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Qn 1 Materials management is the function responsible for the coordination of planning, sourcing, purchasing, moving, storing and controlling materials in an optimum manner so as to provide a pre-decided service to the customer at a minimum cost.

The objectives of material management can be classified into two; primary and secondary objectives as below,

Low Prices: If materials department succeeds in reducing the price of items it buys, it contributes in not only reducing the operating cost but also in enhancing the profits.

Lower Inventories: By keeping inventories low in relation to sales, it ensures that less capital is tied up in inventories. This increases the efficiency with which the capital of the company is utilized resulting in higher return on investment. Storage and carrying costs are also lower.

Reduction in Real Cost: Efficient and economical handling of materials and storage lowers the acquisition and possession cost resulting in the reduction in the real cost.

Regular Supply: Continuity of supply of materials is essential for eliminating the disruption in the production process. In the absence of regular supply of materials, production costs go up.

Procurement of Quality Materials: Materials department is responsible for ensuring quality of materials from outside suppliers. Therefore, quality becomes the single most objective in procurement of materials.

Efficient handling of Materials: The effective material control techniques help the efficient handling of materials resulting in the lowering of production cost.

Enhancement of firm’s goodwill: Good relations with the suppliers of materials enhance the company’s standing in the society as well as in the business community.

Locating and developing future Executives: Materials manager must devote special effort to locate men at lower position who can take up the executive posts in future. It helps in developing talented personnel who are ready to undertake future responsibilities of the business relating to materials management.

Reciprocity: The purchase of raw materials from the organizations or customer’s by the concern and in turn, sale of finished products to the above customers is known as reciprocity. It serves the twin purpose of increasing purchasing as well as sales.

New developments: The staff of the materials department deals regularly with the suppliers responsible for new developments in material handling. These developments can be successfully applied in material handling and management.

Make or Buy Decisions: The material manager with regular reviews of cost and availability of materials can safely conclude that whether the material is to be purchased or developed in the organization itself.

Standardization: Standardization of materials is greatly helpful in controlling the material management process. With regular stock-taking, the non-standardized items can be rejected and standard components may be brought into product designs to reduce the cost of production. It is further helpful in promoting the standardization with suppliers.

Assistance to Production department: By supplying the standardized materials or components to the production department, quality products can be assured. It is helpful in imparting the economic knowledge in bringing about the desired improvement in the product.

Co-operation with other departments: Successful management of materials department contributes to the success of every other department in the organization. At the same time the success of materials department depends on how successful it is in getting the co-operation of the staff of the other departments.

Conception of future outlook: The materials manager must have some conception of future outlook for prices, cost and general business activity. Forecasting can be made about the future trends in materials. The materials manager should be able to foresee the prices and costs of the raw materials and general business conditions through their daily contracts with the suppliers.

From the above it is clear that materials management serves two fold objectives to strive for a reduction in cost of production and distribution and to help the enterprise in attaining its objectives. These dual objectives of the materials management further aim at maintaining the regular flow of production by purchasing materials of right quality, in a right quantity at a right time from a right source, on right terms and conditions and at lower price.

Material management is directly associated with the operational efficiency of an organization. A good material management system ensures the availability of right materials in the production process with minimum wastage so as to cut losses. Here are the few ways which show the advantages of material management:

Time: Time is widely recognized as a primary criterion for performance measurement. Poor material management can have a negative effect on project time, like the insufficient stock of materials, lead to idling time as workers try not to exhaust the stockpile or it is worsened by the work stoppage. Due to this shortage, materials need to be reordered and causes longer idling time. Consequently, the work progress will be delayed. Therefore, the availability of sufficient quantity of materials affects the projects time.

Cost: Cost is one of the major consideration in the entire cycle of projects. Effective material management is able to reduce the overall cost of material. For example, in the purchasing process, discounts and bulk order may be economical as it reduced the transportation and ordering cost, thus, by minimizing the procurement cost of materials, the higher chances for reducing the overall project cost and concurrently increasing company profit.

