JETMASE
Journal of Emerging Trends in Management Sciences and Entrepreneurship
Volume 8(1), Pages 233-254 January Edition, 2026
ISSN: 2384-762X
https://www.jetmase.com

Inventory Management and Operational Performance of Food and Beverages Manufacturing Companies in South-East, Nigeria

Oraegbunam, A.A.[1*] and Okeke, M.N. (Prof)[2]
Department of Business Administration, Faculty of Management Sciences, Chukwuemeka Odumegwu Ojukwu University, Igbariam, Anambra State, Nigeria
Corresponding Email: tonyamaechi82@gmail.com[*]

ABSTRACT: The study investigated the relationship between inventory management and operational performance of food and beverages manufacturing companies in South-East, Nigeria. Specifically the study examined the relationship between inventory safety stock and production cycle time; relationship between inventory control and cost efficienc; automated inventory system and employee task quality on food and beverages manufacturing companies in South-East, Nigeria. The study was anchored on inventory management theory. Correlational research design was adopted in this study. Data were sourced from primary and secondary sources. The population of study comprised 2090 employees of food and beverages manufacturing companies in South East, Nigeria. The sample size consist 699 using statistical formula devised by Godden. Questionnaire was used for data collection. Face and content validity was adopted in this study**.** The reliability of instrument was established through the test- retest method and Cronbach Alpha. Simple percentage analysis was employed to answer the research questions. Pearson Product Moment Correlation Coefficient analysis was used in testing the hypotheses. It was discovered that inventory Safety stock had a significant positive relationship with production cycle time; Inventory control had a significant positive relationship with cost efficiency; there was no significant relationship between automated inventory system and employee task quality in food and beverages manufacturing companies in South-East, Nigeria. The study concluded that there is a positive significant relationship between inventory management and operational performance of Food and Beverages manufacturing companies in South-East, Nigeria. The study recommended among others, that management of food and beverages manufacturing companies should ensure that safety stock are sufficient to meet production requirements and operation demands at all times, and at the same time avoiding holding unnecessary surplus stocks that may increase holding costs and enhanced customer satisfaction.

Keywords: Safety Stock, Inventory Control, Automated Inventory System and Operational Performance

INTRODUCTION

Operational performance of an organizations is the activities directed towards formation of organizational goals where companies monitor the progress being made towards the achievement of the goals and take remedial action in case of any deviation (Richard et al, 2019). It is the output of an organization driven by operations toward goal achievement which could be financially, operation wise and/or organizational effectiveness (McNamara, 2023). Kamal (2022) opine that operational performance as the end result of an

organization's activities, which entails measures like set targets to be achieved within a given period of time and targets to been met. It is the ability of an organization to realize its objectives by offering high quality products/ services aimed at beating the competitors (Akhtar et al, 2022). An organization can measure its operational performance based on its objectives, including; costs reduction, speed of delivery, quality, dependability, flexibility of activities and innovation through the use of inventory management. In this case, operational performance becomes the cornerstone that determines the future performance of an organization (Slack 2020). Operational performance is the foundation that enables an organization to be competitive through provision of the capability to action, customers' feedback and step ahead of the competitors (Jenkins 2017). The actual goals of operational performance include: processes to achieve quality services or products. This implies that quality of processes, inputs and outputs are reviewed from time to time and continuous improvement carried out where necessary through the use of inventory management (Slack 2020).

In traditional settings, inventories of raw materials, work-in-progress components and finished goods were kept as a buffer against the possibility of running out of needed items. However, large buffer inventories consume valuable resources and generate hidden costs. Consequently, many companies have changed their approach to production and inventory management. Since at least the early 1980s, inventory management leading to inventory reduction has become the primary target, as is often the case in just-in-time (JIT) systems, where raw materials and parts are purchased or produced just in time to be used at each stage of the production process. This approach to inventory management brings considerable cost savings from reduced inventory levels. As a result, inventories have been decreasing in many companies (Chen 2025), although evidence of improved companies performance is mixed (Kailas 2021; Ekwunife, Nduka & Ogini, 2022).

In recent years, manufacturing companies in the world have faced several challenges particularly in inventory management and control, thus affecting their operational performance. Many manufacturing companies have more than 50% of total assets invested in working capital, which includes inventory, as well as accounts receivable and accounts payable (Beheshti, 2020; Gill, Biger, & Mathur, 2020; Anusi & Nduka, 2022). The basic method of managing stock by quantity in manufacturing companies are by means of fixing for each commodity stock levels which are recorded in the stock control system and subsequently used as a means of indicating when some actions are necessary. Most manufacturing companies cannot work properly without stock and therefore they have to consider its management. There is a need for organization to maintain a minimum, ordering, hastening and maximum stock levels (Munyao, Omulo, Mwithiga, & Chepkulei, 2019). Bainson and Bainson (2024) argue that stock levels should be carefully received at suitable intervals, such as quarterly, monthly or even weekly and adjusted to meet any changes in circumstances. If this is not done, the original fixed level will be less than expected, become outdated and the system of stock control is rendered ineffective. The amount of stocks held at the warehouse of manufacturing companies can drastically affect cost and hence finances. This therefore, demands strong monitoring of the changing conditions of stock levels in stores. The planning and control of inventories and related activities are critical to the success of the manufacturing industry. Managers of organizations have sought reliable and effective inventory practices and systems to remain competitive. Nsikan, Etim, and Ime (2019) assert that various

organizations have employed the basic inventory management techniques or inventory control methods to keep their inventory costs in check. The various inventory management best practices that have been adopted by organizations include economic order quantity model (EOQ), just in time (JIT), vendor managed inventory (VMI), collaborative planning (CP), forecasting and replenishment, automatic replenishment, agile system, and material requirement planning and so on.

The role of inventory management is to ensure faster inventory turnover. It increases inventory turnover by ten and reduce costs by 10% to 40%. The so called inventory turnover is not yet right to sell products on the shelves based on the principle of FIFO cycle (Kenneth lysons and Michael gilligham, 2023). Inventory is classified basing on the business undertaking from organization to organization. Common criteria used and are nature of inventory for example manufacturing, sale or retail, purpose for which inventory is being held in stock or function and the related usage in the supply chain. Typical classifications are raw materials (items in unprocessed state awaiting conversion e.g. timber, steel and coffee seeds), components and sub-assemblies. These are for incorporation into the end product e.g. side mirrors, glasses for car assembling companies and monitors or keyboards for a computer assembling companies), consumable (all supplies in an undertaking which are classified as indirect and which do not form part of saleable product. (Divided into production, maintenance, office and welfare). Proper classification of inventory and its control improve the financial position of a business (David Jessop & Alex Morrison 2022; Nduka, Okolie, & Ngangah, 2025).

