

Basic Concepts

Learning Objectives

After studying this chapter you will be able to:

- ◆ Understand the Cost Accounting System.
- ◆ Know about the objective and importance of Cost Accounting.
- ◆ Basic Cost Accounting terminology used in the subject.
- ◆ Difference and relation between Cost Accounting and Financial Accounting and Management Accounting will become clear.
- ◆ Understand the process of installation of Cost Accounting system with the key factors to be recognized for the process to take place.
- ◆ Classify costs into different categories.
- ◆ Identify different elements and components of costs and
- ◆ Understand and apply the various methods of costing used in the industry.
- ◆ The concept of Codes and the process of codification will become clear.

1.1 Introduction

In the seventeenth century in France, the Royal Wallpaper Manufactory had a Cost Accounting System. Some iron masters and potters in eighteenth century in England too began to produce Cost Accounting information before the Industrial Revolution. However, the period, 1880 AD – 1925 AD saw the development of complex product designs and the emergence of multi activity diversified corporations like Du Pont, General Motors etc. It was during this period that scientific management was developed which led accountants to convert physical standards into cost standards, the latter being used for variance analysis and control.

During World War I and II the social importance of cost accounting grew with the growth of each country's defence expenditure. In the absence of competitive markets for most of the material required to fight war, the Governments in several countries placed cost-plus contracts under which the price to be paid was the cost of production plus an agreed rate of profit. The reliance on cost information by the parties to defence contracts continued after World War II as well.

1.2 Cost Accounting

1.2 Meaning of Cost, Costing, Cost Accounting and Cost Accountancy

<i>Term</i>	<i>Meaning</i>
Cost	<i>As a noun-</i> The amount of expenditure (actual or notional) incurred on or attributable to a specified article, product or activity. <i>As a verb-</i> To ascertain the cost of a specified thing or activity.
Costing	<i>Costing</i> is defined as "the technique and process of ascertaining costs". According to CIMA "An organisation costing system is the foundation of the internal financial information system for managers. It provides the information that management needs to plan and control the organisation's activities and to make decisions about the future."
Cost Accounting	<i>Cost Accounting</i> is defined as "the process of accounting for cost which begins with the recording of income and expenditure or the bases on which they are calculated and ends with the preparation of periodical statements and reports for ascertaining and controlling costs."
Cost Accountancy	<i>Cost Accountancy</i> has been defined as "the application of costing and cost accounting principles, methods and techniques to the science, art and practice of cost control and the ascertainment of profitability. It includes the presentation of information derived there from for the purpose of managerial decision making."

1.3 Cost Units

It is a unit of product, service or time (or combination of these) in relation to which costs may be ascertained or expressed.

We may for instance determine the cost per tonne of steel, per tonne kilometre of a transport service or cost per machine hour. Sometime, a single order or a contract constitutes a cost unit. A batch which consists of a group of identical items and maintains its identity through one or more stages of production may also be considered as a cost unit.

Cost units are usually the units of physical measurement like number, weight, area, volume, length, time and value.

A few typical examples of cost units are given below:

<i>Industry or Product</i>	<i>Cost Unit Basis</i>
Automobile	<i>Number</i>
Cement	<i>Tonne/ per bag etc.</i>

Chemicals	<i>Litre, gallon, kilogram, tonne etc.</i>
Power	<i>Kilo-watt hour (KwH)</i>
Steel	<i>Tonne</i>
Transport	<i>Passenger kilometer</i>

Some examples from the CIMA terminology are as follows:

<i>Industry Sector</i>	<i>Cost unit</i>
Brewing	<i>Barrel</i>
Brick-making	<i>1,000 bricks</i>
Coal mining	<i>Tonne/ ton</i>
Electricity	<i>Kilowatt-hour (KwH)</i>
Engineering	<i>Contract, job</i>
Oil	<i>Barrel, tonne, litre</i>
Hotel/Catering	<i>Room/meal</i>
Professional services	<i>Chargeable hour, job, contract</i>
Education	<i>Course, enrolled student, successful student</i>
Hospitals	<i>Patient day</i>

<i>Activity</i>	<i>Cost unit</i>
Credit control	<i>Accounts maintained</i>
Selling	<i>Customer call, value of sales, orders taken</i>
Materials storage/ handling	<i>Requisition unit issued/received, material movement, value issued/received</i>
Personnel administration	<i>Personnel record</i>

1.4 Cost Centres

It is defined as a location, person or an item of equipment (or group of these) for which cost may be ascertained and used for the purpose of Cost Control.

Cost Centres are of two types,

- ***Personal Cost Centre:*** It consists of a person or group of persons e.g. Mr. X, supervisor, foreman, accountant, engineer, process staffs, mining staffs, doctors etc.

1.4 Cost Accounting

- **Impersonal Cost Centre:** It consists of a location or an item of equipment (or group of these) e.g. Ludhiana branch, boiler house, cooling tower, weighing machine, canteen, and generator set etc.

Cost Centre in a manufacturing concern:

Two main types of Cost Centres are indicated as below:

- **Production Cost Centre:** It is a cost centre where raw material is handled for conversion into finished product. Here both direct and indirect expenses are incurred. Machine shops, welding shops and assembly shops etc. are examples of production Cost Centres.
- **Service Cost Centre:** It is a cost centre which serves as an ancillary unit to a production cost centre. Payroll processing department, HRD, Power house, gas production shop, material service centres, plant maintenance centres etc. are examples of service cost centres.

1.5 Cost Objects

Cost object is anything for which a separate measurement of cost is required. Cost object may be a product, a service, a project, a customer, a brand category, an activity, a department or a programme etc.

Examples of Cost Object are:

• Product	<i>Smart phone, Tablet computer, SUV Car, Book etc.</i>
• Services	<i>An airline flight from Delhi to Mumbai, Concurrent audit assignment, Utility bill payment facility etc.</i>
• Project	<i>Metro Rail project of DMRC, Road projects of NHAI etc.</i>
• Activity	<i>Quality inspection of materials, Placing of orders etc.</i>
• Process	<i>Refinement of crudes in oil refineries, melting of billets or ingots in rolling mills etc.</i>
• Department	<i>Production department, Finance & Accounts, Safety etc</i>

1.6 Cost Drivers

A Cost driver is a factor or variable which effect level of cost. Generally it is an activity which is responsible for cost incurrence. Level of activity or volume of production is the example of a cost driver. An activity may be an event, task, or unit of work etc.

CIMA Official terminology defines cost driver as *"Factor influencing the level of cost. Often used in the context of ABC to denote the factor which links activity resource consumption to product outputs, for example the number of purchase orders would be a cost driver for procurement cost."*

Examples of cost drivers are number of machines setting ups, number of purchase orders, hours spent on product inspection, number of tests performed etc.

