis is accepted. Thus, the analysis inferred that there is significant relationship between material control system and revenue generation in Guiness Nigeria Plc

Discussion

The paper was on effects of material control system and revenue generation in Guiness Nigeria Plc making use of a sample of two hundred (200) employees of Guiness Nigeria Plc
A correlation of .977 which showed a strong direct correlation between material control system and revenue generation while p-value of 0.001 which is considered less than 0.05. On the backdrop of the aforementioned analyses the null hypothesis is at 5% level of significance is rejected while the alternative hypothesis is accepted. Thus the analysis inferred that there is significant relationship between material control system and revenue generation in Guiness Nigeria Plc

Theoretical Contributions

This study sheds light on the effect of material control system on revenue generation by reviewing existing literature. Our contribution emphasizes the importance of understanding where material control system is best represented in revenue generation, as well as where academics in general are focusing their attention. We aimed to provide inductive insights into the current state of material control system on revenue generation through the use of a literature-driven and systematic methodology that can be replicated for future research opportunities for both academics and industry professionals.

Managerial Implications

The findings of this work may also aid academics and industry professionals in understanding how the effects of material control system in revenue generation. This work sheds light on potential research areas in the effects of material control system on revenue generation, allowing academics and industry professionals to collaborate. Furthermore, these findings provide an opportunity for industry professionals to educate themselves on potential behaviors that may benefit the organization

Limitations

Finance and time were major limitation to the seminar paper. Furthermore, we were limited on the access to databases.

Conclusions

It is well understood that material control improvement may have positive effects over revenue generation. However, it is not only revenue generation, but the way the employees see the new situation. The benefits are possible, when the perception is favorable; if not, issues can emerge which are behavioral.

Material control is the movement, storage, control and protection of material, goods, and products throughout the process of manufacturing, distribution, consumption and disposal. The relevance of materials control stems from the intrinsic relationship that it has with production flow. When an imbalance is presented, there is the formation of extra stock or falling-out in supply. When the flow lacks the required enough velocity, transfer time is long and the system is not proficient of serving the customers when they need it.

Recommendations for future Research

Applying general safety principles such as proper work practices, equipment, and controls can help reduce workplace accidents involving the moving, handling, and storing of materials. Whether moving materials manually or mechanically, employees should know and understand the potential hazards associated with the task at hand and how to control their workplaces to minimize the danger. Because numerous injuries can result from improperly handling and storing materials, workers should also be aware of accidents that may result from the unsafe or improper handling of equipment as well as from improper work practices.

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