
Inventory Management Practices and Organizational Productivity in Nigerian Manufacturing Firms

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Abstract – This study examined the relationship between inventory management practices and productivity of selected manufacturing firms in Nigeria. The inventory management practices examined include inventory record accuracy, lean inventory system, buffer stock management and Information and Communication Technology. In addition, organizational productivity was measured along two dimensions namely: organizational effectiveness and organizational efficiency. A survey research design was adopted for the study. The population of the study comprises employees in the following departments – commercial, finance, production, distribution and inventory – of five selected manufacturing companies in Benin City. A sample size of two hundred and sixteen (216) employees from Seven-Up Bottling Company Ltd, Global Horn Industry PVC Ceiling Limited, Integrated Rubber product Nigeria Plc., Livestock Feeds Plc and Nigeria German Chemicals in Nigeria were selected for the study. The instrument for data collection was a questionnaire. Data collected from the questionnaire were analysed using frequency distribution, mean, correlation and regression. All analyses were done using the Statistical Package for the Social Sciences (SPSS) software. The findings of the study revealed that inventory record accuracy, lean inventory system and information technology have a positive and significant effect on organizational productivity in Nigeria while buffer stock management was found to be insignificant. The study recommends the need for manufacturing firms to improve their inventory record accuracy by using system-based inventory management practices to enhance organisational performance.

Keywords: Buffer stock, inventory, management, manufacturing, productivity

1. Introduction

Inventory management remains an important aspect of every company as a poor inventory system could result in loss of customers and sales while effective inventory management can guarantee more sales for the company which directly affects the performance of the company (Mohamad, Suraidi, Abd. Rahman & Suhaimi, 2016). Eneje, Nweze and Udeh (2015) hold that a firm which neglects its inventory management will be jeopardizing its long-run profitability and may subsequently fail. They further posit that a company can reduce its levels of inventories to a considerable degree without it having any adverse effect on production and sales. Panigrahi (2013) identifies that when poor management of working capital occurs, funds may be unnecessarily tied up in idle assets which will reduce liquidity and put the company in a poor position to invest in productive assets like plant and machinery.

Poor inventory management is the bane of manufacturing firms' performance as it has resulted in the low output ratio on the resource expended (Almrdof & Attia, 2021). A cursory survey indicates that manufacturing firms in the country are suffering from low productivity of materials, capital, time and energy management among others which could be attributed mostly to poor inventory management strategies (Anichebe, 2013). Prempeh (2015) stated that in the manufacturing companies, about 70 per cent of the total funds employed are tied up in current assets, with inventory as the most significant component.

There are incessant cases of inventory surpluses and shortages cost such as depreciation, pilferage, materials/component parts depreciation and obsolescence, spoilage, breakages, and others. Shortages of raw materials inventory have resulted in interrupted production, and incessant stock out, idle facilities and manpower as well as low capacity utilization. These have resulted in the failure of the firms to satisfy the performance objectives of customized order quality in the manufacturing projects. Inventory problem has proliferated, as technological progress has increased organizations' ability to produce goods faster in greater quantities and with multiple designs. The public has compounded the problem by its receptiveness to varieties and frequency design changes (Godana & Ngugi, bbbg2014).

Several studies have been examined by researchers from various standpoints and with varying literary perspectives on the relationship between inventory management and organizational productivity in Nigeria (Eroglu & Hofer, 2011; Anichebe, 2013; Anichebe & Agu, 2013; Panigrahi, 2013; Ogbo, Onekanma & Wilfred, 2014; Thogori & Gathenya, 2014; Naliaka & Namusonge, 2015; Koin, Cheruiyot & Mwangangi, 2016; Kairu, 2017; Indira, 2018; Elsayed & Wahba, 2019; Almrdof & Attia, 2021; Muiruri & Ochiri, 2019). This is not surprising considering the role of inventory management in promoting organizational productivity. In the study of Koumanakos (2008), his findings revealed that the higher the level of inventories preserved, departing from lean manufacturing by an enterprise, the lower is its rate of returns. Similarly, the study of Edwin and Florence

(2015) showed a negative relationship between inventory turnover, inventory conversion period and storage cost with the profitability of the company.

