## TOPIC ONE: COST CLASSIFICATION AND ESTIMATION

**1.1 AN OVERVIEW OF COST ACCOUNTING**

Accounting information system provides accounting information to different players or users at different management levels for diverse economic activities. Though they are various accounting disciplines, ones that we shall be interested in are;

* Financial accounting system
* Cost accounting system
* Management accounting system

**Financial accounting system**

Financial accounting is a branch of accounting concerned with providing information about the results of the business performance and its economic position.

Financial accounting is a process of recording and classifying transactions in the books, processing and analysis of financial data in a fairly subjective manner according to the nature of expenditure so as to generate financial statements that convey financial information to the interested users.

This accounting discipline measures the organization’s level of financial stability and its going concern.

Users of this financial information may include but not limited to Shareholders (existing and Potential), Creditors, financial analysts, government agencies, labour unions, management, employees, customers and the general public.

**Management Accounting System**

Management accounting represents a branch of accounting concerned with the provision and use of confidential accounting information to managers within organizations, to assist management make decisions and managerial control functions.

Management accounting is defined as the application of accounting techniques for providing information designed to help all levels of management in planning and controlling the activities of a business enterprise and in decision making.

**Cost Accounting System**

Cost accounting is a tool of management that provides a detailed record of the costs relating to products, services, operations or activities. It refers to the process of determining and accumulating the cost of some particular product or service. It is the cost accumulation system concerned with calculation of costs for the purpose of stock valuation and profit measurement.

Cost accounting involves the techniques and methods for determining the costs of products, processes, projects etc… in order to report the correct amounts on the financial statements and assisting management in making decisions, planning and control of organization resources.

Cost accounting also emphasizes the controlling of costs so as to have high value or quality product at minimum unit cost. It provides management with a means by which costs are accumulated from input of materials through the production process until completion and, ultimately, to cost of goods sold.

The appropriate method of accounting for costs depends on the circumstances that generate the need for information. We shall handle the various costing methods later.

**Uses of Cost Accounting information**

One of the many benefits of cost accounting is that it turns data into cost information, knowledge and wisdom about a business entity’s operations which will be then used for;

* Stock Valuation and profit measurement
* Measuring performance
* Cost control or managing costs
* Assessing the profitability or viability of the products or services
* Budget preparation
* Determining the selling prices for goods and services and
* Deciding to authorize, modify or discontinue a program or activity**.**

**Factors influencing the cost accounting system**

The system to be adopted may be influenced by several factors among which include the following;

1. ***Size of the firm***: the complexity and outline of the cost accounting system depends on the size of the business enterprise and management requirements. A large firm has to develop a large volume of cost data regarding the activities of various departments of the firm.
2. ***Manufacturing process or methods***: the manufacturing process includes production layout and arrangement, production scheduling, production and control methods, plant and equipment capacities, inspection and testing of materials. Methods of wage payment (piece rate, time rate, incentive schemes), methods of collecting hours worked, inventory system, overhead recovery and other problems related with the factory are the factors vital in designing a cost accounting system.
3. ***Management control needs:*** the designing of the cost accounting system in a business firm is guided by the management control requirements. The system should supply data to people at different levels in an organization to take suitable actions in their respective areas.
4. ***Organizational structure***: the cost accounting system must match the organizational division or authority so that individual foremen, supervisors, departmental heads or executives can be held accountable for the costs incurred in their respective departments.
5. ***Staff sufficiency***: the working and formulation of the cost accounting system depends, to a greater extent, on the efficiency of personnel and staff engaged in it.
6. ***Comparability:*** a business enterprise follows cost accounting systems prevailing in other firms within the same industry. This is necessary to facilitate comparison of its own data with data produced for the industry.
7. ***External factors***: the adoption of a costing system depends mainly on internal factors and situations within the firm. However, external factors may influence the scope of the cost accounting system to be applied by the business firm. For example the level of technology in the industry affects the system to be installed.

**Features of a good / ideal costing system**

An Ideal costing system is that which achieves the objectives of a costing system and brings all advantages of costing to the business. The following are the main characteristics which an ideal system of costing should possess.

1. ***Suitability to the business:*** a costing system must be devised according to the nature, conditions, requirements and size of the business. Any system which serves the purposes of the business and supplies necessary information for running the business efficiently is an ideal system. The system of costing should be practical, that is, it must be designed to suit the business and be helpful to the business. There should be no attempt to make the business suit the system.
2. ***Simplicity:*** The system of costing should be simple and plain so that it may be easily understood even by a person of average intelligence. The facts, figures and other information provided by cost accounting must be prescribed in the right time to the right person in order to make it more meaningful.
3. ***Flexibility:*** a costing system must be flexible so that it may be changed according to changed conditions and circumstances. The system without such flexibility will be outmoded because of fast changes in business and industry. Thus, the system must have the capacity of expansion or contraction without much change.
4. ***Economical:*** a costing system is like other economic goods. It costs money just like economic goods. If the system is too expensive, management may be unwilling to pay as buyers are not willing to pay for the goods if these goods are expensive as compared to their utility. A costing system should not be expensive and must be adopted according to the financial capacity of the business. The installation and operating cost of the system should not exceed its value to the management.
5. ***Comparability:*** the costing system must be able to provide facts and figures necessary to management for evaluating the performance by comparing with the past figures, or figures of other concerns or against the industry as a whole or other departments of the same concern.
6. ***Capability of presenting information at the desired time:*** the system must provide accurate and timely information so that it may be helpful to management for taking decisions and suitable action for the purpose of cost control.
7. ***Efficient system of material control:*** there should be an efficient system of stores and stock control as materials usually account for the greater proportion of the total cost. A good method of pricing material issued to production should be followed.

