**ASSESSMET**

**QTN1.What are the objectives of Materials management? What are its advantages?**

Materials management is concerned with management functions supporting the complete cycle of material flow, from 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 materials management process ensures that the right kinds of materials are at the right place whenever needed.

Materials management is concerned with planning, directing and controlling the kind, amount, location, movement and timing of various flows of materials used in and produced by the process.

**Materials management objectives are categorized into**:

1. Primary objective

2. Secondary objectives

1. Primary Objectives:

“Making available (supply) of materials in specified quantity and quality at economic cost and maintaining the continuity of supply. Minimization of investments in materials and inventory costs, and assuring high inventory turnover.”

2. Secondary Objectives:

Secondary objectives help to achieve the primary objectives.

**The secondary objectives can be stated as**:

1. Purchasing the items from a reliable source at economic price.

2. Reduction of costs by using various cost reduction techniques such as variety reduction, standardization and simplification, value analysis, inventory control, purchase research etc.

3. Co-ordination of the functions such as planning, scheduling, storage and maintenance of materials.

**Scope of Materials Management:**

Materials management encompasses all the aspects of the materials i.e. material costs, material supply and material utilization. Materials management is concerned with material planning and materials control activities. The details of planning and control activities are:

Integrated Materials Management:

Materials required for production purpose are normally procured and stored in the plant and issued to manufacturing when there is a requisition. Materials are to be purchased in advance and stored to ensure uninterrupted supply.

There should be a proper co-ordination and co-operation among different functional heads of materials department to optimise the operations of materials management. The materials function to be effective, the objective must be to maximise materials productivity. An integrated approach to materials management i.e. materials planning and control must look in to the problem areas in a co- coordinated manner in order to maximise the effectiveness of materials management.

**An integrated materials management will result in the following advantages**:

a. Better accountability for materials and material concerned costs.

b. Better co-ordination within the materials functions and also other functional areas of business.

c. Better performance and effectiveness.

d. Adaptability to automated and computerised systems.

**The important areas to improve materials planning and control are:**

1. Value analysis and purchase price analysis.

2. Materials planning and control (Inventory Control).

3. Stores control.

4. Waste management.

5. Materials handling.

Various elements of integrated materials management are represented in table 1.4.

**Elements of Integrated Materials Management**

Flow of Materials in Manufacturing:

In any manufacturing organisation, there is a flow of materials at various stages of manufacturing i.e. from input to output. The flow of tangible materials from input through manufacturing to output of a manufacturing operation is represented in the fig (1.10).

The flow with reference to inputs involves such activities as purchasing, traffic control and receiving. The activities associated with flow within the factory include the material handling activities at different workstations as per the order of processing. Output related activities include packaging, shipping and distribution.

**Irrespective of the type of the organisation, the basic material related functions performed at the organisation are:**

1. Purchasing

2. Inbound traffic from suppliers to company

3. Receiving

4. Inventory Control

5. Production control

6. In plant storage

7. Material handling

8. Packaging and shipping

9. Outbound traffic

10. Warehousing and distribution.

Purchasing:

Purchasing plays a crucial role in the materials management because it is concerned from input stage up to the consumption in manufacturing. Purchasing functions as a monitor, clearing house and a pipeline to supply materials needed for production.

**Dr. Walters defines scientific purchasing as:**

“Procurement by purchase of the proper materials, machinery and equipment and supplies of stores used in manufacturing of the product, adopted to marketing in the proper quantity and quality at the proper time and at the lowest price consistent with quality desired.”

Purchasing Cycle:

The purchase procedure followed varies from company to company and also from one industry to other. The purchasing cycle is represented as shown.

**The basic elements in purchasing are**:

1. The origin of demand for materials and components based upon the requisitions made to purchase department by user departments with all the details like descriptions, quantity and quality specifications.

2. Specifications are checked and verified and purchase plan is made for items demanded

3. Selection of source of supply.

4. Preparation of purchase order by supplier (order acceptance) and acceptance of terms and conditions.

5. Follow up to ensure prompt delivery of right quality and quantity of materials.

6. Incoming inspection of materials (both to check quality and quantity) to ensure correct material as per specification.

7. Checking supply invoice against purchase order and goods received and payments are made.

**Methods of Buying:**

Methods of purchasing will vary according to the nature of demand and the market conditions.

**The principle methods of buying are**:

1. Purchasing by requirement (Hand to mouth buying).

2. Purchasing for a specified future period.

3. Market purchasing.

4. Speculative buying.

5. Contract buying.

6. Group purchasing of small items.

7. Forward buying.

8. Hedging.

Source Selection (Vendor Selection):

The selection of right source of supply is an important aspect in materials management. The vendor is to be examined with respect to his capability and competency to supply right quality of material at right time and at a competitive price.

**The buyer looks for the following details before a decision regarding vendor selection is made:**

**1. Production Capabilities**:

(a) Capacity to manufacture the products as per the specifications and required quantities.

(b) Availability of spare capacity.

(c) Capability to understand the needs of Buyer Company both technical and commercial.

**2. Financial Position of the Vendor:**

(d) The type of the company – Private limited, Partnership or Sole proprietorship.

(e) Company’s capital structure.

(f) Financial position and profitability of the company since last 3-4 years.

**3. Technical Capabilities**:

(g) Whether the available plant and equipment’s ere in a position to meet the quality and quantity specifications of the customer.

(h) Whether there are enough technically skilled and trained people.

(i) Whether R&D facilities are available.

(j) What is the market standing of the vendor with respect to quality and delivery commitments (Reliability of supply).

(k) Whether he has enough storing and warehousing facilities.

(l) Quality control procedures – whether an ISO-9000 certified supplier.

**4. Other Conditions:**

(m) Working conditions in the vendor company.

