

Unit-3

Cost Accounting

Can the business be run without making decisions? Even doing nothing is a decision! *Decision is 'making a choice from among the available alternative courses of action'*. How is this choice made? Why a particular alternative is chosen and the others are not? What is the basis for this choice? The most obvious basis is an economic evaluation of the alternatives available. Economic evaluation means comparing benefits with costs. The alternative that brings more benefit than the cost will be the obvious choice. As such measurement of both, benefits and costs, becomes very crucial. Managers must evaluate the financial implications of decisions that require trade-offs between costs and benefits of different alternatives.

A decision maker will definitely need information to be able to decide. This information is both quantitative as well as qualitative. The financial accounting information will not serve this purpose as it talks about '*how to deal with transaction when they occur*'. The information needed will be more specific and relevant to the decision to be made. Let us consider some decisions taken in managing or running a business:

- (a) How much quantity should be produced during the coming year?
- (b) At what price should the product be sold in various markets?
- (c) In what quantities should the material be procured?
- (d) How much should be paid to the workers and how to control their performance?
- (e) What level of capacity should be used?
- (f) Whether a particular order should be taken or not?
- (g) Whether to expand or close a particular line of business?
- (h) Assessing the performance of different divisions

The basic aim of business is to make profit. In other words, it must ensure that the business transactions are profitable. This would mean that decision to do a business transaction must be as accurate as possible. It is therefore logical that the decisions must be taken on the basis of correct and timely information pertaining only to the issue under consideration. A very basic definition of profit is the difference between revenue (i.e. selling price) and costs. In today's market driven world economy, selling price is almost decided by the market forces viz. demand and supply. If that be so, how does one increase profits? There's only one way and that is to keep costs to absolute minimum possible. Knowledge of costs therefore is imperative. Costs and information do go hand in hand. The art and science of Cost and Management Accounting provides knowledge to effective decisions for cost control, enhancement of profitability and internal reporting.

Cost and Management Accounting is internal to the business. It is a very potent tool in the hands of management to achieve goals by making effective decisions with the aid of well developed cost accounting techniques and management accounting tools. These enable the

management to answer “*why*” than merely understanding “*what*”. The evolution of Cost & Management Accounting is as old as the business activity in the world. Let us get a perspective of the same. Remember, Cost and Management Accounting has developed on the platform of very strong science of Financial Accounting.

Major objectives are:

1. **Ascertaining cost:** Primary objective of cost accounting is to find out cost of a product, process or service.
2. **Determining Selling Price:** Business enterprises are to run on a profit. Therefore it is necessary that the revenue should be greater than the costs incurred in producing goods and services from which the revenue is to be derived. Cost accounting provides information regarding the cost to make and sell such products or services.
3. **Measuring and Increasing Efficiency:** Cost accounting involves a study of the various operations used in manufacturing a product or providing a service. The study enables accountant to measure the efficiency of the organisation as a whole as well as of the departments besides devising means of increasing the efficiency.
4. **Cost Control and Cost Reduction:** Cost accounting helps in cost control through application of various techniques such as budgetary control, standard costing etc. for controlling costs. Budgets are prepared well in advance. The standards for each item of cost are determined and the actual costs are compared with the standard costs and variances are found out as to their causes. This increases the operating efficiency of the enterprise. Besides it, cost is required to be reduced. Constant research and development activities help in reduction of costs without compromising with the quality of goods or services.
5. **Cost Management:** Cost Management is one of the objective of cost accounting. It includes the actions of managers in short-run and long-run planning and control of costs. It includes both cost control and cost reduction.
6. **Determining Profits:** Main objective of Cost accounting is to determine the profits of each and every activity. It produces statements at such intervals as the management may require. The financial statements are prepared under financial accounting, generally once a year or half a year, are spaced too far apart in time to meet the needs of the management. To increase efficiency of business, it is indispensable for the management to have a frequent review of production, sales and operating results. Cost accounting provides daily, weekly or monthly volumes of units produced, accumulated costs together with appropriate analysis so that company gains profit.
7. **Providing Basis for Managerial Decision Making:** Lastly, the objective of costs accounting is to assist the management in devising operative policies. These policies may relate to various matters such as determination of cost volume and profit relationship, shutting down or operating at a loss, making or buying from outside supplies, continuing with the existing plant and machinery or replacing them by improved and economical means.

Importance of Cost Accounting

Costing helps in periods of trade depression and trade competition: In periods of trade depression the business cannot afford to have leakages which pass unchecked. The management should know where economies may be sought, waste eliminated and efficiency increased. The management should distinguish the actual cost of their products before embarking on any scheme of reducing the prices on giving tenders.

Cost accounting facilitates in price fixation: Though economic law and supply and demand and activities of the competitors, determine the price of the article, cost to the producer does play an important part. The producer can take necessary guidance from his costing records.

Cost accounting helps in estimate: Appropriate costing records provide a reliable basis upon which tenders and estimates may be prepared. The chances of losing a contract on account of over rating or losing in the execution of a contract due to under rating can be minimized. In this way, "ascertained costs provide a measure for estimates, a guide to policy, and a control over current production.

Cost accounting assists in channelling production on right lines: Costing enables the management to distinguish between profitable and non-profitable activities. Profit can be maximized by focusing on profitable operations and eliminating non-profitable ones.

Through proper cost accounting, wastages are eliminated: As it is possible to know the cost of the article at every stage, it becomes possible to block various forms of waste, such as time, expenses etc. or in the use of machine, equipment and tools.

Costing makes comparison possible: If the costing records are constantly maintained, comparative cost data for different periods and various volumes of production will be available. It will help the management to develop future lines of action.

Costing provides data for periodical profit and loss accounts: Passable costing records supply to the management such data which may be needed for preparation of profit and loss account and balance sheet, at such intervals as may be desired by the management. It also describes in detail the sources of profit or loss revealed by the financial accounts thus helps in presentation of better information before the management.