1.7 Scope of Cost Accounting

Scope of cost accounting consists of the following functions:

- (i) **Costing:** Costing is the technique and process of ascertaining costs of products or services. The cost ascertainment procedure is governed by some cost accounting principles and rules. Generally cost is ascertained using some arithmetical process.
- (ii) **Cost Accounting:** This is a process of accounting for cost which begins with the recording of expenditure and ends with the preparation of periodical statement and reports for ascertaining and controlling cost. Cost Accounting is a formal mechanism of cost ascertainment.
- (iii) **Cost Analysis:** It involves the process of finding out the factors responsible for variance in actual costs from the budgeted costs and accordingly fixation of responsibility for cost differences. This also helps in better cost management and strategic decisions.
- (iv) **Cost Comparisons:** Cost accounting also includes comparisons of cost from alternative courses of action such as use of different technology for production, cost of making different products and activities, and cost of same product/ service over a period of time.
- (v) **Cost Control:** It involves a detailed examination of each cost in the light of advantage received from the incurrance of the cost. Thus, we can state that cost is analyzed to know whether cost is not exceeding its budgeted cost and whether further cost reduction is possible or not.
- (vi) **Cost Reports:** This is the ultimate function of cost accounting. These reports are primarily prepared for use by the management at different levels. Cost Reports helps in planning and control, performance appraisal and managerial decision making.
- (vii) **Statutory Compliances:** Maintaining cost accounting records as per the rules prescribed by the statute. As per the Companies (Cost Records and Audits) Rules, 2014, Companies governed by the Companies Act has to maintain cost records relating to utilization of materials, labour and other items of cost as applicable to the production of goods or provision of services as provided in the Act and these rules..

1.8 Objectives of Cost Accounting

The main objectives of Cost Accounting are explained as follows:

- (i) **Ascertainment of Cost:** There are two methods of ascertaining costs:
Post Costing: It means analysis of actual information as recorded in financial books. It is accurate and is useful in the case of "Cost plus contracts" where price is to be determined finally on the basis of actual cost.

1.6 Cost Accounting

Continuous Costing: It aims at collecting information about cost as and when the activity takes place so that as soon as a job is completed the cost of completion would be known. This involves careful estimation of overheads. In order to be of any use, costing must be a continuous process.

Cost ascertained by the above two methods may be compared with the standard costs which are the target figures already compiled on the basis of experience and experiments.

(ii) Determination of Selling Price: Business enterprises run on a profit making basis. It is thus necessary that the revenue should be greater than the costs incurred. Cost accounting provides the information regarding the cost to make and sell the product or services produced. Though the selling price of a product is also influenced by market conditions, which are beyond the control of any business, it is still possible to determine the selling price within the market constraints; hence cost plays a dominating role.

(iii) Cost Control: To exercise cost control, broadly the following steps should be observed:

- (a) Determine clearly the objective, i.e., pre-determine the desired results: The target cost and/ or targets of performance should be laid down in respect of each department or operation and these targets should be related to individuals who, by their action, control the actual and bring them into line with the targets
- (b) Measure the actual performance: Actual cost of performance should be measured in the same manner in which the targets are set up, i.e. if the targets are set up operation-wise, and then the actual costs should also be collected operation-wise and not cost centre or department-wise as this would make comparison difficult.
- (c) Investigate into the causes of failure to perform according to plan; and
- (d) Institute corrective action.

(iv) Cost Reduction: It may be defined "as the achievement of real and permanent reduction in the unit cost of goods manufactured or services rendered without impairing their suitability for the use intended or diminution in the quality of the product."

Cost reduction implies the retention of the essential characteristics and quality of the product and thus it must be confined to permanent and genuine savings in the cost of manufacture, administration, distribution and selling, brought about by elimination of wasteful and inessential elements from the design of the product and from the techniques carried out in connection therewith.

The three-fold assumptions involved in the definition of cost reduction may be summarised as under :

- (a) There is a saving in unit cost.
- (b) Such saving is of permanent nature.
- (c) The utility and quality of the goods and services remain unaffected, if not improved.

- (v) **Ascertaining the profit of each activity:** The profit of any activity can be ascertained by matching cost with the revenue of that activity. The purpose under this step is to determine costing profit or loss of any activity on an objective basis.
- (vi) **Assisting management in decision making:** Decision making is defined as a process of selecting a course of action out of two or more alternative courses. For making a choice between different courses of action, it is necessary to make a comparison of the outcomes, which may be arrived under different alternatives. Such a comparison has only been made possible with the help of Cost Accounting information. (e.g: Determination of Cost Volume Relationship, shutting down or operating at loss, making or buying from outside)

1.9 Difference between Cost Control and Cost Reduction

Cost Control	Cost Reduction
1. Cost control aims at maintaining the costs in accordance with the established standards.	1. Cost reduction is concerned with reducing costs. It challenges all standards and endeavours to better them continuously
2. Cost control seeks to attain lowest possible cost under existing conditions.	2. Cost reduction recognises no condition as permanent, since a change will result in lower cost.
3. In case of Cost Control, emphasis is on past and present	3. In case of cost reduction it is on present and future.
4. Cost Control is a preventive function	4. Cost reduction is a corrective function. It operates even when an efficient cost control system exists.
5. Cost control ends when targets are achieved	5. Cost reduction has no visible end.

1.10 Difference between Financial Accounting and Cost Accounting

Difference between financial accounting and cost accounting is as follows:

	Basis	Financial Accounting	Cost Accounting
(i)	Objective	It provides information about the financial performance.	It provides information of ascertainment of cost for the purpose of cost control and decision making.
(ii)	Nature	It classifies records, presents and interprets transactions in terms of money.	It classifies, records, presents, and interprets in a significant

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			manner the material, labour and overheads cost.
(iii)	Recording of data	It records Historical data.	It makes use of both the historical costs and pre-determined costs.
(iv)	Users of information	The users of financial accounting statements are shareholders, creditors, financial analysts and government and its agencies, etc.	The cost accounting information is used by internal management.
(v)	Analysis of costs and profits	It shows the either Profit or loss of the organization.	It provides the details of cost and profit of each product, process, job, contracts, etc.
(vi)	Time period	Financial Statements are prepared usually for a year.	Its reports and statements are prepared as and when required.
(vii)	Presentation of information	A set format is used for presenting financial information.	There are no set formats for presenting cost information.

