

MBA-I/ SEM-I

101 MANAGERIAL ACCOUNTING

UNIT 1 BASIC CONCEPTS

Definition of Accounting

Definition by the American Institute of Certified Public Accountants (Year 1961):

“Accounting is the art of recording, classifying and summarizing in a significant manner and in terms of money, transactions and events which are, in part at least, of a financial character, and interpreting the result thereof”.

Definition by the American Accounting Association (Year 1966):

“The process of identifying, measuring and communicating economic information to permit informed judgments and decisions by the users of accounting”.

(a) Objectives of Accounting

(i) Providing Information to the Users for Rational Decision-making

The primary objective of accounting is to provide useful information for decision-making to stakeholders such as owners, management, creditors, investors, etc. Various outcomes of business activities such as costs, prices, sales volume, value under ownership, return of investment, etc. are measured in the accounting process. All these accounting measurements are used by stakeholders (owners, investors, creditors/bankers, etc.) in course of business operation. Hence, accounting is identified as ‘language of business’.

(ii) Systematic Recording of Transactions

To ensure reliability and precision for the accounting measurements, it is necessary to keep a systematic record of all financial transactions of a business enterprise which is ensured by bookkeeping.

These financial records are classified, summarized and reposted in the form of accounting measurements to the users of accounting information i.e., stakeholder.

(iii) Ascertainment of Results of above Transactions

‘Profit/loss’ is a core accounting measurement. It is measured by preparing profit and loss account for a particular period. Various other accounting measurements such as different types of revenue expenses and revenue incomes are considered for preparing this profit and loss account. Difference between these revenue incomes and revenue expenses is known as result of business transactions identified as profit/loss. As this measure is used very frequently by stockholders for rational decision making, it has become the objective of accounting. For example, Income Tax Act requires that every business should have an accounting system that can measure taxable income of business and also explain nature and source of every item reported in Income Tax Return.

(iv) Ascertain the Financial Position of Business

‘Financial position’ is another core accounting measurement. Financial position is identified by preparing a statement of ownership i.e., Assets and Owings i.e., liabilities of the business as on a certain date. This statement is popularly known as balance sheet. Various other accounting measurements such as different types of assets and different types of liabilities as existed at a particular date are considered for preparing the balance sheet. This statement may be used by various stakeholders for financing and investment decision.

(v) To Know the Solvency Position

Balance sheet and profit and loss account prepared as above give useful information to stockholders regarding concerns potential to meet its obligations in the short run as well as in the long run.

Scope of accounting

1. Accounting is concerned with financial transactions and events which bring' about a change

in the resources (or wealth) position of the business firm. Such transactions have to be identified first, as and when they occur. It is not difficult because, there will be proof in the form of a bill or receipt (called vouchers). With the help of these bills and receipts identification of a transaction is easy. For example, when you purchase something you get a bill, when you make payment you get a receipt.

2. These transactions are to be measured or expressed in terms of money, if not done already. Generally, this problem will not arise, because the statement of proof expresses the transaction in terms of money. For example, if ten books are purchased at the rate of Rs. 20 each, then the bill is prepared for Rs. 200. But, if an event cannot be expressed in monetary terms, it will not come under the scope of accounting.

3. The transactions which are identified and measured are to be recorded in a book called journal or in one of its sub-divisions.

4. The recorded transactions are to be classified with a view to group transactions of similar nature at one place. The work of classification is done in a separate book called ledger. In the ledger, a separate account is opened for each item so that all transactions relating to it can be brought to one place. For example, all payments of salaries are brought to salaries account.

5. The recording and classification of many transactions will result in a mass of financial data.

It is, therefore, necessary to summarise such data periodically (at least once a year), in a significant and meaningful form. The summarisation is done in the form of profit and loss account which reveals the profit made or loss incurred, and the balance sheet which reveals the financial position.

6 The summary results will have to be analysed, interpreted (critically explained) and communicated to interested parties. Accounting information is generally communicated in the form of a 'report'. Big organisations generally present printed reports, called published account.

Basic accounting terminologies

(i) Transaction: It means an event or a business activity which involves exchange of money or money's worth between parties. The event can be measured in terms of money and changes the financial position of a person e.g. purchase of goods would involve receiving material and making payment or creating an obligation to pay to the supplier at a future date. Transaction could be a cash transaction or credit transaction. When the parties settle the transaction immediately by making payment in cash or by cheque, it is called a cash transaction. In credit transaction, the payment is settled at a future date as per agreement between the parties.

(ii) Goods/Services : These are tangible article or commodity in which a business deals. These articles or commodities are either bought and sold or produced and sold. At times, what may be classified as 'goods' to one business firm may not be 'goods' to the other firm. e.g. for a machine manufacturing company, the machines are 'goods' as they are frequently made and sold. But for the buying firm, it is not 'goods' as the intention is to use it as a long term resource and not sell it. Services are intangible in nature which are rendered with or without the object of earning profits.

(iii) Profit: The excess of Revenue Income over expense is called profit. It could be calculated for each transaction or for business as a whole.

(iv) Loss: The excess of expense over income is called loss. It could be calculated for each transaction or for business as a whole.

(v) Asset: Asset is a resource owned by the business with the purpose of using it for generating future profits. Assets can be Tangible and Intangible. Tangible Assets are the Capital assets which have some physical existence. They can, therefore, be seen, touched and felt, e.g. Plant and Machinery, Furniture and Fittings, Land and Buildings, Books, Computers, Vehicles, etc. The capital assets which have no physical existence and whose value is limited by the rights and anticipated benefits that possession confers upon the owner are known as Intangible

Assets. They cannot be seen or felt although they help to generate revenue in future, e.g.

Goodwill, Patents, Trade-marks, Copyrights, Brand Equity, Designs, Intellectual Property, etc.

Assets can also be classified into Current Assets and Non-Current Assets.

Current Assets – An asset shall be classified as Current when it satisfies any of the following :

(a) It is expected to be realised in, or is intended for sale or consumption in the Company's normal

Operating Cycle,

(b) It is held primarily for the purpose of being traded ,

(c) It is due to be realised within 12 months after the Reporting Date, or

(d) It is Cash or Cash Equivalent unless it is restricted from being exchanged or used to settle a

Liability for at least 12 months after the Reporting Date.

Non-Current Assets – All other Assets shall be classified as Non-Current Assets. e.g.

Machinery held for long term etc.

(vi) Liability: It is an obligation of financial nature to be settled at a future date. It represents amount of money that the business owes to the other parties. E.g. when goods are bought on credit, the firm will create an obligation to pay to the supplier the price of goods on an agreed future date or when a loan is taken from bank, an obligation to pay interest and principal amount is created.

Depending upon the period of holding, these obligations could be further classified into Long Term on non-current liabilities and Short Term or current liabilities.

Current Liabilities – A liability shall be classified as Current when it satisfies any of the following :

(a) It is expected to be settled in the Company's normal Operating Cycle,

(b) It is held primarily for the purpose of being traded,

(c) It is due to be settled within 12 months after the Reporting Date, or

(d) The Company does not have an unconditional right to defer settlement of the liability for at least 12 months after the reporting date (Terms of a Liability that could, at the option of the counterparty, result in its settlement by the issue of Equity Instruments do not affect its classification)

Non-Current Liabilities – All other Liabilities shall be classified as Non-Current Liabilities. E.g. Loan taken for 5 years, Debentures issued etc.

(vii) Internal Liability : These represent proprietor's equity, i.e. all those amount which are entitled to the proprietor, e.g., Capital, Reserves, Undistributed Profits, etc.

(viii) Working Capital : In order to maintain flows of revenue from operation, every firm needs certain amount of current assets. For example, cash is required either to pay for expenses or to meet obligation for service received or goods purchased, etc. by a firm. On identical reason, inventories are required to provide the link between production and sale. Similarly, Accounts Receivable generate when goods are sold on credit. Cash, Bank, Debtors, Bills Receivable, Closing Stock, Prepayments etc. represent current assets of firm. The whole of these current assets form the working capital of a firm which is termed as Gross Working Capital.

Gross Working capital = Total Current Assets – Long term internal liabilities plus long term debts plus the current liabilities minus the amount blocked in the fixed assets. There is another concept of working capital. Working capital is the excess of current assets over current liabilities. That is the amount of current assets that remain in a firm if all its current liabilities are paid. This concept of working capital is known as Net Working Capital which is a more realistic concept.

Working Capital (Net) = Current Assets – Currents Liabilities.

(ix) Contingent Liability : It represents a potential obligation that could be created depending on the outcome of an event. E.g. if supplier of the business files a legal suit, it will not be

treated as a liability because no obligation is created immediately. If the verdict of the case is given in favour of the supplier then only the obligation is created. Till that it is treated as a contingent liability. Please note that contingent liability is not recorded in books of account, but disclosed by way of a note to the financial statements.

(x) Capital : It is amount invested in the business by its owners. It may be in the form of cash, goods, or any other asset which the proprietor or partners of business invest in the business activity. From business point of view, capital of owners is a liability which is to be settled only in the event of closure or transfer of the business. Hence, it is not classified as a normal liability. For corporate bodies, capital is normally represented as share capital.

