

**IMPACT OF MATERIAL MANAGEMENT AS A STRATEGY FOR
ACHIEVING HIGHER PRODUCTIVITY IN AN ORGANIZATION
(A CASE STUDY OF OLAM FLOUR INTERNATIONAL LIMITED,
ILORIN PLANT)**

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CERTIFICATION

This is to certify that this project was carried out by **SALAUDEEN AWAWU DOLAPO** and has been read and approved as meeting part of the requirements for the award of Higher National Diploma (HND) in Business Administration and Management, Institute of Finance and Management Studies, Kwara State Polytechnic, Ilorin.

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DEDICATION

This work is dedicated to Almighty Allah and to my lovely **Parents MR. and MRS. SALAUDEEN** Almighty Allah grant them long life and prosperity Amin.

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My profound and unreserved gratitude goes to almighty Allah (S.W.A) who has given me good health, ability, grace and sound mind to take part in the Higher National Diploma program (HND)

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ABSTRACT

This work investigated the Impact of material management as a strategy for achieving higher productivity in OLAM International limited, Ilorin Plant, Nigeria. The study aims to examine the effect of materials management on the organizational efficiency and performance, to examine the impact of materials management on the productivity of the organization and to investigate the relationship between materials management and productivity of OLAM International Limited, Ilorin Plant, Nigeria. Relevant conceptual clarification, theoretical review and empirical review which is anchored on Inventory Management Theory. Descriptive survey research design was adopted. The study was carried out in OLAM International Limited Ilorin plant Nigeria. The population of the study involved was 190 staff members of the organization using TARO YAMANE sampling techniques to determine 128 sample size. The instrument used for the study was questionnaire and documentary analysis, Descriptive statistics of mean and standard deviation as well as simple percentage were used to analyze the data response .Statistical package for social sciences (SPSS) version 26 through the use of correlation was employed to run the test of hypotheses and its discussion. Results showed that material management has a significant positive impact on organizational productivity, it also shows that there is a significant relationship between materials management strategy and organizational productivity, it as well indicates that materials management have a strong positive effect on organizational efficiency and performance. The study recommended that manufacturing firms develop a policy framework to facilitate and foster faster implementation of material management systems/strategy so as to excel and guarantee its future, hence, improving organizational productivity. Manufacturing firms in Nigeria should increase their resource commitment to staff training as well as Research and Development in material management strategy so as to develop the necessary skills, update their knowledge, and enhance organizational productivity to its optimum peak.

Keywords: *Material management, Materials management strategy, Organizational Productivity.*

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CHAPTER ONE

INTRODUCTION

1.1 Background to the study

The evolution or History of Materials Management starts with the US and World War I (Before 1914). Before the 1st World war, people were unaware of the importance of Materials Management, Inventory Control and Supply chain Management. Material management as a discipline was rather slow to evolve as compared to production and marketing function.

Some elements of the function practiced across organization all levels of but the birth of material management as a field of study and one of great relevance of business performance is of recent origin and had its root in the US economy.

In the past three centuries the human civilization developed from a supply constrained handicraft economy to today's service economy. Over the years, from the simple mechanism of exchange of goods and services. It has transformed into a complex system of industrial production and commercial system. It was during and after the world war 1st that supplies too many of the manufacturing organizations got disrupted. The shortage during the war and heavy inventories build up during the great depression of the 1930s both contributed to a better realization of inventories problem.

This only helped to understand the importance of material management with the advent of the industrial revolution as a result of improved techniques coupled with economic prosperity, the focus shifted to mass production and marketing. There was a premium on resources. The population explosion along with income revolution further fuelled the demand for a whole range of product. The 1970s witnessed significant changes in the character of material management.

What dominates organizational operations and that seeks to transform management practices is no other than material management. It is obvious that in all kinds of organizations, management effort is often times committed to the effective and efficient management of materials. Furthermore, the management practices have gained the understanding that the success of any organization can only be guaranteed in today's circumstances by a practical and holistic commitment to materials management.

Materials management is not a mere technique, but a philosophy anchored on a belief that long run success depends on the uniform commitment to materials management which can be achieved via the interplay of both the analytical and holistic facilities of the personalities concerned. Due to sophistication in technology coupled with socio-economic and political instability, production processes face complex problems that needs to be addressed by management ensuring that materials are allocated and used in the most efficient and effective manner.

Today, materials are the live-wire of every organization either public or private organization, hence no organization can survive without material, its availability, distribution and transportation and delivery at the right amount and quality is paramount.

Over the last decade, our world has changed dramatically due to the growing phenomenon of globalization and revolution in information technology. There is tremendous demand on companies to lower costs, enlarge product assortment, improve product quality, and provide reliable delivery dates through effective and efficient coordination of production and distribution activities. To achieve these conflicting goals, companies must constantly re-engineer or change their business practices and employ information systems (Mahesh, 2006).

Materials management has always been an area of scrutiny for organizations. As organizations examine the state of their inventory, they often find that visibility across locations and warehouses are inadequate, stock levels are inconsistent, demand is uncertain, and communication between stocking locations or warehouses may be minimal or nonexistent. Among other things is the lack of an integrated interaction between peripheral systems and materials managers leads to unnecessary purchasing and overstocking.

The concepts of "materials management", "physical distribution management," and "logistics management" are the primary materials organizational tools which have been used successfully in the past and will be used increasingly in the future to achieve closer coordination and control of a firm various materials activities.

In general, materials management is concerned with bringing materials from outside of an organization to the point of production and moving in processes. The

fast developing and technologically changing environment has placed before the materials manager a tremendously challenging task and responsibility. The task is really herculean when we recognize the importance of materials, equipment's and components per annum that go into the production channels. The challenges become tough because the money tied up in inventory or materials and equipment are enormous. In fact, in many organizations (big and small), materials form the largest single expenditure item. According to subramanian (1974) an analysis of the financial statements of a large number of private and public sector organizations indicates that materials account for nearly 60% of the total expenditure. Consequently, the importance of materials management lies in the fact that any significant contribution made by the materials manager in reducing materials cost will go a long way in improving the profitability and rate of return on investment. Such increase in profitability, no doubt, can be affected by increasing sales.

While most of the writing and discussion on materials management is on acquisition and standards, much of the day to day work conducted in materials management deals with quality assurance issues. Parts and materials are tested, both before purchase orders are placed and during use, to ensure there are no short or long term issues that would disrupt the supply chain. This aspect of material management is most important to the heavily automated industries, since failure rates due to faulty parts can slow or even stop production lines, throwing off timetables for production goals (mentzer, 2001).

The other major component of materials management is standards compliance. There are standards that are followed in supply chain management that are critical to a supply chain's function. For example, a supply chain that uses just-in-time or lean replenishment requires absolute perfection in the shipping of parts and materials from purchasing agent to warehouse to place of destination. Systems reliant on vendor-managed inventories must have up-to-date computerized inventories and robust ordering systems for outlying vendors to place orders on (hax and candeia, 2004).an organization practices material management when they adopt certain methods necessary to ensure the smooth flow of materials needed in the day to day running of the organization. Thus, how well the organization functions depends on the quality of materials supplied.

Management of organizations plays a very important role in ensuring that the right quality and quantity of materials are supplied to enable the company carry out its day to day activity.

According to International federation of purchasing and materials management, “Materials

Management is a total concept having its definite organization to plan and control all types of materials usage, its supply and its flow from raw stage to finished stage so as to deliver the product to customers as per their requirements in time. ”This involves materials planning, purchasing, receiving, storing, inventory control, scheduling, Production, physical distribution and marketing. It also controls the materials handling and its traffic. The materials manager has to manage all these functions with proper authority and responsibility in the materials management department.

Materials management is simply the process by which an organization is supplied with the goods and services. It also needs to achieve its objectives of buying, storage and movement of materials. Materials management is related to planning, procuring, storing and providing the appropriate material of right quality, right quantity at right place in right time so as to coordinate and schedule the production activity in an integrative way for an industrial undertaking. Most industries buy materials, transport them in to the plant, change the materials into parts, assemble parts in to finished products, sell and transport the product to the customer. All these activities of purchasing of materials, flow of materials, converting them in to the final product, supplying and selling the product at the market requires various types of materials to manage and control their storage, flow and supply at various places. It is only possible by efficient materials management.

Efficient materials management according to christine (2002) is essential in order to provide the best service to customers, produce at maximum efficiency, and manage inventories at predetermined levels to stabilize investments in inventories. Successful materials management requires the development of a highly integrated and coordinated system involving sales forecasting, purchasing, receiving, storage, production, shipping, and actual sales. Both the theory of costing materials and inventories and the practical mechanics of cost calculations and record keeping must be considered.

Materials management in the health care system is concerned with providing the drugs, supplies and equipment needed by health personnel to deliver health services. About 40 percent of the funds in the health care system are used up for providing materials.

Materials management has been defined by lee and dobler (1997) the sum total of all the itineraries which leads to making available from outside the organizations the material need of such organization. The principal goal of materials management is to guarantee that the correct material is available when it is needed with the lowest cost to the company (jacobs, chase, and aquilano, 2009).