(n) Industrial relations and bargaining power of unions.

(o) Possible reasons for interruptions in supply.

#### Vendor Relations:

Purchase department should establish a sound relationship with vendors based on mutual trust and benefit to ensure smooth supply of materials/parts as per the quality and quantity required. So, apart from a formal commercial relationship as a customer, a long lasting and mutually rewarding relationship is to be established.

A strategic partnership between the buyer and supplier is defined as a continuing relationship involving a commitment over an extended time period, an exchange of information and acknowledgment of risks and rewards of the partnership. A sound relationship emerges from the proper help and co-ordination on the part of both buyer and supplier.

**The expectations from buyers include:**

a. Promptness in delivery.

b. Meets the quality and quantity requirements.

c. Entertains occasional rush orders.

d. Flexibility in quantity to be supplied.

e. Can wait for the bills.

f. Competitive pricing.

**The expectations from the vendors**:

a. Consistent orders

b. Prompt payment of the bills.

c. Extend help during difficulty both financial and technical.

d. Continuity of orders.

Vendor Rating (Evaluation of Suppliers):

The appraisal of the vendor performance is a continues process.

**The vendor can be rated on various characteristics such as:**

1. Delivery (To deliver as on time as per the order).

2. Quality (To delivery as per specifications).

3. Price.

4. Other factors such as capability to meet urgent/rush orders readiness to try out new designs or new methods etc.

In vendor rating, one usually gives weightage to these various characteristics and measures the performance of the vendors periodically on the basis of certain norms and procedures. Every company should have a formal vendor rating system. It is not only beneficial to the buyer company but also for the supplier company. Vendors will get the feed-back based on objective evaluation and can compare its own performance with that of competitors. It is a fair evaluation since the rating is based on facts and not on opinions or prejudices. Vendor Company’s can know their shortcomings and improve upon them.

**Generally, there are three methods of vendor rating**:

1. Categorical plan

2 Weighted point method

3. Cost ratio method.

**Just In Time (JIT) Purchasing:**

Just in time purchasing is a major component of JIT manufacturing system. The basic concept of JIT purchasing is to establish agreement with vendors to deliver small quantities of materials/parts just in time for production. This approach is quite contrast to traditional approach of bulk buying.

**The features of JIT purchasing are:**

a. Reduced lot sizes

b. Frequent and. reliable delivery schedules.

c. Reduced and highly reliable lead times.

d. High quality level of purchased parts.

The JIT purchasing aims at a single reliable source for each item and consolidation of several items from each supplier.

**The reduction of number of suppliers in JIT purchasing has the following advantages:**

1. Consistent quality

2. Minimum investment and resources such as buyer’s time, travel and engineering

3. Focused attention on vendors

4. Savings on tooling

5. Establishment of long-term relationship.

**For making JIT work, the following conditions are put on purchasing department:**

1. Reduction in number of suppliers.

2. Locating the suppliers who are nearby.

The success of JIT purchasing depends on how well the firm establishes the strategy of single sourcing. The suppliers should be seen as “Outside” partners who can contribute to the long run well fare buying firm.

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**QTN2. What are the activities of materials and information flow in an organization?**

Organizational Communication Flows

Information can flow in four directions in an organization: downward, upward, horizontally, and diagonally. The size, nature, and structure of the organization dictate which direction most of the information flows. In more established and traditional organizations, much of the communication flows in a vertical—downward and upward—direction. In informal firms, such as tech start-ups, information tends to flow horizontally and diagonally. This, of course, is a function of the almost flat organizational hierarchy and the need for collaboration. Unofficial communications, such as those carried in the company grapevine, appear in both types of organizations.

Downward Communication Flows

Downward communication is when company leaders and managers share information with lower-level employees. Unless requested as part of the message, the senders don’t usually expect (or particularly want) to get a response. An example may be an announcement of a new CEO or notice of a merger with a former competitor. Other forms of high-level downward communications include speeches, blogs, podcasts, and videos. The most common types of downward communication are everyday directives of department managers or line managers to employees. These can even be in the form of instruction manuals or company handbooks.

Downward communication delivers information that helps to update the workforce about key organizational changes, new goals, or strategies; provide performance feedback at the organizational level; coordinate initiatives; present an official policy (public relations); or improve worker morale or consumer relations.

Upward Communication Flows

Information moving from lower-level employees to high-level employees is upward communication (also sometimes called vertical communication). For example, upward communication occurs when workers report to a supervisor or when team leaders report to a department manager. Items typically communicated upward include progress reports, proposals for projects, budget estimates, grievances and complaints, suggestions for improvements, and schedule concerns. Sometimes a downward communication prompts an upward response, such as when a manager asks for a recommendation for a replacement part or an estimate of when a project will be completed.

An important goal of many managers today is to encourage spontaneous or voluntary upward communication from employees without the need to ask first. Some companies go so far as to organize contests and provide prizes for the most innovative and creative solutions and suggestions. Before employees feel comfortable making these kinds of suggestions, however, they must trust that management will recognize their contributions and not unintentionally undermine or ignore their efforts. Some organizations have even installed “whistleblower” hotlines that will let employees report dangerous, unethical, or illegal activities anonymously to avoid possible retaliation by higher-ups in the company.

Horizontal and Diagonal Communication Flows

Horizontal communication involves the exchange of information across departments at the same level in an organization (i.e., peer-to-peer communication). The purpose of most horizontal communication is to request support or coordinate activities. People at the same level in the organization can work together to work on problems or issues in an informal and as-needed basis. The manager of the production department can work with the purchasing manager to accelerate or delay the shipment of materials. The finance manager and inventory managers can be looped in so that the organization can achieve the maximum benefit from the coordination. Communications between two employees who report to the same manager is also an example of horizontal communication. Some problems with horizontal communication can arise if one manager is unwilling or unmotivated to share information, or sees efforts to work communally as threatening his position (territorial behavior). In a case like that, the manager at the next level up will need to communicate downward to reinforce the company’s values of cooperation.