(xi) Drawings : It represents an amount of cash, goods or any other assets which the owner withdraws from business for his or her personal use. e.g. if the life insurance premium of proprietor or a partner of business is paid from the business cash, it is called drawings. Drawings will result in reduction in the owners' capital. The concept of drawing is not applicable to the corporate bodies like limited companies.

(xii) Net worth : It represents excess of total assets over total liabilities of the business. Technically, this amount is available to be distributed to owners in the event of closure of the business after payment of all liabilities. That is why it is also termed as Owner's equity. A profit making business will result in increase in the owner's equity whereas losses will reduce it.

(xiii) Non-current Investments : Non-current Investments are investments which are held beyond the current period as to sale or disposal. e. g. Fixed Deposit for 5 years.

(xiv) Current Investments : Current investments are investments that are by their nature readily realizable and are intended to be held for not more than one year from the date on which such investment is made. e. g. 11 months Commercial Paper.

(xv) Debtor : The sum total or aggregate of the amounts which the customer owe to the business for purchasing goods on credit or services rendered or in respect of other contractual

obligations, is known as Sundry Debtors or Trade Debtors, or Trade Payable, or Book-Debts or Debtors. In other words, Debtors are those persons from whom a business has to recover money on account of goods sold or service rendered on credit. These debtors may again be classified as under:

- (i) Good debts : The debts which are sure to be realized are called good debts.
- (ii) Doubtful Debts : The debts which may or may not be realized are called doubtful debts.
- (iii) Bad debts : The debts which cannot be realized at all are called bad debts.

It must be remembered that while ascertaining the debtors balance at the end of the period certain adjustments may have to be made e.g. Bad Debts, Discount Allowed, Returns Inwards, etc.

(xvi) Creditor : A creditor is a person to whom the business owes money or money's worth. e.g. money

payable to supplier of goods or provider of service. Creditors are generally classified as Current Liabilities.

(xvii) Capital Expenditure : This represents expenditure incurred for the purpose of acquiring a fixed asset which is intended to be used over long term for earning profits there from. e. g. amount paid to buy a computer for office use is a capital expenditure. At times expenditure may be incurred for enhancing the production capacity of the machine. This also will be a capital expenditure. Capital expenditure forms part of the Balance Sheet.

(xviii) Revenue expenditure : This represents expenditure incurred to earn revenue of the current period. The benefits of revenue expenses get exhausted in the year of the incurrence. e.g. repairs, insurance, salary & wages to employees, travel etc. The revenue expenditure results in reduction in profit or surplus. It forms part of the Income statement.

(xix) Balance Sheet : It is the statement of financial position of the business entity on a particular date. It lists all assets, liabilities and capital. It is important to note that this

statement exhibits the state of affairs of the business as on a particular date only. It describes what the business owns and what the business owes to outsiders (this denotes liabilities) and to the owners (this denotes capital). It is prepared after incorporating the resulting profit/losses of Income statement.

Accounting Concepts

A. BASIC ASSUMPTIONS

(a) Business Entity Concept

This concept explains that the business is distinct from the proprietor. Thus, the transactions of business only are to be recorded in the books of business.

(b) Going Concern Concept

This concept assumes that the business has a perpetual succession or continued existence.

(c) Money Measurement Concept

According to this concept only those transactions which are expressed in money terms are to be recorded in accounting books.

(d) The Accounting Period Concept

Businesses are living, continuous organisms. The splitting of the continuous stream of business events into time periods is thus somewhat arbitrary. There is no significant change just because one accounting period ends and a new one begins. This results into the most difficult problem of accounting of how to measure the net income for an accounting period. One has to be careful in recognizing revenue and expenses for a particular accounting period. Subsequent section on accounting procedures will explain how one goes about it in practice.

(e) The Accrual Concept

The accrual concept is based on recognition of both cash and credit transactions. In case of a cash transaction, owner's equity is instantly affected as cash either is received or paid. In a credit transaction, however, a mere obligation towards or by the business is created. When

credit transactions exist (which is generally the case), revenues are not the same as cash receipts and expenses are not same as cash paid during the period.

Today's accounting systems based on accrual concept are called as Accrual system or mercantile system of accounting.

BASIC PRINCIPLES

(a) Realization Concept

This concept speaks about recording of only those transactions which are actually realized. For example Sale or Profit on sales will be taken into account only when money is realized i.e. either cash is received or legal ownership is transferred.

(b) Matching Concept

It is referred to as matching of expenses against incomes. It means that all incomes and expenses relating to the financial period to which the accounts relate should be taken in to account without regard to the date of receipts or payment.

(c) Full Disclosure Concept

As per this concept, all significant information must be disclosed. Accounting data should properly be clarified, summarized, aggregated and explained for the purpose of presenting the financial statements which are useful for the users of accounting information. Practically, this principle emphasizes on the materiality, objectivity and consistency of accounting data which should disclose the true and fair view of the state of affairs of a firm.

(d) Duality Concept

According to this concept every transaction has two aspects i.e. the benefit receiving aspect and benefit giving aspect. These two aspects are to be recorded in the books of accounts.

(e) Verifiable Objective Evidence Concept

Under this principle, accounting data must be verified. In other words, documentary evidence of transactions must be made which are capable of verification by an independent respect. In

the absence of such verification, the data which will be available will neither be reliable nor be dependable, i.e., these should be biased data. Verifiability and objectivity express dependability, reliability and trustworthiness that are very useful for the purpose of displaying the accounting data and information to the users.

(f) Historical Cost Concept

Business transactions are always recorded at the actual cost at which they are actually undertaken. The basic advantage is that it avoids an arbitrary value being attached to the transactions. Whenever an asset is bought, it is recorded at its actual cost and the same is used as the basis for all subsequent accounting purposes such as charging depreciation on the use of asset, e.g. if a production equipment is bought for ₹ 1.50 crores, the asset will be shown at the same value in all future periods when disclosing the original cost. It will obviously be reduced by the amount of depreciation, which will be calculated with reference to the actual cost. The actual value of the equipment may rise or fall subsequent to the purchase, but that is considered irrelevant for accounting purpose as per the historical cost concept. The limitation of this concept is that the balance sheet does not show the market value of the assets owned by the business and accordingly the owner's equity will not reflect the real value. However, on an ongoing basis, the assets are shown at their historical costs as reduced by depreciation.

(g) Balance Sheet Equation Concept

Under this principle, all which has been received by us must be equal to that has been given by us and needless to say that receipts are clarified as debits and giving is clarified as credits.

The basic equation,

appears as :- $\text{Debit} = \text{Credit}$

Naturally every debit must have a corresponding credit and vice-e-versa. So, we can write the above in the following form –

$\text{Expenses} + \text{Losses} + \text{Assets} = \text{Revenues} + \text{Gains} + \text{Liabilities}$

And if expenses and losses, and incomes and gains are set off, the equation takes the following form

$\text{Asset} = \text{Liabilities}$

or, $\text{Asset} = \text{Equity} + \text{External Liabilities}$

i.e., the Accounting Equation

MODIFYING PRINCIPLES

(a) The Concept of Materiality

The materiality could be related to information, amount, procedure and nature. Error in description of an asset or wrong classification between capital and revenue would lead to materiality of information. Say, If postal stamps of ₹ 500 remain unused at the end of accounting period, the same may not be considered for recognizing as inventory on account of materiality of amount. Certain accounting treatments depend upon procedures laid down by accounting standards. Some transactions are by nature material irrespective of the amount involved. e.g. audit fees, loan to directors.

(b) Consistency Concept

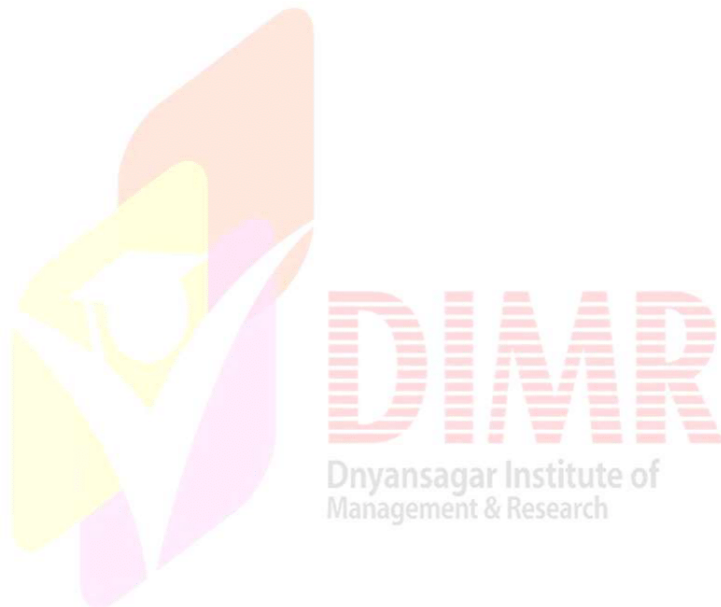
This Concept says that the Accounting practices should not change or must remain unchanged over a period of several years.

(c) Conservatism Concept

Conservatism concept states that when alternative valuations are possible, One should select the alternative which fairly represents economic substance of transactions but when such choice is not clear select the alternative that is least likely to overstate net assets and net income. It provides for all known expenses and losses by best estimates if amount is not known with certainty, but does not recognizes revenues and gains on the basis of anticipation.