Inventory management is primarily about specifying the size and placement of stocked goods. Inventory management is required at different locations within a facility or within multiple locations of a supply network to protect the regular and planned course of production against the random disturbance of running out of materials or goods for improved performance Garry (2017). Lau and Snell (2024) opined that inventory management is about specifying the size and placement of stocked goods. Inventory management is required at different locations within a facility or within multiple locations of a supply network to protect the regular and planned course of production against the random disturbance of running out of materials or goods for improved performance. The scope of inventory management also concerns the fine lines between replenishment lead time, carrying costs of inventory, asset management, inventory forecasting, inventory valuation, inventory visibility, future inventory price forecasting, physical inventory, available physical space for inventory, quality management, replenishment, returns and defective goods and demand forecasting. Inventory control is the process of overseeing and managing a company's stock to ensure the right amount of product is available at the right time, minimizing costs and preventing issues like stockouts or overstocking (Axsäter 2021). It involves monitoring stock levels, tracking the movement and storage of goods, and implementing systems and procedures to optimize inventory levels. Key aspects include forecasting demand, managing procurement and warehousing, and using reporting to make strategic decisions (Axsäter 2021; Nduka, Ananwude & Osakwe, 2019).

Inventory control is the process of managing stock held within a warehouse, store or other storage location, including auditing actions concerned with "checking a shop's stock (Schwarz, 2018). These processes ensure that the right amount of supply is available within a business. However, a more focused definition takes into account the more science-based,

methodical practice of not only verifying a business's inventory but also maximising the amount of profit from the least amount of inventory investment without affecting employee task quality (Lewis 2022). Other facets of inventory control include forecasting future demand, supply chain management, production control, financial flexibility, purchasing data, loss prevention and turnover, and employee task quality. An automated inventory system uses technology like software, bar-code scanners, and RFID to automatically track, manage, and optimize stock, reducing manual labor and errors. These systems provide real-time data, automate tasks such as reordering when stock is low, and improve efficiency and accuracy (Lesonsky 2019). Automated inventory management refers to the use of technology and software systems to streamline and optimize the process of tracking, monitoring, and controlling inventory and orders (Dolinsky 2020). These systems enable you to automate most of your inventory management processes, such as stock tracking, order fulfillment, replenishment, and reporting, which were traditionally performed manually or using outdated methods. By leveraging an automated inventory system, your business can achieve greater accuracy, efficiency, and get accurate inventory data at your fingertips (Polsson 2020). In addition, they can save you and your team the headache of manually managing your inventory with a spreadsheet, which is time-consuming and heavily prone to errors. However, some researchers have suggested that managers who turn to inventory research may find it to be of little significance (Boone, Craighead, & Hanna, 2018; Ogunewe, Ananwude & Nduka, 2020) or conclude that it has little to offer in terms of enhancing inventory practices (Wagner, 2022). This implies that a gap exists between inventory theory and practice in the manufacturing industry including the Nigerian food and beverages manufacturing companies, and the need to bridge the theory-practice gap is imperative. It is against this background that the study investigate the relationship between inventory management and operational performance of food and beverages manufacturing companies in South-East, Nigeria.

It has been conceptualized that organizations worldwide have adopted inventory management systems into their operations. However, despite the increasing attention given to inventory management in the practical and academic fields, the performance of food and beverages manufacturing companies in Nigeria including Nigerian manufacturing companies have been very disappointing. The manufacturing companies operating are facing problem in determining appropriate inventory level that should be kept to ensure that customer needs are met and production process is not interrupted. Food and beverages manufacturing companies in Nigeria have a problem of inaccurate forecasts mainly because they lack real time inventory information on customers' demand. This has in turn led to late deliveries, inadequate deliveries and lack of consistency in the delivery of products and thus leading to lack of employee task quality.

Key problems in as regards general inventory management include: overstocking and understocking, inaccurate demand forecasting, poor inventory visibility, and outdated or manual processes. These issues lead to lost sales, increased costs from holding excess or spoiled stock, and customer dissatisfaction. Overstocking and understocking: Tying up capital in too much inventory, increasing holding costs, and risking spoilage or obsolescence. Understockin resulting in stockouts, which leads to lost sales, potential loss of customers, and a negative impact on brand image. Inaccurate demand forecasting: Leads to a mismatch between supply and demand, resulting in either excess inventory or

stockouts. Failing to account for seasonality can cause products to be understocked during high-demand seasons or overstocked when demand is low. Poor inventory visibility: Difficulty knowing what items are in stock, where they are located, or how much is available. Inaccurate tracking: Manual processes or poor systems can lead to incorrect stock counts, which disrupts operations. Outdated or manual processes: Prone to human error, slow down operations, and lack the ability to adapt to changing customer needs. Lack of data integration: Data silos can hinder the ability to analyze customer data, which limits personalization efforts. The food and beverages manufacturing companies in Nigeria have also had problems of investments in less critical stocks leading to unnecessary costs, inaccurate forecasts, and poor responsiveness to customers' orders leading to decline performance. The poor investment in inventories have undermined operational performance of food and beverages manufacturing companies by losing out on potential sales, and potential market share as well.

However, in spite of the large size of food and beverages manufacturing companies, the industry is suffering from low level of operational performance. Their dismal performance has been attributed to poor inventory turnover leading to lower production cycle time. The issue of inventory inaccuracy is a common problem affecting manufacturing companies in achieving their goals and objectives. Many food and beverages manufacturing companies in Nigerian have not established the central purchasing department, lack computerized stock management and were not able to employ the services of well qualified stores officers to take charge of record management.

The problems have made the raw material control policies an internal control measure very weak. It has also led to the failure to meet delivery commitment and consequent loss of sales (slow sales growth). From the literature, it is observed that inventory management is a critical management issue for manufacturing companies across. In order to realize the benefits of effective inventory management, manufacturing companies should attempt to automate their inventory management operations. Majority of manufacturing companies in Nigeria including food and beverages manufacturing companies in particular, have not yet adopted computerized inventory management system or automated management system. They have majorly concentrated on manual and mathematical models of inventory management. This challenge has created minimal utilization of resources, high operating costs and inappropriate planning leading to poor work efficiency, and low productivity.

In addition, most studies that attempted to focus on operational performance concentrated on solvency and operating performance of companies based in Kenya and India. Very limited study has been done on inventory management practices and operational performance of food and beverages manufacturing companies in Nigeria. It is therefore evident that knowledge gap exists on the specific relationship between internal inventory management practices and operational performance. This study intends to bridge this gap by determining the relationship between inventory management and operational performance of food and beverages manufacturing companies in South-East, Nigeria.

The broad objective was to examine the relationship between inventory management and operational performance of food and beverages manufacturing companies in South-East, Nigeria. The specific objectives are to:

i. Determine the relationship between inventory safety stock and production cycle

time in food and beverages manufacturing companies in South-East, Nigeria.

ii. Examine the relationship between inventory control and cost efficiency in food and beverages manufacturing companies in South-East, Nigeria.

iii. Investigate the relationship between automated inventory system and employee task quality in food and beverages manufacturing companies in South-East, Nigeria.

Hypotheses

Based on the six objectives and six research questions, six hypotheses were formulated to aid the study:

H_{01}: safety stock has no significant relationship with production cycle time in food and beverages manufacturing companies in South-East, Nigeria.

H_{02}: Inventory control has no significant relationship with cost efficiency in food and beverages manufacturing companies in South-East, Nigeria.