The main aim of materials management is to make available an intermittent sequence of material need or raw materials [garba., vol.8 (iss.2): february 2020). The productivity of any company will be greatly affected if the management of the company does not pay special attention to material management in the company. This is because this is the lifeblood that holds the various components of manufacturing in any organization together and ensures that it will have all the necessary items needed to carry out its day to day activities.

The right material management can increase productivity by anywhere from 4% to 12%, which is why properly managing materials is so critical on every organization regardless of size or location. If supplies aren't handled effectively, that can have ripple effects down the line, delaying subsequent tasks and increasing costs.

Successful implementation of material management concept in an organization leads to reduction in duplication of functions, improvement in delivery of materials among other benefits.

Over the years, the researcher has noticed that majority of companies in Nigeria and especially in the study area are faced with the problem of having the required level of materials such as raw materials which they need in order to effectively engage in production of goods and services to satisfy the market demands for such products and services (ibegbulem and okorie, 2005). This inability to effectively manage the flow of materials from the external environment into the company could be attributed to several reason ranging from management inefficiency in management of the supply chain for the products, inadequate working capital, harsh business environment among other factors. To ensure an effective material management in an organization, the holistic installation and

maintenance of an inventory control system which is a system that includes all the chain from purchasing to warehousing. For an effective material management, stock valuation is paramount in determining the inherent worth of company's share.

Most company fails in material management because of the inability to manage lead time (okoro, 2019). Thus, the initiation of inventory purchase and the time it gets delivered to the company is a huge determinant of the performance of an organization which is the actual output of the organization measured against its intended output.

1.2 Statement of the Problems

The present state of manufacturing companies in Nigeria reflects various problems ranging from delays in project execution/delivery, substandard work, disputes, to cost and time overrun as a result of material shortage and wastages on production, theft and displacement of materials on sites, as well as poor accounting and security system of the concerned sites/firms (Adafin, 2011).

Problem related to managing the flow of materials can be found in every organization the efficient management of materials plays a key role in the successful completion of a project. The control of material is very important and vital subject of every organization and should be handled effectively for the successful completion of a project. Material account for a big part products and project cost. The cost represented by material fluctuates and may compromise between 20-50% of the total project cost and some times more, some studies concluded that materials count for around 50-60% of the project cost (Stukhart 2007 and Bernold and Treseler 1991).

According to Dahiru (2010), lack of materials not only causes delays, but a consequent decrease in productivity and resulting to cost overruns. This is no doubt lack of effective material management is one of the major cause of this problem. Failure of the manager to make available materials need could lead to delay. Non-compliance strictly with material requirement planning of quantities, schedule of materials, specifications and breweries programs in material stock control practice is another contributing factor which tends gradually to decrease profitability of a company also often leads to extension of time respectively, and hence no proper material stock control practice (Inyang Udoh, 2002).

Dey (2015) noted that the rate at which materials are being wasted due to improper management is becoming unbearable to the company due to its effect on their profit margin and proper usage of material to achieve quality job been done through various techniques. Material management practices are critical to an organizations success in today's competitive and dynamic market, (Dimitrios 2008).

According to Amoro (2011), most manufacturing firms face problems of stock outs, over supply, over stocking, stock obsolescence, poor forecasting, stock pilferage, poor responsiveness to customer needs and lack of proper material management equipment, methods and practices results into poor productivity

Materials are critical in operations in every industry since unavailability of material can stop production. In addition, unavailability of materials when needed can affect productivity, cause delays and possible suspension of activities until the required material is available, it is important for an organization to consider that even for standard materials, there may be significant difference in the data that the materials was requested or data when the purchase order was made and the time in which the material will be delivered. These delays can occur if the quantities needed are large and suppliers is not able to produce those materials at the right time or any other factors beyond the control of the organization. The organization should always consider that purchase of material is a potential cause for delay (Willis, 2008).

Unavailability of materials is not the only aspect that can cause problem, excessive quantities of materials could also create serious problem to manager. Storage of materials can increase the cost of production and the total cost of any project when there are limited areas available for storage.

The managers have to find other alternative to organize the material until they are needed. Some of the alternatives might require re-handing of materials, which will increase the costs associated with them. Provisions should be made to handle and organize the material adequately when they are to be received, also special attention should be given to the flow of material.

Many organizations seem to be failing in the realization of the corporate goals and objectives. However, for most of these organizations (particularly manufacturing organizations), materials are crucial aspect of the firm's prosperity and goal attainment (Burt, 2003). Some firms do not have genuine and efficient management of the purchase, storage and usage of the materials.

The major challenge that material managers face is maintaining a constituent flow of materials for production. There are factors that inhabit the accuracy of inventory which results in production shortages, premium freight and often adjustments.

The importance of materials management is evident in the amount of expenditure allotted to materials and the significant contribution of materials to organizational performance.

Another problem in materials management is 'double handling'. It refers to situations where materials are being handled more times than is necessary, mainly because of inefficiency. In theory when materials are delivered to site, they are supposed to make only a limited number of journeys. For example;

- Delivery vehicle to place of storage.

- Selection from place of storage.

- Delivery to and through the process of production. However, in practice this seemingly simple flow is not maintained. This increases greatly the real cost of handling (i.e. fuel, plant, labour, etc) with its attendant increase in the risk of accidents and stock damage. (Johnson, 1981).

There are other researchers who have also looked at the impact of material management as a strategy for higher productivity in different contexts but few have focused on the impact of material management as a strategy for higher productivity in manufacturing industry over time. In that regard, this study sought to assess the impact of material management as a strategy when it comes to ensuring higher productivity using OLAM Nigeria Ltd as case study.

1.3 Research Questions

1. What is the impact of materials management on the productivity of the organization?
2. What is the relationship between material management and productivity?
3. What is the effect of materials management on the organizational efficiency and performance?

1.4 Objectives of the Study

The objective of this study is to examine the impact of material management as a strategy for higher productivity in an organization.

1. To examine the impact of materials management on the productivity of the organization.

2. To investigate the relationship between materials management and productivity.

3. To examine the effect of materials management on the organizational efficiency and performance.

1.5 Research Hypotheses

HO₁: Materials management has no significant impact on organizational productivity.

HO₂: There is no significant relationship between materials management and productivity.

HO₃: Materials management has no significant effect on organizational efficiency and performance.

1.6 Significance of the Study

The research work will examine the significance of materials management to aggregate performances of the organization. Apparently, all organizations, whether service oriented or good oriented need to pay attention to the essence of materials and materials management in their organizations. It would enable managers to boost productivity and minimize or eradicate problems related to materials management. It will generally help management in reducing wastage and pilferage of materials and equally enhance proper utilization of materials. Furthermore this project embarked on in order to gather necessary information and suggest solution to the problem of material management for higher productivity.

1.7 Scope of the Study

This study is concerned with materials management as an effective tool for productivity which would be carried out using OLAM flour mills, Ilorin as a case study.

1.8 Definition of Terms

Organization: Are artificially contrived structure with procedures and objectives defining the responsibilities, who does what type of job task, who report to whom and when and who is responsible for what action.

Technique: A technique refers to the ways which may be adopted in order to minimize on the uncertainties or outcomes of poor inventory levels like stockless purchasing system, determining order quantities and inventory levels.

Performance: is a measure of the results achieved.

Performance efficiency: is the ratio between effort extended and results achieved. The difference between current performance and the theoretical performance limit is the performance improvement zone. Performance assumes an actor of some kind but the actor could be an individual person or a group of people acting in concert. The performance platform is the infrastructure or devices used in the performance act (Malcom, S. 2005).

Manufacturing: This is the use of machines, tools and labour to make things for use or sale or process where raw materials are transformed into finished goods on a large scale..

Profitability: This is the act of making gains in business activity and for the benefit of the owners of the business.

Efficiency: This is concerned with the percentage resource actually used over the resources that were planned to be used.

Materials: These are items used for production of goods and services.

Management: Management can be defined as a process of planning coordinating, directing, motivating, organizing and budgeting in order to active a particular goal.

Productivity: Productivity can be defined as the amount of output per unit of input (labour, equipment and capital) of a firm.

Production: Production can be defined as the creation of utility. Also production can be defined as the process of manufacturing or transforming raw materials into finished goods for the use of consumers.

Purchasing: Purchasing can be defined as the process of buying goods and services of the right quality in the right quantity at the right price and the right time from the right supplier or source to be delivered at where and when needed.

Inspection: Inspection is the process of ascertaining whether or not the goods delivered are of the specified quality.

Material management: Material management is the act of planning, organization, controlling and directing of the supply and processing activities of materials in an organization.

Right quality: Right quality means meeting an acceptable standard of performance by the material in order to meet the specification set out.

Right quantity: Right quantity refers to the value or amount of material that can be most economically of supply with minimum investment in stock.

Right price: Right price means buying at the best price that commensurate with quality and service required and the subsequent costs that may likely be incurred and above all, buying competitively and wisely.

Right time: Right time means that supplies should be received not too early as to increase cost of stock holding neither unnecessarily nor too late as to cause avoidable delays and stoppages in production operation.

Right source: Right source is the selection of the right source or supplier based on his willingness and the ability to fulfill the specified requirements of the purchase contract.