Quality: The term quality has sometimes become a problem as it is a subjective matter and understood differently by different people and organizations. Therefore, it is important to be able to identify client’s requirements and specify clearly in the contract document. Availability of resources such as materials and equipment as planned during project duration is one of the factors contributing to quality performance. The available equipment also needs to be in good condition and in sufficient quantity. Without the proper and sufficient equipment, quality of the project can be jeopardized.

Productivity: The productivity is measured in terms of unit completely accomplished during given period and the related costs in terms of man-hours or money. More importantly, disruptions in material management resulted in a loss of labor productivity as well. Material storage also had a significant impact on labor productivity. For example, inappropriate storage location increases unproductive inputs. This occurs as the workers need longer time and effort to retrieve materials. Due to this, wasting of workers’ energy occurs and they may end up physically fatigued. Efficient movement of materials increases productivity whilst reduces material travel time. Besides, the availability of material and equipment motivates workers to improve work productivity.

Waste: Waste refers to any material that needs to be moved out from the site due to damage, non-use due to non-compliance with specification and surplus or debris by-product of the production process. In simple words, waste is a product or material that is unwanted and required to be transported out. Inappropriate material storage contributes to waste generation. Strategies for waste minimization are the stock control for minimization of over or duplicate ordering, good practices of material handling, systematic inventory process and proper material storage. Hence, the efficient material management practice throughout entire process will minimize the waste generation.

Advice the sales pricing. Though pricing is a sales function, material management with proper record keeping can be used for generating price data for the various destinations. For example the cost of the materials used for a product can be determined through the system of material management, thus determining the cost of the product.

All in all, for efficient and effective functioning of material management system, the reasonable time needs to be considered so that the materials are not ordered too early or it may affect the company capital, interest charges, and storage charges. Wrong calculations can lead to over or under stocking which will be bad for the industry but also keeping enough buffer stock so as to prevent any stoppage in production is paramount. A proper material management system helps in determining the number of materials to be ordered to reduce cost without any obstructions in production. (Ahmed, 2015)

Qn 2 Material Management is an important process in Supply Chain Management which is essential to transform inputs into outputs. It is the process of planning, organizing, staffing, directing and controlling the flow of materials from their initial purchase to destination. It is at this stage that a lot of wastage happens in terms of inventory and money. Mismanagement of inventory, even if they are in small numbers, is a loss for the company. Hence, for this reason, there is a supply chain management personnel who has the authority and the responsibility for all the activities mainly concerned with the flow of materials and information into an organization. The following are the activities that can be done for Materials management.

Material Valuations: Material valuation helps in determining the price of a material which then needs to be recorded in the general ledger account for financial accounting. This also helps in tracking and moving materials.

Multi location Inventory: For manufacturing units which produce goods on a large scales, especially for consumer goods, often have more than one distribution units for making supply chain management easier. Under this inventory management along with materials management strives to fulfil your complex needs with multi location inventory tracking and details, along with maintaining kits and assemblies, multiple units of measure, lot tracking, serialized inventory and specific costing.

Bin Management: This allows inventory to be received at the warehouse and stored into preferred bins within the rack system of the warehouse for easy picking later during the order fulfillment process. These inventory can be grouped, tagged and scanned into the system for future reference.

Lot and Serial Traceability: Lot and Serial Tracking is used to control and monitor from receipt to shipment the allotment of lot or serial numbers for items part and finished goods. Once a part has been tagged, the record is maintained from the time it is received from the vendor until it is shipped to the customer.

Product Life Cycle management: New products are the backbone of a company’s growth and profitability. But, the success of any product depends on the stage that it is in. A proper analysis should be done to estimate which products have a scope of selling more, which products are on the verge of being defunct, which products need to be revamped. The reason for doing so is to avoid any unnecessary spilling of resources and focusing all resources where it is required.

Material Management (MRP): Materials Requirement planning empowers the company’s logistical processes. It coordinates warehousing measures with delivery schedule and enables companies to function efficiently with minimum inventory levels to raise work orders and purchase orders.

Inventory Replenishment: This allows companies to execute differentiated, highly automated inventory planning integrated with the demand forecast. It also make inventory replenishment more agile by providing a multitude of planning strategies such as economic order quantity, service level driven safety stocks and special models to handle slow moving parts.