(d) Timeliness Concept

Under this principle, every transaction must be recorded in proper time. Normally, when the transaction is made, the same must be recorded in the proper books of accounts. In short, transaction should be recorded date-wise in the books. Delay in recording such transaction may lead to manipulation, misplacement of vouchers, misappropriation etc. of cash and goods. This principle is followed particularly while verifying day to day cash balance. Principle of timeliness is also followed by banks, i.e. every bank verifies the cash balance with their cash book and within the day, the same must be completed.



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UNIT 2 FINANCIAL STATEMENTS

- **Meaning:**

These are the statements prepared at the end of the accounting period to determine the financial performance (i.e., profitability) and financial position of the business as on the date.

It is the end-product of the accounting process prepared from the Trial Balance.

It is considered as a vital information for the users of financial statements based on which they take important financial and investment decisions.

A complete set of financial statements is known as Final Accounts which includes the following:

- An Income Statement known as Trading and Profit and Loss Account: Such a statement has two parts where one is the Trading Account that shows the Gross Profit or Gross Loss for the accounting period and the other is the Statement of Profit and Loss that shows the Net Profit or Net Loss for the accounting period.
- A Position Statement known as Balance Sheet: It is a statement that shows financial position of the entity on a particular date in form of assets held and liabilities owed.

☐ **Objectives:**

Objectives of financial statements are to be understood separately for each of the following:

Objectives of Preparing Trading and Profit and Loss Account/Income Statement:

- To identify the gross profit or loss: A Trading Account records all the incomes and expenses directly related to the trading activities and helps identify the gross profit or loss on account of such operations.
- To identify the net profit or net loss: A Profit and Loss Account records all the incomes and expenses not directly related to the trading activities and helps identify the net profit or

loss.

iii. To facilitate comparison: Preparation of such income statement facilitates comparison of entity's financial performance over a period of time and draw necessary conclusions.

iv. To record complete details of incomes and expense: An income statement shows complete record of all the incomes earned and expenses incurred during the course of business.

v. To determine the amount of reserves: The amount of profits derived with the help of such income statement helps to decide how much of the amount is to be kept aside for future uncertainties in the form of reserves.

vi. To facilitate calculation of ratios: Expenses and incomes recorded and profits derived with the help of an Income Statement are used to compute various accounting ratios which helps an entity to take appropriate financial and investment decisions.

ACCOUNTANCY FINANCIAL STATEMENTS OF SOLE PROPRIETORSHIP

Users of Financial

Statements

Internal Users External Users

o Objectives of Preparing Balance Sheet/Position Statement:

i. To identify the financial position: A balance sheet presents the exact values of the assets and liabilities of the business on a particular date which helps to identify the actual financial position of an entity on a particular date.

ii. To facilitate comparison: In order to determine and analyse the change in the financial position of an entity over a period of time, different items presented in the balance sheet are compared and necessary conclusions are drawn.

iii. To identify the solvency position: The figures and items presented in the Balance Sheet

are used to compute the various accounting ratios like current ratio, liquid ratio, debt to equity ratio, etc. which are used in identifying the solvency position of an entity.

□ Users of Financial Statements:

o Internal Users:

- i. Owners: These are those who invest in the business and provide funds to carry out the business operations. These users are interested to know the profit earned or losses incurred from such business operations in order to determine the returns on their investments. Such information is provided to them from the financial statements prepared by the entity.
 - ii. Management: These are those who are responsible for carrying out the business operations and taking all the important decisions taken. In order to carry out these functions effectively, information in the financial statements is used by the management.
 - iii. Employees and Trade Unions: These are those who are concerned with the wages, bonus, etc., that they are entitled to receive in the course of their employment. In order to determine the entity's capability to pay such amounts, information in the financial statements plays a vital role.
- o External Users:
- i. Public: In order to determine whether the business entity makes considerable contribution to the economy in terms of development, employment, etc. public at large is always interested in the profitability and financial position of the business.
 - ii. Government Authorities: These are those who compile the national income accounts and use such information to take appropriate policy decisions. Also, the taxes that are levied by various Government departments (GST & Income Tax), it is the financial statements that are referred to assess the correct tax dues.
 - iii. Researchers: These users make use of the financial statements to study the financial

information and use it for survey related projects.

iv. Banks and Financial Institutions: These are those who provide loans and credits to the business entities based on the financial position of the entity. In order to decide whether to

ACCOUNTANCY FINANCIAL STATEMENTS OF SOLE PROPRIETORSHIP

grant loans and other services, these users analyse the financial statements of the entity over a period of time.

v. Creditors: These are the parties who supply goods or provide services on credit. Before granting any credit these users satisfy themselves about the stability and credit-worthiness of the entity based on the financial statements of the entity over a period of time.

□ Presentation Methods: There are 2 forms of presenting financial statements as follows:

o Horizontal Form:

- i. It presents the financial statements (i.e., Trading and Profit and Loss Account and Balance Sheet) in 'T' form where the statements are divided into 2 parts as left hand side and right hand side.
- ii. Left hand side comprises of debit items (in case of Trading and Profit and Loss Account) or Liabilities plus Capital (in case of Balance Sheet).
- iii. Right hand side comprises of credit items (in case of Trading and Profit and Loss Account) or Assets (in case of Balance Sheet).

o Vertical Form:

- i. It presents the financial statements in a single column statement.
- ii. It does not divide the statements in parts, instead presents all the items in a single column one below the other by categorising each of them based on an appropriate parameter.
- iii. It presents the items in the income statement in the same sequence or flow in which the amounts are to be derived, i.e., first the gross profit is determined, then the operating profit and then the net profit which is then transferred to the Capital Account.

iv. In the Balance Sheet, all the sources of funds are listed first and then the application of funds are listed by categorising each of them based on an appropriate parameter.

Methods of Presenting

Financial Statements

Horizontal Form Vertical Form



MBA-I/ SEM-I**101 MANAGERIAL ACCOUNTING****UNIT 3 COST ACCOUNTING****Introduction –**

If you decide to manufacture say electronic digital meter, you will need raw material, labour and incur other incidental expenses to manufacture. These constitute the cost of manufacturing. You will incur expenses till your products are sold. You need to learn the concept of cost, its elements and types etc. so that you can better learn the accounting of costs. In this lesson you will learn about the basic cost concepts. The term cost means the amount of expenses incurred on or attributable to a specified thing or activity. According to the Institute of Cost and Work Accounts (ICWA) India, cost is the 'measurement in monetary terms of the amount of resources used for the purpose of production of goods or rendering services. With reference to production/manufacture of goods and services cost refers to the sum total of the value of resources used like raw material, labour and expenses incurred in producing or manufacturing a given quantity.

Objectives of Cost Accounting

1. Determining selling price
2. Determining and controlling efficiency
3. Facilitates the preparation of financial and other statements
4. Providing basis for operating policy
 - Determination of cost-volume-profit relationship
 - Shutting down or operating at a loss
 - Making or buying from outside suppliers
 - Continuing with the existing plant and machinery or replacing them by improved and economic ones.

Cost: Meaning and Its Elements

The term 'cost' means the amount of expenses [actual or notional] incurred

on or attributable to specified thing or activity. As per Institute of cost and work accounts (ICWA) India, Cost is 'measurement in monetary terms of the amount of resources used for the purpose of production of goods or rendering services. To get the results we make efforts. Efforts constitute cost of getting the results. It can be expressed in terms of money; it means the amount of expenses incurred on or attributable to some specific thing or activity. The term cost is used in this very

form. In reference to production/manufacturing of goods and services cost refers to sum total of the value of resources used like raw material and labour and expenses incurred in producing or manufacturing of given quantity.

Elements of cost

Cost of production/manufacturing consists of various expenses incurred on production/manufacturing of goods or services. These are the elements of cost which can be divided into three groups : Material, Labour and Expenses.

Elements of cost

Material

Labour

Expenses

- Material

To produce or manufacture material is required. For example to manufacture shirts cloth is required and to produce flour wheat is required. All material which becomes an integral part of finished product and which can be conveniently assigned to specific physical unit is termed as "Direct Material". It is also described as raw material, process material, prime material, production material, stores material, etc. The substance from which the product is made is known as material. It may be in a raw or manufactured state. Material is classified into two categories:

Direct Material

Indirect Material

Direct material-Direct Material is that material which can be easily identified and related with specific product, job, and process. Timber is a raw material for making furniture, cloth for making garments, sugarcane for making sugar, and Gold/ silver for making jewellery, etc are some examples of direct material.

Indirect material -Indirect Material is that material which cannot be easily and conveniently identified and related with a particular product, job, process, and activity. Consumable stores, oil and waste, printing and stationery etc, are some examples of indirect material. Indirect materials are used in the factory, the office, or the selling and distribution department.

- Labour

Labour is the main factor of production. For conversion of raw material into finished goods, human resource is needed, and such human resource is termed as labour. Labour cost is the main element of cost in a product or service. Labour can be classified into two categories:

Direct Labour, and

Indirect labour

Direct labour-Labour which takes active and direct part in the production of a commodity. Direct labour is that labour which can be easily identified and related with specific product, job, process, and activity. Direct labour cost is easily traceable to specific products. Direct labour costs are specially and conveniently traceable to specific products. Direct labour varies directly with the volume of output. Direct labour is also known as process labour, productive labour, operating labour, direct wages, manufacturing wages, etc. Cost of wages paid to carpenter for making furniture, cost of a tailor in producing readymade garments, cost of washer in dry cleaning unit are some examples of direct labour.