Just In Time: This is a material management method in which goods are received from suppliers only as they are needed that is a company receives goods as possible when they are actually needed.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter focuses on the literature review and is divided into three different sections namely; conceptual clarification, theoretical review and empirical review.

2.2 Conceptual clarification

2.2.1 The concept of material management

Over the years a number of exponents have expressed various views as what materials management entails. The following are just few of such views.

Donald and Lammar (1997) describe materials management as practical in business today “as a conference of traditional materials activities bound by a common idea – the idea of an integrated management approach to planning, acquisition, conversion, flow and distribution of production materials from the raw materials to the finished product state”.

Alijian (1998) define materials management “as that aspect of industrial management which is concerned with all of the activities involved in the acquisition and use of all materials employed in the production of finished goods”. The activities may include production control, inventory control, purchasing, expenditures, shipping scarp and surplus disposition and customer services.

Ugbana, (1986) a renowned author on the subject matter describes material management as an effort to bring together under one manager's responsibility for determining manufacturing requirements in production planning and control, procuring sharing and dispersing materials on time within allowable cost and scheduling the manufacturing process.

Bowewox (2000): noted the concept “as the aspect of overall logistic concerned with the procurement of raw materials, parts and merchandise for resale as materials management.

Material management is the panning organization and controlling of the flow of materials from the initial purchase through internal operations to distribution of finished goods. (American Production and inventory control society).

Material management can be defined as an organizational concept of the foster and total system approach to plan, acquire, store, move, and control materials

(raw materials, supplies, work in process and semi-finished goods) order to optimized all company resources (includes material, people money and facilities) and provide customer services consistent with company policy (mind and Amos).

Materials management is a process of coordination all resources through the process of planning, organization, stating, directing, leading and controlling to achieve desired objectives with the use of human being (George terry).

Materials management can also be defined as a body of knowledge which helps the manager to improve the productivity of capital by reducing materials costs, preventing large amount of capital being lacked up for long periods and improving the capital turnover ratio. Materials managers must derive its objective by understanding of local environment and at the same time looking in to consideration the human factor, their attitude, sense and approach to new ideas (Harold koontz).

Materials management is the process of management which co-ordinates, surprises and executes the task associated with the flow of materials to, through and out an organization in an integrated to fashion (A.Kdata).

In confederacy of traditional material activity bound by a common idea the idea of an integrated management approach to planning, acquisition, conversion, flow and distribution of production materials from the raw material sate to the finished product state (W.dabler and his colleagues).

When we sum up these definition, materials management can be defined as an organizational concept designed to enhance coordination and control or the various materials activities including and activity to plan, purchase, store, handle, distribute, use and control of materials in order to contribute to organizational success and profitability.

2.2.2 The Concept of Productivity

Productivity differs from production. Production refers to an increase in output over a given period of time; productivity is concerned with the ratio of output to an input. Many writers explain productivity in terms of this ratio with little further elaboration.

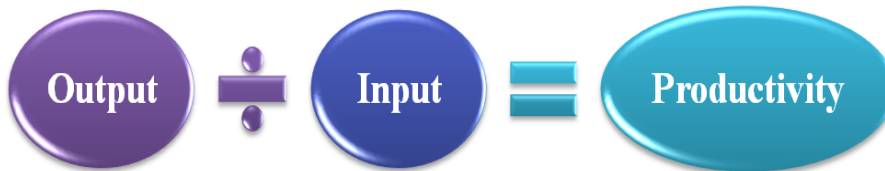
Productivity is the quantitative relationship between what we produce and the resources we use" (Currie (1972)).

Productivity is the volume of output which is achieved in a given period in relationship to the sum of the direct and indirect effort expended in its production"

(Smith & Beeching (1968). Productivity ratios usually relate units of one single input, for example labor cost, number of worker days or total cost, to one single output, for example financial measures such as profit or added value, or physical measures such as tons produced or standard minutes of work produced.

According to Peter Drucker; “Productivity means the balance between all factors of production that will give the greatest output for the smallest effort.” Productivity is expressed or measured as a mathematical division of two important parameters (functions) viz., output and input. The concept of productivity is depicted in the following illustration:

What is Productivity?



Productivity is expressed or measured as a mathematical division of following parameters (functions).

$$\text{Output} / \text{Input} = \text{Productivity}$$

In 1883, another French man, Littré, defined productivity as the faculty to produce. Fabricant defines productivity (as cited in Ali 1978, p. 55) in the following words, always a ratio of output and input, it is the most common definition of productivity. Mali has proposed the similar concept of productivity (as cited in Afzal, 2004. p. 06). According to Mali, Productivity is the measure of how well resources are brought together in organizations and utilized for accomplishing a set of results. Productivity is the name of reaching the higher level of performance with the least expenditures of resources.

Sumanth (1990, p. 04) believes that productivity is a family of ratios of output to input. The living standard of the country is measured by the productivity. Productivity is measured by the goods and services produced by per unit of national resources.

Sink (1985, p. 15) has further clarified productivity with reference to time and application of generic system of calculation. According to Sink (1985, p. 15), the concept that productivity is a relationship between outputs from a given system during or over a given period in time, and inputs to that system during that same period, should be generic and universal.

Campbell & Campbell (1998a, p. 01) have viewed this issue in a different manner. According to them productivity is a concept that has captured the imagination and energy of managers and behavioural scientist for decades. In this statement, productivity looks a concept more than a definition.

Productivity is a measurement or calculation between input and outputs. Inputs are the amount of resources such as human resource, money, time, physical, technological and effort spent working in the organization, while output are the result. If the inputs are equivalent to the outputs, the worker is considered productive. When the organization are productive, they accomplish more in a given amount of time. In turn, efficiency saves their company money in time and labour. When employees are unproductive, they take longer time to complete projects, which cost employee's more money due to the time lost (Ikeanyibe, 2009).

Productivity is a ratio to measure how well an organization converts input resources (labor, materials, machines, money) into goods and services (Tokarčíková, 2013).

Dorgan (2014) defines productivity as “the increased functional and organizational performance, including quality.

Rolloos (2007) claims that productivity is that which people can produce with the least effort.

Nda & Fard (2013) describes productivity as the measure of output per unit of input economically.

The importance of higher productivity of the employees in manufacturing firms cannot be overemphasized, which include the following; Higher incomes and profit; Higher earnings; Increased supplies of both consumer and capital goods at lower costs and lower prices; Ultimate shorter hours of work and improvements in working and living conditions; Strengthening the general economic foundation of workers (Parker, Waller & Hu, 2013).

Productivity refers to the real output per unit of labor. It is a powerful driver of international capital flows. Productivity levels seem to be the highest in United

States as compared to the euro area, because of higher employment rates in U.S. (Skoczylas & Tissot, 2005).

Meneze (2006) defined productivity as the employee's ability to produce work or goods and services according to the expected standards set by the employers, or beyond the expected standards. Productivity is calculated by comparing total amount of output to the total amount of input used to produce this output (Bojke, 2012).

Productivity is defined by Amah (2006) as the measure of how efficiently and effectively resources (inputs) are brought together and utilized for the production of goods and services (out puts) of the quality needed by society in the long term. This implies that productivity is a combination of performance and economic use of resources. High productivity indicates that resources are efficiently and effectively utilized and waste is minimized in the organization. Productivity balances the efforts between different economic, social, technical and environmental objectives. High productivity provides more profit for investors and promotes the development of the enterprise. Productivity measurement indicates areas for possible improvements and shows how well improvement efforts are faring. It helps in the analysis of effectiveness and efficiency.

Baig (2002, p. 08) has defined productivity in the following words, doing things right at the least possible cost in least possible time with the highest possible quality and to the maximum level of satisfaction of the customers and employees.

Chen; Liaw & Chen (2001, p. 378) defines productivity in the following words, productivity is often used to evaluate the aggregate performance of a business unit, generally defined as the ratio of outputs to inputs.

Performance and Innovation Unit (2001, p. 25) has defined productivity in the following words, productivity is the efficient and effective use of resources by the organization.

Vittal (2002, p. 28) has attached another concept with productivity and that is the objective of the organization. Vittal (2002, p. 28) says that, productivity, at a very element level can be defined as output by input. But mere increase in output is of no value unless the output also has a bearing on the objectives of the organization or the environment under which the transaction takes place.

Srinivasan (2002, p. 74) is looking productivity with another angle. According to Srinivasan (2002, p. 74), the concept of productivity has undergone a sea change with the advent of the e-Age. In the new business paradigm, the traditional definition has to be modified; in fact it has already been redefined in this knowledge era. Srinivasan (2002, p. 74) has further stated, It has become to be recognized that there are several intangible, nevertheless vital ingredients, that constitute the sum of productivity. In the above statement, it is clear that simple output and input ratio is not the true meaning of productivity, firms produce some intangible things, which are also vital. In addition, there is a need to measure intangible output too while measuring productivity.

According to Bernolak (1980, p. 03), productivity is the relationship between the quantity of goods and services produced and the quantity of one or all of the resources utilized in turning out these goods and services. It is usually expressed as a ratio. It seems that Bernolak (1980, p. 03) is also in favour of the general definition, which is about the ratio of output and input.

Monga (2000) comments on productivity in a changed manner that is productivity is a multidimensional and dynamic concept”.