**Differences between Management Accounting and Cost Accounting**

The two accounting systems are closely linked as they use common basic data and reports to a significant degree. Much of the information used to prepare accounting statements and reports in cost accounting is also used in management accounting reports.

Like Cost accounting, management accounting involves reporting at frequent intervals rather than at the end of the year. It is also concerned with units and segments of activity rather than the business as a whole. Thus management accounting may be regarded as an extension of the managerial aspect of cost accounting.

Despite these similarities, the following points of distinction between the two should be noted;

1. ***Decision making vs. Control;*** to be competitive in a global economy, companies must optimize material, labor and overhead costs. In a production process, cost accounting can help identify inefficient activities and improve productivity so as to lower the production costs. The main focus of cost accounting is on cost control i.e within the budgeted and standard limits.
2. ***Scope:*** for planning and control purposes, management accounting employs many quantitative models from statistics, operations research and computers as well as research findings of behavioral sciences. Cost accounting is much less sophisticated, and use of these techniques, if any, is very limited. Further, management accounting considers both financial and non-financial performance measures (i.e. issues that cannot be easily quantified or expressed in monetary terms e.g. level of customer satisfaction, quality of the product, employee’s morale among other things)
3. ***Use of financial accounting***: management accounting uses financial accounting techniques such as ratio analysis and funds flow analysis. The truth is that management accounting does not use financial accounts as such though it supplies data to the financial accounting.

Despite the above minor differences it remains a fact that separating the two disciplines is always hard and thus most academicians take both cost and management accounting to be the same.

**Differences between Management /Cost Accounting and Financial Accounting**

1. **Primary users of information:**

The users of accounting statements are mainly external to the business enterprise like shareholders, creditors, financial institutions, potential investors, government authorities, labor unions. The information generated under management accounting system is used by members of management at different levels.

1. **Emphasis on the future:**

Management accounting has a strong future orientation. In contrast, financial accounting primarily provides summaries of past financial transactions. Financial accounting focuses on the future by providing predetermined information that can enhance or promote management functions.

1. **Segments of an Organization:**

Financial accounting is primarily concerned with reporting for the company as a whole. By contrast, management accounting focuses much more on the parts, segments of a company. The segments can be product lines, sales territories divisions, departments or any other categorizations of the company’s activities that management finds useful. Financial accounting requires breakdowns of revenues and cost by major segments in external reports, but this is secondary emphasis. In management accounting segment reporting is the primary emphasis.

1. **Management accounting is not mandatory:**

Financial accounting is mandatory; that is, it must be done. These are required by authorities like Securities Exchange, Tax bodies and Banks. On the other hand, Management accounting is not mandatory. A company is completely free to do as much or as little as it wishes. No regulatory bodies or other outside agencies specify what is to be done. Management accounting is completely optional.

1. **Unit of measurement:**

Financial accounting addresses financial performance measures (i.e. matters that can be expressed in monetary terms) and therefore, supports money measurement concept. Management accounting addresses financial and non-financial performance measures (i.e. issues that cannot be quantified) because planning and decision –making cannot be done by using quantitative information only.

1. **Reporting frequency:**

Financial accounts are usually prepared annually or semi-annually while management reports are routinely provided.

1. **Reporting requirements:**

Financial accounting statements prepared for external users must be prepared in accordance with Generally Accepted Accounting Principles (GAAP). On the contrary, management accounting is not based on any accounting rules/regulations and not bound to use the GAAP.

1. **Audit requirements:**

Financial accounts must be subjected to an external audit since they are used by external parties but it is not requirement to audit cost and management accounts.

1. **Accounting System:**

Financial accounting follows the double entry system for recording, classifying and summarizing business transactions. Management accounting is not based on double entry system.

1. **Level of detail:**

Financial accounting is highly summarized but cost and management accounting is highly detailed.

1. **Measurement of items:**

Under financial accounting all measurements are exclusively in monetary terms whereas management accounting reports consider both monetary and non-monetary terms

1. **Level of standardization:**

Financial accounting is highly standardized because there are specific report formats that have to be followed whereas there is no standardization when it comes to management accounting reports.

**Revision Questions**

1. Describe the role of cost accounting in the planning and control of production activities
2. Clearly describe the similarities and differences between cost accounting and management accounting
3. Cost accounting is an unnecessary luxury for business establishments. Do you agree with the statement? Discuss
4. An efficient system of costing is essential factor for industrial control under modern conditions of business and as such may be regarded as important part in the effort of any management to secure business stability. Discuss
5. Cost accounting is a system of foresight and not post-mortem examination; it turns losses into profits, speeds up activities and eliminates waste. Discuss
6. Cost accounting has come to be an essential tool of the management. Comment.

**1.2 COST CONCEPTS AND COST CLASSIFICATION**

**What is a cost?**

A cost is a price paid to acquire a good or a service. It reflects a monetary measure of the resources sacrificed or foregone to achieve a specific objective or the amount of expenditure, actual (incurred) or notional (attributable), given up in exchange of some goods and services (CIMA).