1.11 Difference between Cost Accounting and Management Accounting

	Basis	Cost Accounting	Management Accounting
(i)	Nature	It records the quantitative aspect only	It records both qualitative and quantitative aspect.
(ii)	Objective	It records the cost of producing a product and providing a service	It Provides information to management for planning and co-ordination
(iii)	Area	It only deals with cost Ascertainment.	It is wider in scope as it includes F.A., budgeting, Tax, Planning.
(iv)	Recording of data	It uses both past and present figures.	It is focused with the projection of figures for future.
(v)	Development	It's development is related to industrial revolution.	It develops in accordance to the need of modern business world.
(vi)	Rules and Regulation	It follows certain principles and procedures for recording costs of different products	It does not follow any specific rules and regulations.

1.12 Advantages of a Cost Accounting System

Important advantages of a Cost Accounting System may be listed as below:

1. Cost Determination	A good cost accounting system helps in identifying all expenses incurred to produce a product and determination of total cost of production.
2. Helping in Cost Reduction	The application of various cost accounting techniques helps in achieving the objective of economy in concern's operations and thereby helping the organisation to reduce cost. Continuous efforts are being made by the business organisation for finding new and improved methods for reducing costs.
3. Product Profitability Analysis	Cost Accounting is useful for identifying the exact causes for decrease or increase in the profit/loss of the business. It also helps in identifying unprofitable products or product lines so that these may be eliminated or alternative measures may be taken.
4. Provide information relevant for Decision Making	It provides information to the management to serve as guides in making decisions involving financial considerations. Guidance may also be given by the Cost Accountant on various issues such as, whether to purchase or manufacture a given component, whether to accept orders below cost, which machine to purchase when a number of choices are available.
5. Determination of selling price	Cost Accounting is quite useful for price fixation. The price determined may be useful for preparing estimates or filling tenders.
6. Cost Control and Variance Analysis	The use of cost accounting technique viz., variance analysis, points out the deviations from the pre-determined level and thus demands suitable action to eliminate such deviations in future.
7. Cost Comparison and Benchmarking	Cost comparison helps in cost control. Such a comparison may be made from period to period by using the figures in respect of the same unit of firms or of several units in an industry by employing uniform costing and inter-firm comparison methods. Comparison may be made in respect of costs of jobs, processes or cost centres.

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8. Compliances with Statutory requirement	A system of costing provides figures for the use of Government, Wage Tribunals and other bodies for dealing with a variety of problems. Some such problems include price fixation, price control, tariff protection, wage level fixation, etc.
9. Identification of lacunae	The cost of idle capacity can be easily worked out, when a concern is not working to full capacity.
10. Helpful in Strategic Management Decision Making	The use of Marginal Costing technique may help the executives in taking various suitable decisions. This technique of costing is highly useful during the period of trade depression, as the orders may have to be accepted during this period at a price less than the total cost.
11. Helpful in solving Linear Programming Problems.	The marginal cost has linear relationship with production volume and hence in formulating and solving "Linear Programming Problems", marginal cost is useful.

1.13 Limitations of Cost Accounting

Like other branches of accounting, cost accounting is also having certain limitations. The limitations of cost accounting are as follows:

1. **Expensive:** It is expensive because analysis, allocation and absorption of overheads require considerable amount of additional work, and hence additional money.
2. **Requirement of Reconciliation:** The results shown by cost accounts differ from those shown by financial accounts. Thus Preparation of reconciliation statements is necessary to verify their accuracy.
3. **Duplication Work:** It involves duplication of work as organization has to maintain two sets of accounts i.e. Financial Account and Cost Account.
4. **Inefficiency:** Costing system itself does not control costs but its usage does.

1.14 Importance of Cost Accounting

Importance of Cost Accounting to Business Concerns:

Management of business concerns expects from Cost Accounting detailed cost information in respect of its operations to equip their executives with relevant information required for planning, scheduling, controlling and decision making. To be more specific, management expects from cost accounting - information and reports to help them in the discharge of the following functions:

- (a) **Control of Direct and Indirect cost:** It includes the cost of material, cost of labour and overheads. Cost of material usually constitutes a substantial portion of the total cost of a

product. Therefore, it is necessary to control it as far as possible. Such a control may be exercised by ensuring un-interrupted supply of material and spares for production, by avoiding excessive locking up of funds/capital in stocks of materials and stores, also by the use of techniques like value analysis, standardisation etc. to control material cost, it can be controlled if workers complete their work within the standard time limit. Reduction of labour turnover and idle time too help us, to control labour cost. Overheads consist of indirect expenses which are incurred in the factory, office and sales department; they are part of production and sales cost. Such expenses may be controlled by keeping a strict check over them.

- (b) **Measuring efficiency and fixing responsibility:** Cost Accounting department provides information about standard and actual performance of the concerned activity to measure efficiency of a particular cost centre and fix responsibility for any deviations from the set standards.
- (c) **Budgeting:** Now-a-days detailed estimates in terms of quantities and amounts are drawn up before the start of each activity. This is done to ensure that a practicable course of action can be chalked out and the actual performance corresponds with the estimated or budgeted performance. The preparation of the budget is the function of Costing Department.
- (d) **Price determination:** Cost accounts should provide information, which enables the management to fix remunerative selling prices for various items of products and services in different circumstances.
- (e) **Curtailment of loss during the off-season:** Cost Accounting can also provide information, which may enable reduction of overhead, by utilising idle capacity during the off-season or by lengthening the season.
- (f) **Expansion:** Cost Accounts may provide estimates of production of various levels on the basis of which the management may be able to formulate its approach to expansion.
- (g) **Arriving at decisions:** Most of the decisions in a business undertaking involve correct statements of the likely effect on profits. Cost Accounts are of vital help in this respect. In fact, without proper cost accounting, decision would be like taking a jump in the dark, such as when production of a product is stopped.

1.15 Installation of a Costing System

As in the case of every other form of activity, it should be considered whether it would be profitable to have a cost accounting system. Management of an organisation needs complete and accurate information to make decisions. A well Costing system should provide all relevant information as and when required by various stakeholders.

Before setting up a system of cost accounting the under mentioned factors should be studied:

- (a) **Objective:** The objective of costing system, for example whether it is being introduced for fixing prices or for insisting a system of cost control.
- (b) **Nature of Business or Industry:** The Industry in which business is operating. Every business industry has its own peculiar feature and costing objectives. According to its cost

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information requirement cost accounting methods are followed. For example Indian Oil Corporation Ltd. has to maintain process wise cost accounts to find out cost incurred on a particular process say in crude refinement process etc.