H_{03}: There is no significant relationship between automated inventory system and employee task quality in food and beverages manufacturing companies in South-East, Nigeria

LITERATURE REVIEW

Conceptual Review

Inventory Management Practices

Inventory is a vital ingredient in production of goods or services alongside other factors of production. Inventories such as finished goods, work-in progress, components, raw materials, stores, spares, and so on constituted 80 per cent or more of the working capital in many organizations. Inventory management has to do with art and science of maintaining stock levels of a given group of items incurring the least cost consistent with other relevant targets and objectives set by management (Lwiki, Ojera, Mugenda & Wachira, 2023). Naliaka and Namusonge (2019) described inventory management as a fine line between the replenishment lead time, carrying costs, asset management, inventory forecasting, valuation of inventory, future inventory price forecasting, physical inventory, inventory visibility, available space for inventory, quality management, replenishment, returns, defective goods and demand forecasting. The word inventory is commonly used to describe the goods and materials that a business holds for the ultimate purpose of resale,. Inventories are materials stored, waiting for processing, or experiencing processing. They are ubiquitous throughout all sectors of the economy. Observation of almost any companies balance sheet, for example, reveals that significant portion of its assets comprises inventories of raw materials, components and sub-assemblies within the production process, and finished goods (Rousseau, 2019).

A large inventory requires fewer replenishment's and may reduce ordering costs because of economies of scale. In- process inventories reduce the impacts of the variability of the production rates in a plant and protect against failures in the processes. Final goods inventories provide for better customer service. The variety and easy availability of the product is an important marketing consideration. There are other kinds of inventories, including spare parts inventories for maintenance and excess capacity built into facilities to take advantage of the economies of scale of construction. Because of their practical and economic importance, the subject of inventory control is a major consideration in many situations. Questions must be constantly answered as to when and how much raw material should be ordered, when a production order should be released to the plant, what level of safety stock should be maintained at a retail outlet, or how in-process inventory is to be maintained in a production process. These questions are amenable to quantitative analysis with the help of inventory theory. In any business or organization all

functions are interlinked and connected to each other and are often overlapping. Some key aspects like supply chain management, logistics and inventory from the backbone of the business delivery function. Therefore these functions are extremely important to any business.

Inventory Safety Stock: Safety stock is an additional quantity of an item held in the inventory to reduce the risk that the item will be out of stock. It acts as a buffer stock in case sales are greater than planned and/or the supplier is unable to deliver the additional units at the expected time (King 2023). Safety stock is an additional quantity of an item held in the inventory to reduce the risk that the item will be out of stock. It acts as a buffer stock in case sales are greater thanuu668y planned and/or the supplier is unable to deliver the additional units at the expected time. Safety stock is a term used by logisticians to describe a level of extra stock which is maintained to mitigate the risk of stockouts, which can be caused, for example, by shortfalls in raw material availability or uncertainty in forecasting supply and demand (King 2023). Adequate safety stock levels permit business operations to proceed according to their plans (Monk & Bret 2019). Safety stock is held when uncertainty exists in demand, supply, or manufacturing yield, and serves as an insurance against stockouts. The amount of safety stock that an organization chooses to keep on hand can dramatically affect its business (Monk & Bret 2019). Too much safety stock can result in high holding costs of inventory. In addition, products that are stored for too long a time can spoil, expire, or break during the warehousing process. Too little safety stock can result in lost sales and a higher rate of customer turnover. As a result, finding the right balance between too much and too little safety stock is essential.

Inventory Control: Controlling is a process by which some aspect of system is modified to achieve a desired change in system performance. Hailing and Guochao (2021) defined inventory control as a process in which the materials and parts carried in stock are regulated within pre-determined limits or set in accordance with the policy and procedures implemented or adopted by the manufacturing companies. Jeff (2020) points out that inventory control is the process of managing inventory in order to meet customer demand at the lowest possible cost and with a minimum investment. In the view of Naliaka and Namusonge (2019), inventory control is a mean by which associated materials ofthe right quality and quantity are made available as when required with due regards to the economy of shortages, ordering cost, purchase price and working capital. Inventory control determines the extent of stock holding materials. It equally makes it possible for material manager to carryout accurate and efficient operation of the manufacturing organization through decoupling of individual segment of the total operation and it entails the process of assessing of stock into store house and the issue of stock. A good inventory control system minimize the possibility of delays in production that are caused by lack of materials, permits a companies to exercise economics in purchasing, essential for an efficient accounting system is deterrent to people who might steal materials from factory is desirable to expedite the production of financial statement; allows for possible increase in output; insure advantage of quality discount, creates buffer between input and output; insures against scarcity of materials in the market and avoid inventory build-up (Carter, 2022).

Automated Inventory System: Automation is the replacement of human workers by technology. Vijay (2018) defines automation as a technology dealing with the application of mechatronics and computers for the production of goods and service. According to Mbuvi, Namusonge, and Arani (2024), automation refers to a variety of applications using computer technology, which includes the generic software, such as word processing,

spread sheet and database applications, or specially written records management applications. Computers can be stand alone, or linked using networks (LANs, WANs, intranets, or the Internet), and can use a wide range of peripheral devices such as scanners, bar code readers, printers and among others. Automation is broadly classified into manufacturing and service automation (Kitheka & Gerald, 2022). An automated or computerized inventory control system refers to the integration of sub-functions involved in the management of inventory into a single cohesive system. It is software installed on the computer systems that enables a companies to keep a check on the inventory levels by performing the automatic counting of inventories, recording withdrawals and revising the stock balance. It is simply an inventory management system that is automated. The driving forces for the implementation of automated inventory management by companies include increasing customer requirements, the need for networked organizations and the opportunity of networked inventory management (Kitheka, 2022). But the system itself requires a lot of information processing within and outside the organization and the transformation, storage and communication of information about the inventory in the stock points as well as in the intermediate processes across the supply chain for it to be efficient.

Operational Performance

Operational performance described a companies operational performance as a measure of how well companies uses its assets from its core operations and generates revenues over a given period of time. This measure is thus compared to some given industrial average standard of similar companies in the same industry (Mwichigi & Waiganjo, 2022). According to Malonza (2022), operational performance encompasses production reliability and defect rates, production cycle time, on time delivery, cost of quality and scrap minimization, productivity, and inventory. In the same vein, Brown (2018) perceived operational performance as companies performance measured against standard or prescribed indicators of effectiveness and efficiency. Birech (2021) outlines various performance measures as within operations area namely (i) standard individual performance measures include: productivity measures, quality measures, inventory measures, lead-time measures, preventive maintenance, performance to schedule, and utilization. (ii) Specific measures include: Cost of quality - measured as budgeted versus actual, variances - measured as standard absorbed cost versus actual expenses, period expenses - measured as budgeted versus actual expenses, safety - measured on some common scale such as number of hours without an accident, profit contribution – measured in dollars or some common scale (Nduka, Atueyi, Osakwe & Mbanefo, 2021).

