UNIT – 5 STRATEGIC MATERIALS MANAGEMENT

Structure

5.1 INTRODUCTION

Most companies consider the Materials Management as series of various Supply Chain sub-activities such as Purchasing, Production Control, Inventory Control, Shipping and Receiving, Warehousing and Storerooms, Material Movement, Scheduling, Capacity Planning and Expediting. In today's global environment, if these activities are not performed properly with respect to sourcing, cost savings, the company cannot be cost-competitive.

Objective

After studying this unit, you should be able to

- Conduct material management with utmost care
- Understand the strategies to be used for effective utilization of material
- Understand various material management policies that can make the company profitable

5.2 SIGNIFICANCE OF MATERIALS MANAGEMENT

Material management is an essential process of every manufacturing firm and an outlet as well. It entails to the procurement and transportation of the material and the efficient and effective management of the inventory, right from the manufacturer to the shelf for a manufacturing firm while shelving to selling for a retail outlet. Whatsoever the organization is, the material management has its own significance in enhancing the productivity of the organization. It is basically a labour-intensive process. It includes various operations such as regular monitoring of the purchased material, inventory management and distribution of the material.

The process of planning, organising, monitoring, implementing and controlling the flow of materials to and fro a firm is not an easy task. The process needs to be handled smoothly and skilfully. So, the companies often hire professionals to conduct this task and pay them good amounts for the same. In such an opportunistic scenario, a materials manager can easily find his position in almost every organisation that understands the significance of material management.

One of the challenges in a manufacturing company is making something correctly, with perfect utilization of men, machines, and materials. The Materials Department can be considered as the central nervous system for the body of manufacturing company. Although perfection is impossible, it is always necessary for the Materials Department to strive for perfection and embrace the responsibility of "setting the table" for the manufacturing department. There will be never an efficient Production Department without an effective Materials Department. All this happens if and only if the manager skill fully and tactfully faces challenges and solves the issues of the materials management though efficient policies and effective strategies. Let us just recollect the issues and challenges that a materials management has to face and solve before going to frame his strategies and policies.

The major challenge that materials managers face is

- to maintain a consistent flow of materials for production,
- simply, arranging everything in the right place at the right time

The major issues that materials managers face are

- incorrect bills of materials,
- inaccurate inventory,
- un-reported scrap,
- shipping and receiving errors, and
- production reporting errors

Most manufacturing companies struggle with Scheduling and Capacity Planning. It is imperative to get these activities correct. Input has to be equalized to output and each manufacturing work centre must perform the required processes correctly and on-time to enable the downstream work centres to have a chance. Modern computerized ERP systems function by assuming that all work centres complete on time.

The process and managerial improvements of the Materials Department is a major cost reduction initiative that will realize efficiency and cost savings in the Materials Department, but more importantly will lead to major cost reductions outside of the Materials Department.

5.3 POLICIES FOR MATERIALS MANAGEMENT

To be successful in achieving the objectives of materials management by facing the challenges and the issues amicably, the organization needs to lay down strong policies. The success or failure largely depends on the policies and strategies adapted by the company. The following are a few policies proven to be successful. These are...

1. Suppliers Quality & Reliability Policy
2. Order Process Perfection Policy
3. Inventory Analysis Policy
4. Cost Savings Policy

5. Timing Policy

5.3.1. Suppliers Quality and Reliability Policy

A regular flow of supply with consistent quality can keep the company flourishing. On the contrary, the companies may face adverse situations if there is an obstruction in the continuity of the supplies as the company will not be able to meet the demands of the customers. It will become impossible for a company to directly deliver the required quantity of products to the customers on time if they fail to obtain the quality suppliers within the stipulated period. This, in turn, may result in loss of the customers and immense monetary loss of the company. Thus, it is imperative for the material manager to foster a good relationship with the suppliers who can supply the quality materials so that the company can easily rely on the suppliers to fulfil its supply needs.

Further, if a company cannot satisfy demand during periods of replenishment they will lose sales to their competitors. So, lack of continuity of supplies can be a difficult situation for a company to overcome. That's why it is important for material managers to find suppliers that can reliably fill a company's supply needs. A crucial role of the suppliers is to fill a company's orders on time according to an agreed upon lead time in order for the company to meet consumer demand, without compromising the quality.