- (c) **Organisational Hierarchy:** Costing system should fulfil the requirement of different level of management. Top management is concerned with the corporate strategy, strategic level management is concerned with marketing strategy, product diversification, product pricing etc. Operational level management needs the information on standard quantity to be consumed, report on idle time etc.
- (d) **Knowing the product:** Nature of product determines the type of costing system to be implemented. The product which has by-products requires costing system which account for by-products as well. In case of perishable or short self- life, marginal costing method is required to know the contribution and minimum price at which it can be sold.
- (e) **Knowing the production process:** A good costing system can never be established without the complete knowledge of the production process. Cost apportionment can be done on the most appropriate and scientific basis if a cost accountant can identify degree of effort or resources consumed in a particular process. This also includes some basic technical know-how and process peculiarity.
- (f) **Information synchronisation:** Establishment of a department or a system requires substantial amount of organisational resources. While drafting a costing system, information needs of various other departments should be taken into account. For example in a typical business organisation accounts department needs to submit monthly stock statement to its lender bank, quantity wise stock details at the time filing returns to tax authorities etc.
- (g) **Method of maintenance of cost records:** The manner in which Cost and Financial accounts could be inter-locked into a single integral accounting system and in which results of separate sets of accounts, cost and financial, could be reconciled by means of control accounts.
- (h) **Statutory compliances and audit:** Records are to be maintained to comply with statutory requirements, standards to be followed (Cost Accounting Standards and Accounting Standards).
- (i) **Information Attributes:** Information generated from the Costing system should be possess all the attributes of an information i.e. complete, accurate, timeliness, confidentiality etc. This also meets the requirements of management information system.

1.16 Essentials of a Good Cost Accounting System

The essential features, which a good Cost Accounting System should possess, are as follows:

- (a) **Informative and Simple:** Cost Accounting System should be tailor-made, practical, simple and capable of meeting the requirements of a business concern. The system of costing should not sacrifice the utility by introducing meticulous and unnecessary details.
- (b) **Accuracy:** The data to be used by the Cost Accounting System should be accurate; otherwise it may distort the output of the system and a wrong decision may be taken.

- (c) **Support from Management and subordinates:** Necessary cooperation and participation of executives from various departments of the concern is essential for developing a good system of Cost Accounting.
- (d) **Cost-Benefit:** The Cost of installing and operating the system should justify the results.
- (e) **Procedure:** A carefully phased programme should be prepared by using network analysis for the introduction of the system.
- (f) **Trust:** Management should have faith in the Costing System and should also provide a helping hand for its development and success.

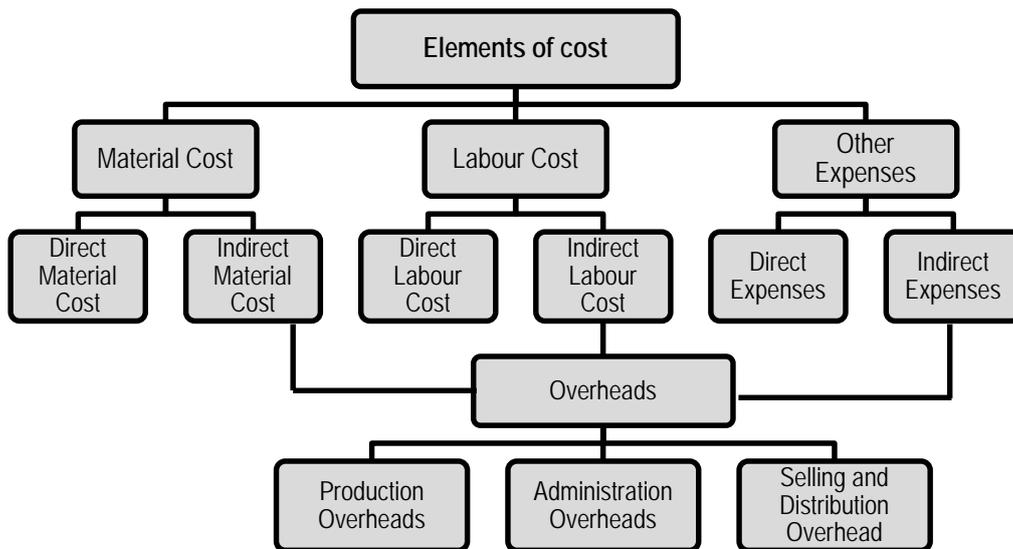
1.17 Classification of Costs

It means the grouping of costs according to their common characteristics. The important ways of classification of costs are:

- (1) By Nature or Element
- (2) By Functions
- (3) By Variability or Behaviour
- (4) By Controllability
- (5) By Normality
- (6) By Costs for Managerial Decision Making

1.17.1 **By Nature or Element:** This type of classification is useful to determine the total cost.

A diagram as given below shows the elements of cost described as under:



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- (i) **Direct Materials:** Materials which are present in the finished product (cost object) or can be economically identified in the product are called direct materials. For example, cloth in dress making; materials purchased for a specific job etc. However in some cases a material may be direct but it is treated as indirect, because it is used in small quantities, it is not economically feasible to identify that quantity and those materials which are used for purposes ancillary to the business.
- (ii) **Direct Labour:** Labour which can be economically identified or attributed wholly to a cost object is called direct labour. For example, labour engaged on the actual production of the product or in carrying out the necessary operations for converting the raw materials into finished product.
- (iii) **Direct Expenses:** It includes all expenses other than direct material or direct labour which are specially incurred for a particular cost object and can be identified in an economically feasible way. For example, hire charges for some special machinery, cost of defective work.
- (iv) **Indirect Materials:** Materials which do not normally form part of the finished product (cost object) are known as indirect materials. These are —
 - Stores used for maintaining machines and buildings (lubricants, cotton waste, bricks etc.)
 - Stores used by service departments like power house, boiler house, canteen etc.
- (v) **Indirect Labour :** Labour costs which cannot be allocated but can be apportioned to or absorbed by cost units or cost centres is known as indirect labour. Examples of indirect labour includes foreman and supervisors; maintenance workers; etc.
- (vi) **Indirect Expenses:** Expenses other than direct expenses are known as indirect expenses, that cannot be directly, conveniently and wholly allocated to cost centres. Factory rent and rates, insurance of plant and machinery, power, light, heating, repairing, telephone etc., are some examples of indirect expenses.
- (vii) **Overheads:** It is the aggregate of indirect material costs, indirect labour costs and indirect expenses. The main groups into which overheads may be subdivided are the following:
 - **Production or Works Overheads:** Indirect expenses which are incurred in the factory and for the running of the factory. E.g.: rent, power etc.
 - **Administration Overheads:** Indirect expenses related to management and administration of business. E.g.: office rent, lighting, telephone etc.
 - **Selling Overheads:** Indirect expenses incurred for marketing of a commodity. E.g.: Advertisement expenses, commission to sales persons etc.
 - **Distribution Overheads:** Indirect expenses incurred in despatch of the goods E.g.: warehouse charges, packing and loading charges.