In this study, operational performance is expressed as: customer's satisfaction, competitive advantage, cost effectiveness, production cycle time, quality control, and productivity. Morgan and Rego (2024); Fornell (2024) define employee task quality as a measure of a companies' customer base in terms of size, quality and loyalty. Customers' expectations according to (Howgego, 2022) are largely dependent on the flexibility of the supply chain partners. Kotler and Keller (2024) view employee task quality as a person's feelings of pleasure or disappointment resulting from comparing product's perceived performance (or outcome) in relation to his or her expectation. Manufacturing organizations may identify employee task quality in terms of on-time delivery as well as meeting customer specification needs (Eckert, 2025). Variables such as customer needs (having the products immediately and on hand to satisfy the customer's needs), vendor partnerships (sharing of information regarding sales, sales forecasts as well as amount of inventory) and data integrity

(data on SKU and location which assists in overall inventory management) (Lee & Kleiner, 2021) often define employee task quality among the manufacturing sector. Companies must respond to the changing customers' needs in the increasing competitive environment (Zhang, 2025).

Production Cycle Time

Production cycle time refers to the optimization of business processes and resources for the purpose of reducing operating costs while maintaining or improving productivity. production cycle time is the relationship between an organization's output and input, that when healthy, helps businesses cut down on unnecessary costs while increasing revenue (Timothy, Coelli, Prasada, Christopher,' Donnell and George 2025). It's what businesses strive to do: produce a high-quality product at scale with as few resources as possible. To decrease extraneous costs, the operations manager must be able to identify which processes in place are not needed (Charnes, Cooper & Rhodes 2019). To do this, they need to be able to identify a baseline of operations. production cycle time is about doing more with less, maximizing outputs (like products or services) while minimizing inputs (such as costs, time or resources), creating the most value possible without sacrificing quality. Production cycle time helps a company work smarter, not harder, to deliver its goods or services in the most cost-effective way (Hackman, 2018).

Cost Efficiency: Cost efficiency is the extent to which a primary cost is used to achieve the best performance at a given level of input or output under certain business conditions. An efficient school minimizes its operating costs to achieve a given output (Bradrania et al. 2017). Cost efficiency is the process of producing goods or services while using the fewest possible resources to maximize profitability. It involves minimizing waste, optimizing processes, and achieving the best possible output for a given cost, without sacrificing quality. Organizations can improve cost efficiency through methods like technological advancements, process improvements, and employee training. Cost efficiency, refers to a measure of how effectively parallel computing can be used to solve a particular problem. A parallel algorithm is considered cost efficient if its asymptotic running time multiplied by the number of processing units involved in the computation is comparable to the running time of the best sequential algorithm. Cost efficiency refers to the optimization of costs relative to outcomes, focusing on achieving the maximum benefit from a given budget without the necessity to express benefits in monetary equivalents. It is often employed in domain-specific analyses, such as cost-effectiveness analysis in health policy. Cost efficiency is the extent to which cost is used to achieve the best performance at a given level of input or output under certain business conditions. A competitive and efficient that minimizes its operating and interest costs to achieve a given output (Aigner et al. 2017).

Employee Task quality: The degree to which a product or service meets customer requirements and expectations. Employee task quality is the standard of work that an employee or team delivers consistently. Some task quality examples include time management, communication and professional knowledge (Grissom, 2022). These factors help to measure the performance of employee, departments or programs in a company. Employee task quality refers to work that meets and exceeds client or company expectations. Conducting quality work requires that you use your skills to complete duties with the highest standard. Defining Employee task quality may be subjective and is subject to specific clients or employers. Typically, Employee task quality is work that meets all deadline requirements, meets completion expectations and presents accurate information (Kim & Wright, 2017). This means that they produce a lot of good work in a short amount of time, and it is all correct.

Employee task quality can help to improve employee productivity (Fernandez & Moldogaziev, 2011). By setting certain guidelines and reducing the number of edit requests or project changes, employee may have more time to work on other tasks. This can also help employee obtain goals or progress toward key performance indicators faster. Employee task quality is a process of work organizations which enable its members at all levels to actively; participate in shaping the organizations environment, methods and outcomes (Yukl, 2013). This value based process is aimed towards meeting the twin goals of enhanced effectiveness of organizations and improved quality of life at work for employee.

Theoretical Review

Inventory Management Theory

The theory of inventory management was propounded by Nowicka-Skowron (2007). It emphasizes the role that management material of logistics chains plays in material management and forecasting. The theory posits that the chain of movement of material and information depends to a large extent on the availability of materials and the quality of information at the disposal of the chain operator. Material theory (or more formally the mathematical theory of inventory and production) is the sub-specialty within operations research and operations management that is concerned with the design of production/inventory systems to minimize costs: it studies the decisions faced by companies and the military in connection with manufacturing, warehousing, supply chains, spare part allocation and so on and provides the mathematical foundation for logistics. The inventory control problem is the problem faced by a companies that must decide how much to order in each time period to meet demand for its products. The problem can be modeled using mathematical techniques of optimal control dynamic programming and network optimization. Significantly, the purpose of inventory theory is to determine rules that material management can use to minimize the costs associated with maintaining material management and meeting customer demand. Inventory material management models answer the questions: When should an order be placed for a product? How large should each order be? The answers to these questions are collectively called material management. Companies save money by formulating mathematical models describing the inventory system and then proceeding to derive an optimal material management policy.

Empirical Review

Previous studies have convergent opinions on the relationship between the inventory management practices and operational performance. For example, Ogbo, Onekanma and Wilfred (2024) examined the impact of effective inventory control management on organizational performance: a Study of 7up Bottling companies Nile Mile Enugu, Nigeria. The researchers were motivated to embark on this study, in order to bring to fore the importance of effective inventory control system on organizational performance as it relates to the bottling companies. A total of eighty-three respondent constitute the sample for the study. Four research questions and Four hypotheses were generated and tested at 10% (that is 0.10) significant level using descriptive statistics and non-parametric test (chi-square). The result of the analysis showed that flexibility in inventory control management is an important approach to achieving organizational performance. It was found that organizations benefits from inventory control management by way of easy storage and retrieval of material, improved sales effectiveness and reduced operational cost. The study also found that there is a relationship between operational feasibility, utility of inventory control management in the customer related issues of the organization and cost effectiveness technique are implemented to

enhance the return on investment in the organization. Effective inventory control management is recognized as one of the areas management of any organization should acquire capability. It is recommended that organizations should adopt the inventory keeping method that best suit their operations.

Anichebe and Agu (2023) examined the effect of inventory management on organizational effectiveness in selected organizations in Enugu Nigeria. Using a descriptive research and a sample size of two hundred and forty eight (248) respondents, they established that there is significant relationship between good inventory management and organizational effectiveness. Inventory management was found to have a significant effect on organizational productivity. There was a high positive correlation between good inventory management and organizational profitability. They concluded that Inventory Management is very vital to the success and growth of organizations. The entire profitability of an organization is tied to the volume of products sold which has a direct relationship with the quality of the product. The study recommended that Organizations should diversify their inventory system to suit specific needs of production, and that management should closely monitor and manipulate their inventory system to maintain production consistency for organizational profitability and effectiveness.