Scheduling and Resourcing: This enables a company to plan their resources efficiently by streamlining all the work order scheduling and activity planning. It provides a common way of planning preventive maintenance and initiating corrective maintenance.

In conclusion, the smooth functioning of any organization depends upon a large extent on the right type of material purchased at right time, right quality and its management within the organization. (Sollish and Semanik 2012)

Qn 3 The scope of Materials Management varies greatly from company to company and may include material planning and control, production planning, Purchasing, inventory control, in-plant materials movement, and waste management.  
  
It is a business function for planning, purchasing, moving, storing material in an optimum way which help organization to minimize the various costs like inventory, purchasing, material handling and distribution costs. The Scope of Materials management encompasses all the aspects of the materials that is, material costs, material supply and material utilization. The scope of Materials management is concerned with material planning and materials control activities. The details of planning and control activities are as below:

Materials planning and control: Based on the sales forecast and production plans, the materials planning and control is done. This involves estimating the individual requirements of parts, preparing materials budget, forecasting the levels of inventories, scheduling the orders and monitoring the performance in relation to production and sales.

Purchasing: This includes selection of sources of supply finalization in terms of purchase, placement of purchase orders, follow-up, maintenance of smooth relations with suppliers, approval of payments to suppliers, evaluating and rating suppliers.

Stores management: This involves physical control of materials, preservation of stores, minimization of obsolescence and damage through timely disposal and efficient handling, maintenance of stores records, proper location and stocking. A store is also responsible for the physical verification of stocks and reconciling them with book figures. A store plays a vital role in the operations of a company.

Inventory control or management: Inventory generally refers to the materials in stock. It is also called the idle resource of an enterprise. Inventories represent those items, which are either stocked for sale or they are in the process of manufacturing or they are in the form of materials, which are yet to be utilized. The interval between receiving the purchased parts and transforming them into final products varies from industries to industries depending upon the cycle time of manufacture. It is, therefore, necessary to hold inventories of various kinds to act as a buffer between supply and demand for efficient operation of the system.

Standardization: Standardization means producing maximum variety of products from the minimum variety of materials, parts, tools and processes. It is the process of establishing standards or units of measure by which extent, quality, quantity, value, performance etc. may be compared and measured.

Simplification: The concept of simplification is closely related to standardization. Simplification is the process of reducing the variety of products manufactured. Simplification is concerned with the reduction of product range, assemblies, parts, materials and design.

Specifications: It refers to a precise statement that formulizes the requirements of the customer. It may relate to a product, process or a service.

Value analysis: Value analysis is concerned with the costs added due to inefficient or unnecessary specifications and features. It makes its contribution in the last stage of product cycle, namely, the maturity stage. At this stage research and development no longer make positive contributions in terms of improving the efficiency of the functions of the product or adding new functions to it.

Ergonomics: The human factors or human engineering is concerned with man-machine system. Ergonomics is “the design of human tasks, man-machine system, and effective accomplishment of the job, including displays for presenting information to human sensors, controls for human operations and complex man-machine systems.

All in all, the materials management has such sub fields as inventory management, value analysis, receiving, stores and management of obsolete, slow moving and nonmoving items. The scope of material management mainly represent these functions. (Gopalakrisnan and Sundaresan 1998)

Qn 4 Materials Management is that function of business that is responsible for the coordination of planning, sourcing, purchasing, moving, storing and controlling materials in an optimum manner so as to provide service to the customer, at a pre-decided level at a minimum cost. The various roles of material management in the context of internal and external interfaces are as below;

Market forecasting: One of the key role-played by materials management is to forecast the future demands. For example, if a university is printing study material for its students, it needs to manage the raw materials and well as the finished product that is the printed blocks. The first point here would be to ascertain what would be the demand of study material for the various Programs; this forecast can be made on the basis of material usage patterns and increase in demand for the last few years, in addition expected enrolments for programs that are new, this information can be predicted on the basis of response new programs of similar type area during last few years. Thus, materials management has a great role to play for an organization. But remember here, a forecast is always estimation.