1.17.2 By Functions: Under this classification, costs are divided according to the function for which they have been incurred. It includes the following:

- (i) Prime Cost
- (ii) Factory Cost or Works Cost
- (iii) Cost of Production

(iv) Cost of Goods Sold

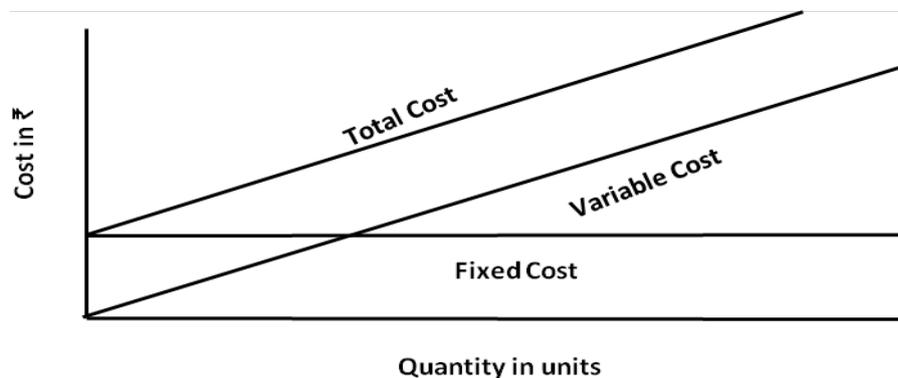
(v) Cost of Sales

It can be understood with the help of the following diagram:

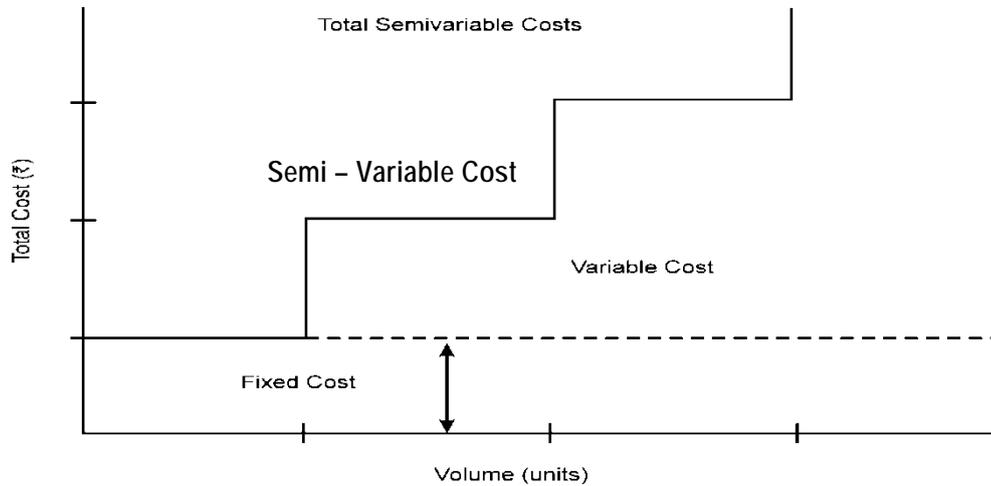
Direct Materials	}	Factory Overheads	Prime Cost
Direct Labours			
Direct Expenses			
Indirect Material	}	Administration Overheads	Factory Cost or Works Cost
Indirect Labour			
Indirect Expenses	}	Selling and Distribution Overheads	Cost of Goods Sold
			Cost of Sales

1.17.3 By Variability or Behaviour: According to this classification costs are classified into three group viz., fixed, variable and semi-variable.

- (a) **Fixed costs** – These are the costs which are incurred for a period, and which, within certain output and turnover limits, tend to be unaffected by fluctuations in the levels of activity (output or turnover). They do not tend to increase or decrease with the changes in output. For example, rent, insurance of factory building etc., remain the same for different levels of production.
- (b) **Variable Costs** – These costs tend to vary with the volume of activity. Any increase in the activity results in an increase in the variable cost and vice-versa. For example, cost of direct labour, etc.



- (c) **Semi-variable costs** – These costs contain both fixed and variable components and are thus partly affected by fluctuations in the level of activity. Examples of semi variable costs are telephone bills, gas and electricity etc. Such costs are depicted graphically as follows:



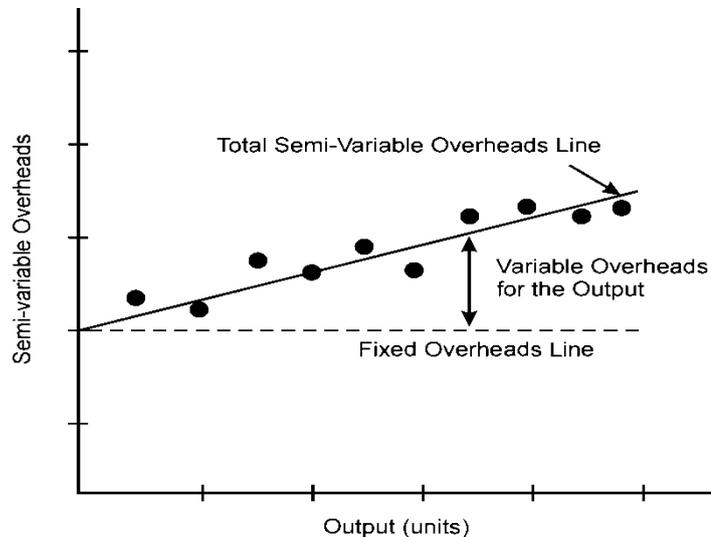
Semi - Variable overhead graph

1.17.4 Methods of segregating Semi-variable costs into fixed and variable costs -

The segregation of semi-variable costs into fixed and variable costs can be carried out by using the following methods:

- (a) *Graphical method*
 - (b) *High points and low points method*
 - (c) *Analytical method*
 - (d) *Comparison by period or level of activity method*
 - (e) *Least squares method*
- (a) **Graphical Method:** Under this method, the following steps are followed:
- i. A large number of observations regarding the total costs at different levels of output are plotted on a graph with the output on the X-axis
 - ii. The total cost is plotted on the Y-axis.
 - iii. Then, by judgment, a line of "best-fit", which passes through all or most of the points, is drawn.
 - iv. The point at which this line cuts the Y-axis indicates the total fixed cost component in the total cost.
 - v. If a line is drawn at this point parallel to the X-axis, this indicates the fixed cost.
 - vi. The variable cost, at any level of output, is derived by deducting this fixed cost element from the total cost.