Brinkerhoff and Dressler (1990, p.160), Productivity reflects results as a function of effort. If productivity improves, it means that more results are being gained from a given amount of effort. In a classical sense, productivity is defined as a ratio such that the output of an effort under investigation is divided by the input required to produce the output.

In the above mentioned statement two major concepts have been elaborated: a- productivity is a result of effort and b- ratio of output to input. This definition is a modified shape of the previous given statements.

2.3 Theoretical Review

2.3.1 Inventory Management Theory

The theory of inventory management was propounded by Nowicka-Skowron (2007). It emphasizes the role that management 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 firms 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 firm 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. 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 is studied in order to help companies save large amounts of money. 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.

2.4 Empirical Review

Previous studies have convergent opinions on the relationship between the materials management and organizational productivity. For example, Adamu (2020) examined the effect of material management on the performance of Benue Brewery Industry, Nigeria using survey research design with a population of 242 respondents and a sample of 151. Data was collected using questionnaire and analyzed using descriptive statistics such as frequency, simple percentage and the relationship between the variables of the model was tested using multiple regression analysis. The result of the regression analysis shows that material management have a positive and significant ($p < 0.05$) effect on organizational performance. Lead time was negatively signed but the effect is statistically significant ($p < 0.05$). The researcher concludes that when properly carried out planned material management can bring about efficiency at workplace. The researcher recommends that, management of the Nigerian Brewery should bring an improvement in the lead time as it is will bring about acquiring and delivering the needed materials within the shortest time possible.

Kisioya and Moronge (2019) examine the influence of Material handling practices on performance of manufacturing firms in Nairobi Kenya. The study adopted descriptive survey design and the target population was 355 large -scale-manufacturing firms in Nairobi county Kenya. Stratified random sampling was adopted to select a sample size of 188 large-scale manufacturing firms in Nairobi County, Kenya. Primary data was collected using structured questionnaires inform of Likert scale. Filled questionnaires were reviewed for completeness and then coded and entered in SPSS. Data analysis was involved both descriptive and inferential statistics. The analyzed data was presented in form of tables together with associated explanations. A good response rate of 71.3% was realized. It was established that most of the material handling practices indicators have positive impact on performance of the firm. The study further adopted a regression analysis to determine the relationship between the variables at 5% confidence level of significance. The study findings showed that the four variables had a significant influence on performance of the firms.

Joel, and Noor (2019) determined the influence of material management on performance of Large Manufacturing Firms in Nairobi City County, Kenya. The study adopted the descriptive research design; research design is defined as a plan, structure and strategy of investigation conceived to obtain answers to research questions and control variance. The collected research data was checked for any errors and omissions, coded, defined and then entered into Statistical Package for Social Science (SPSS Version 23). Descriptive statistics was used to portray the sets of categories formed from the data. The mean, standard deviation and variance on the dependent and independent constructs was used to show how clustered or dispersed the constructs are. The study used multiple linear regression analysis to test the statistical significance of the various independent variables in testing the significance of the model, the coefficient of determination (R^2) was used to measure the extent to which the variation in implementation on supply chain performance is explained by the variations of various factors on the outsourced distribution services. The study established that Basic functionality of materials management includes various factors such as supply, material pricing, and usage. Large manufacturing firms should take more in-depth look at the functions of materials

management and how it is advantageous to large manufacturing firms supply chain to enable production facility and locate areas where aid is needed.

Daniel, (2019) examined the effects of materials management on the productivity of an organization. Many business organizations in Nigeria fail to value the role of materials management in improving their productivity. A sample size of 255 was obtained from the population of 705 at 5% error tolerance and 95% degree of freedom using Yamane's statistical formula $255(100\%)$ of the questionnaires distributed 250 (98%) were returned and 5(2%) were not returned. The questionnaire was designed in Likert scale format. The researchers conducted a pre-test on the questionnaire to ensure the validity of the instrument. Pearson moment product co-efficient and regression analysis were used to test the hypotheses. The study discovered that material management used by the organization adds to the profitability of the company, sufficient storage facilities stops interruption on production process amongst other things. As an outcome of the above, it was suggested that there should be respectable record system of materials for the processes of the organization as it influences production and the training of staff to obtain new skills and knowledge required for the work for the profit of the organization

Dagim, (2018) examined the role of material management on organizational performance: A Case Study in Commercial Bank of Ethiopia. The research employed descriptive research designed to describe the role of material management on the bank's performance. The target populations of the study were 80 employees of the bank who are directly involved in the material management aspects. The researcher used census sampling, by involving all of the employees of the bank who are working in material management as the population of the study. The quantitative data were analyzed through descriptive statistics such as mean, standard deviation, median and percentages. The thesis result reveals the study established that there is practice of planning and using it, but federal proclamation is not well obeyed. This concluded that the bank's endeavor to material procurement is not backed by proper practice based on law. In addition, inventory control system is employed only averagely that it lacks consistency and profundity.

Oyebamiji (2018) examined the effect of materials management on the performance of manufacturing industry with particular reference to the selected cement industry.

Purposive sampling technique was employed to select Dangote Cement Plc, Ashaka Cem Plc and Lafarge Africa Plc, while judgmental technique was used to select ten (10) staff members from purchasing/store/ logistic department of the selected cement industry respectively, totaling thirty (30) respondents as a sample size for the study. The data collection instrument for the study was a structured questionnaire and a personal interview. Data analysis was conducted with the aid of multiple regression analysis. Result revealed that materials management dimensions jointly contribute significantly to firm performance. The study further revealed that materials inventory, materials procurement and inter-departmental collaboration have an insignificant effect on firm performance, while only materials storage has a significant impact on firm performance. The study concluded that effective materials management is a veritable tool to organization performance.

Napoleon, Ayoakateng, Asubonteng, Asigri and Alubokin (2018) assessed material management techniques required for construction firms in the Tamale Metropolis of Ghana. The data was analyzed using descriptive and inferential statistics such as factor analysis, and Pearson product moment correlation coefficient. The study adopted descriptive quantitative survey approach. Using empirical data obtained from ninety-six administered questionnaires of material managers in Tamale Metropolis; the data was analyzed using descriptive and inferential statistics such as factor analysis, and Pearson product moment correlation coefficient. The study indicated that firms often employed store keepers and security personnel on site; list of materials in project that includes for example (material name, material number and unit price), and provide clear specifications to suppliers. However, they seldom use ICT; and rarely offer training for their workers. The study further revealed that planning and monitoring of material schedule; establishing good business relations with suppliers; the use of security measures on site; use of information communication technology; and also use of competent workers as well as effective training of workers is significant for effective material management on construction site, and has direct effect on construction project delivery success.

Assiamah, Daniel and Hanson (2018) studied materials management and its effect on cost of supplies case study of cocoa processing company of Ghana Primary data, interviews (face-to-face, telephone) and questionnaire were used. Secondary data has been sourced through literature from the university library and internet sources,

qualitative design method was chosen over others because of the nature of the research work. Financially, materials (inventories) are very important to manufacturing companies and on the balance sheet they usually represent from twenty to sixty percent of total assets. Therefore, if the application of the concept of materials management is accepted with well qualified personnel, it could lead to the minimization of cost. The function of a materials manager is to promote coordination and integration within the supply chain and the major benefits are assumed to be; reduction in interdepartmental conflicts, reduction of inventory levels, increased knowledge of total corporate operations and reduction of materials handling costs among others

Oba-Abimbola, Adejonwo, Ademola and Obadeji (2017) examined the effectiveness procurement on material management in manufacturing industries. The target population of the study was 56 employees of Nigeria Breweries. A sample of 49 respondents was selected from this population using the stratified random sampling technique, where 7 departments, which directly deal with materials, were selected which include: production, Purchasing, quality Control, Warehouse/store, Human Resource Development, Finance and audit and physical Distribution departments, data was collected through a structured questionnaire, consisting mainly of closed ended and open-ended questions. The data was analyzed through descriptive statistics such as mean, standard deviation, median and percentages. Results showed that there was significant relationship between effective procurement and material management as a result of inventory control system involvement.

Saukkonen (2017) studied the development of material management system case Black Bruin. Focus on inventory replenishment system and modelling of costs. Mixed research method, was adopted which included elements of both qualitative and quantitative methodologies. Based on the collected information, the author identified the most appropriate inventory control solution for the Black Bruin Inc. case and constructed it in Excel by using VBA (Visual Basic for Applications) code features. As a result, the constructed model could be used as a tool in the decision-making process regarding the inventory operations. The model can compute the optimal order quantity and reorder point decision variables regarding the minimum objective value of the total cost. At the end of the research process, the author

outlined the advantages and disadvantages of the model as well as it's most sensitive and uncertain elements. In addition, guidelines for the model's usage, suggestions for improvements and further research recommendations were given and thoroughly explained. .

Cyprian and Makori (2017) examined the effect of material management on the performance of Mumias Sugar Company Limited in Kenya. Stratified random sampling was used to select 79 respondents from the Company. The sample of 79 was equivalent to 10% of the target population which is regarded as statistically significant in a descriptive study with a finite universe. The study utilized a research questionnaire. Data were analyzed with the aid of the Statistical Package for Social Sciences (SPSS) to generate the required frequencies and percentages to answer the research questions. Results reveal that materials procurement and inventory control positively influenced the performance of sugar manufacturing industries in Kenya.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

This chapter discussed the general methodology used in the research. The chapter looked at the research design, population, sample size and techniques, data collection methods, research procedures and data analysis as well as historical background of the case study used in this research.