Indirect labour -Indirect labour is that labour which can not be easily identified and related with specific product, job, process, and activity. It includes all labour not directly engaged in converting raw material into finished product. It may or may not vary directly with the volume of output. Labour employed for the purpose of carrying out tasks incidental to goods or services provided is indirect labour. Indirect labour is used in the factory, the office, or the selling and distribution department. Wages of store-keepers, time-keepers, salary of works manager, salary of salesmen, etc, are all examples of indirect labour cost.

- Expenses

All cost incurred in the production of finished goods other than material cost and labour cost are termed as expenses. Expenses are classified into two categories:

Direct expenses, and Indirect Exp.

Direct expenses-These are expenses which are directly, easily, and wholly allocated to

specific cost center or cost units. All direct cost other than direct material and direct labour are termed as direct expenses. Direct expenses are also termed as chargeable expenses. Some examples of the direct expenses are hire of special machinery, cost of special designs, moulds or patterns, fee paid to architects, surveyors and other consultants, inward carriage and freight charges on special material, Cost of patents and royalties.

1. Cost center means a location, person, or item of equipment or group of these for which costs may be ascertained and used for the purpose of cost control.

2. Cost object is anything for which a separate measurement of cost is desired. It may be a product, service, project, or a customer.

Indirect expenses -These expenses cannot be directly, easily, and wholly allocated to specific

cost center or cost units. All indirect costs other than indirect material and indirect labour are termed as indirect expenses. Thus,

Indirect Expenses = Indirect cost – Indirect material – Indirect labour.

Indirect expenses are treated as part of overheads. Rent, rates and taxes of building, repair, insurance and depreciation on fixed assets, etc, are some examples of indirect expenses.

OVERHEADS: MEANING

The term overhead has a wider meaning than the term indirect expenses. Overheads include the cost of indirect material, indirect labour and indirect expenses. This is the aggregate sum of indirect material, indirect labour and indirect expenses.

Overhead = Indirect material + Indirect labour + Indirect expenses

Overheads are classified into following three categories:

Factory/works/ production overheads

Office and administrative overheads

Selling and distribution overheads

Factory/works overheads

All indirect costs incurred in the factory for production of goods is termed as factory/works overheads. Such costs are concerned with the running of the factory or plant. These include indirect material, indirect labour and indirect expenses incurred in the factory. Some examples are as follows:

Indirect materials:

- (i) Grease, oil, lubricants, cotton waste etc.
- (ii) Small tools, brushes for sweeping, sundry supplies etc.
- (iii) Cost of threads, gum, nails, etc.
- (iv) Consumable stores
- (v) Factory printing and stationery

Indirect wages

- (i) Salary of factory manager, foremen, supervisors, clerks etc.
- (ii) Salary of storekeeper
- (iii) Salary and fee of factory directors and technical directors
- (iv) Contribution to ESI, PF., Leave pay etc. of factory employee.

Indirect expenses

- (i) Rent of factory buildings and landMODULE - 6B
- (ii) Insurance of factory building, plant, and machinery
- (iii) Municipal taxes of factory building
- (iv) Depreciation of factory building, plant and machinery, and their repairs and maintenance charges
- (v) Power and fuel used in factory
- (vi) Factory telephone expenses.

Office and administrative overheads

These expenses are related to the management and administration of the business. They are incurred for the direction and control of an undertaking. These represent the aggregate of the cost of indirect material, indirect labour, and indirect expenses incurred by the office and administration department of an organisation. Some examples are as follows:

Office printing and stationery, Cost of brushes, dusters etc. for cleaning office building and equipments, Postage and stamps. Salary of office manager, clerks, and other employees, Salary of administrative directors, Salaries of legal adviser, Salaries of cost accountants and financial accountants, Salary of computer operator. Rent, insurance, rates and taxes of office building, Office lighting, heating and cleaning, Depreciation and repair of office building, furniture, and Equipment etc., Legal charges, Bank charges, Trade subscriptions, Telephone charges, Audit fee etc.

Selling and distribution overheads

Selling and distribution overheads are incurred for the marketing of a commodity, for securing order for the articles, dispatching goods sold or for making efforts to find and retain customers. These expenses represent the aggregate of indirect material, indirect labour, and indirect expenses incurred by the selling and distribution department of the organisation. These overheads have two aspects (i) procuring orders (ii) executing the order. Based upon this concept the selling and distributions are studied separately.

I. Selling overheads

Indirect costs incurred in relation to the procurement of sale orders are termed as selling overheads. Some of the examples of selling overheads are as follows:

Indirect material

- (i) Catalogues, price list (ii) Printing and stationery
- (iii) Postage and stamps (iv) cost of sample

Indirect wages

- (i) Salaries of sales managers, clerks and other employees
- (ii) Salaries and commission of salesmen and technical representatives
- (iii) Fees of sales directors

Indirect expenses

- (i) Advertising
- (ii) Bad debts
- (iii) Rent and insurance of showroom
- (iv) Legal charges incurred for recovery of debts
- (v) Travelling and entertainment expenses
- (vi) Expenses of sending samples
- (vii) Market research expenses.

II. Distribution overheads

Indirect costs incurred in relation to the execution of the sales order is termed as distribution overheads. Some of the examples of distribution overheads are as follows:

Indirect material

- (i) Cost of packing material
- (ii) oil, grease, spare parts etc. for maintaining delivery vans

Indirect wages

- (i) Salaries of godown employees
- (ii) Wages of drivers of delivery vans
- (iii) Wages of packers and dispatch staff.

Indirect expenses

- (i) Packing expenses
- (ii) Godown rent, insurance, depreciation, and repair etc.
- (iii) Freight carriage outwards and other transport charges.
- (iv) Running expenses of delivery vans, repair, and depreciation.
- (v) Insurance in transit etc.

CLASSIFICATION OF COST

Costs are classified into following categories:

1. Cost behavior basis

- (a) Fixed Cost
- (b) Variable cost
- (c) Semi-variable cost

2. Cost inventory basis

- (a) Product cost and
- (b) Period cost

3. Cost Relation to Cost Centre basis

- (a) Direct and
- (b) Indirect costs

1. Cost behavior basis

- (a) Fixed Cost

A cost that remains constant within a given period of time and range of activity in spite of fluctuations in production. Per unit fixed cost varies with the change in the volume of production. If the production increases, fixed cost per unit decreases and as there is decrease in production, the fixed cost per unit increases. Rent and insurance of building, depreciation on plant and machinery, salary of employees etc., are some examples of fixed costs.

Fixed Cost, Total same but per unit goes on changing.

Thus, the fixed cost per unit decreases as the total number of output units increase.

- (b) Variable cost

Variable costs are those cost which vary directly in proportion to change in volume of production/output. The cost which increases or decreases in the same proportion in which the units produced is termed as variable cost. Direct material, direct labour, direct expenses, variable overheads are some examples of variable cost. Variable costs, per unit same but total goes on fluctuating depending

upon volume of production/level of activity. Thus, the variable cost per unit same and does not change if the total number of output units increases.

- (c) Semi-variable cost

A cost contains both fixed and variable component and which is thus partly affected by fluctuations in the level of activity. Semi-variable costs is that cost of which some part remains fixed at the given level of production and other part varies with the change in the volume of production but not in the same proportion

of change in production. For example, expenses may not change if output is upto

Segregation of semi-variable cost

Semi-variable costs are segregated into fixed and variable cost by using the

following formula :

Semi-variable cost = Fixed cost + variable cost

Variable cost per unit = change in cost/change in output

Classification of Cost –

Cost classification is the process of grouping costs according to their common characteristics. A suitable classification of costs is important, in order to identify the cost with cost centers or cost units. The same cost figures are classified according to different ways of costing depending upon the purpose to be achieved and requirements of particular concern.

The important ways of classification are:•

By nature or Element:

The costs are divided into three categories, Materials, Labour and Expenses. Materials can be further classified as raw material, spare parts, consumable stores, packing material etc. This classification is important as it helps to find out the total cost and valuation of WIP. •

By Functions

The costs are divided on the basis of managerial activities involved in the operation of a business undertaking. Eg; Production, Administration, Selling and Distribution

By variability

Costs are classified according to their behavior in relation to changes in the level of activity or volume of production. On this basis, costs are classified into three groups namely fixed, variable and semi-variable

Fixed costs

: Those which remain fixed in total amount with increase or decrease in the volume of output or productive activity for given period of time. Eg; rent, insurance. Fixed cost per unit decreases as production increases and increases as production declines.

Fixed costs

: Those which remain fixed in total amount with increase or decrease in the volume of output or productive activity for a given period of time. Eg; rent, insurance Fixed cost per unit decreases as production increases and increases as production declines

Variable costs

Costs which vary in total indirect proportion to the volume of output. These costs per unit remain relatively constant with changes in production. They are also known as product costs as they depend on the quantum of output rather than time. Eg: Direct material, direct labour, power, and repair.

Semi variable costs

: Costs which are partly fixed and partly variable. Eg: Telephone expenses include a fixed portion of annual charge plus variable charge according to calls

By controllability

The costs are classified according to whether or not they are influenced by the actions of a given member of the undertaking. On this it is classified as controllable costs and uncontrollable costs.