**What is a cost Unit?**

It is a unit of measurement of cost or a quantification for which costs are expressed e.g. a litre, km, a ream of paper etc… Therefore, we can say that a cost unit is any convenient measure of activity giving a feel of what the firm is producing.

A cost unit selected should be unambiguous, simple, and commonly used. The following are the examples of units of costs;

**Industry Cost Unit**

Transport Tone, Kilometer, passengers

Paper Ream

Power Kilowatts

Timber Cubic foot

Building House or square foot of an area

Cement Tone

Sugar Tone / Kilograms

Hospital per bed / outpatient visits

Gas Cubic meter

Depreciation Book or market value of asset

**What is a responsibility Center?**

It is an autonomous business unit for which a manager is responsible for cost, revenue and acquisition and disposal of assets. It is an activity center of a business organization entrusted with a special task. Many organizations are structured into a hierarchy of responsibility centers which could be cost centers, revenue centers, profit centers or investment centers.

1. **Cost center:**

Is a location, person or item of equipment (or a group of these) for which costs may be ascertained and used for the purpose of control (CIMA – London). It is a section or unit into which the whole factory or an organization has been appropriately divided for costing purposes. Each unit may consist of a department, a sub-department or an item or equipment or machinery and a person or a group of persons.

Cost centers should include departments, processes, machine centers, offices etc… From the functional point of view, the cost centers may take the following forms – (i) Production cost centers (ii) Service Cost center (iii) Production cum service cost center.

Production cost center: these include departments that are directly engaged in manufacturing activity and contribute to the content and form of finished product. Typical examples include Cutting, assembly, and finishing departments

Service cost centers are those cost centers that provide services or assistance to other departments. These contribute to the production process in an indirect manner and do not shape the finished goods. Examples include Human resource, maintenance, power plant, quality control departments etc.

Service – cum – production cost centers (mixed cost centers) these are basically service cost centers but sometimes they may undertake some productive work also. Typical example is tools department producing dies and Nuts as well as servicing tools.

1. **Revenue Center**

It is a unit, department or division of a firm that generates revenue either through the sales of goods or provision of services. It is a segment of the organization which is primarily responsible for generating sales revenue. For example Rooms, restaurant and bar in a hotel are revenue centers.

A revenue center manager does not possess control over costs, investment in assets, but usually has control over some of the expenses of the marketing department. The performance of a revenue center is evaluated by comparing the actual revenue with the budgeted revenue.

1. **Profit center**

It is a branch or division of a company that creates profits individually and separately from the main organization. It is a business or department which is treated as a distinct entity enabling revenues and expenses to be determined so that profitability can be measured. The performance of the profit center is assessed in terms of whether the center has achieved its budgeted profits or not.

1. **Investment center**

It is a unit which is measured against its use of capital. It is a responsibility center where the manager controls revenues and associated costs, assets and liabilities. Performance of a revenue center is measured on the basis of Return on Investment (ROI) achieved. A manager of an investment center formulates the credit policy which has a direct influence on debt collection, and the inventory policy which determines the investment in inventory. He has control over revenues, expenses and the amounts invested in the center’s assets.

**Other cost concepts/ Terms**

**Sunk costs:** are costs that have already been incurred but not recoverable. A sunk cost differs from other future costs that a business may face, such as inventory costs or R&D expenses, because it has already happened. Sunk costs are independent of any event that may occur in the future. Examples of sunk costs in a business include marketing, research, new software installation or equipment, salaries and benefits. Sunk costs are irrelevant while considering a new investment or a new project.

**Standard costs:** are predetermined costs which reflect in advance what each product or service should cost under given circumstances. It is the amount the firm thinks a product or the operation of the process for a period of time should cost, based upon certain assumed conditions of efficiency, economic conditions and other factors. It is an estimated cost determined by the company for the production of goods and services or operation under normal circumstances and is derived by the company from the historical analysis of the data or from the time and the motion studies. Such costs pre-determined by the company are used as the target costs by the company for comparing with actual costs, and the difference will be the variance. In a manufacturing set up, a standard cost consists of three main components i.e. Direct materials costs, Direct labor costs and Overhead costs. A standard cost is the cost estimated by the company that normally occurs during the production of goods or services i.e. the amount the company expects to spend on the production. Management uses it to plan the process of future output, ways to increase efficiencies and determine the reasonability of the actual costs of the period.

**Imputed costs/ Notional costs/ Implicit costs:** are expenditures that are attributable to the use of one’s own factor of production, such as the use of one’s own capital or asset. Imputed costs are a substitute to opportunity costs. It is the opportunity cost a firm must give up in order to use a factor of production for which it already owns and thus does not pay rent. For example a school deciding to use a bus which can generate roughly 20millions per month just as a school bus and it foregoes the monthly 20 million contributions from the bus.