Diagonal communication is cross-functional communication between employees at different levels of the organization. For example, if the vice president of sales sends an e-mail to the vice president of manufacturing asking when a product will be available for shipping, this is an example of horizontal communication. But if a sales representative e-mails the vice president of marketing, then diagonal communication has occurred. Whenever communication goes from one department to another department, the sender’s manager should be made part of the loop. A manager may be put in an embarrassing position and appear incompetent if he isn’t aware of everything happening in his department. Trust may be lost and careers damaged by not paying attention to key communication protocols.

Diagonal communication is becoming more common in organizations with a flattened, matrix, or product-based structure. Advantages include:

* Building relationships between senior-level and lower-level employees from different parts of the organization.
* Encouraging an informal flow of information in the organization.
* Reducing the chance of a message being distorted by going through additional filters.
* Reducing the workloads of senior-level managers.

External Communication Flows

Communications do not start and stop within the organization. External communication focuses on audiences outside of the organization. Senior management—with the help of specialized departments such as public relations or legal—almost always controls communications that relate to the public image or may affect its financial situation. First-level and middle-level management generally handle operational business communications such as purchasing, hiring, and marketing. When communicating outside the organization (regardless of the level), it is important for employees to behave professionally and not to make commitments outside of their scope of authority.

**QTN. 3 What are the scope of materials management in an organization?**

Materials management is defined as “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”. From the definition it is clear that the scope of materials management is vast.

**Functions of Material Management**

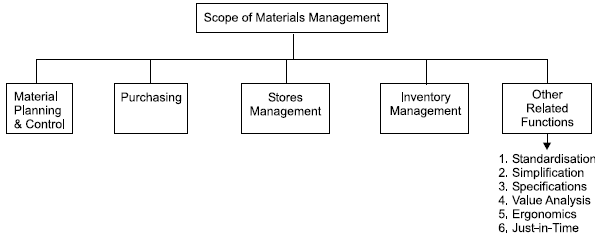
The functions of materials management can be categorized in the following ways:

1. Material Planning and Control
2. Purchasing
3. Stores Management
4. Inventory Control or Management
5. Standardization
6. Simplification
7. Value Analysis
8. Ergonomics
9. Just-in-Time (JIT)

All the above mentioned functions of materials management has been discussed .

**Nature and Scope of Material Management**

**Scope of materials management**



1. **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.
2. **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.
3. ***Stores management or 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.
4. **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. Thus, an effective control on inventory is a must for smooth and efficient running of the production cycle with least interruptions.
5. **Other related activities**  
   * 1. **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.
     2. **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.
     3. **Specifications*:*** It refers to a precise statement that formulizes the requirements of the customer. It may relate to a product, process or a service.

**Example:**  
Specifications of an axle block are Inside Dia. = 2 ± 0.1 cm, Outside Dia. = 4 ± 0.2 cm and Length = 10 ± 0.5 cm.

* 1. **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.
  2. **Ergonomics***(*Human Engineering):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.” Each of the above functions is dealt in detail.

**QTN 4.Define the various roles of materials management in the context of internal and external interfaces to materials management system.**

**Materials Management: Meaning, Importance and Functions!**

The need for materials management was first felt in manufacturing undertakings. The servicing organizations also started feeling the need for this control. And now even non-trading organizations like hospitals, universities etc. have realized the importance of materials management. Every organization uses a number of materials. It is necessary that these materials are properly purchased, stored and used.

Any avoidable amount spent on materials or any loss due to wastage of materials increases the cost of production. The object of materials management is to attack materials cost on all fronts and to optimize the overall end results. Materials management connotes controlling the kind, amount , location and turning of the various commodities used in and produced by the industrial enterprises. It is the control of materials in such a manner that it ensures maximum return on working capital.

“Material management is the planning, directing, controlling and co-ordination of all those activities concerned with material and inventory requirements, from the point of their inception to their introduction into manufacturing process.”

As per De Rose all those functions which start with the procurement of materials and end with completion of manufacturing are a part of material management.

“Material management is the integrated functioning of the various sections of an organization dealing with the supply of materials and allied activities in order to achieve maximum co-ordination.”

N.K. Nair has emphasized the co-ordination of all those activities which are related to the efficient use of materials.

Importance of Material Management:

Material management is a service function. It is as important as manufacturing, engineering and finance. The supply of proper quality of materials is essential for manufacturing standard products. The avoidance of material wastage helps in controlling cost of production. Material management is essential for every type of concern.

**The importance of material management may be summarized as follows:**

1. The material cost content of total cost is kept at a reasonable level. Scientific purchasing helps in acquiring materials at reasonable prices. Proper storing of materials also helps in reducing their wastages. These factors help in controlling cost content of products.

2. The cost of indirect materials is kept under check. Sometimes cost of indirect materials also increases total cost of production because there is no proper control over such materials.

3. The equipment is properly utilized because there are no break downs due to late supply of materials.

4. The loss of direct labour is avoided.

5. The wastages of materials at the stage of storage as well as their movement is kept under control.

6. The supply of materials is prompt and late delivery instances are only few.

7. The investments on materials are kept under control as under and over stocking is avoided.

8. Congestion in the stores and at different stages of manufacturing is avoided.

Functions of Material Management:

Material management covers all aspects of material costs, supply and utilization. The functional areas involved in material management usually include purchasing, production control, shipping, receiving and stores.