The following graph illustrates this:



- (b) **High points and Low points Method:** - Under this method difference between the total cost at highest and lowest volume is divided by the difference between the sales value at the highest and lowest volume. The quotient thus obtained gives us the rate of variable cost in relation to sales value.

Illustration 1: (Segregation of fixed cost and variable cost)

	Sales value	Total cost
	(₹)	(₹)
At the Highest volume	1,40,000	72,000
At the Lowest volume	<u>80,000</u>	<u>60,000</u>
	<u>60,000</u>	<u>12,000</u>

Thus, Variable Cost (₹ 12,000/ ₹ 60,000) = 1/5 or 20% of sales value
= ₹ 28,000 (at highest volume)

Fixed Cost ₹ 72,000 – ₹ 28,000 i.e., (20% of ₹ 1,40,000) = ₹ 44,000.

Alternatively ₹ 60,000 – ₹ 16,000 (20% of ₹ 80,000) = ₹ 44,000.

- (c) **Analytical Method:** Under this method an experienced cost accountant tries to judge empirically what proportion of the semi-variable cost would be variable and what would be fixed. The degree of variability is ascertained for each item of semi-variable expenses. For example, some semi-variable expenses may vary to the extent of 20% while others may vary to the extent of 80%. Although it is very difficult to estimate the extent of variability of an expense, the method is easy to apply. (Go through the following illustration for clarity).

Illustration 2: (Segregation of fixed cost and variable cost)

Suppose, last month the total semi-variable expenses amounted to ₹ 3,000. If the degree of variability is assumed to be 70%, then variable cost = 70% of ₹ 3,000 = ₹ 2,100. Fixed cost = ₹ 3,000 – ₹ 2,100 = ₹ 900. Now in the future months, the fixed cost will remain constant, but the variable cost will vary according to the change in production volume. Thus, if in the next month production increases by 50%, the total semi-variable expenses will be: Fixed cost of ₹ 900, plus variable cost viz., ₹ 3,150 i.e., (₹ 2,100(V.C.) plus 50% increase of V.C. i.e., ₹ 1,050) i.e., ₹ 4,050.

- (d) **Comparison by period or level of activity method:** - Under this method, the variable overhead may be determined by comparing two levels of output with the amount of expenses at those levels. Since the fixed element does not change, the variable element may be ascertained with the help of the following formula.

$$\frac{\text{Change in the amount of expense}}{\text{Change in the quantity of output}}$$

Suppose the following information is available:

	<i>Production Units</i>	<i>Semi-variable expenses</i>
		(₹)
January	100	260
February	<u>140</u>	<u>300</u>
Difference	<u>40</u>	<u>40</u>

The variable cost :

$$\frac{\text{Change in Semi – variable expenses}}{\text{Change in production volume}} = \frac{\text{₹ 40}}{40 \text{ units}} = \text{₹ 1/ unit}$$

Thus, in January, the variable cost will be $100 \times \text{₹ 1} = \text{₹ 100}$ and the fixed cost element will be $(\text{₹ 260} - \text{₹ 100})$ or ₹ 160. In February, the variable cost will be $140 \times \text{₹ 1} = \text{₹ 140}$ whereas the fixed cost element will remain the same, i.e., ₹ 160.

- (e) **Least Square Method:** This is the best method to segregate semi-variable costs into its fixed and variable components. This is a statistical method and is based on finding out a line of best fit for a number of observations.

The method uses the linear equation $y = mx + c$, where

'm' represents the variable element of cost per unit, 'c' represents the total fixed cost, 'y' represents the total cost, 'x' represents the volume of output.

The total cost is thus split into its fixed and variable elements by solving this equation.

Illustration 3: (Segregation of fixed cost and variable cost)

	<i>Level of activity</i>	
	60%	80%
Capacity %	60%	80%
Volume (Labour hours) or 'x'	150	200
Semi-variable expenses (maintenance of plant) or 'y'	₹ 1,200	₹ 1,275

Substituting the values of 'x' and 'y' in the equation, $y = mx + c$, at both the levels of activity, we get

$$1,200 = 150m + c$$

$$1,275 = 200m + c$$

On solving the above equations, we get the value of 'c'

Fixed cost or 'c' = ₹ 975 and Variable cost or 'm' = ₹ 1.50 per labour hour.

1.17.5 By Controllability: Costs here may be classified into controllable and uncontrollable costs.

- (a) **Controllable Costs:** - Cost that can be controlled, typically by a cost, profit or investment centre manager is called controllable cost. Controllable costs incurred in a particular responsibility centre can be influenced by the action of the executive heading that responsibility centre. For **example**, direct costs comprising direct labour, direct material, direct expenses and some of the overheads are generally controllable by the shop level management.
- (b) **Uncontrollable Costs** - Costs which cannot be influenced by the action of a specified member of an undertaking are known as uncontrollable costs. For **example**, expenditure incurred by, say, the tool room is controllable by the foreman in-charge of that section but the share of the tool-room expenditure which is apportioned to a machine shop is not to be controlled by the machine shop foreman.

1.17.5. (i) Distinction between Controllable Cost and Uncontrollable Cost: The distinction between controllable and uncontrollable costs is not very sharp and is sometimes left to individual judgement. In fact no cost is uncontrollable; it is only in relation to a particular individual that we may specify a particular cost to be either controllable or uncontrollable.

1.17.6 By Normality: According to this basis cost may be categorised as follows:

- (a) **Normal Cost** - It is the cost which is normally incurred at a given level of output under the conditions in which that level of output is normally attained.
- (b) **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. It is charged to Costing Profit and loss Account.