Controllable costs

Costs which can be influenced by the action of a specified member of an undertaking. i.e. costs which are at least partly within the control of management

Uncontrollable costs

costs which cannot be influenced by the action of a specified member of an undertaking.

By normality

: Costs are classified according to whether these are costs which are normally incurred at a given level of output in the conditions in which that level of activity is normally attained. On this basis costs are classified as normal cost

Abnormal cost

Abnormal costs are not a part of cost of production and are charged to Costing P&La/c. •

By Capital and Revenue

(Financial Accounting Classification): The costs which are incurred in purchasing assets used to generate income or to increase income earning capacity is called capital cost. The benefit of such costs is spread over a number of years

Expenditure incurred to maintain the earning capacitor to run the business is called revenue expenditure.

By time Costs are classified as

Historical costs

The costs which are ascertained after their incurrence are called historical costs. The basic characteristics of such costs are (a) they are based on recorded facts. (b) They can be verified (c) They are mostly objective. 2. Predetermined costs: Costs are estimated costs. Computed in advance of production taking into consideration the previous periods' costs and the factors affecting such costs. Such costs determined on scientific methods become standard cost

According to planning and control: Budgeted costs:

An estimate of expenditure for different phases of business operations, coordinated in a well conceived framework for a period of time in future which becomes a managerial targets to achieve.

Standard costs:

It is the predetermined cost based on a technical estimate for materials, labour and overhead for selected period of time and for a prescribed set of working conditions

For managerial decisions:

On this basis costs are classified

1. Marginal costs:

It is the total of variable costs. i.e., prime cost plus variable overheads. It is based on the distinction between fixed and variable cost.

2. Out of pocket costs

: It is that portion of the cost which involves payment to outsiders.

3. Differential costs:

The change in cost due to change in level of activity or pattern or method of production.

4. Sunk costs:

It is an irrecoverable cost and is caused by complete abandonment of a plant. i.e., costs which are not relevant for decision making.

5. Imputed costs:

Costs which appear in cost accounts only. These costs are also known as notional costs, which are considered for decision making.

6. Opportunity cost:

It is the advantage, immeasurable terms, which has been foregone due to not using the facility in the manner originally planned.

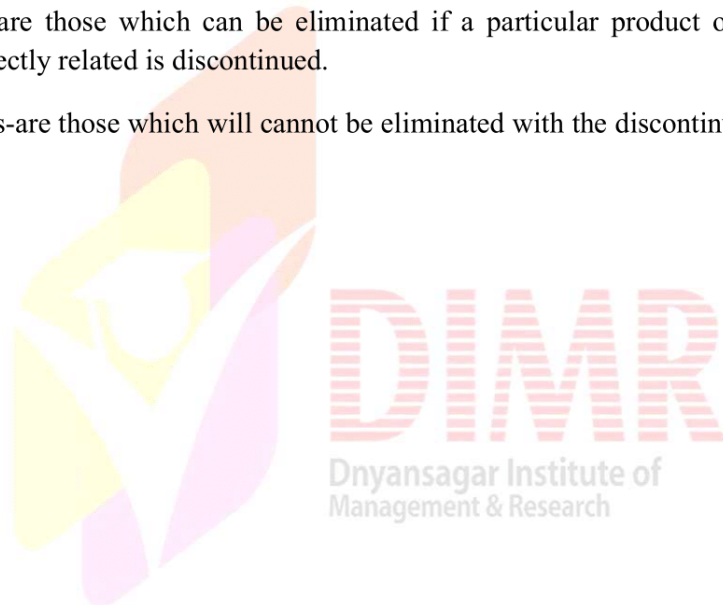
7. Replacement cost:

It is the cost at which an asset or material identical to that which is being replaced or revalued, can be purchased.

8. Avoidable and unavoidable cost

Avoidable costs- are those which can be eliminated if a particular product or department with which they are directly related is discontinued.

Un avoidable costs-are those which will cannot be eliminated with the discontinuation of a product or department



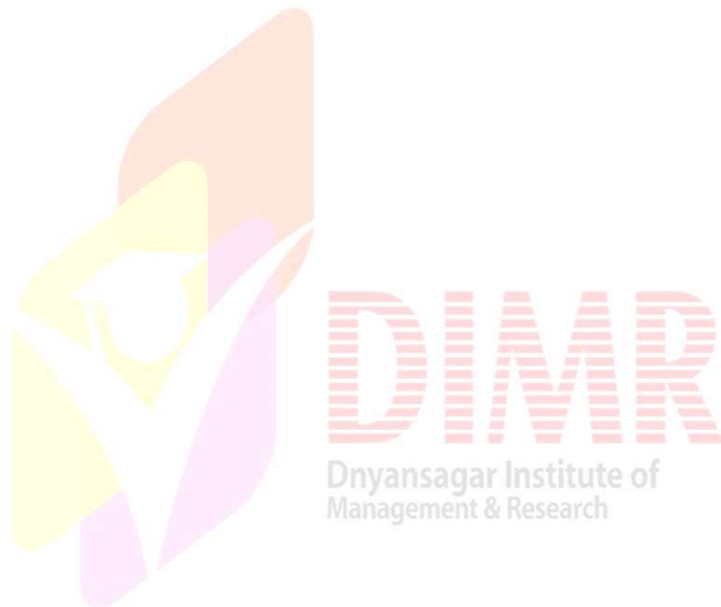
Specimen of a Cost Sheet
Table No.2

Cost sheet for the period----- (Production-----Units)

	Total cost	Cost per unit
	Rs.	Rs.
1.Direct materials	xxxxxx	xxxxxx
Opening stock of raw materials		
Add purchase of raw materials		
Less Closing stock of raw materials		
2.Direct Labour	xxxxxxx	xxxxxx
3. Direct Expenses	xxxxxx	xxxxxx
A Prime cost		
4.Add Work overheads or factory overheads	xxxxxx	xxxxxx
Add op.stock of WIP		
Less closing stock of WIP	xxxxxx	xxxxxx
B Works or Factory Cost.		
5. Add: Office and Admin. Overheads	xxxxxx	xxxxxx
Add op.stock of finished goods		
Less closing stock of finished goods		
C Cost of production		
6.Add Selling and Distribution overheads		
D Total Cost or cost of sales		

List of items excluded from the preparation of Cost sheet:

- Profit or losses arising on sale of fixed assets
- Amortization of fictitious assets (Goodwill, patent, copy right, advertisement, preliminary expenses etc.)
- Appropriation of Profits(donation and charities, Income Tax paid, Dividend paid, Transfer to general Reserve, Transfer to Capital Reserve etc.)
- Financial Incomes(Rent Receivable, Share transfer fee received, Interest received on bank deposits, Dividend Received, Brokerage Received, Discount & commission Received etc.)



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MBA-I/ SEM-I**101 MANAGERIAL ACCOUNTING****UNIT 4 SHORT TERM BUSINESS DECISION TECHNIQUES – MARGINAL COSTING****Marginal Costing: -**

Marginal costing is not a special method of costing but is an application of the existing methods in such a way that costs are presented in a particular form by segregating fixed and variable costs.

The techniques of marginal costing lie in –

- i) Appropriate classification and segregation of the fixed cost from the variable cost
- ii) Ascertainment of extent of marginal cost / variable cost, and
- iii) Finding out how production / loss of the concern will be increased or decreased due to increase or decrease in the level of production or due to change in the pattern of manufacture.

Features:

The ICMA London has defined marginal costing as “The ascertainment of marginal cost and of the effect of profit of changes in volume and type of output by differentiating between fixed costs and variable costs.” In this technique of costing only variable costs are charged to operations, processes or products, leaving all indirect costs to be written off against profit in the period in which they arise. The main characteristics of marginal costing are as follows:

1. It is a technique of analysis and presentation of cost which help management in taking many managerial decisions and is not an independent system of costing such as process costing or job costing.
2. All elements of cost, production, administration and selling & distribution are classified into variable and fixed components. Even semi-variable cost are analysed into fixed and variable.
3. The variable costs are regarded as the cost of the products.
4. Fixed costs are treated as period costs and are charged to [profit and loss account for the period for which they are incurred.
5. The stocks of finished goods and work-in-process are valued at marginal costs only.
6. Prices are determined on the basis of marginal cost by adding “Contribution” which is the excess of sales or selling price over marginal cost of sales.

Assumptions:

1. All elements of cost production, administration and selling & distribution can be segregated into fixed and variable components.
2. Variable cost remains constant per unit of output irrespective of the level of output and this fluctuates directly in proportion to changes in the volume of output.
3. The selling price per unit remains unchanged or constant at all levels of activity.
4. Fixed costs remain unchanged or constant for the entire volume of production.

The volume of production or output is the only factor which influences the costs.

Marginal cost / variable cost

The amount of any given volume of output, by which aggregate variable costs are changed if the volume of output is increased by one unit. In practice this is measured by the total variable cost attributable to one unit. In this context a unit may be a single article, a batch of articles, an order, a stage of production capacity, a process or a department.

Marginal cost is defined as the aggregate of variable costs that is prime cost and variable overheads. Total cost of production =

Direct Labour		
+ Direct Material		
+ Direct Expenses	= Prime Cost	
+ Variable Overhead	= Prime Cost + Variable Overhead	= Variable Cost/ Marginal Cost
+ Fixed Overhead	= Variable Cost + Fixed Overhead	= Total cost of Production

Marginal cost / Variable cost is thus a constant rate which can be expressed as an amount per unit of production, whereas the fixed cost denotes a fixed amount of cost. The following example will amplify the definition of marginal cost as given above.