**The following functions are assigned for material management:**

#### 1. Production and Material Control:

Production manager prepares schedules of production to be carried in future. The requirements of parts and materials are determined as per production schedules. Production schedules are prepared on the basis of orders received or anticipated demand for goods. It is ensured that every type or part of material is made available so that production is carried on smoothly

2. Purchasing:

Purchasing department is authorized to make buying arrangements on the basis of requisitions issued by other departments. This department keeps contracts with suppliers and collects quotations etc. at regular intervals. The effort by this department is to purchase proper quality goods at reasonable prices. Purchasing is a managerial activity that goes beyond the simple act of buying and includes the planning and policy activities covering a wide range of related and complementary activities.

3. Non-Production Stores:

Non-production materials like office supplies, perishable tools and maintenance, repair and operating supplies are maintained as per the needs of the business. These stores may not be required daily but their availability in stores is essential. The non-availability of such stores may lead to stoppage of work.

4. Transportation:

The transporting of materials from suppliers is an important function of materials management. The traffic department is responsible for arranging transportation service. The vehicles may be purchased for the business or these may be chartered from outside. It all depends upon the quantity and frequency of buying materials. The purpose is to arrange cheap and quick transport facilities for incoming materials.

5. Materials Handling:

It is concerned with the movement of materials within a manufacturing establishment and the cost of handling materials is kept under control. It is also seen that there are no wastages or losses of materials during their movement. Special equipment’s may be acquired for material handling.

6. Receiving:

The receiving department is responsible for the unloading of materials, counting the units, determining their quality and sending them to stores etc. The purchasing department is also informed about the receipt of various materials.

**QTN5. Describe the role of material management in performing various functions in an organization?**

As production is steadily increasing, the demand for tangible components is also increasing as well. This expanding demand for materials establishes a need for materials management, which pertains to the coordination of planning, organizing, and controlling the steps within the tangible component management process. Without the materials management process, products are not able to adequately receive the parts that are needed in order to complete the product. Materials management can efficiently source, purchase, store, and utilize materials within their supply chain and production timeline, which can optimize overall production within your manufacturing operation.

**Materials Management - Functions and Objectives**

Basic functionality of materials management includes various factors such as supply, material pricing, and usage. Taking a more in-depth look at the functions of materials management and how it is advantageous to your supply chain can enable your production facility to locate areas where aid is needed. Various functions of materials management include the following:

* **Production Control** - As [production schedules](https://www.planettogether.com/blog/production-planning-and-control-features) are generated through demand analysis, the materials that are needed are determined.  It is important to find readily available materials to make sure that production flows smoothly.
* **Purchasing** - As production management hands off the materials that are needed, the parts are then purchased from various and frequent suppliers. Locating quality materials at a reasonable price can reduce overall cost within the materials management process.
* **Transportation** - Arrangement of transportation has to be done in a quick and efficient manner. The type of transportation can vary based off of the operation, depending on how frequently materials are bought.
* **Receiving** - This area of materials management takes the initiative in unloading and counting materials. This is where the parts are distributed to the correct locations and where the process ends.

Along with the functionality within materials management, the objects within the process are the following:

* Material Cost Reduction
* Accurate Machinery Utilization
* Labor Depletion Averting
* Material Investment Control
* Bottleneck Avoidance

Materials management has successfully optimized production in various facilities, but the process cannot effectively stand alone. Implementing an advanced planning and scheduling system (APS) is the next step in overall cost reduction, inventory reduction, and material flow enhancement.

**Advanced Planning and Scheduling & Materials Management**

[Advanced planning and scheduling (APS) software](https://www.planettogether.com/free-aps-advanced-plannning-scheduling-software-demo) offers as an extension of the materials management process. Through master and material planning, easily be able to up your production and material flow process with various capabilities such as:

* Flexible Accommodations
* Fast, Flexible Optimization
* Adaptive Factory Modeling
* Multi-User Capabilities

Integration of an [advanced planning and scheduling (APS)](https://www.planettogether.com/advantages-of-galaxy-aps-advanced-planning-and-scheduling-software-for-erp-mrp-mes) system will efficiently enhance your manufacturing operation through increased revenue and reduced production time. Separate yourself from the competition and turn your factory into a profit center.

**Functions of Supply Chain Management**

When you need to buy something, you just head to the nearest store or supermarket. You pick up the product, pay for it and return home. Have you ever wondered how products reach the store shelves? There is an entire process called supply chain management behind it!

Supply chain management maintains the balance between the demand and supply and involves activities right from procurement of materials and converting them into finished goods to ensuring delivery at the right time to reach the end-consumer.  Hence, supply chain management is the lifeline of an organization. It needs to be really efficient to keep the operations running like a well-oiled machine. A streamlined supply chain management chain can enhance customer relationship, lower down operational costs.

The Role of global supply chain management primarily comprises five functions mentioned below:

**1.Purchasing**

This is the first function of supply chain management. It pertains to procuring raw materials and other resources that are required to manufacture the goods. It requires coordination with suppliers to deliver the materials without any delays.

**2.Operations**

The operation team engages in demand planning and forecasting. Before giving raw material purchase order, the organization has to anticipate the possible market demand and number of units it needs to produce. Accordingly, it further sets the ball rolling for inventory management, production and shipping. If the demand is over anticipated, then it could result in excess inventory cost. If the demand is under anticipated, the organization wouldn’t be able to meet customer demand, thereby leading to revenue loss. So, operations function plays a critical role in supply chain management.

**3.Logistics**

This function of supply chain management requires immense coordination. The manufacturing of products has commenced. It needs space for storage until it is shipped for delivery. This calls for making local warehouse arrangements. Let’s say; the products are to be delivered outside the city, state or country limits. This brings transportation in the loop. There will also be a need for outstation warehouses. Logistics ensures that products reach the end-point delivery without any glitches.

**4.Resource Management**

Any production consumes raw materials, technology, time and labour. However, all the processes need to be efficient and effective. This phase is taken care by the resource management function team. It decides the allocation of resources in the right activity at the right time to optimize the production at reduced costs.