1.17.7 By Costs for Managerial Decision Making: According to this basis cost may be categorised as follows:

- (a) **Pre-determined Cost** - A cost which is computed in advance before production or operations start, on the basis of specification of all the factors affecting cost, is known as a pre-determined cost.
- (b) **Standard Cost** - A pre-determined cost, which is calculated from managements 'expected standard of efficient operation' and the relevant necessary expenditure. It may be used as a basis for price fixing and for cost control through variance analysis.
- (c) **Marginal Cost** - The amount at any given volume of output by which aggregate costs are changed if the volume of output is increased or decreased by one unit.
- (d) **Estimated Cost** - Kohler defines estimated cost as "the expected cost of manufacture, or acquisition, often in terms of a unit of product computed on the basis of information available in advance of actual production or purchase". Estimated costs are prospective costs since they refer to prediction of costs.
- (e) **Differential Cost** - (Incremental and decremental costs). It represents the change (increase or decrease) in total cost (variable as well as fixed) due to change in activity level, technology, process or method of production, etc. For example if any change is proposed in the existing level or in the existing method of production, the increase or decrease in total cost or in specific elements of cost as a result of this decision will be known as incremental cost or decremental cost.
- (f) **Imputed Costs** - These costs are notional costs which do not involve any cash outlay. Interest on capital, the payment for which is not actually made, is an example of imputed cost. These costs are similar to opportunity costs.
- (g) **Capitalised Costs** - These are costs which are initially recorded as assets and subsequently treated as expenses.
- (h) **Product Costs** - These are the costs which are associated with the purchase and sale of goods (in the case of merchandise inventory). In the production scenario, such costs are associated with the acquisition and conversion of materials and all other manufacturing inputs into finished product for sale. Hence, under marginal costing, variable manufacturing costs and under absorption costing, total manufacturing costs (variable and fixed) constitute inventoriable or product costs.
- (i) **Opportunity Cost** - This cost refers to the value of sacrifice made or benefit of opportunity foregone in accepting an alternative course of action. For example, a firm financing its expansion plan by withdrawing money from its bank deposits. In such a case the loss of interest on the bank deposit is the opportunity cost for carrying out the expansion plan.
- (j) **Out-of-pocket Cost** - It is that portion of total cost, which involves cash outflow. This cost concept is a short-run concept and is used in decisions relating to fixation of selling price in recession, make or buy, etc. Out-of-pocket costs can be avoided or saved if a particular proposal under consideration is not accepted.

- (k) **Shut down Costs** - Those costs, which continue to be, incurred even when a plant is temporarily shutdown e.g. rent, rates, depreciation, etc. These costs cannot be eliminated with the closure of the plant. In other words, all fixed costs, which cannot be avoided during the temporary closure of a plant, will be known as shut down costs.
- (l) **Sunk Costs** - Historical costs incurred in the past are known as sunk costs. They play no role in decision making in the current period. For example, in the case of a decision relating to the replacement of a machine, the written down value of the existing machine is a sunk cost and therefore, not considered.
- (m) **Absolute Cost** - These costs refer to the cost of any product, process or unit in its totality. When costs are presented in a statement form, various cost components may be shown in absolute amount or as a percentage of total cost or as per unit cost or all together. Here the costs depicted in absolute amount may be called absolute costs and are base costs on which further analysis and decisions are based.
- (n) **Discretionary Costs** - Such costs are not tied to a clear cause and effect relationship between inputs and outputs. They usually arise from periodic decisions regarding the maximum outlay to be incurred. Examples include advertising, public relations, executive training etc.
- (o) **Period Costs** - These are the costs, which are not assigned to the products but are charged as expenses against the revenue of the period in which they are incurred. All non-manufacturing costs such as general & administrative expenses, selling and distribution expenses are recognised as period costs.
- (p) **Engineered Costs** - These are costs that result specifically from a clear cause and effect relationship between inputs and outputs. The relationship is usually personally observable. Examples of inputs are direct material costs, direct labour costs etc. Examples of output are cars, computers etc.
- (q) **Explicit Costs** - These costs are also known as out of pocket costs and refer to costs involving immediate payment of cash. Salaries, wages, postage and telegram, printing and stationery, interest on loan etc. are some examples of explicit costs involving immediate cash payment.
- (r) **Implicit Costs** - These costs do not involve any immediate cash payment. They are not recorded in the books of account. They are also known as economic costs.

1.18 Methods of Costing

Different industries follow different methods of costing because of the differences in the nature of their work. The various methods of costing are as follows:

Methods	Description
Job Costing	In this method of costing, cost of each job is ascertained separately. It is suitable in all cases where work is undertaken

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	on receiving a customer's order like a printing press, motor workshop, etc.
Batch Costing	It is the extension of job costing. A batch may represent a number of small orders passed through the factory in batch. Each batch here is treated as a unit of cost and thus separately costed. Here cost per unit is determined by dividing the cost of the batch by the number of units produced in the batch.
Contract Costing	Here the cost of each contract is ascertained separately. It is suitable for firms engaged in the construction of bridges, roads, buildings etc.
Single or Output Costing	Here the cost of a product is ascertained, the product being the only one produce like bricks, coals, etc.
Process Costing	Here the cost of completing each stage of work is ascertained, like cost of making pulp and cost of making paper from pulp. In mechanical operations, the cost of each operation may be ascertained separately; the name given is operation costing.
Operating Costing	It is used in the case of concerns rendering services like transport, supply of water, retail trade etc.
Multiple Costing	It is a combination of two or more methods of costing outlined above. Suppose a firm manufactures bicycles including its components; the parts will be costed by the system of job or batch costing but the cost of assembling the bicycle will be computed by the Single or output costing method. The whole system of costing is known as multiple costing.

The following table summarises the various methods of costing applied in different industries:

Nature of Output	Method	Cost	Examples of Industries
A Series of Processes	Process costing or Operation Costing	For each process	Sugar
Construction of building	Contract Costing	For each contract	Real estate
Similar units of a Single Product, produced by Single Process	Unit or output or Single Costing	For the entire activity, but averaged for the output	Cold Drinks

Rendering of Services	Operating Costing	For all services	Hospitals
Customer Specifications: single Unit	Job Costing	For each order/ assignment/job	Advertising
Consisting of multiple varieties of activities and processes	Multiple Costing	Combination of any method	Car Assembly

1.19 Techniques of Costing

For ascertaining cost, following types of costing are usually used.

Techniques	Description
Uniform Costing	<p>When a number of firms in an industry agree among themselves to follow the same system of costing in detail, adopting common terminology for various items and processes they are said to follow a system of uniform costing.</p> <p>Advantages of such a system are that</p> <ol style="list-style-type: none"> A comparison of the performance of each of the firms can be made with that of another, or with the average performance in the industry. Under such a system it is also possible to determine the cost of production of goods which is true for the industry as a whole. It is found useful when tax-relief or protection is sought from the Government.
Marginal Costing	It is defined as the ascertainment of marginal cost by differentiating between fixed and variable costs. It is used to ascertain effect of changes in volume or type of output on profit.
Standard Costing and Variance Analysis	It is the name given to the technique whereby standard costs are pre-determined and subsequently compared with the recorded actual costs. It is thus a technique of cost ascertainment and cost control. This technique may be used in conjunction with any method of costing. However, it is especially suitable where the manufacturing method involves production of standardised goods of repetitive nature.
Historical Costing	<p>It is the ascertainment of costs after they have been incurred. This type of costing has limited utility.</p> <ul style="list-style-type: none"> ➤ Post Costing: It means ascertainment of cost after production is completed.