Kwadwo (2022) carried out a study on the impact of efficient inventory management on profitability: evidence from selected manufacturing companies in Ghana. A cross sectional data from 2004 to 2024 was gathered for the analysis from the annual reports of four manufacturing companies listed on the Ghana Stock Exchange. Measures of profitability were examined and related to proxies for efficient inventory management by manufacturers. The Ordinary Least Squares (OLS) stated in the form of a multiple regression model was applied in the analysis. The study revealed that the main variable raw materials inventory management designed to capture the effect of efficient management of raw material inventory by a companies on its profitability is significantly strong and positive and impacts on the profitability of the manufacturing companies in Ghana. Therefore, efficient management of raw material inventory is a major factor to be considered by Ghanaian manufacturers in enhancing or boosting their profitability.

Nsikan, John and Tommy (2022) examined inventory management practices and operational performance of flour milling companies in Lagos, Nigeria and their effects on operational performance. Five flour manufacturing companies with aggregate staff population of 2569 constituted the unit of study. From the population space, 150 respondents were randomly selected. Structured questionnaire was the major instrument for the collection of relevant primary data while mean and standard deviation was used to analyze descriptive data. Results showed that exception of the large manufacturing companies, most of the medium-sized flour milling companies adopts different inventory management strategies from the scientific models. Their inventory management strategies and policies were rather based on factors such as changing level of customer demand, prevailing industry practices, forecast estimates and guesses, and available production capacity. Findings also revealed significant differences between effective management of inventory and optimal operating performance. The study recommended the need for flour manufacturing companies to implement scientific inventory management models to adequately handle material shortages, product stock outs, and component pile up with consequent penalties.

Stephen (2022) investigated optimization of effective inventory control and management in manufacturing industries: case study of Flour

Mills companies Calabar, Nigeria. The key source of information gathering which the research employed was the used of primary data through a well- structured questionnaires and personal interviews. The data so obtain was analyse through qualityative technique, using descriptive statistics method by quantifying the level of frequency and determining the percentages of respondents and weighted mean scores. This method was considered more appropriate and convenient by the author because it helps to establish the objectives of the research. The results has help to proffer solution to the problem of lead time of delivery or delay in supply of goods or material, the interruption in production and stock out of goods or materials during production and problem of when to order and how much to order as it affects manufacturing industries in Nigeria. Conclusions were drawn and recommendations was made for the best practices that will ensure effective inventory control of stock and customers satisfaction and retention in both public and private industries in Nigeria.

Edwin and Memba (2021) studied the effect of inventory management on profitability of Cement Manufacturing companies in Kenya: A Case Study of Listed Cement Manufacturing companies in Kenya. A cross sectional data from 1999 to 2024 was gathered for the analysis of the annual reports for the three sampled companies listed at Nairobi Securities Exchange (NSE). The ordinary least squares (OLS) stated in the form of a multiple regression model was applied in the data analysis to establish the relationship between inventory management and companies profitability. The results provide a negative relationship between inventory turnover, inventory conversion period and storage cost with profitability of the companies. In addition, inventory level was found to be directly related to companies size and storage cost. The study recommends that the Cement-manufacturing companies in Kenya should strive to ensure that the right stock is kept in their warehouses to hedge against excessive holding cost and stock-outs.

METHODOLOGY

The research adopted correlation research design. Correlational research measures two or more variables to determine if a statistical relationship or association exists between them, without manipulating any of the variables. The study was carried out in South-East, Nigeria. The South East is one of the six geopolitical zones of Nigeria, representing both a geographic and political region of the country's inland South-East. It comprises five states – Abia, Anambra, Ebonyi, Enugu, and Imo. With respect to this research, the researcher made use of primary and secondary data. The population of the study comprised 2090 employees of food and beverages manufacturing companies in South East, Nigeria. The sample size of 699 was determined with Godden's (2004) formular. The study made use of questionnaire as the tool for securing the necessary data for the research. The questionnaire was self-constructed and made up of open-ended and closed-ended items. The researcher adopted face and content validit. The research instrument was first given to three lecturers in Department of Business Administration who are grounded in measurement and evaluation for validation. Their corrections and suggestions were incorporated into the final draft of the questionnaire. The study employed Cronbach's alpha to verify the internal consistency of each construct in order to achieve reliability. Alpha coefficient posits that a reliability of 0.70 or higher is acceptable. The data analysis was conducted using the Statistical Package for the Social Science (SPSS) version 20 for windows. Simple percentage analysis was used in research answering the research questions. It was edited and tallied in frequency format. The values corresponding to frequencies will be converted into scores to facilitate analysis, while Pearson Product-Moment Correlation (PPMC) was used

in testing the hypotheses. All tests were conducted at 0.05 level of significance.

DATA, RESULTS AND INTERPRETATIONS

A total of (699) six hundred and ninety nine copies of questionnaire were distributed to the employee of food and beverages manufacturing companies out of which a total of five hundred and sixty eight (568) copies were dully filled, and used for the analysis. A total of eighty copies were not dully filled while the remaining fifty one copies got missing. Therefore, the analyses were based on five hundred and sixty eight (568) dully filled copies of the questionnaire.

Demographic Data

In this section, the demographic features of those that participated in the study were presented and analyzed. The result is presented in table 4.2 below:

Table 1 Demographic Features of the Respondents

	Response Category	Number of Responses	Percentage
Gender	Male	265	46.7
	Female	303	53.3
	Total	568	100
Age Bracket	20 - 30 Years	92	16.2
	31 - 40 Years	153	26.9
	41 - 50 Years	189	33.3
	51 Years and above	134	23.6
	Total	568	100
Marital Statues	Single	235	41.4
	Married	297	52.3
	Others	36	6.3
	Total	568	100
Educational Qualification	O'Level	72	12.7
	OND/NCE	186	32.7
	B.Sc./HND	210	37.0
	M.Sc/MBA	71	12.5
	PhD	29	5.1
	Total	568	100
Number of Years in services	0 – 5 Years	128	22.5
	6 – 10 Years	129	22.7
	11 – 15 Years	233	41.0
	16 Years and above	78	13.7
	Total	568	100

Source: Field Survey, 2026

The table indicates that 303(53.3%) were female, while 265(46.7%) were male. 92 respondents representing 16.2% were between the age bracket of 20 to 30 years, 153(26.9%) were aged between 31 to 40 years, 189(33.3%) were aged between 41 to 50 years, the remaining 134(23.6%) were aged 51 years and above. Table 4.2 further indicates that 235(41.4%) were single, 297(52.3%) were married while the remaining 36(6.3%) ticked others as their response.

The analysis of the educational qualification of the respondents indicates that 72(12.7%) were O'level holders, 186(32.7%) were OND/NCE holders, 210(37.0%) were B.Sc./HND holders, 71(12.5%) were M.Sc./MBA holders while the remaining 29(5.1%) were PhD holders. Furthermore, 128(22.5%) of the respondents indicates that they have been Beverages manufacturing companies between zero to five years, 129(22.7%) have been with the beverages manufacturing companies between 6 to 10 years, 233(41.0% have been with the Beverages manufacturing companies between 11 to 15 years, while 78(13.7%) have been with the Beverages manufacturing companies from 16 years and above.

Presentation of Data Related to the Research Objectives

Research Question One: How does inventory safety stock relate with production cycle time in food and beverages manufacturing companies in South-East, Nigeria?