Thus this policy focuses on quality of the supplier, which encompasses

- continuity in supply
- reliability of supply
- regularity of the supplier
- quality of the supplied materials
- correct quantity of supply
- least quality rejections/returns

5.3.2. Order Process Perfection Policy

The customers' demands keep on fluctuating. However, a firm should always be well-equipped to meet the demands of the customers. They should always have sufficient inventory to handle even the turnover demand. For this, a firm must regularly keep a check on its stocks. This, in turn, facilitates proper calculations related to supplies so that the materials manager has a better idea of the replenishment amount. Having a better idea of the replenishment amount facilitates in placing reorder for the required materials before its depletion.

It's essential for companies to know the current amount of materials they have in stock at all times. Without an accurate calculation of supplies, a company will not know the replenishment amount needed to meet demand while placing material reorders. Effective order processing requires that a company has an accurate estimate of their turnover rate. With this knowledge, a company can establish order frequency calculations to ensure they always have enough inventories on hand to meet the turnover demand.

Thus, this policy concentrates on the perfect processing of orders, which in turn depends on the stock position. So, it works out by keeping an eye and a regular check for maintenance of required inventory level.

5.3.3. Inventory Analysis Policy

An essential step of the material manager is to regularly keep on analyzing his inventories such as inventory turnover ratio and other financial performance indicators. Proper analysis not only makes inventory management better, but it also improves financial aspects. The companies must exploit an effective inventory system that keeps an account of the total purchase as well as the sale of every item for proper analysis. The common goal should be to ensure that the cost of purchasing a material is less than its sales. Apart from this, the accounts of inventory must be updated on a monthly basis. This facilitates the material manager to analyse the data and easily manage the cost of inventory.

While maintaining inventory turns critical, handling the financial aspects of materials management becomes important. Under such situations, the companies implement this policy of inventory accounting system that tracks each movement of inventory items, such as each purchase, sale, or adjustment. Along with tracking, it's good to update inventory financial figures monthly; this gives company data on the amount of inventory being carried in order to manage the cost of carrying the inventory.

5.3.4. Cost Savings Policy

Since most of the task related to material management require manpower, it is imperative for the material manager to ensure the best pricing. He should know how to get top-notch quality work done at minimal cost. He should also know the minimum cost that should be spent to purchase high-quality materials.

A majority of the labour-intensive tasks performed in materials management comes from obtaining the best pricing. A successful material manager needs to find the lowest possible prices, consistent with quality and value requirement for purchased materials. They must do this without increasing other costs. This means-

- Controls the costs of inventory
- Maintain high turnover of inventory
- Seek low procurement and storage costs consistent with quality and delivery requirements

5.3.5 Timing Policy

A lot of material management success is due to timing. Whether it be assuring prompt and dependable deliveries or keeping up with monthly financial figures, timing can hinder or propel the success. Timing is most effective when forecasting is perfect. Make sure that customer demands are met on time as they arise while avoiding overstocking during periods of low demand that may increase inventory costs.

Thus, the above inventory management policies are framed assuming the task depends on quality and reliability of suppliers, expectations of customers, with reference to the timing, delivery schedules, and financial implications and operating procedures. In addition to the above, an organization may frame their own policy by a suitable blend of the above or may include other features and characteristics in the processes during procurement, transportation, inventory control and many more from manufacturer to storefront. Moreover, overseeing the materials from initial purchase through internal operations then to the service point and on through distribution can often a labour-intensive task besides being a complex process.

SAQ - 5.1

a) What is the significance of materials management?

b) List at least five issues faced by the materials managers.

c) List out the policies of materials management

d) What are the policies of material management? Briefly explain them

e) What do you understand by inventory analysis policy? Explain

f) Discuss how quality and reliability can be used in framing the materials management policy.

g) How does cost influence the materials management policy?

ACTIVITY - 5.1

Visit any two manufacturing sectors near you. Conduct an interview with the materials managers about the policies that they are following in their units and summarize. Do you find any gaps? How do you fill them.

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5.4 INVENTORY MANAGEMENT STRATEGIES

Once the policy is framed, the organization has to set some goals and suitable strategy has to be structured. The following are some strategies used by the organizations for successful inventory management.

- Bulk Shipments Strategy
- ABC Inventory Management Strategy
- Backordering Strategy
- Just in Time (JIT) Strategy
- Consignment Strategy
- Drop shipping and Cross-docking Strategy
- Cycle Counting Strategy

We shall now explore the features along with the pros and cons of these most common inventory management strategies used by businesses of all sizes.

5.4.1. Bulk Shipments Strategy

This strategy is based on the notion that it is always cheaper to purchase and ship goods in bulk. Bulk shipping is one of the predominant strategies in the industry to curtail the costs, which can be applied for goods with high customer demand.

