ASSESSMENT OF MATERIALs MANAGEMENT AND PROFITABILITY OF AN ORGANIZATION

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Abstract
Many business organizations in Nigeria fail to appreciate the role of materials management in enhancing their profitability. In most cases, the function seems to be a formality in the system, while in other cases the functions are actually applied strictly. Some organizations are of the belief that material management is just a routine function of the purchasing department thereby reducing it to the background. Arising from this backdrop, this study aims at finding out how an organization can tackle the problems identified and how effective material management can increase the profitability of an organization. The study revealed that material management used by the organization contributes to the profitability of the company, adequate storage facilities prevents interruption on production process among other things. As a result of the above, it was recommended that there should be good record system of materials for the operations of the organization as it affects production and the training of staff to acquire new skills and knowledge needed for the work for the benefit of the organization.

Keywords: materials management, organizational profitability, inventory control.

Introduction
No organization can operate without material input. The efficiency of any activity for production of goods and services depends to a great extent, on the supply of materials equipment and manpower made available in their right proportions. Therefore, in order to meet the needs of the customer while meeting the set objectives there is a great need for a continuous production schedule which is only made possible by holding of the aforementioned ingredients in form of stock. Materials management is that aspect of business activity that deals with planning for
purchasing, receiving, handling, storing, and releasing of materials for use in production with effective control measures. Also, materials are industrial goods that will become part of another physical product. Rumelt (2002), classified materials for use in manufacture under three headings:

- Raw materials primarily from agriculture and the various extractive industries e.g. mineral resources, fruits, and vegetables sold to processor.
- Semi finished goods and processed materials to which some work has been applied or value added e.g. rods, wires, paper, chemicals, etc.
- Component parts and assemblies that are completely finished products of one manufacture, which can be used as part of more complex product by another manufactures.

Managing of these materials are referred to as materials management. Thus, materials management has been defined by Lee and Dobler (1997) as the total of all those tasks, functions and routines which are concerned with the transfer of external materials and services into the organization and the administration of same until they are consumed or used up in the process of production, operation or sales. Materials management includes all the activities relating to the acquisition, handling and control, and movement of materials and supplies used in the production for a firm's final product.

Materials management is a tool to optimize performance in meeting customer service requirements at the same time adding to profitability by minimizing costs and making the best use of available resources. The basic objective of materials management as explained by Banjoko (2000) and Jacobs, Chase, and Aquilano (2009) is to ensure that the right item is bought and made available to the manufacturing operations at the right time, at the right place and at the lowest possible cost. They stressed that without adequate planning for material resources, the overall performance of an organization may be crippled. Barker (1999) articulated that improvement in continuity of supplies with reduced lead times, reduction in inventories with reduced obsolescence and surplus, improvement in cooperation and communications with reduced duplication of effort, reduction in materials costs, improvement in quality control, improvement in status control, and quicker identification of problems are the main benefits of materials management in organization.

In the earlier years, materials management was treated as a cost centre, since purchasing department was spending money on materials while store was holding huge inventory of materials, blocking money and space (Ramakrishna, 2005). However, with the process of liberation and opening up of global economy, there has been a drastic change in the business environment, resulting in manufacturing organizations exposed to intense competition in the market place. The manufacturing companies' worldwide has been forced to work out various strategies to face the challenges and to cut down manufacturing costs to remain competitive. As noted by Ramakrishna, (2005), progressive management has since recognized that materials manufacturing can provide opportunities to reduce manufacturing costs and can be treated as a profit centre.
Today, there are dramatic evolutions in the market environment and every organization strives to keep itself in business. Major competition has shifted from the market to the production floor where manufacturing costs can be cut down and profitability boosted for firms to compete favourably. Backed by advanced technology, firms are closely monitoring their manufacturing costs and embarking on efficient management of materials (Ondiek, 2009). Fearon and Weiters (1998) see the introduction of computers as a great boost to the adoption of materials management, as materials functions have many common databases. Therefore, efficient materials management is fundamental to the survival of business, industry and economy.