Furthermore, Kairu's (2017) study indicated that manufacturing firms face a myriad of problems including poor inventory control, poor strategies in order fulfilment, reduced consumer effective demand due to poor forecasting and lack of proper ICT application systems leading to poor performance. These problems invariably result in reduced sales turnover. On the other hand, Elsayed and Wahba (2019) in their study showed that while inventory to sales ratio affects organizational performance negatively in the initial growth stage and the maturity stage, it exerts positively on organizations' performance in either the rapid growth stage or the revival stage. However, the differences in the findings of the various researchers with regards to inventory management and productivity calls for further investigation. Also, current reality shows that manufacturing firms are faced with problems such as loss of customers and sales, having high level of inventories leading to reduced liquidity, low productivity and inventory shortages which can be resolved using proper inventory management. It is against this background that this study sought to examine the effect of inventory management practices on organizational productivity in Nigerian Manufacturing firms.

2. Literature Review

2.1 Concept of Productivity

Glen (2014) stated that the manufacturing sector is ever-changing and every year, the industry is faced with fresh challenges. The author stated that virtually all media houses constantly report the closure of industrial units, labour disputes between employers and their employees or reductions in the labour force due to recession and other economic dynamics. As a result, the image of manufacturing industries has been marred by low wages, high labour turnover, inadequate working conditions, poor performance and poor productivity (Githinji, 2014).

Productivity can be referred to as the quantity of work that is attained in a unit of time by means of the factors of production. These factors include technology, capital, entrepreneurship, land and labour. It is the link between inputs and outputs and it increases when an increase in output occurs with a lesser than comparative increase in input. Productivity also occurs when an equal amount of output is generated using fewer inputs (International Labour Organization, 2015). A company can be considered productive when the objectives of the company have been achieved or when there is a great possibility of them being achieved. (Almrdof & Attia, 2021).

Bhatti (2014) was of the perspective that productivity can be seen as a measure of performance that encompasses both efficiency and effectiveness. It can also be referred to as the ratio of output to production capacity of the workers in an organization. It is the correlation that exists between the quantity of inputs and outputs from a clearly defined process. The performance of a business which determines its continued existence and

development is largely dependent on the degree of productivity of its workers. Anosa (2021) avered that productivity is the driving force behind an organization's growth and profitability. Yesufu (2010) stated that the prosperity of a nation, as well as the social and economic welfare of its citizens, is determined by the level of effectiveness and efficiency of its various sub-components. The measure of how efficient a process runs and how effective it uses resources is productivity. It is a total measure of the efficiency or capacity to get the most output from the least amount of input and effectiveness or attainment of organizational goals.

More precisely, productivity is a measure that indicates how well essential resources are used to accomplish specified objectives in terms of quantity and quality within a given time frame. It is suitable when measuring the actual output produced compared to the input of resources, considering time. Hence, productivity ratios indicate the extent to which organizational resources are effectively and efficiently used to produce desired outputs. Efficiency takes into account the time and resources required to execute a given task, while effectiveness focuses on achieving organizational goals. Therefore, it can be concluded that effectiveness and efficiency are significant predictors of productivity.

2.2 Inventory Management Practice

Inventory is the collection of any kind of resource that has economic value and is maintained to fulfil the present and future needs of an organization (Almrdof & Attia, 2021). It is the stock of goods, commodities and other economic resources that are stored or reserved to ensure the smooth and efficient running of business affairs (Verma, 2013). Inventory is a very expensive asset that can be replaced with information which is a less expensive asset. But to do that, the information has to be accurate, timely, reliable and consistent. When this happens, fewer inventories are carried, cost is reduced and the products get to the customers faster (Davis, 2016). Therefore, inventory management is very important if a company wants to achieve a balance between efficiency and responsiveness. Davis (2016) explained the following objectives of inventory management: maximizing customer service, maximizing the efficiency of purchasing and production, maximizing inventory investment and maximizing profit.

Inventory management is a critical management issue for most companies – large companies, medium-sized companies, and small companies. Effective inventory flow management in supply chains is one of the key factors for the success of a business (Opoku, et al., 2021). The challenge in managing inventory is to balance the supply of inventory with demand. A company would ideally want to have enough inventories to satisfy the demands of its customers – no lost sales due to inventory stock-outs. On the other hand, a company would not want to have too much inventory staying on hand because of the cost of carrying inventory. Enough but not too much is the ultimate objective (Coyle, Bardi, & Angley, 2013).