If the marginal cost is, say Rs. 200 per unit and the fixed overhead for a period is Rs. 10,000

$$\begin{aligned}
 \text{Cost of 100 articles} &= 100 \times 200 + \text{Rs. } 10,000 \\
 &= \text{Rs. } 20,000 + \text{Rs. } 10,000 \\
 &= \text{Rs. } 30,000
 \end{aligned}$$

The advantages of marginal costing – as compared to the conventional total cost method: -

- (1) Assist in exercising control.
- (2) Making decision – The presentation of information under the marginal costing technique is of use in making policy decisions in cases where information obtained from the total cost method may even be misleading.

The following are some of the problems dealt with the help of marginal costing principles –

- (i) Introduction of a new line
- (ii) Fixation of selling prices an issue of quotations.
- (iii) Price reduction during trade depression
- (iv) Decisions to make or buy
- (v) Alternative method of manufacture
- (vi) Selection of suitable Product Mix
- (vii) Problem of limiting factors
- (viii) Study of Cost-Volume-Profit relationship
- (3) No vitiation of costs due to change in the level of output
- (4) Greater accuracy in valuation of stock and in working out profits.
- (5) No problem of under or over absorption of fixed costs

Limitation of Marginal Costing –

- 1) It is difficult to classify expenses into fixed and variable category since some of the expenses are neither totally variable nor wholly fixed.
- 2) Contribution of the product itself is not a guide for optimum profitability unless it is linked with the key factors.
- 3) Sales staff may mistake marginal cost for total cost and sell at a price, which will result in under recovery of total costs.

- 4) Overheads of fixed nature cannot be altogether excluded particularly in large contracts while valuing Work in Progress.
- 5) Some of the assumptions regarding the behaviors of various costs are not necessarily true in a realistic situation.
- 6) Marginal costing ignores time factor and investments. For example, the marginal cost of two jobs may be the same but the time taken for their completion and the cost of machines used may differ.

Contribution margin: -

Contribution margin of a product is the difference between the selling price and its variable cost. It is obtained by subtracting marginal cost from sales revenue of a given activity. The difference between sales revenue and variable cost is called contribution since it contributes towards fixed expenses and profit of the entire business. The contribution concept is based on the theory that the profit and fixed expenses of a business is a Joint cost” which cannot be equitably apportioned to different segments of the business. Hence, contribution serves as a measure of efficiency of operations of various segments of the business. This is shown below: -

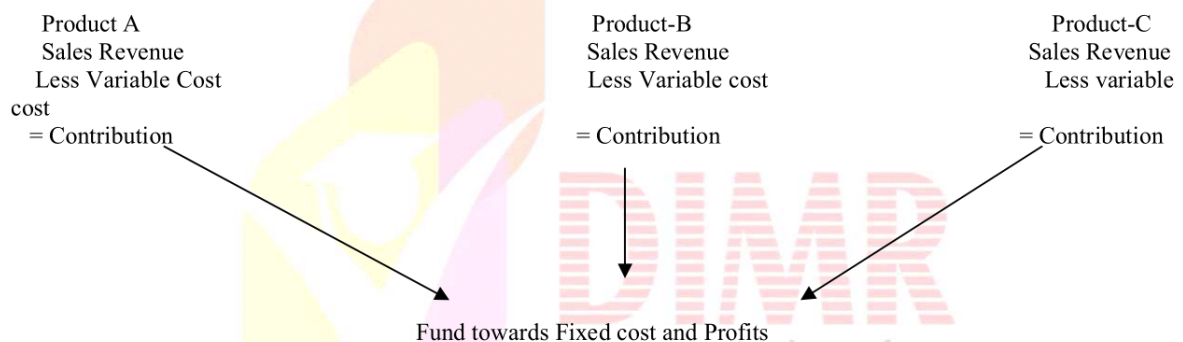


Fig 5. 1

The Profit Volume Ratio (P/V Ratio)

The profit-volume ratio is the contribution expressed as a percentage of sales

$$\text{Profit-Volume ratio} = \frac{\text{Contribution}}{\text{Sales}} \times 100$$

Example: - If the sales price is Rs.20 per unit, the contribution is Rs.10 per unit. The profit-volume ratio is 50%. This means that for each Rs 1/- sale a contribution of Rs.0.50 is earned. Since it is assumed that sells price and contribution per unit are constant, the profit volume ratio is also assumed to be constant. Given an estimate of total sales revenue, it is possible to use the profit-volume ratio to estimate total contribution. For example, in the above example if total sales revenue is estimated to be Rs. 200,000, the total contribution will be Rs. 100,000 (50% of Rs. 200,000). If we deduct fixed costs of Rs. 60,000, the balance will represent profit of Rs. 40,000.

Improvements of P/V Ratio – P/V ratio can be improved (i) by reducing the variable cost (ii) by increasing selling price or (iii) where the firm produces a no. of products by increasing output of units having higher P/V Ratio or reducing output of units having lower P/V Ratio.

The Breakeven Point: - We have seen that sale of each unit generates contribution to cover fixed costs and after they are covered, to contribute to profit. In the above example, by selling each unit for Rs. 20, we are getting contribution of Rs. 10.

When we have obtained sufficient total contribution to cover fixed costs, the breakeven point is achieved and the formula can be put as –

$$\text{Breakeven point in units} = \frac{\text{Fixed cost}}{\text{Contribution per unit}}$$

In the above example, fixed cost is Rs. 60,000 and contribution per unit is Rs. 10.

$$\begin{aligned} \text{Therefore, BEP (in units)} &= \frac{\text{Rs. 60,000}}{\text{Rs. 10}} \\ &= 6000 \text{ units} \end{aligned}$$

Further the Breakeven point is the level of activity at which total cost of the units equal total revenue, leaving no profit of loss. A break-even point may be computed for a product, a group of products, a division, an entire company or any other carefully defined objective. At the breakeven point Revenues from the product equal the Total Costs of producing, selling and distributing the product. Both the fixed and the variable costs of manufacturing and non-manufacturing operation must be included in the calculation of the breakeven point.

Another formula for calculating the sales volume at breakeven point is as under:

$$\text{BEP} = \frac{\text{Fixed Cost}}{\text{P/V ratio}}$$

$$\text{We have seen P/V Ratio} = \frac{\text{Sales - Variable cost}}{\text{Sales}}$$

$$\text{Hence BEP} = \frac{\text{Fixed Cost}}{\frac{\text{Sales variable cost}}{\text{Sales}}}$$

$$= \frac{\text{Fixed Cost} \times \text{Sales revenue}}{\text{Sales variable cost}}$$

If F = Fixed cost, S = Sales, V = Variable cost

$$\text{Breakeven point} = \frac{F \times S}{S - V}$$

$$\begin{aligned} \text{In our example, Breakeven Sales Volume} &= \frac{60,000}{50\%} \\ &= \text{Rs. 120,000} \end{aligned}$$

[Fixed cost Rs. 60,000/-, Contribution % = 50]

Assumptions underlying breakeven analysis :-

1. All other variables remain constant e.g. prices of output and input, productivity of the factors of production, the state of technology and the process of production.
2. A single product or constant Sales Mix
3. Complexity related fixed costs do not change.
4. Profits are calculated as a variable costing basis.
5. Total costs and total revenue are linear functions of output.
6. The analysis applies to relevant range only.
7. Costs can be accurately divided into their fixed and variable elements.
8. The analysis applies to a short-time horizon
9. There will be no significant change in the level of opening and closing inventory.

Margin of safety: -

The margin of safety ratio is a measure of the difference between the actual level of activity and the break-even point expressed as a percentage of sales. The ratio is computed as follows: -

$$\text{Margin of safety (MS)} = \frac{\text{Actual sales} - \text{Breakeven sales}}{\text{Actual sales}}$$

A positive value means the firm is operating above breakeven level of activity i.e. contribution earned by actual sales, have covered the total fixed cost and has also contributed towards profits.

A negative value indicated that the firm is operating below breakeven level of activity i.e. contribution earned by actual sales is not sufficient to cover total fixed cost; hence the result is net loss.

In our example, where unit selling price and variable costs are Rs. 20 and Rs. 10 respectively, and fixed costs are Rs. 60,000, we have noted that breakeven point was 6000 units or Rs. 120,000 sales value (6000 units x Rs. 20). If sales are expected to be 8000 units or Rs. 160,000, the margin of safety will be 2000 units or Rs. 40,000.

$$\text{Alternatively it can be expressed as a percentage} = \frac{160,000 - 120,000}{160,000} = 25\%$$

The size of the margin of safety shows the strength of the business. If margin of safety is small, it may indicate that the firm has large fixed expenses and is more vulnerable to changes in sales. In other words, if the margin of safety is large, a slight fall in sales may not affect the business very much but if it is small even a slight fall in sales may adversely affect the business.

The possible steps to improve the margin of safety are: -

1. Increase in the selling price, provided the demand is inelastic so as to absorb the increased prices.
2. Reduction in fixed expenses.
3. Reduction in variable expenses.
4. Increase the sales volume provided capacity is available.
5. Substitution or introductions of a product mix such that more profitable lines are introduced.