3.2 Research Design

According to Cooper and Schindler (2013), a research design is a design for choosing subjects, research area and data collection in order to answer specific research questions. Research design is a systematic research plan that provides the direction of the study and guides the researcher on how data should be collected, organized, analyzed and interpreted. A descriptive study determines the rate something occurs or the relationship between variables. Cooper and Schindler (2013) also indicate that a descriptive study determines, who, what, where, and how of a phenomenon which was the objective of this study. This descriptive research design is therefore used for this study because it allowed a variety of data collection techniques including questionnaires, interviews, observation, and documentation.

The research was based on both the qualitative and quantitative research designs. The qualitative research design was descriptive in nature and this enabled the researcher to meet the objectives of the study. A statement was used to assign variables that were not adequately measured using numbers and statistics. The quantitative research design was used in form of mathematical numbers and statistics assigned to variables that may not be easily measured using statements or theme.

3.3 Population of the Study

A population refers to the combination of elements that have similar characteristics or behavior (Mugenda & Mugenda, 2003).

The population of the study area is made up of staffs that are directly in charge of handling of materials in the company. These will enable the researcher to generate critical data important for the study. The total population was around 190 staff members of OLAM FLOUR MILL, ILORIN.

Table 1: Study population

CATEGORY	NUMBER	PERCENTAGE
TOP MANAGEMENT	47	24.7
STORE MANAGEMENT	57	30
PURCHASING DEPARTMENT	44	23.2
ACCOUNT\FINANCE	30	15.8
OTHERS	12	6.3
TOTAL	190	100

Source: Questionnaire 2025

3.4 Sample size and sampling techniques

For the research to get a quality information to represent the entire population, two sampling technique were adopted, these includes simple random sampling and purposive/judgmental sampling.

Simple random sampling was used because of its relative advantage that each element in the population was given an equal and independent chance of being selected. The researcher makes use of this method in order to avoid bias in the process of picking the respondents from the list of possible respondents.

Then, Judgmental sampling was used to select respondent base on the researcher's own judgment.

Key participants of the study comprised of respondents from OLAM FLOUR MILL staffs (others), stores department, purchasing department, finance department and top management staff from various departments. From the total population of 190 people,

Sample size was determined using TARO YAMANE formula.

Sample size, $n=N$

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

Where, N = Target Population

e = significance error (5%)

n = sample size

N = 190,

$$e = 0.05$$

$$n = \frac{190}{1 + 190(0.05)^2}$$

$$n = 128.8 = 128$$

Hence sample size, $n = 128$

CATEGORY	NUMBER	PERCENTAGE
TOP MANAGEMENT	28	21.9
STORE MANAGEMENT	50	39.1
PURCHASING DEPARTMENT	20	15.6
ACCOUNT\FINANCE	12	9.4
OTHERS	18	14.1
TOTAL	128	100

Source: Questionnaire 2025

3.5 Methods of data collection

Considering the nature of the study, two sources of data used are: primary and secondary sources in a bid to come up with sound, concrete and credible research findings. The primary data which will be collected using the attached questionnaire from the staffs OLAM Flour Mill and the secondary data using internet, past project, websites as well as textbooks.

3.6 Instruments of data collection

Research instrument to be used in data collection include among others is questionnaires and documentary analysis. These research instruments will be use to ensure that all the data necessary for the study was absolutely collected. The researcher has chosen the questionnaire method in order to collect accurate data directly from people in the field of study. The method is simple to use and objective in nature which does not involve complex mathematical or statistical calculations. It gives everyone in the field opportunity to answer the questions freely, using five point Likert response scale. The questionnaire will comprise of two parts first part focuses mainly about the personal profiles of respondents such as age; gender, education status, post held etc., whereas second part of the questionnaire will deal

with agreement and disagreement by respondents on material management. Documentation will be used mainly in gathering secondary information through the use of internet, website, past project and books related to the subject of the study and these were consulted at length to extract the information required to support the findings from the study respondents.

3.7 Methods of data analysis

Data analysis is the process of analyzing, cleaning, transforming and modeling data collected in research. Data analysis methods used in the study included both qualitative and quantitative techniques (Mugenda & Mugenda, 2003).

After collecting all the necessary data, these data would be edited, analyzed and rephrased to eliminate errors and ensure consistency. It involved categorizing, discussing, classifying and summarizing of the responses to each question. This was intended to ease the tabulation work. It also helped to remove unwanted responses which would be considered insignificant. The data gathered through questionnaires will be fed into Statistical Package for Social Sciences (SPSS) to make the data ready for processing.

Finally, a research report would be written from the analyzed data in which conclusions and recommendations would be made.

The study will also undertake a correlation analysis of the various variables to determine how materials are effectively utilized in organization. The study will use tables and figures to display the data for ease of comprehension and analysis.

3.8 Historical Background of OLAM International Limited

OLAM was birthed in Nigeria in 1989 with only 1 product and 2 employees. Today, after 30 years, OLAM has footprint in about 60+ countries, 45 products and 87,600 employees. . OLAM International is a major food and agri-business company, operating in 60 countries and supplying food and industrial raw materials to over 19,800 customers worldwide. OLAM is among the world's largest suppliers of cocoa beans and products, coffee, cotton and rice. In 1989, the Kewalram Chanrai Group established OLAM Nigeria Plc to set up a non-oil based export operation out of Nigeria to secure hard currency earnings to meet the foreign exchange requirements of the other Group Companies operating in Nigeria. The

success of this operation resulted in OLAM establishing an independent export operation and sourcing and exporting other agricultural products. The Group's agri-business was headquartered in London until 1996, and operated under the name of Chanrai International Limited. The business began with the export of cashews from Nigeria and then expanded into exports of cotton, cocoa and sheanuts from Nigeria.

Between 1993 and 1995, the business grew from a single operation into multiple origins, first within West Africa, and then to East Africa and India. The move into multiple origin countries coincided with the deregulation of the agricultural commodity markets.

OLAM International Limited was incorporated in Singapore on 4 July 1995 as a public limited company. In 1996, at the invitation of the Singapore Trade Development Board (now Enterprise Singapore), OLAM relocated their entire operations from London to Singapore. Furthermore, the Singapore Government awarded OLAM the Approved International Traders status (now called the Global Trader Programmes) under which OLAM was granted a concessionary tax rate of 10%, which was subsequently reduced, in 2004, to 5%. On relocation to Singapore, the Group's agri-business was reorganized to be wholly owned by OLAM International Limited in Singapore.

In 2002, AIF Capital became the first external investor to take an equity stake in the company. In 2003, Singapore's state-owned Temasek Holdings, through its wholly owned subsidiary Seletar Investments, took a stake in OLAM, followed by International Finance Corporation (IFC).[14] On 11 February 2005, Olam International Limited was listed on the main board of the Singapore Exchange, Temasek made a further investment in OLAM in 2009.

As of December 2014, following a Voluntary General Offer Temasek held close to 80% of OLAM. By 2020 this had reduced to 53.4%. In 2015 Mitsubishi

Corporation acquired a shareholding of 20% making them the second largest shareholder.

The management team of OLAM has a shareholding in the company approximating 6.3% of the total issued share capital. OLAM free float owned by public shareholders accounts for approximately 15.9% of the total issued share capital in 2020. In 2010, OLAM International discussed a possible merger with one of its main competitors; Geneva-based Louis Dreyfus Company, the world's largest cotton and rice trading company. This idea was abandoned in early 2011. In 2010, OLAM International acquired Crown Flour Mill. Crown Flour Mill at that time had 2 operating factories in Lagos and Warri with only 2 products Flour and Semolina.

This acquisition brought about a significant turnaround in the business. OLAM International brought its Agro-technical and Supply Chain capabilities into the business. The business multiplied multifold. It was still in the flour and semolina business only.

The entry into the pasta business started with the acquisition of the BUA pasta and flour milling units in 2016. The Technological, Sales and Supply Chain skills of OLAM helped Crown Flour Mill become a large pasta player. OLAM announced in July 2013, that it would sell its cotton assets in Zimbabwe, with the preferred buyer being a private equity company.

In 2019, the company announced plans to sell its sugar, rubber, wood products and fertilizer units.

In January 2020, OLAM International announced division of its portfolio of diverse products into two new operating businesses, OLAM Food Ingredients (OFI) and OLAM Global Agri (OGA). The decision followed from its 2019 business review, and a multi-year plan announced early in 2019 to invest US\$3.5 billion into key growth areas, such as edible nuts, coffee and cocoa, while shedding other sectors. In

the statement released by the firm, OLAM Food Ingredients (OFI), will consist of its cocoa, coffee, edible nuts, spices and dairy businesses, OLAM Global Agri (OGA) will include grains and animal feed, edible oils, rice, cotton and commodity financial services.

OLAM International Ltd opened its new poultry feed mill and Day-oldchick (DOC) facilities in Kaduna State of Nigeria. The company also concurrently started production at an integrated poultry and fish feed mill at Ilorin in Kwara State of Nigeria. Together the two animal feed mills, poultry breeding farms and hatchery have an investment of around \$150 million.