Inventory plays a significant role in the growth and survival of an organization in the sense that ineffective and inefficient management of inventory will mean that the organization loses customers and sales will decline. Prudent management of inventory reduces depreciation, pilferage, and wastages while ensuring availability of the materials when

required (Ogbadu, 2018). Inventory management is critical to an organization's success in today's competitive and dynamic market. This entails a reduction in the cost of holding stocks by maintaining just enough inventories, in the right place and the right time and costs to make the right amount of needed products (Anosa, 2021). High levels of inventories held in stock affect adversely the procurement performance out of the capital being held which affects cash flow leading to reduced efficiency, effectiveness and distorted functionality (Koin, Cheruiyot & Mwangangi, 2016). Agus and Noor (2012) opined that inventory management practices that are universally adopted by firms include Inventory Record Accuracy, Lean Inventory System, Buffer-Stock Management and Information Technology.

Inventory Record Accuracy: According to Jessop and Morrison (2014), a stock record system is the means of capturing and storing information and a facility for the analysis and use of this information so that the operation of the stores function and the control of stock can be performed efficiently. They further observed that the system of stock recording and the mechanism for the use of recorded information must be carefully selected. Records and techniques should be appropriate to the items in question and the cost implication taken into account. An organization should carefully choose the best system suitable for it to avoid a situation whereby a lot of money would be spent on maintaining a very expensive system for items of low value. A stock record system can be manual or computerized.

Carter and Price (2013) highlighted the use of modern technology and the fact that computers can store and retrieve information. The authors argued that many companies now use computers to hold and constantly update stock records. The computer can in the simplest applications merely replace a set of stock record cards by maintaining a set of information on stock levels and carrying adjustments as necessary when directly instructed. Stock record system as a formal set of records that contain information about stock held within the stores system. The range of this information will depend upon the system employed and the scope of the operation. However, there are basic functions which every stock record system should aim to cover, the fundamental one being data held at any given time. It is because of the wide range of information held within a good record system that Carter and Price (2013) calls it the 'clerical memory'.

Lean Inventory System: Lean inventory management encompasses finding just the right balance between too much and too little inventory on hand. That means hoarding of products just because they can be bought in bulk at a cheaper price is avoided. Similarly, guessing how many products to keep in stock is prevented. According to Lockard (2015), a lean inventory management system allows a distributor to meet or exceed customers' expectations of product availability with the amount of each item that will maximize the distributor's net profits. In a lean system, inventory is regarded as a sign of a sick factory that is in desperate need of some type of treatment. The ideal goal for a company should be to have an inventory as close to zero as possible. Effective inventory management allows a distributor to meet or beat their customers' expectations of product availability while maximizing their profits (Steph, 2008).

Buffer stock management: Companies are constantly exploring ways to deal with the costly problem of stock outs and uncertainty of demand by staging inventories in containers ahead of customers' demand (Comez & Kiessling, 2014). Matching the exact amount of inventory to meet customers' uncertain demand has presented a problem for managers (Thogori & Gathenya, 2014). The need for frequent and timely restocking to support lean inventory has also created a challenge for retailers and suppliers sourcing products from overseas manufacturers (Acho, 2021). Disturbances in the supply chain can have severe effects on firms applying lean principles (Svensson, 2010). Too little inventory could lead to stock outs; as a consequence, customers could become dissatisfied and take their businesses elsewhere (Koumanakos, 2008). Hence, there is a need for a buffer stock to be maintained in order to manage to minimize the gap.

The specific level of additional stock of inventory that is maintained for protection against unexpected demand and the lead time necessary for delivery of goods is called buffer stock (Sharma, 2013). They are maintained to meet uncertainties of demand and supply. Such buffer inventories are kept for protection against the fluctuations in demand and the lead time and hence they are also called safety stocks.

Information Technology Usage: Inventory is a very critical component in every organization and it requires serious managerial consideration since it ties up a lot of a firm's capital. However, as pointed out by Donald (2016), there is failure in the inventory system of many firms as they have not embraced modern technologies such as computerization of inventories. The failure leads to problems of daily sales accounting and inability of material managers to predict the exact amount of inventories needed to meet customer's demand. Little or no usage of automated inventory systems leads to problems that come as a result of stock shortages and it is for this reason that various researches have been carried out pertaining to inventory management control systems.