Previous researchers (Whybark and William, 1996; Ramakrishna, 2005; Ogbadu, 2009; Ondiek, 2009, Inyang, 2013) have shown that materials account for more than fifty percent of the annual turnover in the organization. This shows clearly that priority should be given to management should no longer be viewed as a drain-pipe, but as a serious stabilizing and economic growth potential factor.

Materials management is a tool that can be used effectively in promoting profit maximization in a company. The objective of materials management is to maximize the use of the firms' resources by ensuring adequate supply of materials for production process and also minimizing cost of holding excessive inventories. This objective when achieved, leads to cost reduction and improve profitability. Theoretical Framework Material management is a tool to optimize performance in meeting customer service requirements at the same time adding to profitability by minimizing cost and making the best use of available resources.

An integrated approach to materials management defines it as "the functions responsible for the coordination of planning, sourcing, purchasing, moving, storing and controlling materials in an optimum manner so as to provide a predetermined service to the customer at a minimum cost" (Gopalakrishnan and Sundaresan, 2006). International Federation of Purchasing and Materials Management (IFPMM) defined it as a total concept having its definite organization to plan and control all types of materials, its supply, and its flow from raw stage to finished stage so as to deliver the product to customer as per his requirements in time. These definitions provide the scope of materials management which includes Materials Requirements Planning (MRP), decision on purchasing, procurement of materials, inventory management, staffing, stores and warehouse management, production, and distribution of finished goods at minimum cost at due time (Monday, 2008).

Achison (1999), views material management as, a concept requiring an organizational structure which unifies into one functional responsibility the systematic planning and control of all material from identification of the need through delivery to customers.

Fadipe (1996), defines material management as a confederacy of traditional material activity found by a common idea, the idea of an integrated approach to planning, acquisition, conversion, flow and distribution of production materials from the raw materials stage to the finished product stage. He further explained that, this concept looks at the whole flow of materials and parts from supplies to the manufacturing establishment which it stores, and
production lines, and also after manufacture, at the flow of parts and products through warehouse and distribution centre and to customers.

Lenders (1992), view materials management organizational concept as having a single manager responsible for planning, motivation and controlling of all those activities that are principally concerned with the flow of a materials into an organization. There are different emphases on the above definitions, but all are concerned with the management of materials and all starts with the supplier. However, purchasing, goods receiving, quality control, materials handling and internal transportation are also included in the definition.

In this sense, material management is concerned with all activities which are related to the flow of materials, from the supplier's plant through the manufacturing process, into finished goods warehouse and on to the ultimate users of the product. Material management encompasses the planning and management of all activities involved in sourcing, procurement, conversion and logistics management activities. It is considered as a cross-functional approach to managing the movement of raw materials into originations, certain aspect of the internal processing of material into finished goods out of the organization towards the and consumers. The true cost of material is the total amount invested in them up to the point of final use, and all operations that contributed to the cost from the ordering of the materials to their delivery to the workplace must be geared into two objectives. First, to provide the manufacturing operation with an adequate supply of the right materials at the right time and second, to minimize the total cost.

Today, buyers must be thoroughly familiar with how many more materials and products than his counterparts of decade ago and must work harder to keep abreast of new process, development and technologies. Problems of material procurement and control are becoming more difficult and complicated and material cost should be maintained at low level. With high cost of materials in Nigeria, the application of material management should aim at reducing cost so as to maintain the organization's level of competition in the market. Organizations should not afford to waste material and scrap. Wastage and deterioration allowance should be drastically reduced and if not totally eliminated. This view was supported by Achison (1990), when he stated that material make the co-ordinated function responsible to plan for acquire store, move and control materials and final products to optimize usage of facilities, personnel, capital, funds and to provide customer service in line with corporate goals.

Objectives And Roles Of Materials Management
The Classical definition of the objectives of material management is the acquisition of materials and services of the right quality, in the right quantity, at the right price, from the right source and at the right time. Apart from these general objectives, the following under listed points also constitute some of the objectives of materials management.

- To support the company operations with an uninterrupted flow of materials and services. This can be achieved through detailed planning of the supply of materials, parts and components so that they are brought together at the right
time and in the right work location.