Cost accounting helps in determining and enhancing efficiency: Losses due to wastage of material, idle time of workers, poor supervision will be disclosed if the various operations involved in manufacturing a product are studied by a cost accountant. The efficiency can be measured and costs controlled and through it various devices can be framed to increase the efficiency.

Cost accounting has great significance in controlling inventory: Costing provides control which management requires in respect of stock of materials, work-in-progress and finished goods.

Cost accounting helps in cost reduction: Costs can be reduced in the long run when alternatives are provided.

Cost accounting helps to enhance productivity: Productivity of material and labour is required to be increased to have growth and more profitability in the organisation costing renders great assistance in measuring productivity and suggesting ways to improve it.

Classification of cost:

Cost unit is defined by the ICMA as “a quantitative unit of product or service in relation to which costs are ascertained”. A cost unit is a device used for the purpose of splitting total cost into smaller sub-divisions attributable to products or service. A cost unit simply stated is a unit of finished product, service of these in relation to which cost is ascertained and expressed.

Cost Centre

A cost centre refers to a part of a factory for which costs are accumulated separately. In order to facilitate charging of costs to cost units, it is necessary to divide the factory or industry into various parts which can be used to accumulate costs for subsequent distribution. Each such part of a factory or industry is known as cost centre.

The main kinds of cost centre are given below:

1. Operation and process cost centre,
2. Production and service cost centre, and
3. Personal and impersonal cost centre

1. **Operation and Process Cost Centre:** Operation cost centre consist of those machines which carry out the same operation. A process cost centre is a cost centre in which a specific process or a continuous process of operation is carried out.

2. **Production and Service Cost Centre:** A production cost centre is one where actual production process is carried out. The manufacturing and non-manufacturing costs are charged to production cost centre. A service cost centre is one which provides services to other cost centre. Only non-manufacturing costs are charged to service cost centre.

3. **Personal and Impersonal Cost Centre:** Personal cost centre consists of a person or group of persons. Personal cost centre follows the organisational structure of a factory or organisation. Under this type of cost centre, costs are analysed and accumulated according to; say, factory manager, sales manager, store keeper, etc. Impersonal cost centre consists of a location of equipment. A cost centre relating to location may represent an area of sales, warehouse.

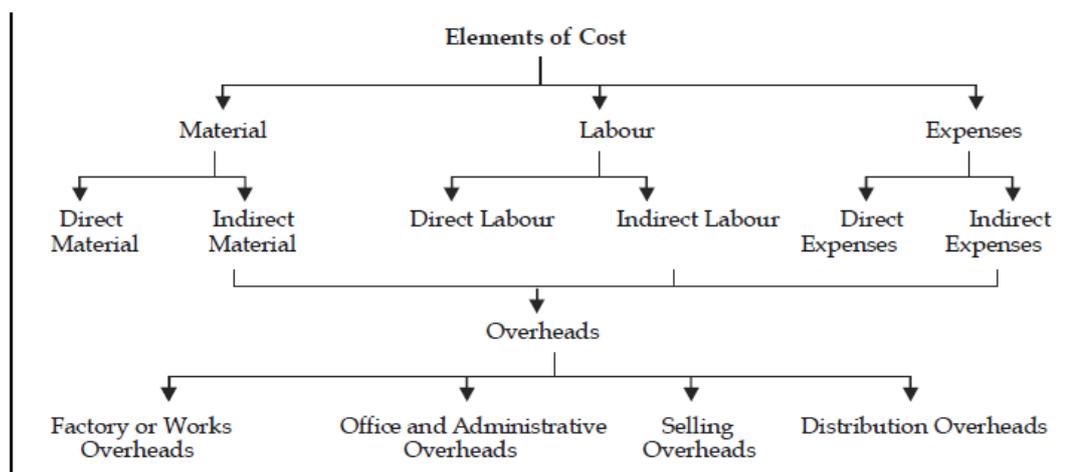
Cost centre relating to an item of equipment could be a machine or group of machines.

Whatever may be the kinds of cost centre, it is determined by taking into consideration the

following factors:

1. Responsibilities and accountabilities to be identified,
2. Volume of work to be performed,
3. Uses of cost centres, and
5. Cost control activities exercised.

Methods of Costing:



The following is the brief description of these elements of cost:

1. *Direct Material*: Direct material is material that can be directly identified with each unit of the product. Direct material can be conveniently measured and directly charged to the product.

For example, raw cotton in textile manufactures, sugarcane in sugar industry and leather

for shoe-making industry.

The cost of direct material includes the following:

- (a) All type of raw materials issued from the store,
- (b) Raw materials specifically purchased for the specific job or project,
- (c) Raw materials transferred from one cost centre to another cost centre.
- (d) Primary packing material, like cartons, cardboard boxes, etc.

2. *Indirect Material*: They are those materials which do not normally form a part of the finished product. It has been defined as “materials which cannot be allocated but which can be apportioned to or absorbed by cost centres or cost units”. These are:

(a) Stores used in maintenance of machinery, buildings, etc., like lubricants, cotton waste, bricks and cements.

(b) Stores used by the service departments, i.e., non-productive departments like Power house, Boiler house and Canteen, etc.

(c) Materials which due to their cost being small, are not considered worth while to be treated as direct materials.

3. *Direct Labour*: Direct labour is labour that can be identified directly with a unit of finished product. All the labour charges expended in altering the construction, composition, confirmation or condition of the product is included in it. It includes the payment of direct wages made to the following groups of direct labour:

(a) Direct labour engaged on the actual production of the product.

(b) Direct labour engaged in adding this manufacture by way of supervision, maintenance and tool setting, etc.

(c) Inspectors, analysts, etc. specially required for such production.

4. *Indirect Labour*: The wages of that labour which cannot be allocated but which can be apportioned to or absorbed by, cost centres or cost units is known as indirect labour. In other words, wages paid to labour which are employed other than or production constitute indirect labour costs. Examples of indirect labour are: charge hands and supervisors, maintenance workers, labour employed in service departments, material handling and internal transport, apprentices, trainees and instructors, factory clerical staff and labour employed in time and security office, etc.