**5.Information Workflow**

Information sharing and distribution is what really keeps all other functions of supply chain management on track. If the information workflow and communication are poor, it could break apart the entire chain and lead to mismanagement.

**QTN6. Discuss the scope of a product. Elucidate the term taking two products of your choice and comment on the satisfaction you derived by adoption.**

Adjustments to Products

Marketers must often make product adjustments in order to keep the product competitive and continue to provide satisfaction to the buyer.

Discuss strategies for adjusting products in response to changes in consumer taste and the marketplace

* There are risks involved with product adjustment: changing the price of the product may price some buyers out, while changing the features may dissuade some from continuing to buy the product.
* Product positioning is both a concept and a process, often requiring extensive market research and involving a conscious change in the promotional message.
* Line extensions occur when a company adds new items in the same market category. This is usually either up-market or down-market, depending on the company’s strategy and desired market growth.
* **product repositioning**: Changing the market’s perceptions of a product so that it may better compete in its present market or other market segments.
* **product adjustment**: The changing of a product in order to provide superior satisfaction and win over buyers from other brands and products.

### Adjustments to Products

As more brands enter the marketplace, winning and holding buyers becomes more difficult. This is a result of:

* changes in consumer tastes; in particular, the size and characteristics of particular market segments
* changes in availability or cost of raw materials and other production or marketing components
* the proliferation of small-share brands that reduce efficiencies in production, marketing, and servicing for existing brands

Because of factors such as these, a decision is made either to identify ways of adjusting the product in order to further distinguish it from others, or to design a strategy that will eliminate the product and make way for new products. The specific strategy to accomplish these aims may be in several general categories, described below.

### Product Adjustment/Modification

It is normal for products to be changed several times during their lives. If a change can provide superior satisfaction and win more initial buyers and switchers from other brands, then a change is probably warranted. Yet there are definite risks involved: a dramatic increase in product quality might price the existing target consumer out of the market. Similarly, the removal of a particular product feature might be the one characteristic of the product considered most important by a market segment.

A key question the marketer must answer before modifying the product is: “What particular attributes of the product and competing products are perceived as most important by the consumer? ” Factors such as quality, function, price, service, design, packaging, and warranty may all be determinants. This evaluative process requires marketing research studies to learn of improvements buyers might want, evaluate the market reception given to the competitors ‘s improvements, and evaluate improvements that have been developed within the company.

Also required is a relationship with the product research and development (R&D) department. Ideally, R&D should be able to respond quickly to the marketing department’s requests for product upgrades and should maintain ongoing programs of product improvement and cost reduction.

### Product Positioning and Repositioning

Product positioning is a strategic management decision that determines the place a product should occupy in a given market – its market niche. Given this context, the word “positioning” includes several common meanings of position:

* place (what place does the product occupy in its market? )
* rank (how does the product fare against its competitors in various evaluative dimensions? )
* mental attitude (what are consumer attitudes? )
* strategic process (what activities must be attempted in order to create the optimal product position? )

Thus, positioning is both a concept and a process. The positioning process produces a position for the product, just as the segmentation process produces alternative market segments. Positioning can be applied to any type of product at any stage of the lifecycle. Approaches to positioning range from gathering sophisticated market research information on consumers’s preferences and perceptions, to the intuition of the product manager or a member of his or her staff.

Product repositioning involves changing the market’s perceptions of a product or brand so that it can compete more effectively in its present market or in other market segments. Changing market perceptions may require changes in the tangible product or in its selling price. Often, however, the new differentiation is accomplished through a change in the promotional message. To evaluate the position and to generate information about the future positioning strategies, it is necessary to monitor the position over time. A product position may change readily; keeping track and making necessary adjustments is very important.

### Product Line Extensions

A product line extension is the use of an established product’s brand name for a new item in the same product category. Line extensions occur when a company introduces additional items in the same product category under the same brand name, such as new flavors, forms, colors, added ingredients, or package sizes. The company can extend its product line down-market, up-market, or in both directions.

Down-Market Stretch: a company positioned in the middle market may want to introduce a lower-priced line for any of three reasons: (a) the company may notice strong growth opportunities as mass retailers such as Wal-Mart attract a growing number of value-seeking shoppers; (b) the company may wish to tie up lower-end competitors who might otherwise try to move up-market; or (c) the company may find that the middle market is stagnating or declining.

Up-Market Stretch: companies may wish to enter the high end of the market for more growth, higher margins, or simply to position themselves as full-line manufacturers. Many markets have spawned surprising upscale segments: Starbucks in coffee, Haagen-Dazs in ice cream, and Evian in bottled water. Leading Japanese auto companies have each introduced an upscale automobile: Toyota’s Lexus, Nissan’s Infiniti, and Honda’s Acura.

Product Line Breadth

The breadth of the product mix consists of all the product lines that the company has to offer to its customers.

Describe the relationship between product line breadth and the product marketing mix

* Product marketers must decide what products will be offered (i.e., the breadth and depth of the product line ).
* The product line breadth is one of the four dimensions associated with a company’s product mix.
* The product line breadth is also referred to as the: product width, product assortment width and merchandise breadth.
* **product line breadth**: The breadth of the product mix consists of all the product lines that the company has to offer to its customers.
* **depth of the product line**: Line depth refers to the number of subcategories a category has.
* **product mix**: The complete set of all products a business offers to a market. The product mix is made up of both product lines and individual products.

### Introduction: Product Marketing Questions

Product marketing in a business addresses five important strategic questions:

* What products will be offered (i.e., the breadth and depth of the product line)?
* Who will be the target customers (i.e., the boundaries of the market segments to be served)?
* How will the products reach those (i.e., the distribution channel and are there viable possibilities that create a solid business model)?
* At what price should the products be offered?
* How will customers be introduced to the products (i.e., advertising)?