- To keep inventory investment losses (due to deterioration, obsolescence and theft) under control. Also making the most economical use of plant and equipment by smoothing out production processes and scheduling to the best of utilization.

- To buy wisely and competitively which include two distinct considerations, keeping abreast the forces of supply and demand of elements that regulate prices and availability of materials; and a constant search for better values that yield the best combination of competitive buying and wise buying that contributes most to maximizing a company’s profit.

- To reduce transportation cost of moving materials by making decisions on route to follow, the means of transportation and the vehicle to use.

- To provide information service for controlling the distribution of products, production management, instruction, manufacturing, routes and other background production information.

- To have better control of quality of company’s product and to provide required level of customer services. This can be done by maintaining favorable relationship with suppliers consistency of quality.

The major role of materials manager is to ensure the free flow of materials in production/manufacturing sectors. This could be achieved through proper production planning, procurement, storage control and distribution.

**Planning**

This involves preparation of materials budget (what is needed, how much, where and when to fulfill the objective of the organization), product research and development, value engineering, analysis and standardization of specification.

**Procurement**

Procurement has to do with determining order quantity, work processing, store requisitions, issue of enquiries, evaluation of quotations, supplier appraisal, negotiations, placing of contracts, progressing of deliveries and clarifying payments

**Storage**

Materials manager is responsible for storage location, layout and equipment, mechanical handling, stores classification, coding and cataloguing, receipts of purchased items, inspection of materials, protection of stores, issue of production, provision of cost data, stock records and disposal of obsolete goods.

**Production Control**
This involves forward ordering, arrangement of materials for production, preparation of production schedules and sequences, issue of order to production emergency action to meet material shortages, make or buy decision, quality and reliability, feedback, and adjustment of supplies flow to production lines or sales trends.

**Distribution**

It includes distribution of the finished goods, warehousing, packaging and assembly, palletizing and shopping to customers.

**Transport Control**

The routing standards, carrier selections, commodity rates consolidation and dispatching shipments. Sometimes other non-related areas such as operation of the company store (which sells finished products to the employees at special prices), order entry, and perhaps communication activities are grouped under the jurisdiction of materials management function.

**The Importance of Material Management In An Organization**

Material management represents an important asset and it is the largest single item of costs in almost every business organization. It is an important aspect of factory and industrial process which covers the entire spectrum of function such as material handling, material acquisition, assembly line management, storage, as well as material transport. Material management and control include several smaller components that work side by side to make the business organization more efficient and cost effective.

Fadipe (1996) outlined the importance of introducing material management and control in organizations as follows;

(i) Better coordination of the people and activities dealing with materials.
(ii) Elimination of bulk-purchasing.
(iii) Low price of material and equipment.
(iv) It hastens inventory turnover.
(v) Better communication and cooperation between the various departments.
(vi) It reduces duplication of efforts and also facilitates the introduction of computer-based operations.
(vii) It increases the morale of staff.
(viii) It reduces material obsolescence.
(ix) It facilitates better records and information.
(x) It improves control of quality and improves profitability level.

Pandey (2007) explained that the question of managing materials arises only when the company holds inventories. Maintaining the inventories involved trying to hold up to organisation's funds and incurrence of storage and handling cost. He further explained three (3) motives for holding inventories which are:
Transaction/Production Motive: This motive emphasizes the need to maintain inventories to facilitate smooth production and sales operations.

Precautionary Motive: This motive necessitates the holding of inventories to hedge against the risk of unpredictable changes in demand and supply forces as well as the growing level of globalization/computerization.

Speculative Motive: This motive influences the decision to increase or reduce inventory levels to take advantage of price fluctuations.

Fadipe (1996) further highlighted two specific control methods in material control. They include:

(i) Establishment of control to minimize losses from spoilage and theft and to prevent "stock out" situations as well as duplication.

(ii) Issuing requisition to the purchasing department when stocks reach the reorder point or special needs arise.

Lenders (1992) stated that the objective of material management are to solve material problems from a total organizational viewpoint (optimizing) by coordinating performance of the various material functions, providing a communication network and controlling material flow.