2.3 Theoretical Framework

This study is based on lean theory. Wangari (2015) noted that the lean theory proposes that inventory management acts as a major component of any supply chain. Irrespective of whether it is a product or a service supply chain, the lean theory is an extension of ideas of the Just-in-Time model. Chebet and Kitheka (2019) claimed that the theory elaborates on how manufacturers gain flexibility in their ordering decisions, reduce the stocks of inventory held on site and eliminate inventory carrying costs. The lean theory is an organizational change method that is implemented to increase profit. The theory originated in Japan and was propounded by Taiichi Ohno of Toyota Production System. Constraints placed on the Japanese manufacturing sector after the second world war lead Taiichi Ohno to set up a new type of production system that was different and much better than the mass production system that was earlier in existence (Rattner, 2006). The lean system involves utilizing half the effort, space, inventory, and product development time of mass production. It also achieves fewer defects and larger product variety. Rattner (2006) noted that these improvements are expected to result in increased sales which is the key to re-deploying freed-up resources.

The lean theory concentrates on cost optimization in-stock systems. Decisions on production, storage and overall supply chain matters can be accelerated by this theory (Teunter, 2012). The choice of the lean theory for this study was informed by the need to examine how inventory management influences organizational performance which calls for a prudent approach to inventory management. The effect of the lean theory on economic performance was evaluated by Godana and Ngugi (2014). Their findings suggested that buffer stocks may be eliminated and waste in manufacturing processes reduced to a minimum by applying lean theory. Eroglu and Hofer (2011) discovered that leanness has a positive impact on a company's productivity. Studies have shown that businesses are effectively optimizing stock via lean supply chain methods and technologies in order to attain greater rates of asset use and client satisfaction which lead to enhanced business development, profitability, and market share (Godana & Ngugi 2014).

The objective of lean thinking is to increase profit (Rattner, 2006). Inventory management plays a very important role in matching demand and supply within each and every partner in the entire supply chain, ultimately providing flexibility in coping with external and internal events of a contemporary globalized business environment. Ineffective inventory control remains a major problem faced by industries in developing countries such that even the most basic inventory control concepts and techniques are not used by the majority of the companies studied (Wangari, 2015). As a result of the reliance on imported industrial raw materials and parts, and the endemic bureaucratic delays and associated communication problems in developing countries, order lead times cannot be computed with any degree of accuracy (Chen, Frank, & Wu, 2007). The criticism levelled against the lean theory is that it can only be applied when there is a close and long-term collaboration and sharing of information between a firm and its trading partners (Floyd, 2010).

3. Methodology of Study

A cross-sectional survey research design was adopted. The adoption of survey research design is due to its high flexibility of data collection, potential to build rapport, and a high degree of diversity of questions due to interaction (Saunders, Lewis & Thornhill, 2009). This involves the design of a well-structured questionnaire which was administered to the staff of the selected manufacturing firms in Nigeria. The population of the study consists of the employees in the following departments; commercial, finance, production, distribution and inventory departments of five selected manufacturing companies in Benin City. The companies are Seven-Up Bottling Company Ltd., Global Horn Industry PVC Ceiling Limited, Integrated Rubber product Nigeria Plc., Livestock Feeds Plc and Nigeria German Chemicals. To ensure that the sample size is adequately determined, the study adopts the Taro Yamane (1967) formula for the determination of samples size where the population is given. By computation, the sample size for this study is 234.

The research instrument that was used for this study is a structured questionnaire in which the respondents were required to respond. A 5-point Likert scale ranging from *strongly disagree* to *strongly agree* was used to capture respondents' opinions on inventory

management practices and organizational productivity. Respondents were asked to indicate their level of agreement with the statements. The questionnaire which has 35 items was used in this study. It consists of three (3) main parts of which the first part (Section A) contains demographic and general information on the respondents such as gender, age, educational qualification, department, and work experience. The second part (Section B) measures the inventory management practices (inventory record accuracy, lean inventory system, buffer stock management and information technology) while the third part (Section C) measures organizational performance of the selected manufacturing firms. Data collected through questionnaire administration were analyzed using frequency count and mean. The research model was estimated using correlation and multiple regression analysis. The justification for the use of multiple regression is because it is a technique that estimates a regression model with more than one outcome variable. The adequacy of the results of the regression analysis was evaluated using individual statistical significance test (t-test) and overall statistical significance test (F-test). The goodness-of-fit of the model through the coefficient of determination (R^2). The study used Statistical Package for the Social Sciences (SPSS) version 24.0 software for data analyses.