In this unit, you’re going to learn about the relationship between the breadth of the product line and the product mix.

### Product Line Breadth

The breadth of the product mix consists of all the product lines that the company has to offer to its customers. If we take P&G, for example, the breadth of the major product lines would consists of hair products, oral care, soaps and detergents, baby care, and personal care.

You may also hear the product line breadth referred to as the product width, product assortment width, and merchandize breadth.

### Product Line Breadth and the Product Mix

The product mix of a company is generally defined as the complete set of all products a business offers to a market. The product mix (sometimes called “product assortment”) is made up of both product lines and individual products.

A product line is a group of products within the product mix that are closely related, either because they function in a similar manner, are sold to the same customer groups, are marketed through the same types of outlets or fall within given price ranges.

An individual product is a particular product within a product line. It is a distinct unit within the product line that is distinguishable by size, price, appearance, or some other attribute. For example, all the courses a university offers constitute its product mix, courses in the marketing department constitute a product line, and the principles of marketing course is a product item.

Now, there are four dimensions associated with a company’s product mix and the product line breadth is one of them. The other three are the length, the depth, and the consistency.

Going back in our P&G example we saw five different product lines: hair products, oral care, soaps and detergents, baby care, and personal care. This means that the product mix breadth is five.

## Product Line Depth

Companies employ different strategies to expand their product line depth, which refers to the number of products in a specific product line.

Describe the different tactics for implementing full-line and limited-line product strategies

* Companies with full-line strategies attempt to enhance product line depth through carrying a high number of variations on a similar product in order to satisfy a wide range of different customer desires.
* Companies with limited-line strategies will carry a select few product variations with the highest impact, rather than carrying every conceivable variation of the product.
* Line-filling and line-pruning strategies can take place, depending on whether there is a perceived void in the product line, or whether an existing product in the line becomes obsolete or unprofitable.

**product line depth**: Product line depth refers to the number of products in a company’s specific product line.

A product line can contain one product or hundreds. The number of products in a product line refer to its product line depth, while the number of separate product lines owned by a company is the product line width (or breadth).

There are two basic strategies that deal with whether the company will attempt to carry every conceivable product needed and wanted by the consumer or whether they will carry selected items. The former is a full-line strategy while the latter is called a limited-line strategy.

Line-filling Strategies

Line-filling strategies occur when a void in the existing product line has not been filled or a new void has developed due to the activities of competitors or the request of consumers. Before considering such a strategy, several key questions should be answered: Can the new product support itself? Will it cannibalize existing products? Will existing outlets be willing to stock it? Will competitors fill the gap if we do not? What will happen if we do not act?

Assuming that the company decides to fill out the product line further, there are several ways of implementing this decision. Three are most common:

1. Product proliferation: the introduction of new varieties of the initial product or products that are similar (e.g. a ketchup manufacturer introduces a hickory-flavored sauce, a pizza-flavored barbecue sauce, and a special hot dog sauce)
2. Brand extension: strong brand preference allows the company to introduce the related product under the brand umbrella (e.g. Jell-O introduces pie filling and diet desserts under the Jell-O brand name)
3. Private branding: producing and distributing a related product under the brand of a distributor or other producers (e.g. Firestone producing a less expensive tire for Kmart)

In addition to the demand of consumers or pressures from competitors, there are other legitimate reasons to engage in these tactics. First, the additional products may have a greater appeal and serve a greater customer base than did the original product. Second, the additional product or brand can create excitement both for the manufacturer and distributor. Third, shelf space taken by the new product means it cannot be used by competitors. Finally, the danger of the original product becoming outmoded is hedged. Yet there is still serious risk to consider: unless there are markets for proliferation that will expand the brand’s share, the newer forms will cannibalize the original product and depress profits.

Line-pruning Strategies

Line-pruning strategies involve the process of getting rid of products that no longer contribute to company profits. A simple fact of marketing is that sooner or later a product will decline in demand and require pruning. Timex has stopped selling home computers. Hallmark has stopped selling talking cards. A great many of the components used in the latest automobile have replaced far more expensive parts, due to the increased costs in other areas of the process, such as labor.

Using modern robotics technology has halved the manufacturing costs of several products. Through such implementation, Keebler Cookies moved from packaging their cookies totally by hand to 70% automation. Other possible ways a company might become more efficient are by replacing antiquated machinery, moving production closer to the point of sale, subcontracting out part of the manufacturing process, or hiring more productive employees

Product Lines in Services

By productizing a service it can be managed more like a product and various product lines can be created.

State the criteria required to productize a service

* The service product manager identifies profitable service space, packages services in a productized form, and delivers the same to the market.
* Productizing a service involves the creation of necessary product documentation like executive materials, service product document, technical services document, and service scope.
* Like regular products, service products can be ramped down.

**productize**: To modify something to become suitable as a commercial product.

**Introduction**

Consider this scenario: you provide a service, let’s say image consulting. You’ve been in business for quite some time and have been charging an hourly rate. Business has been okay, but you constantly have to defend your rate to clients who benefit from your service but still complain that your rate “seems to be a bit high.” Or maybe they are reluctant to even use your service because they don’t know what they will be getting for that price.

Service providers often have to deal with this problem. There is a solution, however, to productize the service.

### **How to Productize a Service**

Productizing a service means making the service look more like a product so that it is easier for customers to conceive, and thus buy. This involves:

* Giving it a defined scope;
* Putting it into a limited time period;
* Attaching a definite price tag; and
* Giving it a distinctive name.

Going back to the image consulting business, instead of charging an hourly rate, you could productize your service by offering a “One-Day Makeover. ” The product would consist of

* Wardrobe assessment;
* Shopping trip;
* Beauty salon visit; and
* Make-up application tips.