5. *Direct or Chargeable Expenses*: They include all expenditures other than direct material and, direct labour that are specifically incurred for a particular product or job. Such expenses are charged directly to the particular cost account concerned as part of the prime cost.

Examples of direct expenses are: excise duty, royalty, surveyor’s fees, cost of rectifying defective work, travelling expenses to the job, experimental expenses of projects, expenses of designing or drawings, repairs and maintenance of plant obtained on hire and hire of special equipment obtained for a contract.

6. *Indirect Expenses*: Indirect expenses are expenses which can not be allocated but which can be apportioned to or absorbed by cost centres or cost units as rent, insurance, municipal taxes, salary of manager, canteen and welfare expenses, power and fuel, cost of training for new employees, lighting and heating, telephone expenses, etc.

7. Overheads: Overheads may be defined as the cost of indirect materials, indirect labour and such other expenses including services as cannot conveniently be charged direct to specific cost units. Thus, overheads are all expenses other than direct expenses. Overheads may be divided into following categories:

(a) Factory or works overheads cover all indirect expenditure incurred by the undertaking from the receipt of the order until its completion is ready for dispatch either to the customer or to the finished goods store. The overheads also include: depreciation on plant and machinery, buildings and equipment's, insurance charges on fixed assets, repairs and maintenance of fixed assets, electricity charges, coal and other fuel charges, rent, rates and taxes of works, etc.

(b) Office and administrative overhead consists of all expenses incurred in the direction, control and administration of a factory. Examples are the expenses in running the general office e.g., office rent, light, heat, salaries, salary to secretaries and accountants, general managers, directors, executives, investigations and experiments and miscellaneous fixed charges.

(c) Selling overheads comprise the cost of products or distributors of soliciting and recurring orders for the articles of commodities dealt in and of efforts to find and retain customers. It includes sales office expenses, salesmen's salaries and commission, showroom expenses, advertisement charges, fancy packing, samples and free gifts, after sales service expenses and demonstration and technical advice to potential customers.

(d) Distribution overheads comprise all expenditure incurred from the time the product is completed in the work until it reaches its destination. It includes warehouse rent, warehouse staff salaries, insurance, expenses on delivery vans and trucks, expenses on special packing for bulk transport, losses in warehouse stocks and finished goods damaged in transit and cost of repairing, etc.

Classification of cost:

Costs can be classified according to

1. General classification
2. Technical classification

Product vs. Period Costs

Product costs include all the costs that are involved in acquiring or making product. For a, manufacturer, they would be the direct materials, direct labor, and manufacturing overhead used in making its products. Product costs are viewed as "attaching" to units of product as the goods are purchased or manufactured and they remain attached as the goods go into inventory awaiting sale. So initially, product costs are assigned to an inventory account on the balance sheet. When the goods are sold, the costs are released from inventory as expense (typically called Cost of Goods Sold) and matched against sales revenue.

Period costs are not included as part of the cost of either purchased or manufactured goods and are usually associated with the selling function of the business or its general administration. As a result, period costs cannot be assigned to the products or to the cost of inventory. These costs are expensed on the income statement in the period in which they are incurred, using the usual rule of accrual accounting that we learn in financial accounting.

Manufacturing vs. Non-manufacturing Costs

Manufacturing costs are product costs consisting of Direct Material (DM), Direct Labor (DL) and Manufacturing Overhead (MOH, OH)

Manufacturing Costs = DM + DL + MOH

Non-manufacturing costs are period costs incurred in selling and administrative activities

Technical Classification

Apart from this classification the costs are also classified into various categories according to the purpose and requirements of the firm. Some of the most important classifications are as follows:

1. By nature or element or analytical segmentation
2. By functions
3. Direct and indirect cost
4. By variability
5. By controllability
6. By normality
7. By time
8. According to planning and control
9. For managerial decisions

1. By Nature or Element or Analytical Segmentation

The costs are classified into three major categories Materials, Labour, and Expenses.

Under this methodology, the costs are classified into various divisions or functions of the enterprise viz. Production cost, Administration cost, Selling & Distribution cost and so on. The detailed classification is that total of production cost sub-classified into cost of manufacture, fabrication or construction.

2. **Direct cost:** This classification of costs are incurred for the manufacture of a product or service. They can be conveniently and easily identified.

(a) *Material cost for the product manufacture:* It includes the direct material for manufacturing.

Indirect cost: The costs which are incurred for and cannot be easily identified for any single cost centre or cost unit known as indirect cost. Indirect material cost, Indirect labour cost and Indirect expenses are the three different components of the indirect expenses

By Variability

The costs are grouped according to the changes taken place in the level of production or activity.

It may be classified into three categories:

1. **Fixed cost:** It is cost which do not vary irrespective level of an activity or production.

Example: Rent of the factory, salary to the manager and so on.

2. **Variable cost:** It is a cost which varies in along with the level of an activity or production like material consumption and so on. *Example:* The fuel for an airline. The cost for it changes with the number of flights and how long the trips are.

3. **Semi variable cost:** It is a cost which is fixed up to certain level of an activity. Later it fluctuates or varies in line with the level of production. It is known in other words as step. *Example:* Electricity charges

Labour costs in a factory are semi-variable. The fixed portion is the wage paid to workers for their regular hours. The variable portion is the overtime pay they receive when they exceed their regular hours.

By Controllability

The costs are classified into two categories in accordance with controllability, as follows:

1. **Controllable costs:** Cost which can be controlled through some measures known as controllable costs. All variable cost are considered to be controllable in segment to some extent.

2. **Uncontrollable costs:** Costs which cannot be controlled are known as uncontrollable costs.

All fixed costs are very difficult to control or bring down; they rigid or fixed irrespective to the level of production.