**Differential cost;** is the difference between the cost of two alternative decisions, or a change in output levels. The concept is used when there are multiple possible options to pursue, and a choice must be made to select one option and drop the others. Differential costs are also known as incremental costs, although technically an incremental cost should refer only to an increase in cost from one alternative to another. A decrease in cost should be referred to as de-cremental cost. In broader terms, differential costs encompass both cost increases (incremental costs) and cost decreases (de-cremental costs) between alternatives. The concept can be particularly useful in step costing situations, where producing one additional unit of output may require a substantial additional cost. Differential cost is only calculated for decision making. For example, if work done by a machine costs UGX 2,550,000 but similar work costs UGX. 2,000,000 if labor is used, then the differential cost is UGX. 55,000. Also a work center can produce 10,000 pieces for $29,000 or 15,000 pieces for $40,000, the differential cost for the additional 5,000 pieces is $11,000.

**Relevant costs;** are those future costs which differ between alternatives. They are avoidable costs that are incurred only when making specific business decisions. Such costs are affected and changed by a decision. The concept of relevant cost is used to eliminate unnecessary data that could complicate decision-making process. As an example, relevant cost is used to determine whether to sell or keep a business unit. On the contrary, irrelevant costs are those costs which remain the same and not affected by the decision whatever the alternative is chosen. They are sunk costs.

**Opportunity cost:** this represents the value of the benefit sacrificed when one course of action is chosen in preference to another alternative. The opportunity cost is represented by the foregone potential benefit from the best rejected course of action. It is normally regarded as a relevant cost when it comes to decision making.

**Committed costs:** is an investment that a business entity has already made and cannot recover by any means, as well as obligations already made that the business cannot get out of. It is long term in nature and cannot be reduced significantly without impacting the entity’s ability to operate normally. For example, if a school buys a heavy duty printing machine at UGX 5,000,000 and also signs a service contract of GX. 500,000 per year for 4 years making a total of UGX. 7, 000,000 this amount becomes a committed cost because the school has already bought the machine and has a legal obligation to pay for the maintenance.

**Discretionary Fixed Cost:** it is an expenditure for a period-specific cost or a fixed asset, which can be eliminated or reduced without having an immediate impact on the reported profitability of a business. Examples of such costs are research and development costs, advertising and sales promotion costs, donations, management consulting fees etc… These costs are also termed as managed or programmed costs.

**Conversion Costs:** are those production costs required to convert raw materials into completed products. In other words, conversion costs are a manufacturer’s product or production costs other than the costs of raw materials. Examples include wages paid to factory staff, factory electricity costs etc.. They are a combination of direct labor costs plus manufacturing overhead costs.

**Out–of–pocket costs:** are costs requiring cash disbursements in the current accounting period. Out of pocket costs signify the cash cost incurred on an activity. Depreciation cost for example is not an out of pocket cost because it does not involve a cash payout.

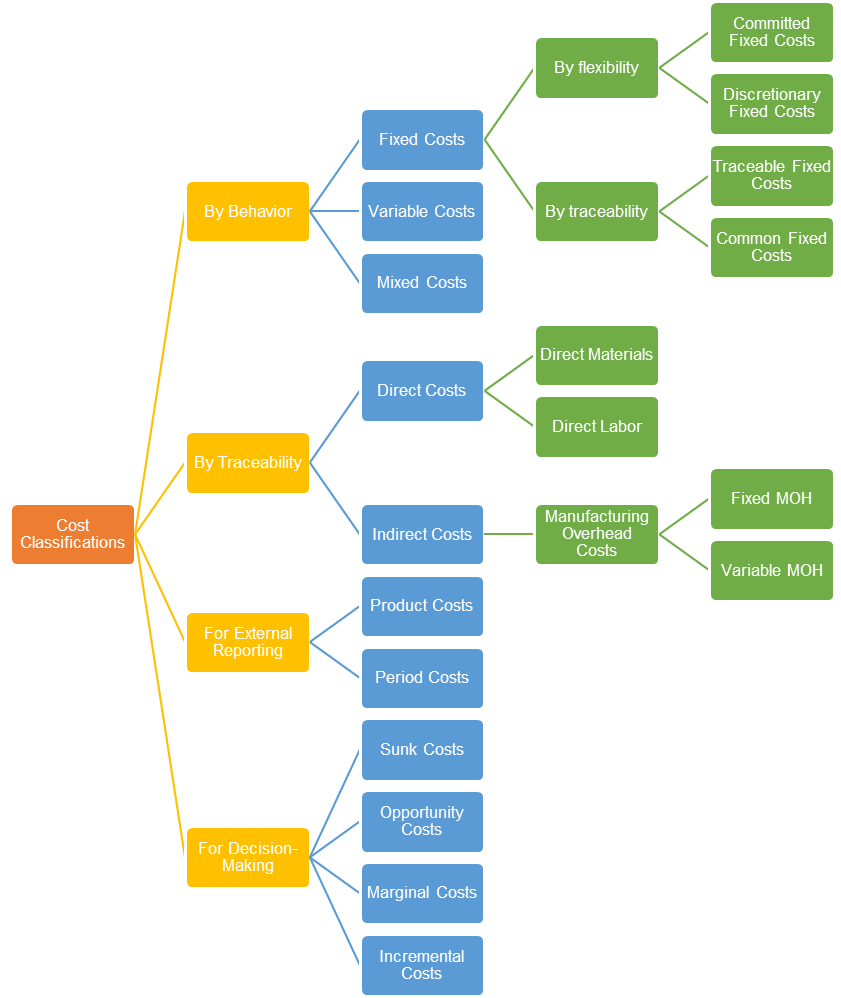
**Classification of Costs**

In managerial accounting, costs are classified into fixed costs, variable costs or mixed costs (**based on behavior**); product costs or period costs (**for external reporting**); direct costs or indirect costs (**based on traceability**); and sunk costs, opportunity costs or incremental costs (**for decision-making**).