All of this would be offered for a fixed price. And there’s no need to stop there. An entire product line (or lines) could be produced using the same technique.

If you worked for a large corporation and developed a solution such as this, you would be called a Service Product manager.

### The Service Product Management

Service Product Management deals with managing a service product throughout its complete life cycle. This organizational function is equally common in business-to-business as well as business-to-consumer organizations.

A service product, unlike a hardware or software product, is intangible, and manifests itself as pure professional services or as a combination of services with necessary software and/or hardware.

**QTN 7. Product mix and line decisions are viewed as strategic tools to increase market share and keep competition at bay. Discuss.**

The **product mix**constitutes all individual product items and product lines the company markets. The product mix is described in terms or ‘width’ and ‘depth’. This enables an analysis of the ‘constituency’ of the product mix to be made. A company that manufactures and markets three separate product lines: fountain pens, cigarette lighters and wrist-watches. Within each product line the company offers a number of separate product items. This is typical of diversified companies with multiple product lines. Here, the product mix represents the sum of the firm’s products – in this case, 30. The number of product lines is three. **Line depth**refers to the number of products in each line – 9, 13 and 8 respectively – with the average depth being 10. **Line width**refers to the number of product lines offered.

By using the product mix concept a strategic assessment of the company’s product offerings can be made e.g. product line three could be extended (and hence the product mix) by adding digital watches. The company can also assess the extent to which products in the same line are complementary to, or compete with, each other and hence which might be deleted. Decisions about new products should reflect consistency with existing product lines. Conversely, is any one product so valued in terms of image and reputation that its deletion will damage the product mix? As Lancaster and Massingham1 point out, ultimately the addition to the width of the mix and the depth within each product line should be compatible with long-term marketing strategy. Short-term opportunist decisions may be damaging the company’s market position in the longer term.

Product mix analysis is a vital part of strategy review. In the case of Personal Products Ltd, the following are possible strategic options:

1. Augment the product line by adding rollerball pens. This would remove some measure of exclusivity and represent a strategy of being ‘all things to people’ in a bid to serve the whole market for ink-based writing implements.
2. Delete all but the most expensive men’s lighters from line two. This would have the effect of making the company a market specialist in men’s lighters, aiming at an exclusive market segment.
3. Delete lines one and two and become a specialist in a single product line i.e. wrist-watches, and options one and two would still be available to the company.
4. Delete all but one product and become expert in its marketing and production.
5. Add another product line. In the case of Personal Products Ltd, it could be a new line of pens aimed at the graphics market.

Given the existing product mix and the options available, the company must begin to take product decisions that are in line with long-term strategy and are consistent with that mix. The introduction of ball-point pens could influence the perception the consumer has of the company as a whole. Low-cost disposable pens might not be consistent with the firm’s reputation for high quality lighters.

Similarly, the firm may be technically capable of producing an industrial line, but lacks marketing expertise required to serve this new market effectively.

Analysis of the product mix examines every aspect of the company. Each decision has financial, technical, marketing and market implications. The critical nature of product strategy becomes more apparent when one considers the consequences of failure and the need for success. Strategic choice options that relate to product mix decisions should be carefully considered through a set of evaluation criteria, so decisions taken are rational and not emotional or opportunistic.

Project Scope Management refers to the set of processes that ensure a project’s scope is accurately defined and mapped. Scope Management techniques enable project managers and supervisors to allocate the right amount of work necessary to successfully complete a project—concerned primarily with controlling what is and what is not part of the project’s scope.

## What Is Project Scope?

Scope refers to the detailed set of deliverables or features of a project. These deliverables are derived from a project’s requirements. [PMBOK®](https://www.pmi.org/) defines Project Scope as the “The work that needs to be accomplished to deliver a product, service, or result with the specified features and functions.”

Following are the three processes of Project Scope Management:

### **Planning**

The planning process is when an attempt is made to capture and define the work that needs to be done.

### **Controlling**

The controlling and monitoring processes focus on documenting tracking, scope creep, tracking, and disapproving/approving project changes.

### **Closing**

In the final process, the closing includes an audit of the project deliverables and an assessment of the outcomes against the original plan.

## The Scope Statement

The scope of a project is the clear identification of the work that is required to complete or deliver a project successfully. One of the project manager’s responsibilities is to ensure that only the needed work (the scope) will be performed and that each of the [deliverables](https://www.simplilearn.com/what-is-a-deliverable-article) can be completed in the allotted time and within budget.

The documentation of the scope of the project will explain the boundaries of the project, establish the responsibilities of each member of the team, and set up procedures for how a work that is completed will be verified and approved. This documentation may be referred to as the scope statement, the statement of work, or the terms of reference.

## Steps Involved in Project Scope Management

As a project manager, you’ll need to define project scope no matter what methodology you choose. Here’s one example of a systematic process to capture, define, and monitor scope.

### **Define Project Needs**

Defining the needs of the project is the first step to establish a project timeline, allocate project resources, and set project goals. Only with these defined steps, you will be able to understand the work that needs to be done, meaning, the scope of the project needs to be defined. Once that is done, team members can be allocated tasks and provided direction to deliver a project in the given time and budget.

### **Understand the Project Objectives**

To define the project scope, it is important first to establish the objectives of the project, which may include a new product, creating a new service within the organization, or developing a new piece of software. There are several objectives that could be central to a project; the project manager ensures the team delivers results according to the specified features or functions.

### **Define the Project Scope**

The resources and work that goes into the creation of a product or service are essentially what defines the scope of the project. The scope generally outlines the goals that will be met to achieve a satisfactory result.