By Normality

Under this methodology, the costs which are normally incurred at a given level of output in the conditions in which that level of activity normally attained.

1. **Normal cost:** It is the cost which is normally incurred at a given level of output in the conditions in which that level of output is normally achieved.

2. **Abnormal cost:** It is the cost which is not normally incurred at a given level of output in the conditions in which that level of output is normally attained. Normal cost for a defined-benefit pension plan generally represents the portion of the economic cost of the participant's anticipated pension benefits allocated to the current plan year. Abnormal cost maybe unexpected costs incurred, as a result of natural calamities or fire or accident or such other losses.

By Time

According to this classification, the costs are classified into historical costs and predetermined

costs:

1. Historical costs: The costs are accumulated or ascertained only after the incurrence known as past cost or historical costs.

2. Predetermined costs: These costs are determined or estimated in advance to any activity by considering the past events which are normally affecting the costs.

For Planning and Control

The following are the two major classifications, viz. standard cost and budgetary control:

1. Standard cost: Standard cost is a cost scientifically determined by way of assuming a particular level of efficiency in utilization of material, labour and indirect expenses.

The prepared standards are compared with the actual performance of the firm in studying the variances in between them. The variances are studied and analysed through an exclusive analysis.

2. Budget: A budget is detailed plan of operation for some specific future period. It is an estimate prepared in advance of the period to which it applies. It acts as a business barometer as it is complete programme of activities of the business for the period covered. the control is exercised through continuous comparison of actual results with the budgets. The ultimate aim of comparing with each other is to either to secure individuals' action towards the objective or to provide a basis for revision.

For Managerial Decisions

The major classifications are marginal cost and sunk cost.

Marginal cost is the amount at any given volume of output by which aggregate costs are changed if the volume of output is decreased or increased by one unit.

Sunk costs are costs that cannot be recovered once they have been incurred.

Sunk Cost: Spending on advertising or researching a product idea.

Preparation of Cost sheet:

Cost sheet is a statement which is prepared periodically to provide detailed cost of a cost unit or cost centre. A cost sheet not only shows the total cost but also the various components of the total cost. Period covered by a cost sheet may be a year, a month or a week, etc

A cost sheet is a statement prepared at periodical intervals of time, which accumulates all the elements of the costs associated with a product or production job. It is used to compile the margin earned on a product or job and forms the basis for the setting of prices on similar products in the future. We shall study the Cost Sheet Format in detail.

Cost Sheet Format

A Cost Sheet depicts the following facts:

1. Total cost and cost per unit for a product.
2. The various elements of cost such as prime cost, factory cost, production cost, cost of goods sold, total cost, etc.
3. Percentage of every expenditure to the total cost.
4. Compare the cost of any two periods and ascertain the inefficiencies if any.
5. Information to management for cost control
6. Calculate and summarize the total cost of the product.

Objects of Cost Sheet

1. For determining the selling price

A cost sheet helps in determination of selling price of a product or of a service. Cost sheet ascertains cost at each stage of the product and also the total cost of the product, where a margin of profit is added and thus the selling price is ascertained.

2. Facilitating in managerial decision making

Preparation of cost sheet helps managers at various levels in their decision-making process such as

1. to produce or buy a component,
2. what price of goods to quote in the tender,
3. whether to retain or replace an existing machine,
4. how to reduce costs and maximize profit.
5. identify and make decisions whether they need to continue with the product or not.

3. Preparation of budgets

Organizations can prepare a budget with the help of a cost sheet. We can prepare the budget by using the current or previous year's data. Based on our existing cost sheet, we can make estimates of our cost for the next financial year. It helps to prepare and make the necessary arrangement of funds for costs of the next financial year

Elements of Cost

Prime Cost: It comprises of direct material, direct wages, and direct expenses. Alternatively, the Prime cost is the cost of material consumed, productive wages, and direct expenses.

Factory Cost: Factory cost or works cost or manufacturing cost or production cost includes in addition to the prime cost the cost in indirect material, indirect labor, and indirect expenses. It also includes amount or units of Work in progress or incomplete units at the end of the period.

Cost of Production: When Office and administration cost at the end of the period are added to the Factory cost, we arrive at the cost of production or cost of goods sold. Here, we make an adjustment for opening and Closing finished goods.