Breakeven chart: - The breakeven chart is a graphical representation of cost volume profit relationship. It depicts the following:

1. The profitability of the undertaking at different levels of output.
2. The break-even point is the point at which neither profit is made nor loss is incurred.
3. The relationship between variable cost, fixed cost and the contribution.
4. The margin of safety representing the difference between the total sales value and sales value at the break-even point.

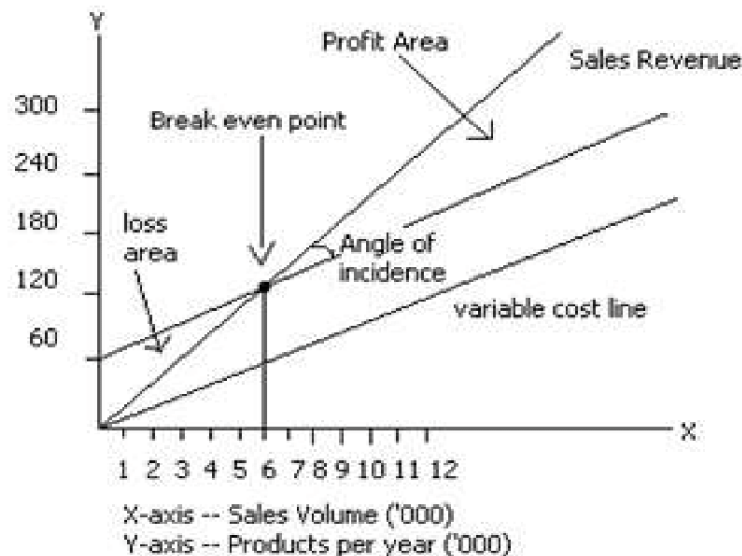
Construction of Break-even chart: -

A break-even chart is drawn on a graph after selecting a suitable scale. On the Y-axis is shown the costs and revenues. On the X axis is shown i) Sales value either in units, or in value or in percentage capacity ii) Production Volume either in units, or in value or in percentage capacity.

Let us take the example; sales price Rs. 20 per unit, variable cost Rs. 10 per unit, fixed cost of Rs. 60,000.

First let us draw variable cost line at Rs. 10 per unit. The fixed costs are constant sum throughout the entire output range. A constant sum of Rs. 60,000 for fixed cost is added to the variable cost line, which results in the total cost line being drawn parallel to the variable cost line. The total revenue line is plotted at the rate of Rs.20 per unit.

The point at which the total sale revenue line cuts the total cost line is the point where neither profit nor a loss is made. This is the breakeven point and is 6000 units or Rs. 120,000 total sales revenue. The distance between the total sales revenue line and the total cost line at volumes below the breakeven point represents losses that will occur for various sales levels below 6000 units. Similarly, if the costing operates at a sales volume above the break-even point, the difference between the total revenue and the total cost represents the profit that results from sales levels above 6000 units.



Break Even Chart

General conclusions from Break-Even Chart: -

1. The location of BEP is determined by the magnitude of fixed costs.
2. The location of BEP measures the margin of safety of business.
3. The magnitude of the angle of incidence is determined by the magnitude of the variable cost and hence the need to control the variable costs. This will help to maintain the rate at which profit grows.
4. For assessing the efficiency and stability of the business, both the location of BEP and the angle of incidence have to be studied.
5. Fixed costs play a dominant role in the profit structure and hence business with low fixed costs can weather slump more successfully than those with large fixed costs.

Angle of incidence: -

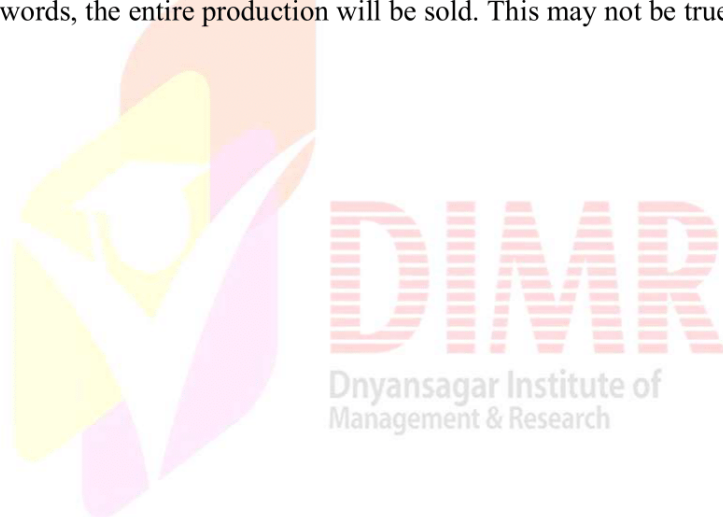
The angle between the total cost line and total sales line shows the angle of incidence. If the angle is large, the firm is said to make profits at a high rate and vice versa. A high angle of incidence and a large margin of safety indicate sound business conditions.

Uses of Break –Even Chart: The break-even chart can be used to show the effect of changes in any of the profit factors, namely:

- a) Change in the volume of sales
- b) Change in the variable expenses
- c) Change in the fixed expenses
- d) Change in the selling price

Limitations of Break –Even Chart

- 1) The variable cost line need not necessarily be a straight line because of the possibility of operation of law of increasing cost or law of decreasing returns.
- 2) Similarly the selling price will not be a constant factor. Any increase or decrease in output is likely to have an influence on the selling price.
- 3) When a number of products are produced, separate break-even charts will have to be calculated. This poses a problem of apportionment of fixed expenses to each product.
- 4) Break-even charts ignore the capital employed in business which is one of the important guiding factors in the determination of profitability.
- 5) The analysis presumes that costs can be reliably divided into fixed and variable components. This is very difficult in practice
- 6) The analysis presumes that production and sales will be synchronized at all points of time, or in other words, the entire production will be sold. This may not be true in practice.



MBA-I/ SEM-I**101 MANAGERIAL ACCOUNTING****UNIT 5 EXERCISING CONTROL – BUDGETARY CONTROL & STANDARD COSTING****Budget**

Financial planning is an important aspect of the firm's operation because it provides road map for guiding, coordinating and controlling the firm's actions to achieve its objectives. Two key aspects of formal planning process are cash planning and profit planning.

The financial planning process begins with the long term or strategic financial plans. These in turn guide the formulation of short or operating plan and budgets.

Long term (Strategic Plan)-

Long term (Strategic Plan) lays out company's planned financial action, and the anticipated impact of these actions over periods ranging from 2 to 10 years. These strategies are revised as significant new information becomes available. Generally firms that are subject to high degree of operating uncertainties, relatively shorter production cycles or both tend to use shorter planning horizons.

Long-term financial plans are part of the integrated strategy that along with production and marketing plans guides the firm towards strategic goals. These long-term plans consider proposed outlays for plant and machinery, Research and Development, marketing and product development activities, capital structure and major sources of financing. Also included discontinuing of existing projects, product lines or losses of business, retirement and repayment of outstanding debts and any planned acquisition. Such plans tend to be supported by a series of annual budgets and profit plans.

Short-Term (Operating) Financial plans-

It specifies short-term financial action and anticipated impact of these actions. These plans often cover 1-2 year period. Key inputs include the sales forecast and various forms of operating and financial data. Key output includes number of operating budgets and cash budgets and the proforma Profit & Loss Account and Balance Sheet.

Budget: A budget has been defined by I.C.M.A., London terminology as "a financial and/or quantitative statement, prepared and approved prior to a defined period of time, of the policy to be pursued during that period for the purpose of attaining a given objective. It may include income, expenditure and the employment of capital". A budget is a plan covering phases of operations for a definite period in the future. It is the form of quantitative expression of policies, plans, objectives and goals laid down in advance by top management for the concern as a whole and for each sub-division thereof. The master budget summarizes the objectives of all subunits of an organisation sales, production, research marketing, customer service and finance. It quantifies management's expectations regarding future income, cash flows and financial position.

Budgetary Control: ICMA London defines the term budgetary control as "the establishment of budgets relating to the responsibilities of executives to the requirements of a policy and the continuous comparison of actual with budgeted results either to secure by individual action the

objective of that policy or to provide a basis for revision". The fundamental principles of budgetary control may be obtained as under:

- (a) Establishing a plan and target performance, to coordinate all activities of the business.
- (b) Recording of actual performance.
- (c) Comparison the actual performance with that planned.
- (d) Ascertainment of the variances and analysis of reasons therefore, and
- (e) Taking remedial action.

Advantages of budgets

Budgets are a major feature of most control systems. When 'administered intelligently budget:

- a) Compel planning -Budget compels managers to look ahead and be ready for changing conditions. This that planning is by far the greatest contribution of budgeting to management.
- b) Provide performance criteria-budgeted performance is generally a better criterion than past performance.
- c) Promote communication and coordination.

Coordination implies, for example, that purchasing officer integrate their plans with production requirements and that production officers use the sales budget as a basis for planning personnel needs and machinery use. Top managers want systems designed so that the self-interests of all managers do not conflict with the interests of the organisation.

Managements support and administration : Top management must understand and enthusiastically support the budget and all aspects of the control system.