The introduction of computer into organizations provided further reasons to adopt materials management, because material function have many common data needs and can share a common data base. The share of corporate resources required for material in organization form the larger part of the organization’s revenue that the use of materials must be a primary concern of management to achieve the objective.

Fadipe (1996) further explained that the use of corporate resources can be greatly improved by breaking down departmental barriers and subjecting them to the same discipline of the total flow of materials from the formulation of purchasing plans to the amount of finished goods throughout the organization. The concept is widely developed where the system is generally being used to cover all activities concerned with “purchased” material and services to the point where they are economically used.

The basic objective of business is to make profit while satisfying the customer. Managers have to ensure that there is a continuous flow and optimum utilization of materials. Manufacturing organizations must schedule the simultaneous availability of appropriate materials and work capacity so that materials will be transformed into goods/service. That will provide the necessary functions required by the customer. Materials management is concerned with management functions supporting the complete cycle of material flow the purchase and internal control of production materials to planning and control of work in process, to warehousing, shipping and distribution of the finished product. An effective material
management process ensures that the right kinds of materials are at the right place whenever needed.

Achieving Profitability Through Materials Management

Effective management of materials contributes a great deal to achieving business profit. This is done through effective acquisition, control, handling and movement of materials. The major contributions of materials management to profitability are discussed below:

Make or Buy Decision

A manufacturing company should be able to make prudent decision between buying raw materials and producing them. In taking this decision, the comparative advantage of making in or buying out should be analyzed.

According to Ogbadu (2003), many factors have to be considered when arriving at make or buy decision. Factors in favour of buying raw materials include:

- When it is cheaper to do so.
- Quantities required are too small for economic production.
- Spread of financial risk between customers and suppliers.
- When source of supply can no longer be guaranteed.
- On the other hand, the decision to produce raw materials can increase profitability when carried out under these circumstances:
  - Chance to use up idle capacity and resources.
  - Possibility of scrap utilization.
  - Greater purchasing power with large orders of a particular material.
  - Ability to manage resources

Materials acquisition

Economic buying is the aim of any firm but the cheapest materials may not necessary be qualitative. Therefore, a material manager will strive for the cheapest and qualitative raw material. Materials acquisition function starts with the receipt of the purchase requisition from the store. The purchase order is therefore prepared based on the contents of the requisition.

The most important thing to bear in mind while planning for profit is to procure the right quality at the right price. Procurement in highly technical areas required skill and experience on the part of the buying manager. Cost improvement is simply the result of learning effect among workers, reflecting the development of skill and dexterity that occurs when a task is performed repeatedly. According to Ayoade (2004), acquisition circle consists of recognizing defining and describing the need; transmitting the need, investigating and selecting the supplier, order, receipt and inspection of good supplied, auditing the invoicing and closing the order. The effect of
acquiring defective materials can be reduced by buying from the right suppliers at the right price without compromising quality.

**Receipt of materials**

One important aspect of receipt of materials is to check the source of good supplied and to ensure they conform to specification as contained in the purchasing order. Damaged and sub-standard materials are rejected thereby preventing the firm from incurring unnecessary cost and thus promoting profitability. The effect of inferior materials to both the machine and the profitability of the firm must be borne in mind as they cause production hold up which may lead to substantial losses to the firm.

**Material storage**

This involves a careful handling of the stock and maintaining of an accurate control over them. Handling of material is one of the activities perform by materials managers and can be an effective tool for saving cost and holding up profit. Storage of materials depends on the nature and how they are used in the manufacturing process. Coal and iron ore are usually stored on the ground. Liquids. Chemicals, paints and oils are kept in tanks. Profits can be achieve if managers effectively manage issues relating to stores location, layout and equipment inspection, protection of stores, issues to production, stock records and disposal of obsolete materials (Johnston, 1993).

**Inventory control**

Lysons (1996) posits that inventory control enhances profitability by reducing costs associated with storage and handling of materials. Inventory control is a means by which materials of the right quality and quantity are made available as when needed with due regards to the economy of shortages, ordering cost, purchase price and working capital.