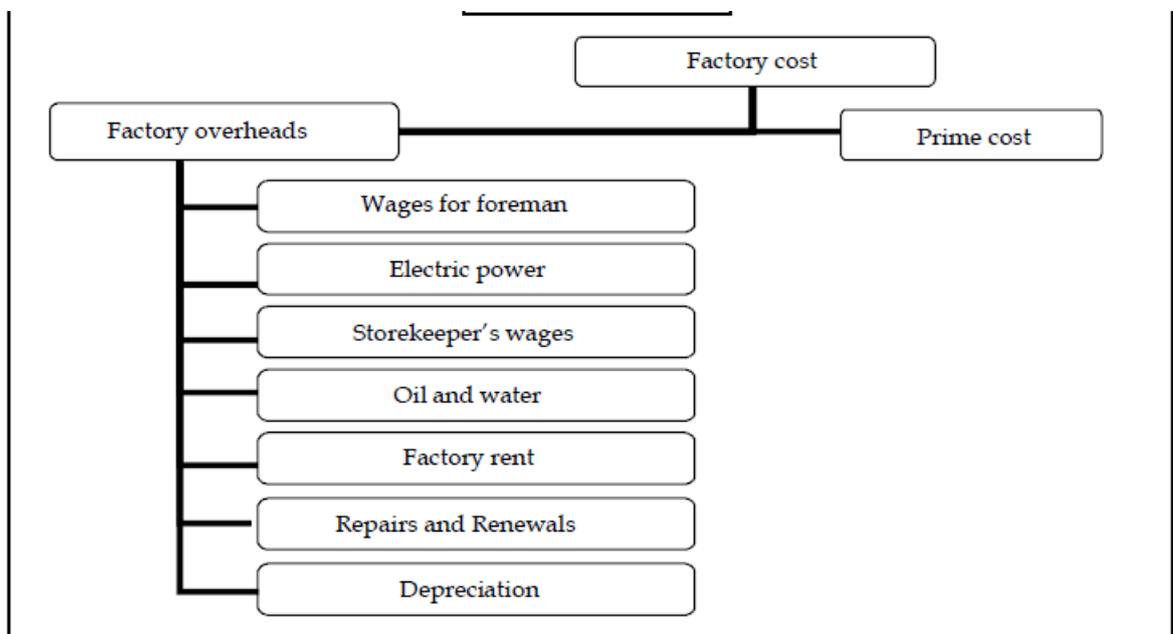
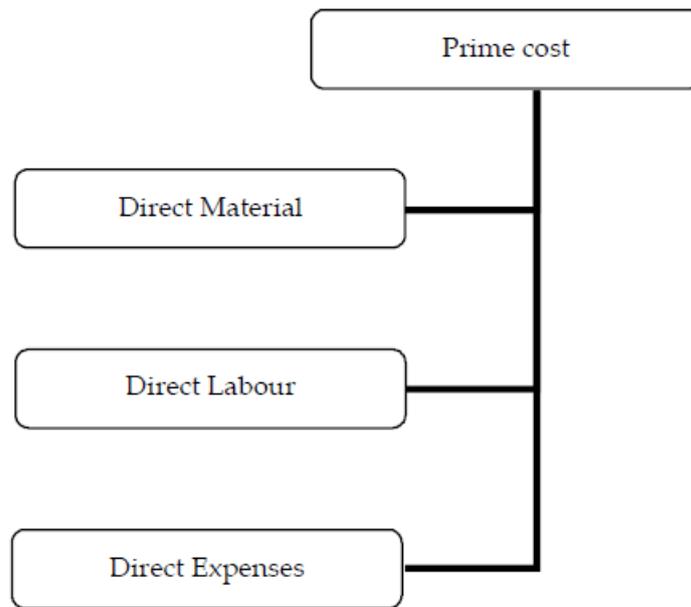
Total Cost: Total cost or alternatively cost of sales is the cost of production plus selling and distribution overheads.

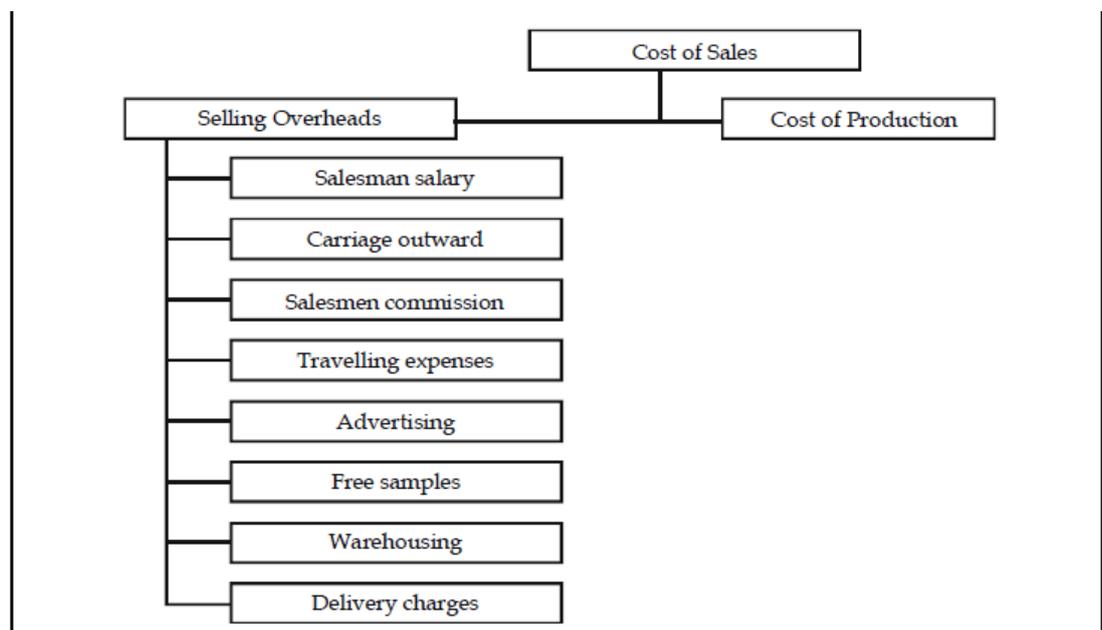
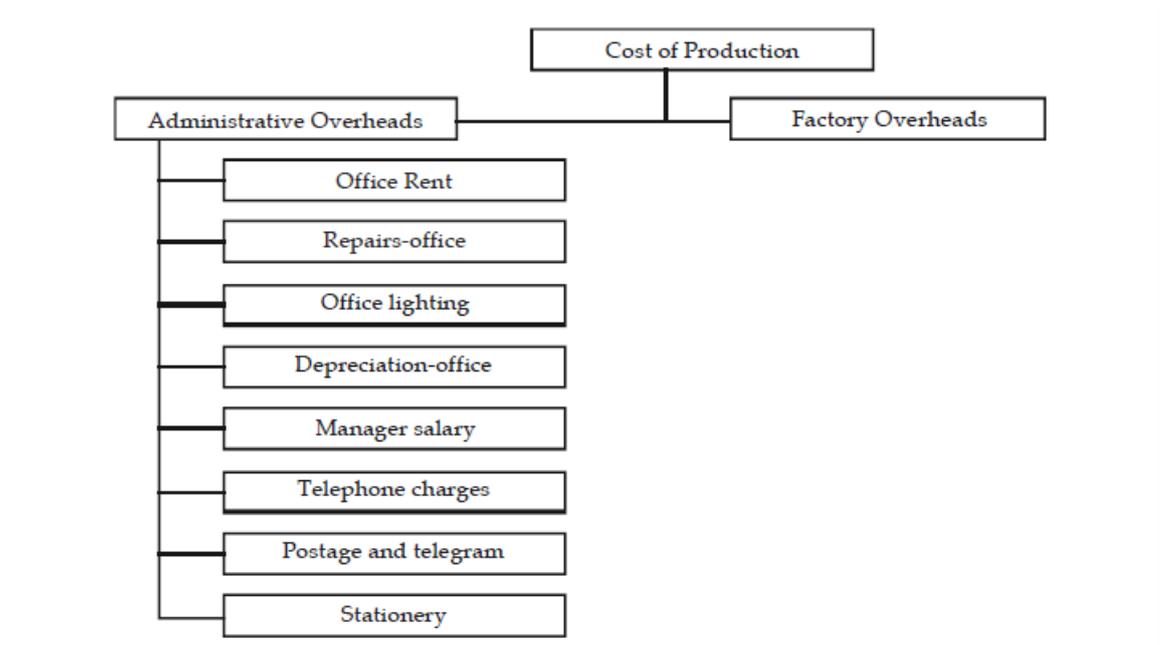
Cost Sheet format