Table 2 Response on relationship between inventory safety stock and production cycle time

	Inventory Safety Stock	SA	A	UN	D	SD
1	Inventory safety stock is an additional quantity of an item held in the inventory	174 (30.6%)	264 (46.5%)	83 14.6%	83 (14.6%)	20 (3.5%)
2	Inventory safety stock reduce the risk that the item will be out of stock.	86 (15.1%)	246 (43.3%)	86 (19%)	108 (19%)	30 (5.3%)
3	Inventory safety stock acts as a buffer stock in case sales are greater than planned	129 (22.7%)	291 (51.2%)	76 (3.4%)	76 (13.4%)	34 (6%)
4	Inventory safety stock is an additional quantity of an item held in the inventory	140 (24.6)	327 (57.6%)	86 (19%)	46 (8.1%)	35 (6.2%)
5	Inventory safety stock permit business operations to proceed according to their plans	55 (9.7%)	277 (48.8%)	37 (6.5%)	138 (24.3%)	37 (6.5%)

Source: Field Survey, 2026 Computations from SPSS Analysis

Table 2 above indicates that 174 respondents representing 30.6% strongly agreed that Inventory safety stock is an additional quantity of an item held in the inventory, 264 representing 46.5% agreed, 20 representing 3.5% were undecided, 83 representing 14.6% disagreed while 27 representing 4.8 strongly disagreed. The implication is that majority of the respondents agreed that inventory safety stock is an additional quantity of an item held in the inventory.

It is also clear from the table above that 86 (15.1%) respondents strongly agreed that inventory safety stock is an additional quantity of an item held in the inventory, 43.3% of the respondents agreed, 5.3% of the respondents were undecided, 19% of the respondents disagreed while the remaining 17.3% strongly disagreed. This implies that majority of the respondents agreed that inventory safety stock is an additional quantity of an item held in the inventory.

Furthermore, 129 respondents representing 22.7% strongly agreed that Inventory safety stock acts as a buffer stock in case sales are greater than planned, 291 respondents representing 51.2% agreed, 34 respondents representing 6% were undecided, 76 respondents representing 13.4% disagreed while the remaining 38 respondents representing 6.7% strongly disagreed. The implication is that majority of the respondents agreed that Inventory safety stock acts as a buffer stock in case sales are greater than planned**.**

Table 2also indicates that 24.6% of the respondents strongly agreed that inventory

safety stock is an additional quantity of an item held in the inventory, 57.6% of the respondents agreed, 6.2% of the respondents were undecided, 8.1% of the respondents disagreed while the remaining 3.5% of the respondents strongly disagreed. This implies that majority of the respondents agreed that inventory safety stock is an additional quantity of an item held in the inventory

Finally the table showed that 55 respondents representing 9.7% strongly agreed that Inventory safety stock permit business operations to proceed according to their plans, 277 (48.8%) respondents agreed, 37 (6.5%) of the respondents were undecided, 138 (24.3%) respondents disagreed while 61 (10.7%) strongly disagreed. This implies that the sampled inventory safety stock permit business operations to proceed according to their plans.

Research Question Two: What is the relationship between inventory control and cost efficiency in food and beverages manufacturing companies in South-East, Nigeria?

Table 3 Response on opinion on the relationship between inventory control and cost efficiency

	Inventory Control	SA	A	UN	A	SA
1	Inventory control manage the process in which materials are regulated	93 (16.4%)	221 (38.9%)	58 (10.2%)	73 (12.9%)	123 (21.7%)
2	Inventory control is the process of managing inventory in order to meet customer demand	27 (4.8%)	76 (13.4%)	81 (14.3%)	201 (35.4%)	183 (32.2%)
3	Inventory control determines the extent of stock holding materials.	140 (24.6%)	236 (41.5%)	30 (5.3%)	81 (14.3%)	81 (14.3%)
4	Inventory control system minimize the possibility of delays in production	47 (8.3%)	279 (49.1%)	44 (7.7%)	159 (28%)	39 (6.9%)
5	Inventory control techniques ensure that all costs are kept at a minimum.	90 (15.8%)	220 (38.7%)	29 (5.1%)	135 (23.8%)	94 (16.5%)

Source: Field Survey, 2026 Computations from SPSS Analysis

Table 3 indicates that 93 respondents representing 16.4% strongly agreed that inventory control manage the process in which materials are regulated, 221 representing 38.9% agreed, 58 representing 10.2% were indifferent, 73 representing 12.9% disagreed while 123 representing 21.7% strongly disagreed. The implication is that majority of the respondents agreed that inventory control manage the process in which materials are regulated.

Table 4.3.2 further revealed that 4.8% of the respondents strongly agreed that Inventory control is the process of managing inventory in order to meet customer demand, 13.4% of the respondents agreed, 14.3% of the respondents were indifferent, 35.4% of the respondents disagreed while the remaining 32.2% strongly disagreed. This implies that inventory control is the process of managing inventory in order to meet customer demand

The table further indicated that 140(24.6%) respondents strongly agreed that inventory control determines the extent of stock holding materials, 236(41.5%) agreed, 30(5.3%) were indifferent, 81 (14.3%) disagreed while the remaining 81 (14.3%) strongly disagreed. This implies that Inventory control determines the extent of stock holding materials.

Also, 47 respondents representing 8.3% strongly agreed that Inventory control system minimize the possibility of delays in production. 279 respondents representing 49.1% agreed, 44 representing 7.7% were indifferent, 159 representing 28% disagreed while 39

representing 6.9% strongly disagreed. This implies that Inventory control system minimize the possibility of delays in production. Finally, table 4.3.2 indicates that 90 (15.8%) respondents strongly agreed that Inventory control techniques ensure that all costs are kept at a minimum, 220 (38.7%) respondents agreed, 29(5.1%) respondents were indifferent, 135(23.8%) respondents disagreed while the remaining 94 (16.5%) respondents strongly disagreed with the assertion. This implies that Inventory control techniques ensure that all costs are kept at a minimum.

Research Question Three: How does automated inventory system relates with employee task quality in food and beverages manufacturing companies in South-East, Nigeria?

Table 4 Response on the assertion on the relationship between automated inventory system and employee task quality

	Automated Inventory System	SA	A	UN	D	SA
1	Automation is the replacement of human workers by technology.	124 (21.8%)	294 (71.8%)	34 (6%)	72 (12.7%)	44 (7.7%)
2	Automated inventory management companies meet customer requirements	34 (6%)	162 (28.5%)	56 (9.9%)	192 (33.8%)	124 (21.8%)
3	Automation is broadly classified into manufacturing and service automation	50 (8.8%)	391 (68.8%)	19 (3.3%)	66 (11.6%)	42 (7.4%)
4	Automated control system assimilate sub-functions of inventory into a single cohesive system.	145 (25.5%)	268 (47.2%)	44 (7.7%)	69 (12.1)	42 (7.4%)
5	Automatic counting of inventories, recording withdraw stock balance.	140 (24.6%)	174 (30.6%)	38 (6.7%)	189 (33.3%)	27 (4.8%)

Source: Field Survey, 2026 Computations from SPSS Analysis

The table above indicates that 21.8% of the respondents strongly agreed that automation is the replacement of human workers by technology, 71.8% of the respondents agreed, 6% of the respondents were indifferent, 12.7% of the respondents disagreed while the remaining 7.7% strongly disagreed. It is also clear from the above table that 6% of the respondents strongly agreed that automated inventory management companies met customer requirements, 28.5% of the respondents agreed, 9.9% of the respondents were indifferent, 33.8% of the respondents disagreed while the remaining 21.8% strongly disagreed.