The downside to bulk shipping is that the organization needs to lay out extra money on warehousing the inventory, which will most likely be offset by the amount of money saved from purchasing products in huge volumes and selling them off fast.

Pros of Bulk Shipments Strategy

- Highest potential for profitability
- Fewer shipments mean lower shipping costs

- Works well for staple products with predictable demand and long shelf lives.

Cons of Bulk Shipments Strategy

- Highest capital risk potential
- Increased holding costs for storage
- Difficult to adjust quickly when demand fluctuates

5.4.2. ABC Inventory Management Strategy

ABC inventory management is a technique that's based on putting products into categories in order of importance, with A being the most valuable and C being the least. Not all products are of equal value and more attention should be paid to more popular products.

Although there are no hard-and-fast rules, ABC analysis leans on annual consumption units, inventory value, and cost significance. Categories typically look something like:

Category A: Items of high value (70%) and small in number (10%)

Category B: Items of moderate value (20%) and moderate in number (20%)

Category C: Items of small value (10%) and large in number (70%)

The key is to operate each category separately, particularly when selective control, allocation of funds, and human resources are required. This strategy eases applying the policies to focus on order processing and the inventory analysis.

Pros of ABC Inventory Management Strategy

- Aids demand forecasting by analyzing a product's popularity over time
- Allows for better time management and resource allocation
- Helps determine a tiered customer service approach
- Enables inventory accuracy
- Fosters strategic pricing

Cons of ABC Inventory Management Strategy

- Could ignore products that are just starting to trend upwards
- Often conflicts with other inventory strategies
- Requires time and human resources

5.4.3. Back-ordering Strategy

Back ordering refers to placing the order for goods only after receiving the orders.

More clearly, back-ordering uses a company's decision to take orders and receive payments for out-of-stock products. It's a dream for most businesses but it can also be a logistical nightmare … if the company is not prepared. Let us understand this now, with a simple case.

When there's just one out-of-stock item, it's simply a case of creating a new purchase order for that one item and informing the customer when the backordered item will arrive. When it's tens or even hundreds of different sales a day, problems begin to mount.

Nonetheless, enabling backorders means increased sales, so it's a juggling act that many businesses are willing to take on.

As a general rule, the bigger the item value (physically and monetarily), the more "delivery tolerance" the company gets from customers.

However, in the case of a small retailer, it may not be feasible to risk overstocking. In this case, the company may consider labelling the item's "Buy now" button as "Pre-order" or "Get it when it comes back in stock." This creates a reasonable expectation for customers that it takes a bit longer to arrive.

Alternatively, some businesses run with a "no-stock" approach which involves taking only backorders until they've generated enough sales to then place a large bulk in order with a supplier.

This strategy is generally mapped with the order processing policy and/or timing focussed.

Pros of Backordering Strategy

- Increased sales and cash flow
- More flexibility for small businesses
- Lower holding costs and lower overstock risk

Cons of Backordering Strategy

- Higher risk of customer dissatisfaction
- Longer fulfilment times

5.4.4. Just in Time (JIT) Strategy

This strategy banks on purchasing inventory such that it arrives just before the material is needed.

Just In Time (JIT) inventory management lowers the volume of inventory that a business keeps on hand. It is considered a risky technique because inventory is purchased only a few days before it is needed for distribution or sale.

JIT helps organizations save on inventory holding costs by keeping stock levels low and eliminates situations where

– dead stock piles up
– increased frozen capital
– inventory sits on shelves for months on end

However, it also requires businesses to be highly agile with the capability to handle a much shorter production cycle.

If a company considers adopting a Just in Time inventory management strategy, it needs to answer the following questions:

- Are the suppliers reliable enough to get products on time every time?
- Is the order fulfilment system efficient enough to get orders to customers on time?
- Does the inventory management system offer the flexibility needed to update and manage stock levels on the fly?
- Does the company has a thorough understanding of
  - customer demand
  - sales trends
  - inventory cycle
  - reorder cycles, and
  - seasonal fluctuations

If the above questions are answered positively, then JIT works well. This strategy has to be maps well with the policies that focus on reliable and quality suppliers and cost curtailing efforts.

Pros of JIT Strategy

- Lower inventory holding costs
- Improved cash flow
- Less dead-stock

Cons of JIT Strategy

- Problems fulfilling orders on time
- Minimal room for errors
- Risk of stock-outs

5.4.5. Consignment Strategy

This strategy is said to be used when a company places its goods in the inventory of its retailers but retains legal ownership until the products are sold.