The process of determination of cost of a pre-determined cost unit can be seen in the following chart:

Particulars	Basis of identification	Production departments			Service departments		
		Stage 1	Stage 2	Final stage	Dept 1	Dept 2	Dept 3
Direct Costs:	Direct identification						
Direct Material		----	----	----	----	----	----
Direct Labour		----	----	----	----	----	----
Direct Expenses	----	----	----	----	----	----	
Primary distribution of Indirect Costs	Direct or allocated						
Indirect Material		----	----	----	----	----	----
Indirect Labour		----	----	----	----	----	----
Indirect Expenses	----	----	----	----	----	----	
Secondary distribution of Indirect Costs	Service rendered						
Apportionment of service department costs to production departments		←	←	←	←	←	←
Total Cost of Production (a)			----	----	----		
Quantity of Cost Units (b)			----	----			
Per unit cost (a ÷ b)			----	----			

Calculation of Cost using Cost sheet-Step by step





The last but most important stage in the unit costing is determining the selling price of the commodities. The selling price of the commodities is fixed by way of adding both the cost of sales and profit margin out of the product sales.

Inventory Valuation and Control

Meaning and Definition of Inventory Control of material. Further, this input provides a number of avenues and wide scope for improvement of overall performance of the industry. Inventory control, therefore, aims at ensuring the availability of required quality material in required quantity, at required time or period and place with minimum cost. Inventory involves investment of money and locking up of precious space which has alternate uses. It is said that inventory is a necessary evil. As a result, proper control has to be exercised over it. In controlling inventory, firms or industries use a number of techniques and models. Inventory control is generally exercised over raw materials and work in progress. The basic purpose of inventory control is to maintain optimum level of inventory.

The objectives of material control are as follows:

1. Proper estimation of inventory requirements-quantity, quality, specifications of inventory etc. This will help the purchase manager to quality and quantity of materials. The purchase department has to exercise utmost care to procure the quality materials at lower prices.
2. The stores department has also an effective role to play for stock levels. By keeping only the required quantities of materials, excess employment of capital on materials can be avoided. Further, it can reduce the loss of materials during the storage period and keep the materials in good condition.
3. It is the production departments which are capable of extracting the maximum output from each unit of materials thereby contributing heavily to minimize the loss of materials during the production period and to maximize the productivity.

Methods and Techniques of Material Control

Economic Ordering Quantity

The ordering of materials is usually tagged with three different components of costs viz:

1. Acquisition cost of materials
2. Ordering cost of materials and
3. Carrying cost of materials

The ordering quantity of materials may be either larger or lesser in volume, which carries its own advantages and disadvantages.

If the quantity ordered is larger in volume, the following are some of the important advantages:

- ☑ The bulk purchase order reduces the ordering cost of the materials.
- ☑ The greater the size of the order leads to reduce the number of the orders in procuring the materials. Quantity discounts: The discount can be classified into two categories viz trade discount and cash discount.

The formula to compute EOQ is:

$$\text{Economic Ordering Quantity (EOQ)} = \sqrt{\frac{2AO}{I}}$$

A = Annual requirement in units

O = Ordering cost

I = Cost of storing per year or cost of carrying the inventory

The following table illustrates the justification of the EOQ at the level of 2,500 units.

Annual requirement of 20,000 units					
Particulars	1	2	3	4	5
Size of the Orders	20,000	10,000	5000	2,500	500
Number of order to placed = $\frac{\text{Total Annual Need}}{\text{Size of the order}}$	1	2	4	8	40
Average stock = $\frac{\text{Size of the order}}{2}$	10,000	5,000	2,500	1,250	250
Average stock value = Average stock × cost per unit ₹	40,000	20,000	10,000	5,000	1,000
Carrying cost = Average Stock value × 16% ₹	6,400	3,200	1,600	800	160
Ordering cost ₹	100	200	400	800	4,000
Total cost ₹	6,500	3,500	2,000	1,600	4,160



Example: Calculate EOQ

Annual requirement = 1600 units

Cost of materials per unit = ₹ 40

Cost placing and receiving = ₹ 50

Annual carrying cost of inventory = 10% on value

$$\text{Economic Ordering Quantity (EOQ)} = \sqrt{\frac{2AO}{I}}$$

$$\text{EOQ} = \sqrt{\frac{2 \times 1600 \times ₹ 50}{10\% \text{ on } ₹ 40}} = 200 \text{ units}$$

ABC Analysis

Normally the materials are classified on the basis of the following covenants viz

☐ Volume and

☐ Value

Based on the following basis, the materials are classified into three categories:

- ☐ Lesser percentage in volume and Greater percentage in Value – Category A
- ☐ Greater percentage in volume and Lesser percentage in Value – Category B and
- ☐ Percentage in volume and Percentage in value are more or less similar – Category C

Example: A store has 4,000 items of consumption and a monthly consumption of ₹ 20,00,000. 320 items will have a consumption of ₹ 15,00,000. 500 items will account for ₹ 4,00,000 and 2,680 items consume material worth ₹ 1,00,000 only.