Production: One of the key roles of material management system would be to see that the process of production goes unhindered. For example, once again the case of the university as above, printing would require availability of printing paper and art card paper - required for covers. If any of the two papers is out-of- stocks the printing process cannot continue. In addition, please note that the demands have been predicted thus the material requirements can be calculated with this data. In production organizations making predictions is even more difficult as the sales are to be predicted without much of a basis.

Finance: The material management is strategically very much linked to cost reduction. The cost may include the inventory cost and thus, have a major impact on the material budget. for example, one must procure the paper for the - university, so that the paper requirement of printing in fulfilled in time, however, this should not cause any necessary hold up of the finance. The holdup time should be minimum. For example, if study materials are to be sent to student in the month of May-June then procurement of paper may be done in January- February so that study material can be printed in March-April.

Inventory control: One of the key strategic roles of the material management would minimize the inventory control of an organization. This also results in cost minimization. In general a production schedule is made in an organization. This should be synchronized with the material procurement and supply so that the production process is not hampered. For example, as stated above the material should be procured in January- February such that the printing process can be proceeding smoothly.

Inspection or quality control: This is a very interesting interface as the quality of material for different types of an organization is impacted during materials management cycles, though materials management is not directly responsible for quality, yet it can cause indirect effects on the quality of products. The products, whose quality deteriorates with time, are very likely candidates in this category. For example, if we buy paper 3-4 months in advance then proper storage conditions may need to be kept in store to avoid any deterioration of quality of the paper. This is also the problem of inventory control.

Material handling, traffic and physical distribution logistics: The role here is to see that the material is handled and distributed easily. For example, the paper stress of the university may be located outside the campus and may be near the place where most of the printing presses are located. Also since the university sends the study materials through post, a unit of distribution may be located near some head post office.

All in all, it should be noted that material management affects the organizational activities in both internally within the organization and also externally especially the suppliers and the public. (Anton 2017)

Qn 5 Materials management is a joint action of various materials activities directed towards a common goal and that is to achieve an integrated management approach to planning, acquiring, processing and distributing production materials from the raw material state to the finished product state.

The material management for an organization is very important. The below are the definition of some basic roles of various organizational functional Activities:

Decision on making the material or buying it: Supplies are not adequately obtained successfully in the past, the quality of supplied goods is not of standard, the volume requirement of sales is exceeding the possible Manufacturing capacity and the material fails in the cost analysis

Material forecasting: The materials managements needs to forecast the requirements. Some of the questions that need to consider for it.

Materials management: Is this material being needed for long me? Will there be any requirement after 10 Years for this material? Will the supplier exist after 10 years are there any changes or technological break- through for this material? Are the prices going to rise in the future?

Materials planning is of the major control: A material planning is of the major control activity that an organization needs to put in place. It is feasible because of materials management

Selection of Potential information sources: This will include selection of suppliers, and other market research information such as price trends, corporate environment etc. The materials management data may help this task.

Purchasing with a difference: Purchasing commits a lot of capital of an organization Materials management information allows very creative purchasing by organization as it sees most of the trends. It also helps while purchasing in uncertain situation.

Forecasting of Price: This is most essential function thus, has been kept separately also. A good price forecasting system based on material and market research information may bring an organization into a win-win situation.

Store Management and inventory control with a difference: Materials management helps in the store functions such as: control of material being received, proper storage, minimization of obsolescence, highlighting of unused stocks, ensuring good housekeeping, verification of stock, timely delivery of goods, proper storage and presentation of materials, dealing with scrap materials etc.

All in all, Material management is important in various functions of the organization. All the above activities are not done in isolation but rather in co-ordination with all the organizations departments for well-functioning. (Christopher M. 1992)

Qn 6 A Product scope refers to the number of different items a company offers for sale. The business goals usually determine the scope of products. One may run a successful business based on a single product strategy or offer a much deeper line of products to serve a wider range of customers. Product scope determines the future marketing strategies, profit goals and territory saturation. It involves the following:

Variations: With a single product scope, a company build its business around one primary product and they become a specialist and often can build a niche market for their product, especially if they can develop territories over which they have complete control. Management is simple and inventory is easily monitored.