4. Findings and Discussion

4.1 Description of Respondents' Demographics

This section contains the background information of the respondents such as their gender, age, and work experience. The results are presented in Table 1:

Table 1: Descriptive statistics of respondents' demographics

Variable	Category	Number of Respondents	Percentage (%)
Sex	Male	146	67.6
	Female	70	32.4
	Total	216	100
Age	18-25years	68	31.5
	26-35years	107	49.5
	36-45years	22	10.2
	46 & above	19	8.8
	Total	216	100
Experience	1-5 years	66	30.6
	6-10 years	92	42.6
	11-15 years	37	17.1
	16 & above	21	9.7
	Total	216	100

Table 1 shows the gender of the respondents used for the study. It shows that 146 (67.6%) of the respondents are male while 70 (32.4%) of the total respondents are female. This

implies that most of the respondents are males. The results further shows the age of the respondents used for the study. It shows that 68(31.5%) are within the age bracket of 18-25years, 107(49.5%) are within the age bracket of 26-35years, 22(10.2 %) are within the age bracket of 36-45 years and 19(8.8 %) are within the age bracket of 46 years and above. This implies that most of the respondents are within the age bracket of 26-35 years. Table 1 also shows the duration of years of respondents in their respective firms. It shows that 66(30.6%) of the respondents have been in the firm between the ranges of 1-5 years. 92(42.6%) have been in the firm between the ranges of 6-10 years, 71(32.9%) have been in the firm between the ranges of 11-15 years while 21(9.7%) have been in the firm between the ranges of 16 & above years. This implies that most of the respondents have been in the firm between the ranges of 6 to 10 years.

4.1 Correlation Analysis

Table 2: Correlation Matrix

Variable	OP	IRA	LIS	BSM	ITU
Organisational Productivity (OP)	1.000				
Inventory Record Accuracy (IRA)	0.311	1.000			
Lean Inventory System (LIS)	0.024	0.182	1.000		
Buffer Stock Management (BSM)	0.395	0.228	0.212	1.000	
Information Technology Usage (ITU)	-0.092	0.284	0.013	0.086	1.000

Table 2 shows the correlation matrix for the four explanatory variables. According to DeFusco (2007), multi-collinearity arises when two or more independent variables are highly correlated with each other. As is evident in the correlation matrix above, there is no correlation value of the IVs (Independent variables) that is greater than 0.8; the highest correlation value of IVs is 0.39. It can therefore be concluded that the correlation between the predictor variables in the model was not significant to warrant the dropping of any of them.

4.3 Model Estimation and Interpretation

Table 3: Coefficients

Variable	Unstandardized Coefficients	Standardized Coefficients	t	Sig.
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	B	Std. Error	Beta		
(Constant)	6.255	0.816	-	7.665	0.000
Inventory Record Accuracy (IRA)	.325	.122	.026	2.673	0.019
Lean Inventory System (LIS)	.232	.100	.178	2.317	0.046
Buffer Stock Management (BSM)	.126	.241	.069	0.523	0.468
Information Technology Usage (ITU)	.243	.073	.411	3.309	0.000

R²=.105; Adj R²=.101; F-Statistic = 3.705; F-Statistic (Prob) = 0.013;
Durbin-Watson = 2.139; Dependent Variable: organisational productivity

Table 3 shows that the F value (F-stats = 3.705, Prob = 0.013) is significant, which indicates that there is a linear fit. The value of R Square (R²) which is 0.105 indicates that the independent variables (inventory record accuracy, lean inventory system, buffer stock management and Information and Communication Technology) explain 10.5% of the systematic variation in the dependent variable (organisational productivity). Table 3 also reveals that organisational productivity is positively and significantly related to three out of the four inventory management practices investigated. The details of the relationship between the dependent variable and independent variables are shown as follows: organisational productivity and inventory record accuracy ($\beta = 0.325$; $p < 0.05$); organisational productivity and lean inventory system ($\beta = 0.232$; $p < 0.05$); organisational productivity and Information and Communication Technology ($\beta = 0.162$; $p < 0.05$); and the relationship between organisational productivity and buffer stock management ($\beta = 0.126$; $p > 0.05$).

5. Discussion of Findings

Firstly, the result of this study showed that there was a positive and significant relationship between inventory record accuracy and organizational productivity. This outcome confirms the findings of Anichebe and Agu (2013) about a significant relationship between good inventory management and organizational effectiveness. The result also shows the importance of effective or accurate stock record system as the means of capturing and storing information and a facility for the analysis and use of this information so that the operation of the stores function and the control of stock can be performed efficiently. For an effective inventory record system, the process of recording stocks and the mechanism for the use of recorded information must be carefully selected. Records and techniques should be appropriate to the items in question and the cost implication taken into account. This can be achieved when an organization carefully chooses the best system suitable for it to avoid a situation whereby a lot of money would be spent on maintaining a very expensive system for items of low value. Though stock record system can be manual or

computerized, Carter and Price (2013) advocated the use of modern technology and computerisation of inventory records which can be stored and retrieved easily. Therefore, companies must sustain and promote the use of computers to hold and constantly update stock records.