With a combined capacity of 720,000 tonnes of poultry feed annually, OLAM said its facilities directly address a significant supply gap for poultry meat in Nigeria, giving farmers and distributors access to highquality feed and DOC at competitive prices. In addition, OLAM team of field veterinarians will train up to 10,000 farmers a year in best poultry farming practices.

Given around 75% of poultry farming is managed by smallholders, Olam's poultry initiatives have the potential to indirectly create 150,000 to 200,000 rural jobs for Nigerians as the entire sector is stimulated.

Olam estimates that poultry meat consumption among Nigerians could increase up to 10fold by 2040, provided domestic supply can meet increased demand and based on prices becoming more affordable for Nigerians.

Fishfarming is therefore essential to meet the supply gap and reduce the need for imports – currently almost 700,000 tonnes to 800,000 tonnes of fish and marine products are imported annually, resulting in a foreign exchange outflow in excess of \$1 billion. One of the barriers to increasing production is readily available, affordable and good quality floating fish feed – it currently accounts for over 70% of the loc

al farmers' production costs. The Kwara mill has an initial capacity of 75,000 tonnes of fish feed per year that can be further scaled up.

OLAM estimates that its local sourcing of raw materials such as soybeans, corn and cassava for its animal feed operations will positively impact more than 300,000 smallholder crop farmers. The company is specifically focusing on boosting the productivity of soybeans in Nigeria, currently at below 1 tonne per hectare, versus 3 tons to 3.5 tons per hectare in Brazil and the United States. To this end, OLAM is collaborating with the International Institute of Tropical Agriculture, Ibadan to supply farmers with high-yielding soy seeds.

In another effort, Olam has created internships for around 100 veterinary, aquaculture and agronomy graduates who will receive hands-on learning opportunities at the company's facilities over a two-year period. In the same way that OLAM Grains has built a highly successful wheat milling footprint across Africa, we will be looking to scale our animal feed operations, both in and beyond Nigeria." OLAM Cashew is located in Ilorin West, Kwara State. Our company is mainly into Agricultural Product, Agriculture & Farms, Agriculture and Farming and offering Cashew nut, Cashew Processing Services.

With such efforts, Ilorin has become the hub for cashew processing in Nigeria and Olam International has set up Africa's biggest cashew processing plant. The plant processes 100 MT of cashews every day and provides employment to over 2000 workers. Top of the line Agro-Technology is at the heart of our success in the Flour Milling business. All our factories have the best state of the art facilities with required certifications – Food Safety System Certification 22000(FSSC 22000); International Standard Organization certification (ISO 9001:2015).

CHAPTER FOUR

DATA PRESENTATION, ANALYSIS AND INTERPRETATION

4.1 Introduction

The data that were generated from the employees of the selected manufacturing firm through questionnaires were analyzed and interpreted by analyzing and organizing the collected data in meaningful form according to the suggested and proposed answers by the respondents for each question of the research. The research distributed 128 questionnaires for this research study. However, only 80 questionnaires were collected and 48 questionnaires were not collected from the respondents. Therefore, the analysis in this section will be based on the one hundred relevant copies of questionnaire.

<i>Category</i>	<i>Respondents</i>	
	<i>In Number</i>	<i>In %</i>
<i>Returned</i>	<i>80</i>	<i>62.5</i>
<i>Unreturned</i>	<i>48</i>	<i>37.5</i>
<i>Total</i>	<i>128</i>	<i>100</i>

Source: Questionnaire 2025

4.2 Data presentation, analysis and interpretation

This is the presentation of the quantitative data collected from the respondents through the questionnaire, which is analysis, presented and interpreted through tables as follows:

PART A: Background information of respondent.

Table 4.2.1 Sex Distribution of respondents

<i>Category</i>	<i>Respondents</i>	
	<i>In Number</i>	<i>In %</i>
<i>Male</i>	<i>65</i>	<i>59.09</i>
<i>Female</i>	<i>45</i>	<i>40.91</i>
<i>Total</i>	<i>110</i>	<i>100</i>

Source: Questionnaire 2025

The table shows that the majority of respondents are male that is 65 respondents representing 59.09% of the total respondents and 45 respondents are female representing 40.91% of the respondents. This implies that both genders were involved in data collection.

Table 4.2.2 Age distribution of respondents

<i>Age</i>	<i>Respondents</i>	
	<i>In Number</i>	<i>In %</i>
20-30	38	34.5
31-40	27	24.5
41-50	25	22.7
51+	20	18.2
Total	110	100

Source: Questionnaire 2025

The table shows that 20-30 was the majority age group with 34.5% respondents followed by 31- 40 with 24.5 % next is 41-50 with 22.7% of the total respondents and finally 50+ with 18.2% of the total respondents. From the above analysis it can be interpreted that the majority of the respondents were mature people therefore they had an active memory and were in good position to analyze questions asked before they gave their final say.

Table 4.2.3 Educational background of the respondents

<i>Certificate</i>	<i>Respondents</i>	
	<i>In Numbers</i>	<i>In %</i>
National Diploma	25	22.7
Higher Diploma	33	30
Degree	42	38.2
Others	10	9.10
Total	110	100

Source: Questionnaire 2025

As indicated in table 4.2.3, that contains information of the respondent educational background, out of 110 respondents, the majority of respondent having degree held the highest percentage where the respondent with diploma and others held the smallest percentage.

Table 4.2.4 Department of the respondents.

<i>Category</i>	<i>Respondents</i>	
	<i>In Numbers</i>	<i>In %</i>
<i>Stores Department</i>	<i>30</i>	<i>27.3</i>
<i>Top management</i>	<i>15</i>	<i>13.6</i>
<i>Account/finance Department</i>	<i>15</i>	<i>13.6</i>
<i>Purchasing Department</i>	<i>37</i>	<i>33.6</i>
<i>Others</i>	<i>13</i>	<i>11.8</i>
<i>Total</i>	<i>110</i>	<i>100</i>

Source: Questionnaire 2025

Table 4.2.4 shows that the majority of the respondents were from the purchasing department representing 33.6%, top management were 13.6%, account department and store department were 13.6% and 27.3 % respectively and finally 11.8% of the respondents were from other department this implies that departments that ensure safety of inventory/materials were more involved.

Table 4.2.5 Working Experience of the Respondents.

<i>Years of service</i>	<i>Respondents</i>	
	<i>In Numbers</i>	<i>In %</i>
<i>1-5</i>	<i>20</i>	<i>18.2</i>
<i>6-10</i>	<i>30</i>	<i>27.3</i>
<i>11-15</i>	<i>25</i>	<i>22.7</i>
<i>16-20</i>	<i>20</i>	<i>18.2</i>
<i>20 and above</i>	<i>15</i>	<i>13.6</i>
<i>Total</i>	<i>110</i>	<i>100</i>

Source: Questionnaire 2025

According to table 4.2.5, out of 110 respondents, 18.25% of the respondents were found between 1-5 years of work experience, 27.3% of the respondents were also found between 6-10 years of work experience, 22.7% of the respondents found between 11-15 years of work experience, 18.2% of the respondents were found between 16-20 work experience and 13.6% of the respondents were found between 20+ years of work experience.

Descriptive Result and Discussion on Impact of material management

Responses were measured on five point Likert scale with SA= Strongly Agree; A = Agree; SD= Strongly Disagree; D= Disagree; and U = Undecided; M= Mean; SD= Standard deviation.

4.2.6 Descriptive statistics of Impact of material management on productivity of Olam flour mill, Ilorin plants.

S/N	QUESTIONS	RESPONSES							
		N	SA	A	SD	D	U	M	SD
1	Material control achieves accurate demand forecasting to determine stock coverage.	110	40 (36.3%)	30 (27.3%)	25 (22.7%)	8 (7.3%)	7 (6.4%)	2.20	1.195
2	Material management bring about reduction in wastes and quality control	110	45 (40.1%)	25 (22.7%)	18 (16.4%)	7 (6.4%)	15 (13.6%)	2.29	1.410
3	Material management contributes to reduction in production costs.	110	25 (22.7%)	35 (31.8%)	27 (24.5%)	15 (13.6%)	8 (7.3%)	2.51	1.194
4	Material management contributes to customer satisfaction and overall success of the organization	110	55 (50%)	20 (18.2%)	15 (13.6%)	10 (9.1%)	10 (9.1%)	2.09	1.351
5	Use of material management provides for accurate stock record.	110	50 (45.5%)	25 (22.7%)	15 (13.6%)	10 (9.1%)	10 (9.1%)	2.14	1.330
6	Material management enables Just In Time (JIT) application.	110	40 (36.3%)	25 (22.7%)	15 (13.6%)	15 (13.6%)	15 (13.6%)	2.45	1.444
Total Grand Mean								2.28	

Source: Field survey (2025)

From the table above in the sub-construct, the findings indicates that majority of the respondents agreed that “material control achieves accurate demand forecasting to determine stock coverage” with the mean value of (2.20) while the standard deviation value of (1.195) indicates that there is small response deviation.