Considerations: When determining the product scope, one need to consider what the market will bear, what the company’s competitors are offering, consumer demands and profitability? One can develop its marketing strategies, change and growth projections and hiring practices based on the product scope. The kind of product scope one may develop determines how one may allocate resources and who will be the primary vendors. Developing the company's organizational structure also is determined by the scope of the product line.

Strategies: The extent of the product scope determines the best lines of marketing for the organization. The company need to evaluate the parameters of their geographic coverage and how heavy the competition is, consumer demands that drive innovation and branding. A single product scope usually leaves little room for branding differentiation, and a system of products strategy requires personal branding for processes rather than the company’s actual products. Strategies to promote a multiple product scope require a more balanced approach and usually change with the seasons or more closely follow current trends.

Cycles: The extent of the product scope should remain flexible to take advantage of market changes and move into new offerings when consumer demand varies. For example, if the company’s primary product is patented treatment for wood flooring, the company may have to change or upgrade its product line if home owners and builders switch to carpeting in the area, creating a new trend. If the multiple product scope strategy includes bringing in four new products a year and phasing out four other products, the company may have to adjust those numbers.

No matter which kind of product scope one build on the business model, it should create a strategy that includes cycles inherent in the industry and flexible strategies to effectively take advantage of market changes.

A product is the item offered for sale. A product can be a service or an item. It can be physical or in virtual or cyber form. Every product is made at a cost and each is sold at a price. The price that can be charged depends on the market, the quality, the marketing and the segment that is targeted. Each product has a useful life after which it needs replacement, and a life cycle after which it has to be re-invented. A brand can be revamped, re-launched or extended to make it more relevant to the segment and times, often keeping the product almost the same. A product needs to be relevant: the users must have an immediate use for it. A product needs to be functionally able to do what it is supposed to, and do it with a good quality.

Let’s take two types of products such as Milk and clothing. These products falls under Convenience and Shopping product respectively. The satisfaction derive from this products is from the core benefit associated with the product which the consumer derives by adoption which also answers the question of why the buyer should buy it. This way every product tries to satisfy some core benefit or value. For example a consumer buys a CD player not as plastic box with electronic circuitry but as a means to his recreation. Therefore, a product should be adaptable with trends, time and change in segments. It should lend itself to adaptation to make it more relevant and maintain its revenue stream.

All human beings irrespective of their economic status, social and cultural influences, and literacy levels would buy and use or consume various products during their lifetime thus deriving want satisfaction in relation to their inherent and latent needs existing at a given point of time. Human beings purchase and use different kinds of products available in the market both tangible and intangible and satisfy their needs by adoption. (Haines, Oct 11, 2013)

Qn 7 Product mix, also known as product assortment, is the total number of product lines that a company offers to its customers. There are four dimensions of the Product Mix decisions that influences market shares and competition and are as below;

Product mix width. The width is all about the number of different product lines the company carries. For example, Colgate has three product lines. Thus, increasing its market share and competition in the market.

Product mix length refers to the total number of items a company carries within the product lines. For instance, Colgate carries several different brands within each line. In Colgate’s oral care product line, several different categories of toothpastes can be identified.

Product mix depth. It refers to the number of versions offered for each product in the product line. For instance, Colgate toothpastes come in several tastes and variations.

Consistency of a product mix. Consistency refers to how closely relate the product lines are in terms of end use, production requirements, distribution channels or any other way. In Colgate’s case, we can observe a rather strong consistency, which is based on the fact that all product lines constitute consumer products and go through the same distribution channels.

Certainly, these four product mix decisions are interrelated and can increase market share and competition as follows

Add new product lines to the product mix. When new lines are added to the product mix, it benefits the company as it builds on the company’s reputation in its other lines of products thus increasing market shares.

Lengthening the existing product lines. When the existing product line is expanded, more items in that product lines may result in a more full-line company leading to increase in market share and competition.

Add more versions of each product: When more version of each product is added, it deepen the product mix thus increasing the market share.