Classification of costs based on behavior helps in cost-volume-profit analysis. Classification based on traceability is important for accurate costing of jobs and units produced. Classification for the purpose of decision-making is important to help management identify costs which are relevant for a decision.

**Cost Classification Diagram**

The following diagram summarizes the different categories into which costs are classified for different purposes:



1. **Classification on the basis of Identity/traceability**

According to this classification, the costs are divided into two i.e. Direct costs and Indirect costs which are further subdivided into three categories i.e. Direct Materials, Labor costs and Expenses.

**Direct materials**: Represents the cost of the materials that can be identified directly with the product at reasonable cost. For example, cost of paper in newspaper printing, etc. This classification is important as it helps to find total cost, how such total cost is constituted and valuation of work-in-progress

**Direct labor**: Represents the cost of the labor time spent on that product, for example cost of the time spent by a petroleum engineer on an oil rig, etc. They are wages and salaries paid to workers who are directly involved in the manufacture of products or providing services e.g. payments made to machine operators and assemblers.

**Direct expenses:** these include any expenditure other than direct material and direct labor incurred on a specific product or job. Such expenses can be identified with a product or job and are charged directly to the product as part of the prime cost. Some of the examples of direct expense in the manufacturing concern include; cost of transport and conveyance to the site, cost of electricity in a factory which produces a single product, and carriage inwards and freight charges on special materials.

***\*\*The total of the above three elements of cost i.e. Direct materials, Direct labor costs and Direct expenses is a Prime Cost.***

**Indirect materials:** these refer to production supplies and other materials that cannot conveniently or economically be charged or traced to specific unit of output because two or more units of output have benefited from such costs e.g. lubricants, vanish in a carpentry workshop, stationery etc.…

**Indirect labor costs:** refer to the wages and salaries paid to the workers who are not directly involved in the production process but do facilitate the entire production exercise. Such costs cannot be associated with or easily traced to specific products via physical observation. Some examples include wages paid to shop clerks, foremen, factory cleaners, materials handlers, plant guards and general helpers.

**Indirect expenses:** the expenses that cannot be allocated but which can be apportioned to or absorbed by cost centers or cost units. They are incurred for the benefit of more than one product, job or activity and must be apportioned by appropriate bases to the various functions. Examples include light, heat, maintenance, depreciation, insurance, taxes and hire of machinery among others.

***\*\*The aggregate of all the above three indirect costs i.e. Indirect material, Indirect labor and indirect expenses amounts to what we call Factory Overhead costs.***

**Selling, distribution and administrative overheads:** are overhead costs representing those costs incurred to create and stimulate demand for the product and to secure orders. They are non-manufacturing costs which are incurred after the product has attained a saleable condition. They cover the cost of making sales and delivering or dispatching products e.g. advertising, salesmen salaries and commissions, packaging, storage, transportation and sales administrative costs.

Administrative overhead include costs of planning and controlling the general policies and operations of a business enterprise. Examples include fees of board of directors, the chairman’s salary, and the rent of general offices and costs of general accounting among others. Sometimes, some of such costs are often apportioned to manufacturing and hence included in factory overhead.

All selling, distribution and administrative overheads form operating expenses which are charged against profits in the income statement.

1. **Classification on the basis of behavior**

There are four categories of costs that can explain the behavior i.e. fixed, variable, semi-variable, and semi-fixed costs.

**Fixed costs** are costs which remain constant within a certain level of output or sales. This certain limit where fixed costs remain constant regardless of the level of activity is called relevant range. For example, depreciation on fixed assets, insurance, rent etc… They are incurred with the passage of time and not with the production of the product or job.

Fixed costs can also be divided into two categories that is, committed fixed costs and discretionary fixed costs.

*Committed fixed costs* represent costs which cannot be reduced as these relate to the long term policies and planning of the organization. Examples are depreciation, rent, insurance, tax on property etc..

*Discretionary fixed costs* consist of costs which may be reduced partially or dropped wholly according to the policy of the management and need of the situation. Expenses like advertisement, research, fees for consultancy and costs of training are some of the examples.

Illustration of the behavioral pattern of fixed costs

**Variable costs** are costs which change with a change in the level of activity. Examples include direct materials, direct labor, etc. The total amount of variable costs tends to change in respect to changes in production volume, but the variable cost per unit stays the same level under the same manufacturing environment and production methods.

Illustration of the behavior of variable costs

**Mixed costs** (also called semi-variable costs) are costs which have both a fixed and a variable component. Costs are fixed for a set level of production or consumption, becoming variable after the level is exceeded. These are called mixed costs, and they are neither wholly variable nor wholly fixed in nature. The fixed part of semi-variable cost represents minimum fees for making a particular item or service available.

Illustration of the behavior of semi-variable costs

**Semi-fixed costs:** these are also mixed costs which change as levels of activities are changed. The variable component is influenced by the changes in the levels of activity. They are normally static over a given, small range of activity, and above that level of activity, the cost suddenly jumps to another level. It stays static again for a while at the higher range of activity, and when the activity moves out of that range, it jumps again. A semi-fixed cost moves upward in a step fashion, staying at a certain level over a small range and then moving to the next level quickly. All fixed costs behave this way, and a wholly fixed cost is also fixed only as long as activity remains within the relevant range.