Secondly, the study found a significant relationship between lean inventory system and organisational productivity in manufacturing firms in Nigeria". This outcome is in agreement with Lockard's (2015) finding that a lean inventory management system allows a distributor to meet or exceed customers' expectations of product availability with the amount of each item that will maximize the distributor's net profits. As observed by Steph (2008), effective inventory management allows a distributor to meet or beat their customers' expectations of product availability while maximizing their profits. Excessive inventory is considered a dangerous sign when lean system is adopted in managing a company's stocks. The focus therefore is for company to have an inventory as close to zero as possible.

Thirdly, the study found no significant relationship between buffer-stock management and organizational productivity in Nigeria. The insignificant relationship between buffer-stock management and organizational productivity contradicts the observation of Comez and Kiessling (2014) that companies are exploring ways to deal with the costly problem of stock-outs and uncertainty of demand by staging inventory in containers ahead of customers' demand. Thogori and Gathenya (2014) also argued that matching the exact amount of inventory to meet customers' uncertain demand has presented a problem for managers. This is because the need for frequent and timely restocking to support lean inventory is also a challenge for retailers and suppliers sourcing products from overseas manufacturers (Acho, 2021). Disturbances in the supply chain can have severe effects elsewhere on firms applying lean principles (Svensson, 2010) as customers could become dissatisfied and take their businesses elsewhere (Koumanakos, 2008). Hence, there is a need for buffer stock to be maintained and managed to minimize gaps in supplying customers' requests.

Finally, the study found a significant relationship between Communication and Information Technology and organizational productivity in manufacturing firms in Nigeria. This finding further reiterates the critical role Information and Communication Technology plays in inventory management. Inventory which can be in the form of keeping the production process running continuously or sustaining the distribution system, is a very critical component in every organization and it requires serious managerial consideration since it ties up a lot of a firm's capital. As found by Dimitrios (2018), inventory's functions of providing a cushion to prevent stock-outs can be achieved by adopting and applying appropriate Information and Communication Technology systems. Donald (2016) also argued that a firm's failure to computerize its operations will lead to huge inventories. The failure may also lead to problems of daily sales accounting since there can be errors in the amounts received and the amount sold. Moreover, numerous problems are encountered in demand forecasting since material managers would not be able to predict the exact number of inventories to maintain so as to meet the customers' demand.

6. Conclusions and Recommendations

This study empirically examined the relationship between inventory management practices and organizational productivity in manufacturing firms in Nigeria. A sample of two hundred and thirty-four (234) employees of Seven-Up Bottling Company Ltd, Global Horn Industry PVC Ceiling Limited, Integrated Rubber product Nigeria Plc., Livestock Feeds Plc and Nigeria German Chemicals in Nigeria was used. However, only two hundred and sixteen (216) employees finally took part in the study as these correctly filled and returned their questionnaires which were used for data analysis. The study revealed that inventory record accuracy, lean inventory system and ICT had a positive and significant effect on organizational productivity in manufacturing firms in Nigeria while buffer stock management was found to be insignificant. The study therefore concluded that there is a need for manufacturing firms to use inventory management practices as they contribute a lot to organizational productivity. This is because an effective inventory management system has an overall impact in enhancing organizational productivity. It was also concluded that the top management of organizations should put emphasis on proper inventory management techniques and measurement of productivity to identify weaknesses in the process of managing inventories among manufacturing firms in Nigeria. Based on the findings of the study, the following recommendations are made:

- i. There is a need to improve the inventory record accuracy of companies by using system based inventory management practices and engaging all staff in the proper use of the available system.
- ii. Lean inventory system should be improved upon to make it more effective in the management of inventories, especially to reduce inventory holding costs, to reduce the logistics costs and improve on the productivity of the organization.
- iii. There is a need for manufacturing firms to fully use system-based inventory management practices to improve buffer stock management.
- iv. EOQ and EDI need to be more systemized and supported by computers instead of by manual operations.

7. Limitations of the Study

A sample of two hundred and thirty-four (234) employees of Seven-Up Bottling Company Ltd, Global Horn Industry PVC Ceiling Limited, Integrated Rubber product Nigeria Plc., Livestock Feeds Plc and Nigeria German Chemicals in Nigeria was used. However, only two hundred and sixteen (216) employees finally took part in the study as these correctly filled and returned their questionnaires which were used for data analysis. The study revealed that inventory record accuracy, lean inventory system and ICT had a positive and significant effect on organizational productivity in manufacturing firms in Nigeria while buffer stock management was found to be insignificant.