Regarding the second sub-construct, it reveals that majority of the respondents agreed that “material management bring about reduction in wastes and

quality control” with the mean value of (2.29) while the standard deviation value of (1.410) indicates that there is little response deviation.

Based on the third sub-construct, it indicates that respondents agreed that “material management contributes to reduction in production costs” having a mean value of (2.51) and small response deviation with value of (1.194).

From the fourth sub-construct, the findings show that respondents agreed that “materials management contributes to consumer satisfaction and overall success of the organization” having a mean value of (2.09) and relatively small deviation of (1.351) response.

From the fifth sub-construct in the above table, it indicates that majority of respondents strongly agrees that “use of material management provides for accurate stock records” having mean value of (2.14) and relatively small deviation of (1.330) responses.

From the last sub-construct in the above table, it indicates that majority of respondents strongly agreed that “material management enables Just in Time (JIT) application” having mean value of (2.45) and relatively small deviation of (1.444) responses.

The total grand mean value of (2.28) indicates that respondent level of agreement lies on agreement that materials management has impact on productivity.

4.2.7 Descriptive statistics of the relationship between material management and productivity of Olam flour mill, Ilorin plant

S/N	QUESTIONS	RESPONSES							
		N	SA	A	SD	D	U	M	SD
7	Material requirement planning reduces cost of materials.	110	40 (36.4%)	25 (22.7%)	20 (18.2%)	10 (9.1%)	15 (13.6%)	2.41	1.410
8	Material requirement planning and control improves labor productivity.	110	60 (54.5%)	20 (18.2%)	10 (9.1%)	15 (13.6%)	5 (4.5%)	1.95	1.266
9	Material requirement strategy brings about adequate storage of needed materials	110	65 (59.1%)	10 (9.1%)	6 (5.5%)	9 (8.2%)	20 (18.2%)	2.17	1.613
	Material management strategy brings about availability of materials for production	110	55	30	15	8	2	1.84	1.036

10	Application of material management strategy helps to minimize material surplus	110	(50%)	(27.3%)	(13.6%)	(7.3%)	(1.8%)		
11		110	40 (36.4%)	25 (22.7%)	20 (18.2%)	13 (11.8%)	12 (10.9%)	2.38	1.368
Total Grand Mean								2.15	

Source: Field survey (2025)

From the table above in the sub-construct, the findings indicates that majority of the respondents agreed that “material requirement planning reduces cost of materials” with the mean value of (2.41) while the standard deviation value of (1.140) indicates that there is small response deviation.

Regarding the second sub-construct, it reveals that majority of the respondents agreed that “material requirement planning and control improves labor productivity” with the mean value of (1.95) while the standard deviation value of (1.266) indicates that there is little response deviation.

Based on the third sub-construct, it indicates that respondents agreed that “material requirement strategy brings about adequate storage of needed materials” having a mean value of (2.17) and small response deviation with value of (1.613).

From the fourth sub-construct, the findings show that respondents agreed that “material management strategy brings about availability of materials for production” having a mean value of (1.84) and relatively small deviation of (1.036) response.

From the fifth sub-construct in the above table, it indicates that majority of respondents strongly agrees that “application of material management strategy helps to minimize material surplus” having mean value of (2.38) and relatively small deviation of (1.368) responses.

The total grand mean value of (2.15) indicates that respondent level of agreement lies on agreement that there is a relationship between materials management and productivity.

4.2.8 Descriptive statistics of the Effect of material management on organizational efficiency and performances.

S/N	QUESTIONS	RESPONSES							
		T	SA	A	SD	D	U	M	SD
12	Material management strategy improve performance and efficiency in Olam flour mills	110	28 (25.5%)	43 (39.1%)	15 (13.6%)	9 (8.2%)	15 (13.6%)	2.45	1.325
13	Material management brings about challenges that effect efficiency and performance	110	s 15 (13.6%)	10 (9.1%)	30 (27.3%)	40 (36.3%)	15 (13.6%)	3.27	1.218
14	Availability of optimum material increase performance of Olam flour.	110	25 (22.7%)	50 (45.5%)	17 (15.5%)	15 (13.6%)	3 (2.7%)	2.28	1.050
15	Material management ensures quality management for efficiency and performances.	110	26 (23.6%)	48 (43.6%)	23 (20.9%)	7 (6.4%)	6 (5.5%)	2.26	1.064
Total Grand Mean								2.57	

Source: Field survey (2025)

From the table above in the sub-construct, the findings indicates that majority of the respondents agreed that “material management strategy improve performance and efficiency in Olam flour mills” with the mean value of (2.45) while the standard deviation value of (1.325) indicates that there is small response deviation.

Regarding the second sub-construct, it reveals that majority of the respondents agreed that “material management brings about challenges that effect efficiency and performance” with the mean value of (3.27) while the standard deviation value of (1.21) indicates that there is little response deviation.

Based on the third sub-construct, it indicates that respondents agreed that “availability of optimum material increase performance of Olam flour” having a mean value of (2.28) and small response deviation with value of (1.050).

From the fourth sub-construct, the findings show that respondents agreed that “material management ensures quality management for efficiency and

performances.” having a mean value of (2.26) and relatively small deviation of (1.064) response.

The total grand mean value of (2.57) indicates that respondent level of agreement lies on agreement that there is an effect of material management on organization efficiency and performance.

4.3 Test of hypotheses and discussion of findings

Correlation analysis is used to measure the strength or degree of linear association between variables and for testing of hypotheses. The correlation coefficient examines the strength and direction of the linear relationship between the dependent (productivity) and independent (material management) variables. The correlation coefficient can range between -1 and +1, the larger the absolute value of the coefficient; the stronger the relationship between the variables. Zero (0) indicates no relationship between two variables. The sign of the relationship also indicates the direction of relationship.

$P\text{-value} \leq \alpha$: The correlation is statistically significant; if the p-value is less than or equal to the significance level, then we can conclude that the correlation is different from 0.

$P\text{-value} > \alpha$: The correlation is not statistically significant; if the p-value is greater than the significance level, then you cannot conclude that the correlation is different from 0.

Hypothesis one

H₀₁: Material management has no significant impact on organizational productivity

H₁₁: Material management has significant impact on organizational productivity

Correlations				
		Organizational productivity	Material management and quality control	Material management and Just In Time (JIT)
Organizational productivity	Pearson Correlation	1		
	Sig. (2-tailed)			
	N	110		
Material management and quality control	Pearson Correlation	.917**	1	
	Sig. (2-tailed)	.000		

	N	110	110	
Material management and Just In Time (JIT).	Pearson Correlation	.913**	.966**	1
	Sig. (2-tailed)	.000	.000	
	N	110	110	110
**. Correlation is significant at the 0.01 level (2-tailed).				

Source: Field survey (2025)

From the table above, the analysis revealed that the independent variables were correlated with organizational productivity of Olam flour Mill. Among the variables, the highest correlation coefficient was found between organizational productivity and material management and quality control (0.917) while between organizational productivity and how material management enables about JIT (0.913). This indicates that material management strategy have strong positive impact with organizational productivity because the P-value (0.000) is less than $\alpha=0.05$ level of significance. We therefore reject the null hypothesis and accept the alternative hypothesis and conclude that material management has significant impact on organizational productivity.

Hypothesis two

H₀₂: There is no significant relationship between material management and productivity

H₁₂: There is significant relationship between material management and productivity

Correlations				
		Organization al productivity	Material requirement strategy brings about adequate storage of needed materials	Material requirement planning and control improves labor productivity.
Organizational productivity	Pearson Correlation	1		
	Sig. (2-tailed)			
	N	110		
Material requirement	Pearson Correlation	.901**	1	

strategy brings about adequate storage of needed materials	Sig. (2- tailed)	.000		
	N	110	110	
Material requirement planning and control improves labor productivity.	Pearson Correlation	.945**	.965**	1
	Sig. (2-tailed)	.000	.000	
	N	110	110	110
**. Correlation is significant at the 0.01 level (2-tailed).				

Source: Field survey (2025)

From the table above, the analysis revealed that the independent variables were correlated with organizational productivity of Olam flour Mill. Among the variables, the correlation coefficient of (0.901) indicates that there is strong positive relationship between organizational productivity and material requirement strategy that brings about adequate storage of needed materials while the correlation coefficient of (0.945) also reveals the strong positive relationship between organizational productivity and material planning and control. The finding indicates that material management strategy have strong positive relationship with organizational productivity because the P-value (0.000) is less than $\alpha=0.05$ level of significance. We therefore reject the null hypothesis and accept the alternative hypothesis and infer that there is significant relationship between material management and organizational productivity.

Hypothesis three

H₀₃: Material management has no significant effect on organizational efficiency and performance

H₁₃: Material management has significant effect on organizational efficiency and performance

Correlations				
		Organizational productivity	Material management ensures quality management for efficiency and performances	Material management strategy improve performance and efficiency in Olam flour mills
Organizational productivity.	Pearson Correlation	1	.959**	.955**
	Sig. (2-tailed)		.000	.000
	N	110	110	110
Material management ensures quality management for efficiency and performances.	Pearson Correlation	.959**	1	.943**
	Sig. (2-tailed)	.000		.000
	N	110	110	110
Material management strategy improve performance and efficiency in Olam flour mills	Pearson Correlation	.955**	.943**	1
	Sig. (2-tailed)	.000	.000	
	N	110	110	110
**. Correlation is significant at the 0.01 level (2-tailed).				