Inventory control determines the extent of stock holding of materials. It equally makes it possible for materials manager to carryout accurate and efficient operation of the manufacturing organization through decoupling of individual segment of the total operation and it entails the process of assessing of stock into the store house and the issue of stock.

Comparatively, shortage of materials can lead to interruption of products for sales; customer relations are hurt, while machines and equipment becomes under utilized. Therefore, a company can only realize substantial savings by using a rational procedure for inventory control.

**Scrap and surplus disposal**

Disposal of scrap and surplus are very important aspect of material management function, and if effectively done can contribute to the profitability of the firm.
Scrap, according to Carter (2006) is the residue of process materials left behind during production while surplus is the materials from purchases which were not wholly consumed in the production. To achieve profitability in disposal of scrap and surplus, it involves managerial decisions in the areas of return to suppliers, selling to suppliers, selling to other firms, selling to dealers, etc.

**Transportation**

The traffic section, which is involved in the physical movement of materials throughout the entire production stages, is important for profitability and cost reduction. Materials movement could be in-house or external. The in-house are determined by the nature of the materials by the layout of the factory and by the type of product made. It makes use of such devices as cranes, pipelines, trucks, forklift, and other forms of vehicles.

**Profits as Business Objective**

Profit means different things to different people. To some organization, they are called profit while to some they are referred as surplus.

Joel (1990), defines profit as income occurring to the equity holders, in the same sense as wages accrue to the labour, rent to the owners of rentable assets, and interest accrue to money lenders.

Pandey (2007) stated that, the figure of profit in accounting is the result of the application of General Accepted Accounting Principle (GAAP) which uses the account's judgment that is based on arbitrary assumption for measurement. It considers profit as a surplus of revenue over and above all paid out costs including both manufacturing and overhead expenses. He further arrived that economic profit would mean net increase in the wealth viz-a-viz cash flow plus change in the value of the firm's asset.

Therefore, for an organization to obtain maximum profit in its production, there is need for the organization to ensure adequate and efficient utilization of its resources through its management of materials. Inventories exist in a manufacturing organisation in forms of raw materials, work-in-process, as well as finished goods. (Pandey, 2007). He went further to briefly explain the forms as follows:

Raw Material: Raw materials are those basic inputs that are converted into finished products through the manufacturing process. Raw materials inventories are those units which have been purchased, and stored for future production,

Work-In-Process: These are semi-manufactured products. They represent products that need more work before they turn finished products for sale.

Finished Products: These are completely manufactured products for sale. Stocks of raw materials and finished goods are required for smooth marketing operation.
Adeniyi (2004), opined that, a firm can also keep adequate inventories on materials in various forms to ensure profit for the organization.

Thus, inventories serve as a link between the production and consumption of goods. With these categories of inventories held, there is the need for adequate utilization of these resources to achieve the objectives of the organization that becomes the essence of management.

Conclusion

This paper found out that there is a positive and significant relationship between materials management problems and the frequent breakdown of the plant. This can be expected since the existence of materials management problems result in the breakdown of the plant. Out-of-stock and lack of spare parts interrupts production and hinder profitability.

This paper has shown how profitability can be achieved through effective management of materials with particular attention to sourcing, receiving, storing and issuing materials. Prudent management of materials reduces depreciation, pilferage and wastages and ensures availability of materials. We would like to re-emphasize that for a firm to achieve profitability the goal of materials management should be properly planned.

Recommendations

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

1. Material supply should be optimum to avoid "stock outs" while work in process.
2. Organizations should always take into cognizance the cost of production or price of raw materials before arriving at selling price.
3. There should be good record system of materials for the operations of the organization particularly as it affects production.
4. Rate of spoilage and wastages should be minimized as much as possible and ensure that products pass quality control.
5. There is the need to train staff in the area of material management to further enhance the knowledge of the job.
6. Organizations should computerize their material management system in line with the global changes in order to be able to track the movement of materials in the store.
7. It is also recommended that further studies be carried out in the area of material management considering the importance to profitability of an organization.

References