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References

- Acho, Y. (2021). Inventory management practices and performance of manufacturing firms in Kogi State. *Journal of Good Governance and Sustainable Development in Africa*, 6(3), 54-63.
- Agus, A., & Noor, Z. (2012). Supply chain management and performance: An empirical study. A Working Paper University of Malaysia, 1(1), 4-19.
- Almrdoof, F., & Attia, A. (2021). The effect of inventory management practices on productivity. *PalArch's Journal of Archaeology of Egypt / Egyptology*, 18(15), 256-265.
- Anichebe, N.A., & Agu, O.A. (2013). Effect of inventory management on organizational effectiveness. *Information and Knowledge Management*, 3(8), 42-90.
- Anosa, I. C. (2021). Inventory management and productivity. *International Journal of Business & Law Research*, 9(1), 39-51.
- Bhatti, K. K., & Qureshi, T. M. (2014). Impact of employee participation on job satisfaction, employee commitment and employee productivity. *International Review of Business Research*, 3(4), 54-68.
- Chebet, E., & Kitheka, S. (2019). Effects of inventory management system on firm performance: An empirical study. *International Journal of Innovative Science and Research Technology*, 4(9) 29-35.
- Chen, H., Frank, M. Z., & Wu, O. Q. (2007). U.S. retail and wholesale inventory performance from 1981 to 2004. *Manufacturing & Service Operations Management*, 9(4), 430-456.
- Comez, S., & Kreshing, C. (2014). Assessing the effectiveness of the inventory management system in a service organization: A case study of Toyota Ghana Company Limited Central Parts Depot at Tema, Ghana. *European Journal of Business and Management*, 6 (15), 6-19.
- Coyle, J.J., Bardi, E.J., & Langley, J.C. (2013). *The management of business logistics: A supply chain perspective*. Canada: Thomsom South-Western.
- Davis, K., (2016). How to increase teamwork in organizations. *Journal of Quality Assurance in Education*, 14(3), 243-250.
- Dimitrios, P. (2018). The effect of inventory management on firm performance. *International Journal of Productivity and Performance Management*, 57(5), 355-369.
- Donald, E. E. (2016). Profitability through effective management of material. *Journal of Economics and International Finance*, 1(4), 099-105.
- Edwin, S., & Florence, M. (2015). The Effect of Inventory Management on Profitability of Cement Manufacturing Companies in Kenya: A Case Study of Listed Cement

- Manufacturing Companies in Kenya. *International Journal of Management and Commerce Innovations*, 3(2), 111-119.
- Elsayed, K., & Wahba, H. (2019). Re-examining the relationship between inventory management and firm performance: An organisational life cycle perspective. *Future Business Journal*, 2(I), 65–80.
- Eneje, B. C., Nweze, A. U., & Udeh, A. I. (2012). Effect of efficient inventory management on profitability: Evidence from selected brewery firms in Nigeria. *International Journal of Current Research*, 4(11), 350-354.
- Eroglu, C., & Hofer, C. (2011). Lean, leaner, too lean? The inventory-performance link revisited. *Journal of Operations Management*, 29(1), 356–369.
- Floyd, R. (2010). Exploring the relationship between efficiency of inventory management and firm performance: An empirical research. *International Journal of Services and Operations Management*, 21(1), 73–86.
- Githinji, A. (2014). *Effects of training on employee performance: A case study of United Nations support office for the African Union mission in Somalia*. (Master's Thesis, Chandaria School of Business, United States International University). Retrieved from <http://erepo.usiu.ac.ke/bitstream/handle/11732/71/ANGELA.pdf?sequence=1>
- Glen, W. (November, 2014). *6 Challenges facing the global manufacturing sector in 2015*. GlobalManufacturing, <http://www.manufacturingglobal.com/leadership/226/6-challenges-facing-the-global-manufacturing-sector-in-2015>.
- Godana, B.E., & Ngugi, K. (2014). Determinants of effective inventory management at Kenol Kobil Limited. *European Journal of Business Management*, 31(7), 51-89.
- Indira P (2018). *Romancing with inventory management*: New Delhi: Blue Diamond Publishing Inc.
- Jessop, P., & Marrison, S. A. (2014). Inventory management practices and their implications on perceived planning performance. *International Journal of Production Research*, 46(7), 1787–1812.
- Kairu, K. M. (2017). Role of strategic inventory management on performance of manufacturing firms in Kenya: A case of Diversey Eastern and Central Africa Limited. *International Academic Journal of Procurement and Supply Chain Management*, 1(4), 22-44.
- Koin V. R., Cheruiyot G. K., & Mwangangi P. (2016). Effect of inventory management on the supply chain effectiveness in the manufacturing industry in Kenya: A case study of Tata Chemicals Magadi. *International Journal of Social Sciences Management and Entrepreneurship*, 1(2), 189-202.
- Koumanakos, D.P. (2008). The effect of inventory management on firm performance. *International Journal of Productivity and Performance Management*, 57, 355-369.
- Lockard, K. M. (2015). Role of strategic inventory management on performance of manufacturing firms in Kenya: A case of Diversey Eastern and Central Africa Limited. *International Academic Journal of Procurement and Supply Chain Management*, 1(4), 22-44.
- Mohamad, S. J., Suraidi, N. N., Abd. Rahman, N. A., & Suhaimi, R. D. (2016). A study on relationship between inventory management and company performances: A case study of Textile Chain Store. *Journal of Advanced Management Science*, 4(4), 3-6.