The table further showed that 8.8% of the respondents strongly agreed that automation is broadly classified into manufacturing service automation, 68.8% of the respondents agreed, 3.3% of the respondents were indifferent, 11.6% of the respondents disagreed while the remaining 7.4% of the respondents strongly disagreed. Table 4also indicates that 25.5% of the respondents strongly agreed that automated control system assimilate sub-functions of inventory into a single cohesive system, 47.2% of the respondents agreed, 7.7% of the respondents were undecided, 12.1% of the respondents disagreed while 7.4% of the respondents strongly disagreed.

Finally, table 4 revealed that 24.6% of the respondents strongly agreed that automatic counting of inventories, recording withdrawals of stock balance., 30.6% of the respondents agreed, 6.7% of the respondents were indifferent, 33.3% of the respondents disagreed while the remaining 4.8% of the respondents strongly disagreed. This implies that majority of the respondents agreed that automated inventory

system relates with employee task quality in food and beverages manufacturing companies.

Test of Hypotheses

Hypothesis One

Ho: Inventory Safety stock has no significant relationship with production cycle time in food and beverages manufacturing companies in South-East, Nigeria.

Table 5: Result of Pearson Product-Moment Correlation Analysis between Inventory Safety stock and production cycle time

		Production Cycle Time	Inventory Safety Stock
Production Cycle Time	Pearson Correlation	1	.867**
	Sig. (2-tailed)		.000
	N	568	568
Inventory Safety Stock	Pearson Correlation	.87 **	1
	Sig. (2-tailed)	.000	
	N	568	568

****. Correlation is significant at the 0.05 level (2-tailed).**

Source: Field Survey, 2026

Interpretations

The correlation in Table 5 shows Inventory Safety stock had a significant positive relationship with production cycle time of food and beverages manufacturing companies in South- East, Nigeria. The Pearson's product moment correlation coefficient values reveal a strong positive and significant correlation between inventory Safety stock and production cycle time ($r = 0.866$, at $p=0.000<0.05$). This implies that an increase in inventory safety stock will increase production cycle time of food and beverages manufacturing companies in South- East, Nigeria. Based on this result, the null hypothesis which states that Inventory Safety stock had a positive significant relationship with production cycle time of food and beverages manufacturing companies in South- East, Nigeria was accepted

Hypothesis Two

H_0: Inventory control has no significant relationship with cost efficiency in food and beverages manufacturing companies in South-East, Nigeria.

Table 6: Result of Pearson product-moment correlation analysis between inventory control and cost efficiency

		Cost Efficiency	Inventory Control
Cost Efficiency	Pearson Correlation	1	869**
	Sig. (2-tailed)		.000
	N	568	568
Inventory Control	Pearson Correlation	.869 **	1
	Sig. (2-tailed)	.000	
	N	568	568

****. Correlation is significant at the 0.05 level (2-tailed).**

Source: Field Survey, 2026

Interpretations

The correlation in Table 6 shows that inventory control had a significant positive relationship with cost efficiency of food and beverages manufacturing companies in South- East, Nigeria. The Pearson's product moment correlation coefficient values reveal a strong positive significant correlation between Inventory control and cost efficiency ($r = 0.869$, at $p<0.05$). This implies that an increase in inventory control will increase cost efficiency of food and beverages manufacturing companies. Based on the findings, the study rejects the null hypothesis which states that inventory has no significant positive relationship with cost efficiency of food and beverages manufacturing companies in South-East, Nigeria.

Hypothesis Three

H_0: There is no significant relationship between automated inventory system and employee task quality in food and beverages manufacturing companies in South-East, Nigeria

Table 7: Result of Pearson product-moment correlation analysis between automated inventory system and employee task quality

		Employee Task Quality	Automated Inventory System
Employee Task Quality	Pearson Correlation	1	-.799**
	Sig. (2-tailed)		.000
	N	568	568
Automated Inventory System	Pearson Correlation	-.799**	1
	Sig. (2-tailed)	.000	
	N	568	568

****. Correlation is significant at the 0.05 level (2-tailed).**

Source: Field Survey, 2026

Interpretations

Table 7 presents result of Pearson Product Moment Correlation (PPMC) test on the relationship between automated inventory system and employee task quality of food and beverages manufacturing companies in South-East, Nigeria. The correlation table revealed that automated inventory system had a significant negative relationship with employee task quality of food and beverages manufacturing companies in South- East, Nigeria ($r = -0.799$, $p=0.000<0.05$). This implies that automated inventory system decrease employee task quality of food and beverages manufacturing companies in South-East. Therefore, the finding indicates that automated inventory system had a significant negative relationship with employee task quality of food and beverages manufacturing companies in South- East, Nigeria. Based on this result, the null hypothesis (H_0) which states that automated inventory system had no significant relationship with employee task quality of Food and beverages manufacturing companies in South- East, Nigeria is hereby rejected.

Summary of Finding

From the analysis it was revealed that:

1. Inventory Safety stock had a significant positive relationship with production cycle time of food and beverages manufacturing

companies in South- East, Nigeria (r = 0.866, at p=0.000<0.05).
2. Inventory control had a significant positive relationship with cost efficiency of food and beverages manufacturing companies in South- East, Nigeria (r = 0.869, p=0.000<0.05).
3. There was no relationship between automated inventory system and employee task quality of food and beverages manufacturing companies in South- East, Nigeria (r = 0.799, p=0.000<0.05).

CONCLUSION

The study investigated the relationship between inventory management and operational performance of food and beverages manufacturing companies in South-East, Nigeria. Data were source from primary and secondary sources, and were analyzed using Pearson Product Moment Correlation Coefficient. The study found out that inventory safety stock had a significant positive relationship with production cycle time; inventory control had a significant positive relationship with cost efficiency; there was no significant relationship between automated inventory system and employee task quality in food and beverages manufacturing companies in South-East, Nigeria. Considering the finding of the study, the study concluded that there is a positive significant relationship between inventory management and operational performance of food and beverages manufacturing companies in South-East, Nigeria. Based on the findings and conclusion the study recommended that:

1. Management of food and beverages manufacturing companies should ensure that safety stock is sufficient to meet production requirements and operation demands at all times, and the same time avoiding holding unnecessary surplus stocks that may increase holding costs and enhanced customer satisfaction.
2. Management of food and beverages manufacturing companies should train their staff on inventory control management to avoid overstocking or understocking in order to ensure cost efficiency.
3. Inventory management should maximize space and timely delivery to avoid staying off production by using automated inventory system that enhances employee task quality

REFERENCES

Aarti, D., & Dhawal, M. (2023). Inventory management delivering profits through stock management. Paper presented at 6th *International Business & Social Science Research Conference*. Novotel Hotel, World Trade Centre, Dubai.