Table of Items and Value

Group	No. of Items	% of Items	Value ₹	% of Value
A	320	8%	15,00,000	75%
B	1000	25%	4,00,000	20%
C	2,680	67%	1,00,000	5%
Total	4,000	100%	20,00,000	

How is the control of the inventory being exercised?

1. Group A items are high valued items among the other items of the enterprise, requiring greater monitoring and controlling.
2. Group B items are comparatively lesser in value among the three items given next to the Group A, require less rigid control and monitoring.
3. Group C items are the major volume of items among the 4000 items of the enterprise which are least in value, need very little control and monitoring.

The unique features of the ABC analysis

Nature	A Group of Items	B Group of Items	C Group of Items
Level of Control	Rigid control	Moderate control	Very little control
Order frequency	Frequency of ordering-weeks, fortnights	Once in 2 months	Once in 6 months
Lead time problem	To be cut off drastically	To be reduced moderately	Lead time problem due to clerical should be cut off
Safety stock level	Due to greater value least volume of safety stock is to be maintained	Due to moderate value-lesser safety stock is required	Due to lower value higher safety stock is required
System of Purchase	Higher value demands centralized system of procurement	Moderate value requires centralized and decentralized system of purchase	Lower value needs decentralized system of purchase
Supervision	By Senior officers	By Middle level managers	By clerical staff

Advantages

1. It guides the management to exercise the control based on the value of goods to the total composition.
2. Systematic inventory control can be exercised through this analysis on the basis of value of the materials. The high value materials of Group A are rigidly controlled which finally led to lesser investments.
3. Scientific system helps to lessen the storage cost of the inventory.

Marginal costing and its application in managerial decision making:

Marginal Costing is the process of identification, measurement, accumulation analysis, preparation, interpretation and communication of information used by management to plan, evaluate and control within an entity and to assure appropriate use of and accountability for its resources. Management accounting also comprises the Preparation of financial report for non management groups such as share holders, creditors, regulatory agencies and tax authorities. Marginal costing is not a separate method of costing like contract costing, process costing or operating costing rather it is a specific technique of costing where variable cost for different levels of sales is presented in such a manner that manager can take day to day decisions.

The marginal cost is the cost to produce one additional unit. This cost would include the raw materials used to make the item, the average labour cost of the item, the average machine or hardware cost associated with creating the item. Marginal costs are sometimes very difficult to assess. First, we must determine the useful life of our machinery, that can be a very subjective determination. Typically, the raw material is easy to assess, although not always, determining Marginal cost is much easier in a manufacturing setting that it is in a service oriented area.

Applications of Marginal Cost Technique

Marginal costing is the most powerful and popular technique in aid of managerial decision making, As already seen, It reveals the cost, volume profit relationship in all its ramifications which is useful in profit planning, selling price determination, selection of optimum volume of production etc.³ Marginal costing, with its focus on variability of costs and avoidance of overhead apportionment, is so versatile that it is applied in varied circumstances and to tackle diverge problems by those in charge of such situations. The following are some of the more popular areas of application of marginal costing.

1. **Fixation of Selling Price** :Price is one of the most significant factor that determines the market for the products as well as the volume of profit for the organization. Under, normal circumstances, the price of a product must cover the total costs of the product plus a margin of profit. However, under certain special circumstances, price has to be fixed even below the total cost. For instance, when there is a general trade depression (or) exploring new markets (or) accepting additional orders, the producer has to cut

the price even below the total costs of the concerned product. Under these special circumstances, the concept of marginal cost is usefully applied to fit the prices.

2. **Accepting Bulk Orders (or) Foreign Market Orders** Some bulk orders may be received from local dealers (or) foreign dealers asking for a price which is below the market price. This calls for a decision to accept (or) reject the order. The order from a local dealer should not be accepted at a price below the market price because it will affect the normal market and goodwill of the company on the other hand, the order from the foreign dealer should be accepted because it will give additional contribution, as the fixed costs have already been met.
3. **Make (or) Buy Decision** In a make (or) buy decision, the price quoted by the outside suppliers should be compared with the marginal cost of producing the component parts. If the outside price of the component is lower than the marginal cost of producing it, it is worth buying. On the other hand, if the outside price is higher than the marginal cost, making the component in the factory may be preferred
4. **Selection of Suitable Product Mix** When a factory manufactures more than one product, a problem is faced by the management as to which product will give maximum profits. The solution is the products which give the maximum contribution are to be retained and their production should be increased.
5. **Key Factor** It is also known as limiting factor (or) governing factor or scarce factor. A key factor is one which restricts production and profit of a business. It may arise due to the shortage of material, labour, capital plant capacity (or) sales. Normally, when there is no limiting factor, the selection of the product will be on the basis of the highest P/V ratio. But, when there are limiting factors, selection of the product will be on the basis of the highest contribution per unit of the key factor.
6. **Maintaining a Desired Level of Profit** Management may be interested in maintaining a desired level of profits. The sales required to earn a desired level of profits can be ascertained by the marginal costing techniques.
7. **Alternative methods of Production** Marginal costing is helpful in comparing the alternative methods of production i.e., machine work (or) hand work. The method which gives maximum contribution is to be adopted keeping in mind the limiting factor.
8. **Determination of Optimum Level of Activity** The technique of marginal costing helps the management in determination the optimum level of activity. To make such a decision, contribution at different levels of activity can be found. The level of activity which gives the highest contribution will be the optimum level. The level of production can be raised till the marginal cost does not exceed the selling price.
9. **Evaluation of Performance** Evaluation of performance efficiency of various departments or product lines can be made with the help of marginal costing. The management has to discontinue the production of non-profitable products or department so as to maximize the profits. In such cases, decision to discontinue will be on the basis of the lowest contribution or P/V Ratio.
10. **Cost Control** The two types of costs-variable and fixed are controllable and non-controllable respectively. The variable cost is controlled by production department and the fixed cost is controlled by the management.