- Morgan, E. (2007). When more is not better: Quality. *Scientific Journals of the Maritime University of Szczecin*, 52(8), 24-39.
- Muiruri, E. N., & Ochiri, G. (2019). Effect of inventory management practices on performance of manufacturing firms in Nairobi City County, Kenya. *International Journal of Social Sciences Management and Entrepreneurship*, 3(2), 141-154.
- Naliaka, V.W., & Namusonge, G.S. (2015). Role of inventory management on competitive advantage among manufacturing firms in Kenya: A case study of Unga Group Limited. *International Journal of Academic Research in Business and Social Sciences*, 5(5), 87–104.
- Ogbadu, E. E. (2018). Profitability through effective management of materials. *Journal of Economics and International Finance*, 1(4), 099-105.
- Ogbo, A. I., Onekanma I. V., & Wilfred I. U (2014). The impact of effective inventory control management on organizational performance: A study of 7up Bottling Company Nile Mile Enugu, Nigeria. *Mediterranean Journal of Social Sciences*, 5(10), 31-89.
- Opoku, R. K., Abboah, C. K. B., & Owusu, R. T. (2021). Inventory management strategies of food manufacturing industries in a developing economy. *Scientific Journal of Logistics*, 17(1), 37-48.
- Panigrahi, A. K. (2013). Relationship between inventory management and profitability: An empirical analysis of Indian Cement Companies. *Asia Pacific Journal of Marketing & Management Review*, 2(7), 41-89.
- Prempeh, K. B. (2015). *The impact of efficient inventory management on profitability: Evidence from selected manufacturing firms in Ghana*. Retrieved from: file:///C:/Users/good/Downloads/menuscript.pdf
- Rattner, S. (2006). *What is the theory of constraints, and how does it compare to lean thinking?* Lean Enterprise Institute. Accessed from <https://www.lean.org/> on 7/4/2021
- Saunders, M., Lewis, P., & Thornhill, A. (2009). *Research methods for business students*, fifth edition. England: Pearson Educational Limited.
- Sharma, J. K. (2013). *Operations Research: Theory and applications*. Macmillan Publishers India Ltd.
- Steph, C. (2008). Determinants of organizational performance: The case of Romania. *Management & Marketing Challenges for the Knowledge Society*, 6(2), 285- 300
- Stevenson, B. (2010). *Operations management* (10th ed.). New York: McGraw Hill Publishing.
- Teunter, R. B. (2012). ABC classification: Service levels and inventory costs. *Production and Operations Management*, 19(1), 3-17.
- Thogori M., & Gathanya, J. (2014). Role of inventory management on customer satisfaction among the manufacturing firms in Kenya: A Case Study of Delmonte Kenya. *International Journal of Academic Research in Business and Social Sciences*, 4(1), 31-89.
- Verma, A. P. (2013). *Operations Research*. S. K. Kataria & Sons.

- Wangari, K. L. (2015). Influence of inventory management practices on organizational competitiveness: A case of Safaricom Kenya LTD. *International Academic Journal of Procurement and Supply Chain Management*, 1(5), 72-98.
- Yesufu, T. M. (2010). *The human factor in national development*. Ibadan: Spectrum Books Limited.