## Steps for Defining the Scope of a Project

1. Project objectives
2. Goals
3. Sub-phases
4. Tasks
5. Resources
6. Budget
7. Schedule

To define the scope of the project, identify the above parameters.

Once these parameters are established, the limitations of the project need to be clarified, and the aspects that are not to be included in the project identified. By doing this, the project scope will make clear to [stakeholders](https://www.simplilearn.com/stakeholders-impact-on-the-projects-article), senior management, and team members what will and will not be included in the final product or service.

Additionally, the scope of the project should have a tangible objective for the organization that is undertaking the project. This is integral for the scope of the project since it will play a vital role in how project methodologies are applied to complete it.

## Project Scope Management Processes

## Plan Scope Management

It is the first process in the Project Scope Management process. The PMBOK® Guide, Fifth Edition, added several processes to separate the initial planning activities from other activities. This process creates the Scope Management plan. The Scope Management plan describes the project scope and documents how it will be further defined, validated, and controlled.

The table below shows the Inputs, Tools and Techniques, and Outputs of the Plan Scope Management Process.

The Scope Management plan covers how the scope will be defined, validated, and controlled. It also includes information on preventing or dealing with scope creep, handling change requests, the escalation path for any disagreement on the scope elements between stakeholders, the process for the creation of the scope statement, WBS, and how the deliverables will be accepted.

## Collect Requirements

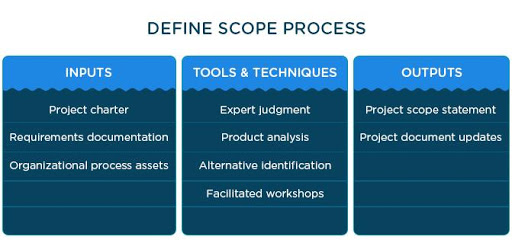
This process involves documenting stakeholders’ needs with the stated intent of meeting the project’s objectives. In this process, managers use several techniques and tools for collecting project requirements from stakeholders. The process attempts to leave no stone unturned, resulting in an in-depth list of project requirements. If this process is performed thoroughly and correctly, it can significantly reduce the possibility of unpleasant surprises as the project moves toward completion.

The table below shows the Inputs, Tools and Techniques, and Outputs of the Collect Requirements process.

## Define Scope

This process involves the preparation of a detailed description of the project and its major deliverables. The scope clearly states what the project is supposed to achieve and what it cannot accomplish. The supporting documents are reviewed to ensure that the project will deliver work in line with the stated goals. The scope that results states the stakeholders’ needs and communicates expectations for project performance.

The table below shows the Inputs, Tools and Techniques, and Outputs of the Define Scope Process.



## Create a Work Breakdown Structure (WBS)

The [Work Breakdown Structure](https://www.simplilearn.com/work-breakdown-structure-article) (WBS) is an important element of the Scope Management process, and the PMI® places great emphasis on this aspect—many project managers often skip this step, which leads to inaccurate planning. The WBS provides the project manager and the team with the opportunity to break down a high-level scope statement into smaller, manageable units of work, called work packages. The resulting WBS should provide a complete list of all work packages required to complete the project

The table below shows the Inputs, Tools and Techniques, and Outputs of the Create Work Breakdown Structure process.

## Validate Scope

The Validate Scope process focuses mainly on customer acceptance. It is when the project customer formally accepts all the project deliverables. This process occurs at the end of each phase. During the process, the customer gives feedback on the work that was performed.

The table below shows the Inputs, Tools and Techniques, and Outputs of the Validate Scope process.

## Control Scope

Control Scope is the last process group of project Scope Management. The Control Scope process involves monitoring the status of the project and managing changes to the scope.

The table below shows the Inputs, Tools and Techniques, and Outputs of the Scope Control process.

This process involves assessing additional requirements from the customer or proactively overlooking the project scope. Managers measure the work product against the scope baseline to ensure that the project stays on track, and all requested changes & recommended corrective or preventive actions are processed through the integrated change control process.

**Project Scope Management Tips**

Some common issues with performing Scope Management can lead to problems once the project has begun. We recommend reviewing all Scope Management documentation with an eye toward:

### **Ambiguity**

Ambiguity in scope often leads to unnecessary work and confusion. To avoid this, the scope needs to be clearly defined and precise.

### **Incomplete Definition**

Incomplete scopes lead to schedule slips, which lead to cost overruns. To avoid this, the scope needs to be complete and accurate.

### **Transience**

Transient scopes lead to scope creepthe primary cause of late deliveries and “never-ending” projects. To avoid this, the scope document needs to be finalized and remain unaltered for the duration of the project.

### **Uncollaborative Scope**

A scope that is not collaboratively prepared causes misinterpretations in requirements and designs. To avoid this, the scope document should be shared with all stakeholders at every step of the scope definition process.

**Why Project Managers Need Scope Management?**

Effective Scope Management requires clear communication, to ensure that stakeholders and team members alike understand the scope of the project while agreeing on how the project goals will be met.

Scope Management helps avoid the challenges that a project might face with bloating scope and an unruly requirements list. Project scope clearly sets out what is or is not included in the project, and controls what gets added or removed as the project is executed. Scope Management establishes control mechanisms to address factors that may result in changes during the project lifecycle.

Without defining the project scope, the cost and time that the project will take cannot be estimated. At times, due to a lack of communication, the scope may need to change. It directly affects the cost and disturbs the schedule of the project, causing losses.

## **Conclusion**

Scope Management is not difficult to implement; however, it does require effort, time, and patience. It’s worth the investment because proper Scope Management will help you specify a clear scope and deliver the project with minimal overruns.

If you’re studying for your PMP exam, consider online [Project Management training](https://www.simplilearn.com/project-management/pmp-certification-training) from Simplilearn. We offer a wide variety of project management courses taught by certified faculty with at least 10 years of industry experience.