More clearly, Consignment strategy involves a wholesaler placing stock in the hands of a retailer, but retaining ownership until the product is sold out, at which point the retailer purchases the consumed stock. Typically, selling on consignment involves a high degree of demand uncertainty from the retailer's point of view and a high degree of confidence from the wholesaler's point of view.

May it be dealer or wholesaler, this strategy favours the cost saving policy.

Pros of Consignment Strategy

For retailers, selling on consignment can have several benefits, including the ability to:

- Offer a wider product range to customers without tying up capital
- Decrease lag times when restocking products
- Return unsold goods at no cost

Cons of Consignment strategy

While most of the risk in selling on consignment falls on the wholesaler, there are still a number of potential advantages for the supplier:

- Test new products
- Transfer marketing to the retailer
- Collect useful information about product performance

If selling on consignment is considered as either a retailer or wholesaler, it is important to set terms between them clearly regarding the:

- Return, freight, and insurance policies
- How, when, and what customer data is exchanged
- Percentage of the purchase price retailer will be taking as sales commission

5.4.6. Drop Shipping and Cross-Docking Strategy

This strategy directly transfers customer orders and shipment details to a manufacturer or wholesaler, who then ships the goods to the customers.

Drop Shipping

This inventory management technique eliminates the cost of holding inventory altogether. When the company uses a drop shipping agreement, it can directly transfer customer orders and shipment details to the manufacturer or wholesaler, who then ships the goods.

Cross Docking

Similar to drop-shipping, cross-docking is a practice where incoming semi-trailer trucks or railroad cars unload materials directly onto outbound trucks, trailers, or rail cars. In other words, the incoming transport unloads inventory directly onto outbound transport with a little or no storage in between.

Essentially, it means that the goods are moved from transport vehicle directly onto another with minimal or no warehousing. Here, sometimes, the company may need staging areas where inbound items are sorted and stored until the outbound shipment is complete. Some other times it also may need an extensive fleet and network of transport vehicles for cross-docking to work.

5.4.7. Inventory Cycle Counting Strategy

Inventory cycle counting strategy involves the counting of a small amount of inventory on a specific day instead of having to do an entire manual stock-take.

It's a type of sampling that allows seeing how accurately the inventory records match up with what actually is in stock.

This strategy is most commonly used by many businesses in their inventory management practices, as it ultimately helps ensure that customers can get what they want, when they want it, while keeping inventory holding costs as low as possible.

This strategy maps well with inventory cost reduction and timing policies.

Pros of Cycle Counting Strategy

- More time- and cost-efficient than doing a full stock-take
- Can be done without disrupting operations
- Keeps inventory holding costs low

Cons of Cycle Counting Strategy

- Less comprehensive and accurate than a full stock-take
- May not account for seasonality

Though the strategies mentioned above are most commonly used by the organizations, the list not limited and probably need a mix to evolve into a wide variety. Thus a company may use solely any of the above strategies or even design a new one or derive by optimal blending two or more of the above strategies to develop the most comprehensive strategy that suits the business.

SAQ - 5.2

a) Write a note on inventory management strategies

b) Explain in detail about any two inventory strategies used by the organisations for successful inventory management

c) What is drop shipping and cross docking? Explain how these can be used in policy framing an inventory policy.

d) What are the pros and cons of JIT inventory strategy?

e) What is backordering? What are its pros and cons?

f) Explain the following strategies of inventory management

  (i) Consignment strategy

  (ii) Just in time strategy

ACTIVITY - 5.2

Visit any two companies near you, one product based and the other service based. Ask the materials managers about the strategies that they are following in their units and summarize. Compare the merits and demerits in the strategies.

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5.5. INVENTORY CYCLE COUNTING

Inventory cycle counting is one of the oldest and ancient proven techniques that controls and regulates the inventory stocks by the counting of a small amount of inventory on a specific day instead of having to do all at once.

It can be considered as a kind of sampling to evaluate the inventory records how precisely match with the actual quantities in stock.

5.5.1 Inventory Cycle Counting Methods

There are three main types of inventory cycle counting procedures in use:

1. Control Group Cycle Counting
2. Random Sample Cycle Counting
3. A-B-C Cycle Counting

1. Control Group Cycle Counting

In this type of cycle counting the focus is on counting the same items many times over a short period. The idea is that repeated counting reveals errors in the count technique, which can then be rectified to design an accurate count procedure. This technique is useful for small firms and/or where there are a limited (less) number of stocks are maintained.