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	➤ Continuous costing: Cost is ascertained as soon as the job is completed or even when the job is in progress.
Direct Costing	It is the practice of charging all direct costs to operations, processes or products leaving all indirect costs to be written off against profits in which they arise.
Absorption Costing	It is the practice of charging all costs, both variable and fixed to operations, processes or products. This differs from marginal costing where fixed costs are excluded.

1.20 Coding System

1.20.1 Codes: The Chartered Institute of Management Accountants has defined a code as “a system of symbols designed to be applied to a classified set of items to give a brief account reference, facilitating entry collation and analysis”

Hence cost classification forms the basis of any cost coding. It helps us understand the characteristic of any cost through a short symbolised form.

1.20.2 Composite Codes (Example): A company has devised a system of codification in which the first three digits indicate the nature of the expenditure and the last three digits the cost centre or cost unit to be charged e.g. if the first digit is 1, the system implies that it refers to raw material and if the number is 2 it represents a labour cost. The second and third numbers relating to 1 i.e., raw material, provide details of the type e.g., whether the raw material is an electronic component (number 4), mechanical component (number 1) consumables(number 2) or packing (number 3) and the name respectively. Hence the description of a cost with a code 146.729 shall be understood as follows:

- Since the first number is 1 the cost refers to raw material cost
- The second number being 4 indicates that the raw material is an electronic component.
- The third number 6 refers to the description which according to the company's codification refers to Diodes.

The last three numbers provide details of the cost centre e.g. the first number provides details of the location of the plant, the second number gives detail of the department (machining or assembly or something else) and the third number indicates whether the cost is direct or indirect.

1.20.3 Advantages of a coding system: The following are some of the advantages of a well-designed coding system:

- (a) **Short and simple:** Since the code is, most of the times, briefer than a description, it saves time when systems are worked upon manually and in case the system is computerised it reduces the data storage capacity. The illustration above demonstrates this advantage very clearly.

- (b) **Clarity:** A code helps in reducing ambiguity. In case two professionals understand the same item differently a code will help them objectively.
- (c) **Computer friendly:** Unlike detailed descriptions, a code facilitates data processing in computerised systems.

1.20.4 The requirements for an efficient coding system

- (a) **Unique:** Every number used in the code should be unique and certain, i.e. it should be easily identified from the structure of the code.
- (b) **Flexibility:** Elasticity and comprehensiveness is an absolute must for a well designed coding system. It should be possible to identify a code for every item and the coding system should be capable of expanding to accommodate new items.
- (c) **Brief:** The code should be brief and meaningful.
- (d) **Centralised:** The maintenance of the coding system should be centrally controlled. It should not be possible for individuals to independently add new codes to the existing coding system.
- (e) **Similarity:** Codification systems should be of the same length. This makes errors easier to spot and it assists computerised data processing.

1.21 Summary

Classification of Costs

<i>Nature of classification</i>	<i>Classified Costs</i>	<i>Examples</i>
<i>Nature of Element</i>	Material: Cost of Material used in production	Cost of Raw Material
	Labour: Cost of Workers	Wages and Salary
	Expenses: Costs other than Material and Labour	Power, Office Maintenance
<i>Traceability to Object</i>	Direct Costs: Which can be allocated directly to the product	Wood in case of Furniture
	Indirect Costs: Which cannot be directly allocated to the product	Nails used in Furniture
<i>Functions</i>	Production Costs Cost of whole process of Production	Direct Materials and Conversion Cost.
	Selling Costs: Cost for creating demand of the product produced	Advertising Expenses
	Distribution Costs: Costs starting from packing of the product till reconditioning of empty products	Freight and Transportation Costs on Sales

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	Administrative Costs: Cost of formulating policy, controlling the organisation, costs not directly related to production	Salary of Office Staff
	Development Costs: Development Costs for trial Run	Research Costs
	Pre- Production Costs: Costs starting with implementation of decisions and ending with the commencement of the production process	Direct Labour and Factory Overheads
	Conversion Costs: Cost of transforming direct material into Finished Products	Direct Labour and Overheads
	Product Costs: Costs necessary for production	Cost of purchase
Variability	Fixed Costs: Cost which remains constant in total	Factory Rent
	Variable Costs: Costs which changes with production	Cost of Raw Material
	Semi- Variable Costs: Costs which are partly fixed and partly variable	Repair and Maintenance
Controllability	Controllable Costs: Costs which can be influenced by the action of a specific member of an undertaking	Raw Material, Labour Costs, controlled by shop level management
	Uncontrollable Costs: Costs which cannot be influenced by the action of a specific member.	Fixed Costs- Rent
Normality	Normal Costs: Costs which are expected to be incurred in normal routine	Raw Material Costs
	Abnormal Costs: Costs which are over and above normal costs	Cost of Wastes
Decision Making	Relevant Costs (Marginal Costs, Differential Costs, Opportunity Costs, Out of Pocket): Costs which are relevant and useful for decision making	Cost of Best Possible Use
	Irrelevant Costs (Sunk costs, Committed costs, Fixed costs): Costs which are not relevant or useful to decision making	Costs incurred in the past - Advance Payment
Cash Outflow	Explicit Costs: Costs involving immediate payment of cash	Purchase of Raw material.
	Implicit Costs: Costs not involving immediate cash payment	Depreciation

Types of Costing

Type	Description
<i>Uniform Costing</i>	<i>Standardised principles and practices of costing are used by a number of different industries.</i>
<i>Marginal Costing</i>	<i>Only Variable Costs or costs directly linked are charged to the product or process</i>
<i>Standard Costing</i>	<i>Standard Costs are compared with actual costs, to determine variances</i>
<i>Historical Costing</i>	<i>Where costs are recorded after they have incurred</i>
<i>Direct Costing</i>	<i>Direct Costs are charged to the product or process, Indirect Costs are charged to the profit from the product or process.</i>
<i>Absorption Costing</i>	<i>All costs (variable and Fixed) are charged to the product or process</i>

Methods of Costing

Method	Description
<i>Job costing</i>	<i>Where all costs can be directly charged to a specific job</i>
<i>Batch Costing</i>	<i>Where all costs can be directly charged to a group of products (batch)</i>
<i>Contract Costing</i>	<i>Similar to Job costing, but in this case the job is larger than job costing.</i>
<i>Single or Output Costing</i>	<i>Cost ascertainment for a single product.</i>
<i>Process Costing</i>	<i>The cost of production at each stage is ascertained separately</i>
<i>Operating Costing</i>	<i>Ascertainment of Costs in cases where services are rendered</i>
<i>Multiple Costing</i>	<i>Combination of two or more methods of costing, used where the nature of the product is complex and method cannot be ascertained</i>