However, a semi-fixed cost is fixed over a smaller range than the relevant range of a wholly fixed cost. Some examples of such costs include transport costs based on number of tones, supervisory costs based on the number of workers, transport fares based on distance among others.

Illustration of the behavior of semi-fixed variable costs

1. **Classification on the basis of Function**

Costs under this group are based on the managerial functions which are performed in a given period. Production, Administration, selling & Distribution are three important function of a business concern.

**Production or Manufacturing Cost:** are those costs which ar incurred in the course of manufacture. It includes cost of raw material, cost of labor, other direct cost and factory indirect cost. Manufacturing costs in this case represent a total of conversion costs and the cost of the raw material to be converted into finished product.

**Office and Administration cost:** these costs are incurred for the general administration of the enterprise. It includes office costs as well as administration costs. Examples are salary of office staff, rent of office building, electricity charges, audit fee, printing and stationeries etc.

**Selling and distribution cost:** it includes both selling cost as well as distribution cost. Selling costs are those costs are those costs which are incurred in connection with the selling of goods and services. Distribution costs are those costs which are incurred on dispatch of finished goods to consumers. Examples of such costs are salesmen salaries, packaging charges, carriage outward, advertisement, warehouse charges etc.

1. **Classification according to basis of controllability**

Costs are classified according to whether or not are influenced by the actions of managers. From the point of view of controllability, the cost has been classified in two categories as controllable cost and uncontrollable cost.

**Controllable costs:** these costs are regulated or controlled by specified member of an organization. Most of the variable costs are controllable. It is a cost over which a manager has direct and complete decision authority. Examples are material costs, wages, power costs, lubricants among others.

**Uncontrollable costs:** these are costs that cannot be regulated or controlled by specified members of an undertaking. Most of the fixed costs are uncontrollable. Examples are insurance, factory rent, manager’s salary etc. Such costs go beyond the control of the person in charge of the undertaking.

1. **Classification on the basis of normality**

Costs may be classified according to whether they are normally incurred at a given level of output in the conditions in which that level of output is normally attained. In this case costs may be grouped as either normal cost or abnormal costs

**Normal costs** are costs that are usually incurred under normal operating conditions and are always expected to be incurred in the process of providing goods and services.

**Abnormal costs** are unexpected costs that are incurred during normal operating conditions. These costs are not charged to the cost of production. It is transferred to the costing profit and loss account.

1. **Classification on the basis of Time**

Here costs are classified as historical costs and pre-determined costs.

**Historical costs**: these are costs ascertained after they have been incurred and such costs are available only when the production of a particular thing has already been done.

**Pre-determined costs** are estimated costs which are set in advance on a scientific way. Standard costs are always compared with the actual costs for adopting measures.

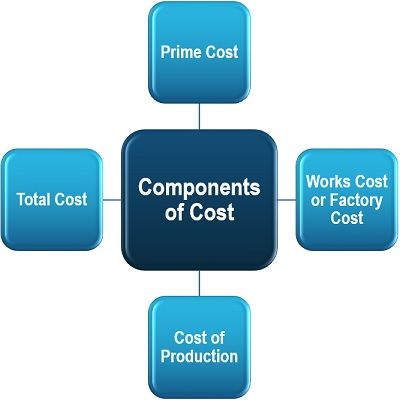
**THE COST SHEET**

A cost sheet is a statement which represents the various costs incurred at different stages of business operations, in a tabular format. It determines the total cost or expenditure made by the organization, along with the cost incurred on each unit of a product or service in a particular period.

The cost sheet of a business organization provides an insight into its performance and efficiency. It helps in competitive analysis and improvement of the business operations through cost reduction.

**Components of Cost**

An organization needs to bear multiple types of overheads while carrying out business operations. In a cost sheet, the following overheads or expenditure are presented systematically:



**Prime Cost**

The initial cost made for manufacturing a product, i.e., raw material, labour wages and other production-related expenses, is termed as prime cost.Following is the equation for computing the prime cost:

Prime Cost

Where direct material is calculated with the help of the following formula:

**Direct Material**

**Works Cost or Factory Cost**

The works cost is calculated by summing up the prime cost with the factory overheads and simultaneously adjusting the opening and closing stocks of work in progress. It can be denoted as:

**Works Cost**

The various indirect overheads incurred at the factory premises can be computed with the help of the following formula:

Factory Overhead

Let us now go through each of the indirect overheads in detail below:

**Indirect Material**

The indirect material includes all the additional items used for manufacturing products, but not directly contribute as a raw material for the finished goods. It can be anything like the oil, fuel, coal, stationery items and other factory utilities.

Accordingly, the items, which are though directly used for making a product, but are inexpensive and small, are considered as indirect material. These include thread, pins, cello tape, nails, nuts, etc.

**Indirect Labour**

The labour or human resource engaged in all the activities other than manufacturing of goods or services which are essential to carry out the business and assist the production operations is called indirect labour.

It includes salary paid to managers, cleaning staff, security staff, drivers, etc.