2. Random Sample Cycle Counting

When the warehouse has a large number of similar items, it is always a good idea to randomly select a certain number of items to be counted during each cycle count. This saves lot of time and manpower and helps reducing the disruption of any one category at once. This can be carried out during business hours also.

This methods more suitable for items in the large companies, mass productions and flow production situations where a similar or few variety of items are used.

3. A-B-C Cycle Counting

As mentioned above, A-B-C cycle counting uses the A-B-C inventory management technique and Pareto principle to classify items in A, B or C categories based on value. With this approach, A items are counted more frequently than B and C items.

This is well applicable to the organizations with large number of items or wide variety.

5.5.2 Best Practices for Conducting Inventory Count

The frequency and the quantum of stocks of cycle count that firm has to conduct depends upon the types of products it sells and the resources at its disposal.

For example, the company has a practice of using ABC inventory analysis to determine the class A products, and it may focus its cycle count only on most high-cost items more frequently than the other items.

Irrespective of specific approach to inventory counts, here are some best practices to follow:

- **Count one category at a time** – Ideally, cycle count can be planned once on entire inventory on a certain period basis. It's best to focus on one category at a time so as to count efficiently during business hours and not be impeded by operational downtime.
- **Choose count categories based on seasonality** – The objective of inventory counting is mainly to find and rectify any disparities in inventory as and when they occur. It's best to count products when they're at their peak to ensure fixing the issues immediately, because disparities are most expected during this period due to the creep of overlooks.
- **Mix up cycle count schedule** – Though, it is subjected to employees dissatisfaction for the employer's trust them, it's an unfortunate reality that inventory shrinkage sometimes occurs due to staff theft, so it is an always better idea to vary the schedule to deter employees from "gaming the system."

A Case Example:

Let us take an example of a business outlet such as a furniture store, which uses both a sophisticated inventory management system and sporadic cycle counts to optimize inventory. With the help of company's proprietary inventory system, on-site logistics managers can view their store's stock levels and monitor any discrepancy in expected sales (unique to each store) versus inventory levels. For example, a particular bed frame (say X) has been selling much slower than expected. In this case, the logistics manager can manually check and confirm the stock of such bed frame. This means logistics managers only requires to cycle count if the system catches a discrepancy.

SAQ – 5.3

a) What do you understand by inventory cycle counting?

b) What is A-B-C cycle counting? Where do apply?

c) Give some cycle counting methods which are considered as the best practices.

d) Brief explain Inventory cycle counting methods.

e) Brief out the best practices for conducting inventory count

ACTIVITY - 5.3

Visit any retail shop near you and identify the products in it. If the shop follows ABC inventory management strategy, categorize the products in the retail shop into three different categories in the table given below as per its value. If the shop doesn't follow the ABC strategy, implement the same and summarize the results.

Class-A Products	**Class-B Products**	**Class-C Products**

5.6 SUMMARY

Material management is an essential process of every manufacturing firm and an outlet as well. The process of planning, organising, monitoring, implementing and controlling the flow of materials to and fro a firm is not an easy task. One of the challenges in a manufacturing company is making something correctly, with perfect utilization of men, machines, and materials. To be successful in achieving the objectives of materials management by facing the challenges and the issues amicably, the organization needs to lay down strong policies. Inventory Analysis Policy, Cost Savings Policy, Timing Policy are few policies followed by the organization for successful materials management. Moreover, the organization has to set some goals and suitable strategies in a structured manner. ABC Inventory Management Strategy, Backordering Strategy, Just in Time (JIT) Strategy, Consignment Strategy are few common strategies adopted by the organizations.

5.7 KEYWORDS

Inventory count: It is the method of monitoring what is in stock for certain items and certain storage locations. This is also known as a stock take.

Inventory cycle: It is a measure of how many times during a given period a company sells a volume of products equal to the volume of supplies it keeps on hand.

Expediting: It is a concept in purchasing and project management for securing the quality and timely delivery of goods and components.

Backordering: Backordering is the process of allowing your customers to place orders even if you don't have sufficient stock on hand.

Scheduling: it is the process of arranging, controlling and optimizing work and workloads in a production process

Enterprise resource planning (ERP): It is the integrated management of main business processes, often in real time and mediated by software and technology.

Inventory management: It refers to the process of ordering, storing, using, and selling a company's inventory.

Materials management: It involves planning and execution of supply chains to meet the material requirements of a company or organisation.

5.8 FURTHER READINGS

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