Adafin, Johnson Kayode et al. (2021): an assessment of factors affecting material stock control practice on selected construction sites in Nigeria', *Continental Journal Environmental Design and Managemen*t 1 (1): 22 – 31

Adamu, D.A. (2024). Effect of inventory management on operationl performance: Evidence from Nigerian conglomerate companies. *International Journal of Social, Behavioural, Educational, Economic, Business and Industrial Engineering*, 10 (9), 3021-3025.

Adeyeye, J. O., Ogunnaike, O., Amaihian, A., Olokundun, M., & Inelo, F. (2024). Inventory control and performance of manufacturing companies. *Journal of Engineering and Applied Sciences,* 11(2), 199-203.

Agha, N.C. (2020). Inventory Management Control in Manufacturing Industries in Nigeria. *The Nigeria Journal of Management Research,* 5(2): 173-188.

Ali, M., & Asif, M. (2022). Inventory management and its effects on employee task quality. E*conomics of Knowledge,* 4 (3), 3Q, 11-22.

Anusi, A. O. & Nduka, A. J. (2022). Effect of working capital management on performance of basic materials firms in Nigeria. *Journal of Emerging Trends in Management Sciences and Entrepreneurship, 4*(1), 186-203.

Bailey, P., & Farmer, D. (1982).*Managing materials handbook.* Aldershot: Gower Press.

Bainson, C., & Bainson, P. K. (2024). Efficient stores management - A case study on Takoradi Polytechnic stores department. *International Journal of Business and Management Review*, 4 (1), 33-46.

Bakke, M., & Claudio, D. (2023). Efficiency realization and capacity increase: implementing lean six sigma in a growing startup. Small Enterprise Research, 1-16

Carl, K., & Shaun, W. P. (2022). An assessment to determine the impact of retail shrinkage on the sustainability and the profitability of the XYC franchise retailer stores in the Western Cape Region of South Africa. *Arabian Journal of Business and Management Review,* 3(11), 101-117.

Carter, R.J., & Price , P.M. (2023). *Integrated materials management*. London: Pitman. Government of Kenya Supplies Manual.(2020). *Kenya Procurement Journal.*

Charnes, A., Cooper, W. W. and Rhodes, E. (2019). Measuring the efficiency of decision making units, *European Journal of Operational Research* 2(6): 429-444.

Ekwunife, I. J., Nduka, A. J. & Ogini, P. (2022). Selected macroeconomic variables and capacity utilization in Nigeria. *Journal of Emerging Trends in Management Sciences and Entrepreneurship, 4*(1), 340-359.

Evans, J.R.. L. and William, M. (2019), *The Management and Control of quality* (4 ed.), Cincinnati, Ohio*:* South-Western College Publications,

Ibegbulem, A. B. & Okorie, C. (2019). Assessment of inventory management and profitability of an organization. *Journal of Policy and Development Studies.* 9, (3),153

Idowu, A., Winston, S. & Saidu, I. (2021) The effect of poor inventory management in the construction industry: a case study of Abuja, Nigeria. *Acta Structilia*. 28(1), 142-167.

Idrees, M. A., Abbas, M., Ali, S. Q., & Khan, A. (2023). The Factors Influencing Effective Inventory Management: A Supply Chain Perspective. *Journal of Policy Research,* 9(1)

Kilonzo, J. M., Memba, F. S., & Njeru, A. (2024). Effect of inventory management on operationl performance of companies funded by government venture capital in Kenya. European *Journal of Business and Management*, 8(5), 35 - 41.

King, P. (2023). Crack the Code: Understanding safety stock and mastering its equations" (PDF). Archived from the original.

Kinyugo, J.M. (2022). The effect of cost efficiency on operationl performance of companies listed on Nairobi Securities Exchange. Unpublished *thesis* of Master of Business Administration of the University of Nairobi, Kenya.

Kitheka, S. S., & Gerald, O. O. (2022). Inventory management automation and the performance of supermarkets in Western Kenya. *International Journal of Research in Management and Business Studies*, 1(4), 9-18.

Lwiki, T., Ojera, P.B., Mugenda, N.G., & Wachira, V, K. (2023). The impact of

inventory management practices on operationl performance of sugar Manufacturing companies in Kenya. *International Journal of Business, Humanities and Technology*, 3(5), 75-85.

Mbuvi, L., Namusonge, G., & Arani, W. (2024). Factors affecting automation of inventory management in micro, small and medium enterprises: A case study of Kitui County.*International Journal of Academic Research in Business and Social Sciences*, 6(1), 15-27.

Nduka, A.J., Okolie, O. & Ngangah, O.C. (2025). Evaluating the Impact of Bank Consolidation on SMEs Financing in Nigeria: The Emerging Roles of AI and Fintech Innovation. *Journal of Emerging Trends in Management Sciences and Entrepreneurship (JETMASE)*, 7(1), 333-353

Nduka, J. A., Ananwude, A. C., & Osakwe, C. I. (2019). Expenditure of the Federal Government of Nigeria: Effect on the standard of living of her citizens. *International Journal of Academic Research in Accounting, Finance and Management Sciences, 9*(4), 57-64.

Nduka, A. J., Atueyi, C., Osakwe, C. I. & Mbanefo, A. P. (2021). Effect of exchange rate policies on non-oil export in Nigeria. *Journal of Emerging Trends in Management Sciences and Entrepreneurship, 3*(1), 105-117.

Nsikan, E.F., Etim, J.J., & Ime, T.U. (2019). Inventory management practices and operational performance of flour milling companies in Lagos, Nigeria. *International Journal of Supply and Operations Management*, 1(4), 392-406.

Ogbo, A.I., Onekanma, I.V., & Wilfred, I.U. (2022). The Impact of effective inventory control management on organisational performance: A study of 7up Bottling companies Nile Mile Enugu, Nigeria. *Mediterranean Journal of Social Sciences,* 5(10), 109-118.

Ogunewe, N. C., Ananwude, A. C., & Nduka, J. A. (2020). Non-oil exports and manufacturing sector growth in an oil-rich country in Africa: Case of Nigeria. *Finance & Economics Review, 2*(4), 1-11.

Swaleh, L. A., & Were, S. (2022). Factors affecting effective implementation of inventory management systems in the public sector (A case study of national aids control council). *International Journal of Social Science Management and Entrepreneurship*, 1(2), 17-32

Thogori, M., & Gathenya, J. (2022). Role of Inventory Management on employee task quality among the Manufacturing companies in Kenya: A Case Study of Delmonte Kenya. European *Journal of Business and Management*, 6(7), 209-217.

Unam, J.M. (2022). Inventory management for business success: The Case of the Nigerian Bottling companies Plc. *International Journal of Economics and* Management Sciences . 1, (7), 50-56.

Weisfeld, B. (2017). Automated ordering puts profits in sight. *Transportation and Distribution*..

Wilfred, A. O. (2022). The effect of the effective system of inventory management techniques on organization performance in the seven-up bottling companies in Nigeria. *Journal of Management And Commerce Innovations* 3(2) 111-119