**Indirect Expenses**

All the other overheads which are neither directly contributing to the production operations, nor they can be termed as labour or material expense, are called indirect expenses.

These are the expenses made for running the business operations smoothly. These include advertisements, depreciation, rent, electricity, insurance, taxes, repairs and maintenance, etc.

**Cost of Production**

The cost of production includes all the direct and indirect cost, including the material, labour and other expenses, i.e., production cost, factory cost and office or administration cost.

The following formula denotes the computation of cost of production:

Cost of Production

After making an adjustment of the opening finished goods and the closing finished goods to the cost of production, we acquire the cost of production of goods sold.

Further, to calculate the cost of production of goods sold, the opening and closing stocks of finished products are adjusted with the cost of production. Its formula is:

Cost of Production of Goods Sold

**Total Cost**

The final value of a product or service can be determined after adding all the selling and distribution expenses to the cost of production of goods sold. The formula to find out the total cost or cost of sales is:

Total Cost

If the sales price of the products or service is known, the following method can be used to determine the profit:

Profit

## Cost Sheet Format

The companies which have their production or manufacturing units along with office premises and also carry out sales and distribution of goods require a systematic cost accounting procedure to determine the cost, profit and sales price.

Given below is a proforma of a cost sheet to provide you with a complete understanding of cost accounting in business organizations:

**COST SHEET FOR THE PERIOD ……**

|  |  |  |  |
| --- | --- | --- | --- |
| Particulars | Details | Total Cost | Cost / Unit |
| Direct Materials (Raw materials used) |  |  |  |
| Opening stock of raw material | x |  |  |
| Add: Purchases | x |  |  |
| Carriage inwards | x |  |  |
| Less: closing stock of raw materials | (x) |  |  |
| Direct material consumed |  | X |  |
| Direct wages |  | x | x |
| Direct expenses |  | x | x |
| Prime Cost: |  | X | X |
| Add: Works / Factory overheads |  |  |  |
| Indirect materials | x |  |  |
| Indirect wages | x |  |  |
| Factory rent and rates | x |  |  |
| Lighting and heating | x |  |  |
| Power and fuel | x |  |  |
| Repairs and maintenance | x |  |  |
| Factory cleaning | x |  |  |
| Depreciation of plant and machinery | x |  |  |
| Other factory expenses | x |  |  |
|  | X |  |  |
| Less: sale of scrap | (x) | X | X |
|  |  | X | X |
| Add: Opening stock of Work-in-progress |  | x | x |
| Less: Closing stock of Work-in-progress |  | (x) | x |
| Works / Factory overheads |  | X | X |
| Add: Office and Administrative overheads |  |  |  |
| Office rent and rates | x |  |  |
| Salaries | x |  |  |
| Lighting and heating | x |  |  |
| Insurance | x |  |  |
| Depreciation of office furniture | x |  |  |
| Telephone and postage | x |  |  |
| Bank charges | x |  |  |
| Audit charges | x | X |  |
| Add: Selling and Distribution overheads |  |  |  |
| Lighting and heating | x |  |  |
| Salesmen salaries | x |  |  |
| Travelling expenses | x |  |  |
| Depreciation and expenses of delivery van | x |  |  |
| Debt collection expenses | x |  |  |
| Postage | x | X |  |
| Add: Opening stock of finished goods |  | X |  |
| Less: Closing stock of finished goods |  | (x) |  |
| Total cost of goods sold |  | X |  |
| Sales |  | X |  |
| Profit / loss |  | X / (X) |  |

**Example: Page 35 (Cost and Management Accounting BY Nixon Kamukama)**

**1.3 COST ESTIMATION METHODS**

**Cost estimation** refers to the process of predicting or calculating the expenses associated with producing a product, providing a service, or completing a project. It is a critical aspect of cost accounting, as it helps businesses and organizations plan and budget effectively, make pricing decisions, and assess the profitability of their operations. Cost estimation involves various techniques and methods, and its primary goal is to provide accurate and reliable cost information for decision-making purposes. Here are some key aspects of cost estimation in cost accounting:

Cost estimation involves making assumptions and judgments, and the accuracy of estimates can vary. It's important to document assumptions, update estimates as new information becomes available, and review and revise cost estimates regularly to ensure they remain relevant and accurate.

**Purpose of Cost Estimation:**

* **Pricing Decisions:** Estimating costs is essential for setting competitive prices that cover expenses and generate a profit.
* **Budgeting:** Developing budgets for various business functions and projects, ensuring financial control and planning.
* **Performance Evaluation:** Comparing estimated costs to actual costs to assess cost control and efficiency.
* **Make-or-Buy Decisions:** Determining whether it's more cost-effective to produce a component in-house or purchase it externally.
* **Capital Budgeting:** Evaluating the feasibility and profitability of long-term investment projects.

**APPROACHES TO COST ESTIMATION**

The 3 broad approaches to cost estimation are:

* **Industrial engineering cost analysis**

In this approach engineers study production process to determine what its costs should be (future costs). This method uses a detailed elemental approach to establish the required level of inputs (materials, labour, equipment, tools, facilities…) for a particular level of output. It’s often used when there are no previous/past records e.g. launching a new product or projects. It is appropriate for estimating production costs where there are clear physical relationships between inputs and outputs.