Standard Costing and Variance Analysis

Definition and concept Standard cost 'The planned unit cost of the product, component or service produced in a period. The standard cost may be determined on a number of bases. The main use of standard costs is in performance measurement, control, stock valuation and in the establishment of selling prices.'

Variance analysis 'The evaluation of performance by means of variances, whose timely reporting should maximise the opportunity for managerial action.

A standard costing system consists of the following four elements: 1. Setting standards for each operation. 2. Comparing actual with standard performance. 3. Analysing and reporting variances arising from the difference between actual and standard performance. 4. Investigating significant variances and taking appropriate competitive action.

Standard costing :This is generally best suited to organisations with repetitive activities. It is probably most relevant to manufacturing organisations with repetitive production processes. Standard costing cannot be applied easily to non-repetitive activities because there is no clear basis for observing and recording operations. It is difficult to determine a clear standard. Two commonly used approaches are used to set standard costs. 1. Past historical records can be used to estimate labour and material usage. 2. Engineering studies can be used. This may involve a detailed study or observation of operations in terms of material, labour and equipment usage. The most effective control is achieved by identifying standards for quantities of material, labour and services to be used in an operation, rather than an overall total product cost. Variances from standard on all component parts of cost should be reported to identify the cause – and ultimate responsibility – for the variance from standard.

Variance analysis :Variance analysis involves breaking down the total variance to explain: 1. How much of it is caused by the usage of resources differing from the standard 2. How much is caused by cost of resources differing from the standard Together, variances can help to reconcile the total cost difference by comparing actual and standard cost. The main purpose of variances is to provide reasons for off-standard performance. In this way, management can improve operations, correct errors and deploy resources more effectively to reduce costs.

Direct material standards and variance analysis Direct material standards are derived from the amount of material required for each product or operation. This should take into account the most suitable material for the product specification and design. It should also include any anticipated wastage or losses in the process. Direct material standards should also consider the standard price of the material, based on the most suitable and competitive price as required by the most suitable quality of material. These prices should also include economic order quantity, discounts and credit terms offered by suppliers. The standard material used and the standard cost of the material are combined to calculate the standard material cost. By comparing the actual material price and the actual material

used with the standards calculated, the material price and the material usage variance can be determined.

Overhead standards – variable overheads Where overheads vary with activities, a standard variable overhead rate is used. However, several different activity measures exist and it is important for the organisation to identify which measure influences overhead cost the most. For example, volume related variable overheads could vary with direct labour, machine hours, material quantities or number of units. In practice, the most frequently used are direct labour hours or machine hours. The variable overhead rate per unit is applied to the standard labour or machine usage to calculate a standard variable cost per unit. The two variances calculated for variable overheads are: 1. The variable overhead expenditure variance, which is equal to the difference between the budgeted flexed variable overheads for the actual direct labour or machine hours of input, and the actual variable overheads incurred. 2. The variable overhead efficiency variance, which is the difference between the standard hours of input and the actual hours of input for the period, multiplied by the standard variable overhead rate.

Overhead standards – fixed overheads These overheads are largely independent of changes in activity and remain unchanged in the short term over wide ranges of activity. The budgeted annual fixed overhead is divided by the budgeted level of activity to determine the standard fixed overhead rate per unit of activity. Machine hours are normally used for machine-related overheads and direct labour hours are used for more labour-related overheads. This standard rate is applied to the standard labour or machine usage per unit to calculate the standard fixed overhead cost for a product.

Standard Costing and Variance Analysis .The total fixed overhead variance is the difference between the standard fixed overhead charged to production and the actual fixed overhead incurred. An under- or over-recovery of overheads may occur because the fixed overhead rate is calculated by dividing budgeted fixed overheads by budgeted output. If actual output or fixed overhead expenditure differs from budget, then an under or over recovery will occur. Therefore under- or over-recovery may be due to a fixed overhead expenditure variance arising from actual expenditure differing from budgeted expenditure. Alternatively, a fixed overhead volume variance may arise from actual production differing from budgeted production.

Other variances – sales variances Sales variances can be used to analyse the performance of the sales function in a similar way to those for manufacturing costs. Sales variances are calculated in terms of profit or contribution margin, rather than on sales value.

Other variances – planning and operational variances. Some variances will arise due to factors that are almost or entirely within the control of management. These are referred to as operational variances. Variances that occur from changes in factors external to the business are referred to as planning variances. As planning variances are not under the control of operational management, it cannot be held accountable for them.

The two underlying principles of standard costing are that:

1. A standard set before a period is a satisfactory measure throughout the period.
2. The performance is acceptable if it meets this standard.

These principles are at odds with the spirit of JIT (Just in Time) manufacturing. JIT organisations adopt a climate of continuous improvement and the idea of normal levels of wastage and efficiency is unacceptable because of the drive to zero wastage and increasing efficiency. Consequently, standard costing may become less used in modern manufacturing environments. •

Standard costing and variance reporting may be time consuming and expensive to run.

- If the standard is incorrect or outdated, any comparison with actual is also likely to be incorrect or misleading. In modern business environments with rapidly changing conditions, standards quickly become out of date and lose their control and motivational effects.
- Elaborate and complex variances, especially overhead variances, are often not well understood by managers and are ineffective for control purposes.
- There are several reasons why actual results may differ from standard. The combination of the four factors below makes standard costing and variance analysis very difficult in practice.
 1. Variance may occur as a result of an error in measuring the actual outcome.
 2. The standard may be out of date because of a change in operating conditions.
 3. Variances might result from inefficient or efficient operations.
 4. Variances can be caused by random, uncontrollable factors.