Make product lines more consistent (or less). This depends on whether the company wants to have a strong reputation in a single field or in several fields of business.

As you can see, the four product mix decisions are more than a strategic issue that has some impact on the company’s success. To be precise, the product mix is one of the most critical instruments the company has. It is the center of its offerings. Therefore, the right product mix decisions should be taken, in line with customer needs.

Product Line is a group or set of products that are closely related because they perform a similar function, targeted at the same customer groups and distributed through same channels. Product Line is the products that are offered by the company which are similar and can be sold for the same customers to satisfy the same want.

The below are the Product Line Decisions and how they keep market share and competition

Product line length: The number of items in the product line is called the product line length. Company should decide whether it requires longer chain or shorter length. The decision depends upon the objective of the company, competitive environment and profitability. If the chain is short company can add new products which increases its market share and if it is lengthy company can reduce the number of products.

Product line stretching: Company lengthens its product line either by stretching upwards or downwards or both ways. Line stretching decision depends on three situations as, Company which operates in high end market may come up with mid class or low class targeted products. The company which operates in lower end of market may come up with high end market products and the company operates in mid segment and comes out with low end product as well as high end product then it is stretching both ways. Either ways, all these decisions increases market share or competition

Product line filling: This is adding more items within the present range to strengthen the product line. Line filling is done to increase the profits by selling the missing items in the line, thus increasing market share.

Product line pruning: Removing the unprofitable products form the product line by phasing out their well-known brand and is not adding value to the product line. This helps company to concentrate on their known brand which will keep them competitive in the market.

Line modernization: Line Modernization is that the company like to upgrade their product offerings with new technologies to make the customers upgrade to high valued, higher priced items.

Line featuring: Line Featuring is featuring a one or two products in the line to attract the customers into showrooms and then try to expose all their models to the customers. This is mainly done in the customer durables marketing.

Much as Product mix and line decisions are viewed as strategic tools to increase market share and competition, there are also some strategies use to win market share and competition in the market and are as below:

Price adjustments: One of the common market penetration strategies is to lower the products' prices. Businesses aim to generate more sales volume by increasing the number of products purchased by putting on lower prices for consumers comparing to the alternative goods. Companies may alternatively pursue strategies of higher prices depending on the demand elasticity of the product, in the hope that it will generate an increased sales volume and result in higher market penetration.

Increased promotion: Businesses can also increase their market penetration by offering promotions to customers. A promotion is a strategy often linked with pricing, used to raise awareness of the brand and generate profit to maximize their market share.

More distribution channels: A distribution channel is the connection between businesses and intermediaries before a good or service is purchased by the consumers. Distribution can also contribute to sales volumes for businesses. It can increase consumer awareness, change the strategies of competitors and alter the consumer's perception of the product and the brand, and is another method to increase market penetration.

Product improvements: Product management is crucial to a high market penetration in the targeted market and by improving the quality of products, businesses are able to attract and out-quality the competitors' products to match customers' requirements and eventually lead to more sales made.

Market development: Market development aims at non-buying shoppers in targeted markets and new customers in order to maximize the potential market. Before developing a new market, companies should consider all the risks associated with the decision including its profitability

Penetration pricing: Penetration pricing is a marketing technique which is used to gain market share by selling a new product for a price that is significantly lower than its competitors. The company begins to raise the price of the product once it has achieved a large customer base and market share. Penetration pricing is frequently used by network provider and cable or satellite services companies.

Product Modification: Product modification refers to changing a product's characteristics. Products can be modified in three ways: quality, function and appearance. This approach will only work if the product can be modified and the modification is consistent with customer needs. Functional modifications improve the product's effectiveness, convenience or safety. Functional improvements usually require product redesign. For example, the slide-down keypad on a mobile phone was designed to be functionally somewhere between a touch screen and a keypad.

In conclusion, from the above discussion, we can easily conclude that the product line is the subset of the product mix. There are various product lines in a company but only one Product Mix. However, both and many more others are strategic tools for management to increase market shares and competition as mentioned above. (Jacobs and Berry, July 23, 2018)

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