Source: Field survey (2025)

From the table above, the analysis revealed that the independent variables were correlated with organizational productivity of Olam flour Mill. Among the variables, the correlation coefficient of (0.959) indicates that there is strong positive relationship between organizational productivity and quality management for efficiency and performances while the correlation coefficient of (0.955) also reveals the strong positive relationship between organizational productivity and material management strategy for improve performances and efficiency. The finding indicates that material management strategy have strong positive effect on organizational productivity because the P-value (0.000) is less than $\alpha=0.05$ level of significance. We therefore reject the null hypothesis and accept the alternative hypothesis and conclude that there is significant effect of material management on organizational productivity.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Summary of findings

Based on the results of data analysis and interpretation in the previous chapter, the study revealed that most of the respondents were male. Majority of the respondents were within adult age of 20 and above. Therefore the main objective of this research was to investigate the impact of material management as a strategy for achieving higher productivity in an organization.

The total grand mean value of (2.28) of the first descriptive statistics indicate that respondent level of agreement lies that material management has impact on productivity in Olam Flour Mill, Ilorin Plant.

The total grand mean value (2.15) of the second descriptive statistics indicates that the respondents level of agreement lies on the agreement that there is relationship between material management and productivity.

The total grand mean value (2.57) of the third descriptive statistics indicates that the respondents level of agreement lies on the agreement that there is an effect of material management on organization efficiency and performance.

Among the variables, the highest correlation coefficient was found between organizational productivity and quality management for efficiency and performances (0.959) between organizational productivity and material management strategy for improve performances and efficiency (0.955).

From the above table we can conclude that all constructed variables have strong positive impact with organizational productivity because the P-value (0.000) is less than $\alpha=0.05$ level of significance.

- Material management has a positive significant impact on organizational productivity of Olam Flour Mill, Ilorin Plant. ($r = 0.917$, $r = 0.913$, $p < 0.05$).
- Material management strategy has a positive significant relationship with organizational productivity ($r = 0.901$, $r = 0.945$ $p < 0.05$).
- Material management has a significant positive effect on organizational efficiency and performance ($r = 0.959$, $r = 0.955$, $p < 0.05$).

Generally, from the hypothesis testing result all hypotheses such as H_{11} , H_{12} and H_{13} are accepted, and therefore one can conclude that all factors correlates.

5.2 Conclusion

This study examined the Impact of material management as a strategy for achieving higher productivity in Olam Flour Mills, Ilorin Plant.

Basing on the findings, Material management helps organizations to cut down costs incurred by an organization. It can therefore be concluded that material management strategy are related to performance of an organization, corporation or business as regards service delivery.

Material management is one of the important key activities of any organization. It is important in logistics planning and control, production process, purchasing and satisfaction of customer services all of which are important in organizational performance. Material management also helps organizations to meet higher than expected demand. This helps the organization to protect against running out of material/stocks.

From the analysis the study found out that Material management strategy has a significant positive influence on organizational productivity, material management also has significant relationship with organizational productivity and that material management strategy has a positive effect on organizational efficiency and performances. Therefore, the study concludes that Material management has positive significant impact on organizational productivity of Olam Flour Mill, Ilorin Plant.

5.3 Recommendations

From the findings made in this study, the following recommendations are put forwards:

- The study recommends that manufacturing firms develop a policy framework to facilitate and foster faster implementation of material management systems/strategy so as to excel and guarantee its future, hence improving organizational productivity.
- Olam flour mill should put a lot of efforts in the following; verification and tendering to ensure that the organization gets reliable suppliers.
- The organization should also install a computerized package to deal with recording of inventory so as to avoid unintentional errors.
- Supplier's delivery dates and time should be fixed for organization's suppliers, they should also be aware of the period and time during which they are expected

to make deliveries and when facilities will be available to accept such deliveries. This will curb the system of 49 suppliers delivering materials at their own will, reduce the burden of store officers and avoid unnecessary delays, stock out and costs.

- Employees other than stores officers should not be allowed into the stores unless it is strictly on business, whereby the habit of employees using the store area for their lunch break should be discouraged by organizations.
- Stores ledger comprising all items of stock held in various stores located from the physical stock itself should be kept, the detailed entries of all issues should be reflected in such ledgers, this serves as checks and balances on all the sub-stores and as a good source for audit purposes.
- To avoid duplication of records due to price variance, the FIFO (first in first out) and LIFO (last in first out) system of issues should be adopted, this will ensure the elimination of the need to open several cards for single items because of price variation.
- All receipt and issues should be numbered serially and recorded with duplicates and distribution to appropriate section of the organization.
- For easy identification of materials in the stores and to reduce fatigue, appropriate coding system should be adopted, this can be done by using letters, figures or a combination of both or the coding could be based upon the nature of the stores items, the purpose for which items are bought, or on any other basis regarded as suitable for the business.
- There is need for material management since it helps organizations to meet higher than expected demand. This helps organizations from running out of materials/stocks.
- Manufacturing firms in Nigeria should also increase their resource commitment to staff training as well as Research and Development in material management strategy so as to develop the necessary skills, update staff knowledge, and enhance organizational productivity to its optimum peak.

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APPENDIXES

APPENDIX I:

Department of Business Administration and Management,
Institute of Finance and Management Studies,
Kwara State Polytechnic,
Ilorin,
Kwara state.
April 2025

Dear respondents,

As partial fulfillment of the certificate of Higher National Diploma in Business Administration and Management in Kwara State Polytechnics, I am **SALAUDEEN AWAWU DOLAPO** conducting a research on "Impact of material management as a strategy for achieving higher productivity in an organization ". Therefore I kindly request you to spare a few minutes of your busy schedules to fill this questionnaire to enable me accomplish this task. Your honest and sincere responses are highly appreciated for academic purposes and shall be treated with utmost confidentiality. I thank you very much for your cooperation.

Yours faithfully

SALAUDEEN AWAWU DOLAPO

APPENDIX II: QUESTIONNAIRE

Please answer the following questions about the general climate in your organization in terms of how it really is, not how you would prefer it to be. Please be as candid as possible; remember, all your responses will remain strictly anonymous and confidential. Please indicate the extent to which you agree with each of the following statement about your organization by indicating with a tick in the box of your choice. Use the scale below on each of the sections and indicate on the answer sheet next to the number of the corresponding statement the number which best represents your answer.

SECTION A: Background Information on Respondents

This section gives details about the respondent's general information with respect to their age, gender, level of education, department and number of years served. Use the key below answering the following questions: Apply a tick where applicable using the following key.

Note: please don't write your name on this surface of the form only provide for your answer, where, SA – Strongly Agree, A - Agree, D - Disagree, SD - Strongly disagree, U- Undecided

- I. Sex: Male ☐
 Female ☐
2. Age: 20-30 years ☐
 31 - 40 years ☐
 41 - 50 years ☐
 51 and above ☐

3. Educational background:

- National Diploma ☐
Higher diploma ☐
Degree ☐
Others (specify)..... .

4. Which department do you belong to?

- Top Management ☐

Stores Department ☐
Purchasing Department ☐
Accounts/Finance Department ☐
Others (specify).....

5. Working experiences:

1-5years ☐
6-10years ☐
11-15years ☐
16-20years ☐
20 and above ☐

**SECTION B₁: TO WHAT EXTENT DOES MATERIAL MANAGEMENT HAVE
IMPACT ON ORGANIZATION PRODUCTIVITY OF OLAM FLOUR
MILLS, ILORIN PLANT**

NO	QUESTIONS	RESPONSES				
		SA	A	SD	D	U
1	Material control achieves accurate demand forecasting to determine stock coverage.					
2	Material management bring about reduction in wastes and quality control					
3	Material management contributes to reduction in production costs.					
4	Material management contributes to customer satisfaction and overall success of the organization					
5	Use of material management provides for accurate stock record.					
6	Material management enables Just In Time (JIT) application.					

SECTION B₂: TO WHAT EXTENT DOES MATERIALS MANAGEMENT STRATEGY RELATE WITH PRODUCTIVITY OF OLAM FLOUR MILLS, ILORIN PLANT

NO	QUESTIONS	RESPONSES				
		SA	A	SD	D	U
7	Material requirement planning reduces cost of materials.					
8	Material requirement planning and control improves labor productivity.					
9	Material requirement strategy brings about adequate storage of needed materials.					
10	Material management strategy brings about availability of materials for production.					
11	Application of material management strategy helps to minimize material surplus.					

SECTION B₃: WHAT IS THE EFFECT OF MATERIALS MANAGEMENT ON ORGANIZATIONAL EFFICIENCY AND PERFORMANCE OF OLAM FLOUR MILLS, ILORI PLANT

NO	QUESTIONS	RESPONSES				
		SA	A	SD	D	U
12	Material management strategy improve performance and efficiency in Olam flour mills					
13	Material management brings about challenges that effect efficiency and performance					
14	Availability of optimum material increase performance of Olam flour.					
15	Material management ensures quality management for efficiency and performances.					

Thank you for sparing your precious time and God bless you.