It is difficult to apply this system for multi-products (e.g. from milk to get butter, cheese, yoghurt) with joint costs. Therefore, managers should be selective in their use and interpretation of engineering cost analyses.

* **Account analysis**

This method involves examination and analysis of accounting records (ledgers)and classifying each item on the basis of its assumed behaviour e.g. rent as fixed and material cost as variable.

Considerable difficulties arise with large number of costs, which are semi-variable. For each of these costs an estimate must be made of the fixed and variable components. However, some costs are difficult to categorise e.g. maintenance and repairs, bonuses etc.

* **Using historical data**

Frequently data is available on the past costs incurred, performance levels, output, and sales, which are used as a basis for forecasting future values. Numerous techniques have adopted past data and understanding how costs behave can be helpful in forecasting or estimating future costs. Before any method is used, the data must be critically examined (time, non-volume factors, accounting methods and policies, choice of the independent variable) to ensure their appropriateness for the intended purpose.

Qn. What is the nature of the data we are using? The following checks are very important.

1. The time period range

The time covered by the data should be long enough to include periodically paid costs but short enough to ensure that averaging of variations in the level of activity has not occurred (ie optimum time).

1. Consider non-activity level factors affecting costs like efficiency, technology, production methods and weather condition
2. Methods of data collection and accounting practices

The method adopted should be bias free. Care need to be exercise to ensure that the data collected is representative of the population. The choice of dependent and independent variables should be appropriate.

**Methods of Cost Estimation:**

It is essential to choose the most suitable cost estimation method for assessing mixed costs. The methods result in an approximated variable and fixed costs. The core purpose of the cost estimation methods is to create a cost formula for foretelling the amount to be incurred by the business in the future. It is important to note that the fixed cost does not change regardless of the number of units of the product produced. The variable cost, on the other hand, changes as per the number of units produced. NB: Total mixed cost = Fixed cost+ (Unit variable cost \* Number of units)

The common methods used to estimate fixed and variable costs are:

* High-low method
* Scatter graph method
* *Least squares method (*Regression analysis)

The function is given by: y = a + bx; where y is the total cost, a is the fixed cost, b is variable cost per unit and x is output in units (activity level)

1. High and low method

This method considers 2 sets of data, representing the highest and the lowest figures in each set. Mathematically, the gradient (b) which is the variable cost per unit is calculated as follows.

Variable costs per unit = difference in cost

difference in activity

Fixed cost = Total cost – Variable costs

**Question 1**

You have been provided with data for the following five months from January to May.

|  |  |  |
| --- | --- | --- |
| **Month** | **X (Output in ‘000 units)** | **Y (Costs in Ushs ‘million)** |
| January | 30 | 90 |
| February | 26 | 80 |
| March | 34 | 100 |
| April | 32 | 95 |
| May | 28 | 85 |

**Additional information**

Given that Y = a + bx

Where Y = Cost, X = Output, a = a constant (fixed element)

Required

1. Find the value of b.
2. Establish the value of a, using the data for February.
3. Assume the cost for June is Ushs 120 million, estimate the units to be produced

Alternatively, the recorded cost and activity data are plotted on a graph and the two points representing the highest and the lowest cost respectively are joined by straight line. The slope of the line represents the variable cost per unit and the intercept with the vertical axis represent the fixed cost.

This method is crude for it considers only two observations out a series of data

1. Least square method

When it has been established that a causal relationship exists in the data and that a linear function is appropriate, the statistical technique known as least square is frequently used to establish values for the coefficients a and b (representing fixed and unit variable cost respectively) in the linear cost function; Y = a +bx

Where y is total cost - the dependent variable

X is the agreed measure of activity - the independent variable

The following formula can be used to calculate the coefficients.

The formula is given by:

b = n∑xy - ∑x∑y

n∑x2 – (∑x)2

a = ∑y - b ∑x

n n

**Question 2**

Using the same details in Question 1 above, establish the required figures using Least square method.

1. ***Scatter graph/* diagram**

In a **scatter diagram**, all data points are plotted on a graph with activity on the horizontal axis and cost on the vertical axis. A line is drawn through the points at an angle which is judged to be the best representation of the slope of the plotting and an estimate is made for total fixed costs at the point where the line intersects the vertical axis at zero units of activity. To compute the variable cost per unit, the slope of the line is determined by choosing two points and dividing the change in their cost by the change in the units of activity for the two points selected.

**REVISION QUESTION**

1. Citing examples distinguish clearly between the following costs and state whether they influence decision making or not
2. Opportunity cost and sunk costs **(2marks)**
3. Incremental costs and committed costs **(2marks)**
4. Marginal and fixed costs **(2marks)**
5. Imputed costs and out of pocket costs **(2marks)**
6. Controllable costs and historical costs **(2marks)**
7. You are given the following data for output at a factory and costs of production over the past five months.

|  |  |  |
| --- | --- | --- |
| **Month** | **Output (units)** | **Costs (shs)** |
| 1 | 20,000 | 82,000 |
| 2 | 16,000 | 70,000 |
| 3 | 24,000 | 90,000 |
| 4 | 22,000 | 85,000 |
| 5 | 18,000 | 73,000 |

**Required:** stating all assumptions

i) Calculate an equation to determine expected cost level for any output volume **(8marks)**

ii) Prepare a budget for total costs if output is 22,000 units **(7marks)**