Similarly, the administration of budgets should not be rigid. Changing conditions may call for changes in plans e.g. a departmental head may commit to the budget but matters might develop so that some special repairs or a special advertising outlay, would best serve the interest of the firm and that managers should feel free to request permission for such outlays or the budget itself should provide enough flexibility to permit reasonable discretion in deciding how best to get the job done.

Budget Period : Budgets may span a period of one year or less or in case of plant and product changes require additional investments upto five or more years. More and more companies use budgets as essential tools for long range planning. The usual planning and control budget period is one year. The annual budget is often broken down by months for the first quarter and by quarters for the remainder of the year. The budgeted data for a year are frequently revised as the year unfolds. For example, at the end of the first quarter, the budget for the next three quarters is changed in light of new information. Businesses are increasingly using continuous budgets (also called rolling budgets). A twelve-month forecast is always available by adding a month or quarter in the future as the month or quarter just ended is dropped. Continuous budgets constantly force management to think concretely about the forthcoming twelve months, regardless of the month at hand. The choice of the budget periods largely flows from the objectives uses and dependability of the budget data.

Advantages of budget:

- (i) An overall well coordinated plan, provided through budgetary control system shows what part each manager is expected to play in maximizing profit.
- (ii) Any problem arising from the operation of a budgetary control system can be settled through the manual.
- (iii) New employees get acquainted with the procedure involved in the operation of the system

by referring to manual.

(iv) Methods and procedures become standardized.

(v) Since coordination is maintained, there is no overlapping of instructions. There is in other words synchronization of all efforts which leads to the attainment of the Objective with, minimum of friction.

Steps in Budget Preparation:

Once the sales forecast is official, requests will be sent by the controller within budget director to responsible members of the organization for estimates of cost within their respective functional areas and segments of the business. The data gathering phase of budget preparation is carried out by the budget staff and usually proceeds in steps similar to the following:

1. Bills of materials and part lists are secured from the design-engineering department; these provide information about quantities and types of material used to build a unit of product.
2. Operation sheets are received from the industrial engineering department; these provide information on productive operations and estimated labour times on all products.
3. Material price information is made available by the purchasing department.
4. Inventory planning and scheduling information is provided by the production control department
5. Wage rate information is found in the payroll department

Cash Planning: Cash Budgets:

The cash budget or cash forecast is a statement of the firm's planned inflows and outflows of cash to cover 1 year period to estimate its short term cash requirements with particular attention to planning for deployment of surplus cash and steps to finance cash deficits.

The cash budget is divided into smaller time intervals depending on the nature of business. The more seasonal and uncertain a firm's cash flows, the greater the number of intervals. Firms with a seasonal business, cash budget is quite often presented on a monthly basis. Firms with stable patterns of cash flow may use quarterly or annual time intervals.

Preparing the Cash Budget – The general format of the cash budget is as below:

	Jan	Feb	Nov	Dec
Cash Receipts						
Less: Cash disbursements	—	—			—	—
Net Cash flow						
Add: Beginning cash	—	—			—	—
Closing cash						
Less: Minimum cash bal.	—	—			—	—
Required final funding					—	—
Surplus cash balance	—					

Cash Receipts include all of a firm's inflow of cash in a given period. The most common components of cash receipts are cash sales, collections of accounts receivable and other cash receipts. Cash sales each month will represent some percentage of total sales forecast of that month. Collection of accounts receivable will represent the collections of accounts receivable resulting from sales in earlier month depending upon the credit period allowed. IF the credit period allowed is 60 days, then the collection will represent sales of two months earlier to the current month. If some customers are given 1-month credit, the collection will consist of the earlier month sales to this group of customers.

Other cash receipts will include cash receipts expected from sources other than sales such as interest received, dividends received, proceeds for the sale of equipment, proceeds from share and bond issues, receipts from lease given.

Cash Disbursements:

Cash disbursements include all outlays of cash by the firm during a given financial period. The most common disbursements are:

- Cash purchases
- Payments of accounts payable
- Rent (and lease) payments
- Wages and salaries
- Tax payments
- Purchase of Fixed Asset
- Interest payments
- Cash dividend payments
- Principal repayment of loan
- Repurchase or issue of shares

Cash Purchases: These are purchases, which are made on cash basis.

Payment of Accounts Payable: Depending upon the credit period allowed with the suppliers, payments are to be made. If the credit period allowed by some of the suppliers are 60 days, the payment for the current period will include payment to such suppliers for purchases made in the 2nd month earlier to the current period. If some suppliers have agreed on 30 days payment, the payment for the current month will include payments for purchase made from such suppliers during the earlier month. Wages and salaries will be paid on monthly basis whereas bonus or incentives will be paid on the month as agreed. Other payments will be made as per schedule planned.

Net cash flow, ending cash balance, financing of the deficit and deployment of the excess cash

The firms net cash flow each month, is found by subtracting the cash disbursements from cash receipts. Then beginning cash balance is added to determine the closing cash balance for the month. Then, the desired minimum cash balance is deducted to find out whether there is deficit or surplus cash. In case of deficit arrangements are made to finance such deficits through short term financing. In case of surplus cash, it needs to be invested in liquid short-term interest paying instruments.

Fixed (Static) and Flexible Budget-Control in order to effective, requires a standard or a target with which actual performance can be compared for the purpose of measurements of results for

timely action, if necessary.

If Masters Budget is fixed (Static) i.e. it has a single planned volume level and is not adjusted or altered after it is drawn up, regardless of change in cost drivers or other conditions during the budget period.

A Flexible budget (as called as variable budget) is a budget that is adjusted for changes in the level of the cost (or revenue) driver. The flexible budget is based on knowledge of how revenue and costs should behave over a range of the driver.

Because actual sales will probably differ from budgeted sales in the master budget, a Flexible budget is better simply because it presents more projections of sales and so has a better chance of getting it right. The flexible budget provides the data for studying patterns of behaviours of revenues and costs. These patterns may be of interest to management, but no pattern can emerge from a single column static budget. Flexible budget is a budget that recognizes the difference between fixed, variable and semi-variable costs in relation to the level of activity attained. Fixed expenses are not controllable at the departmental managers level, such expenses are allowed in total without being factored by the percentage of activity

. In case of variable expenses, the expenses will vary in direct proportion to output, allowance will be given in direct proportion to the level of activity attained in respect of such expenses. Semi-variable expenses will vary with volume but not in direct proportion because of the incidence of certain fixed elements. controllable at the departmental managers level, such expenses are allowed in total without being factored by the percentage of activity. In variable expenses will vary with volume but not in direct proportion because of the incidence of certain fixed elements.

Preparation of flexible budget: The steps are as under-

- (i) Since decentralization of cost responsibility is an essential features of flexible budgetary control system, the first step is to define the departments of the business. A department should be established if its functions or processes are of a similar nature or are related in one logical group. For example in textile mills, carding and spinning can constitute one department, weaving another department, processing of cloth yet another department and so on. Another factor in establishing a department, is that it should not consist of two parts of the organization each having different executives responsible for its activities
- (ii) The budgeted cost of each department will be related to the standard activity of the department and of the constituent cost centres of the respective departments. Similarly, the budget of service departments will be based on the level of activity planned for the production departments. The standard activity is demonstrated by standard hours. A standard hour may be defined as a hypothetical hour, which measures the amount of work, which should be performed in one hour. Once this is established, standard hours of the actual output can be calculated and by comparing the same with the actual hours spent, the efficiency of the cost centre can be assessed. The concept of standard hour is also useful for the firm produces a large number of different products requiring different standard hours.


- (iii) The next step is the establishment of departmental overhead expenses budgets based on the level of activity planned for each cost centre. Past experience can serve as a guide. The budgets should be "set" on the basis of studies of what is reasonable including possible economies. It is also preferable to estimate the expense under each account for each cost centre based on the proposed level of activity and then to "term up" to arrive at the departmental budget.
- (iv) The next step is to segregate "all" expenses into fixed and variable. Some of the expenses are semi-variable in nature and hence these expenses have to be segregated into fixed and variable for giving proper budget allowances.

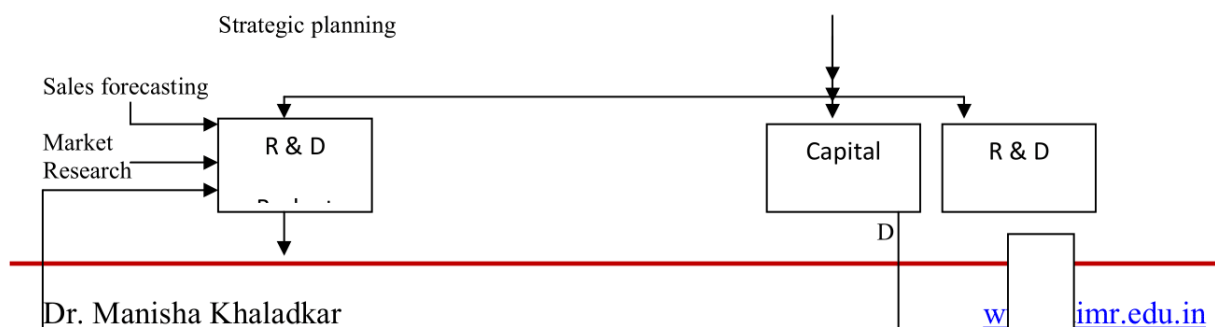
Advantages of flexible budgeting:

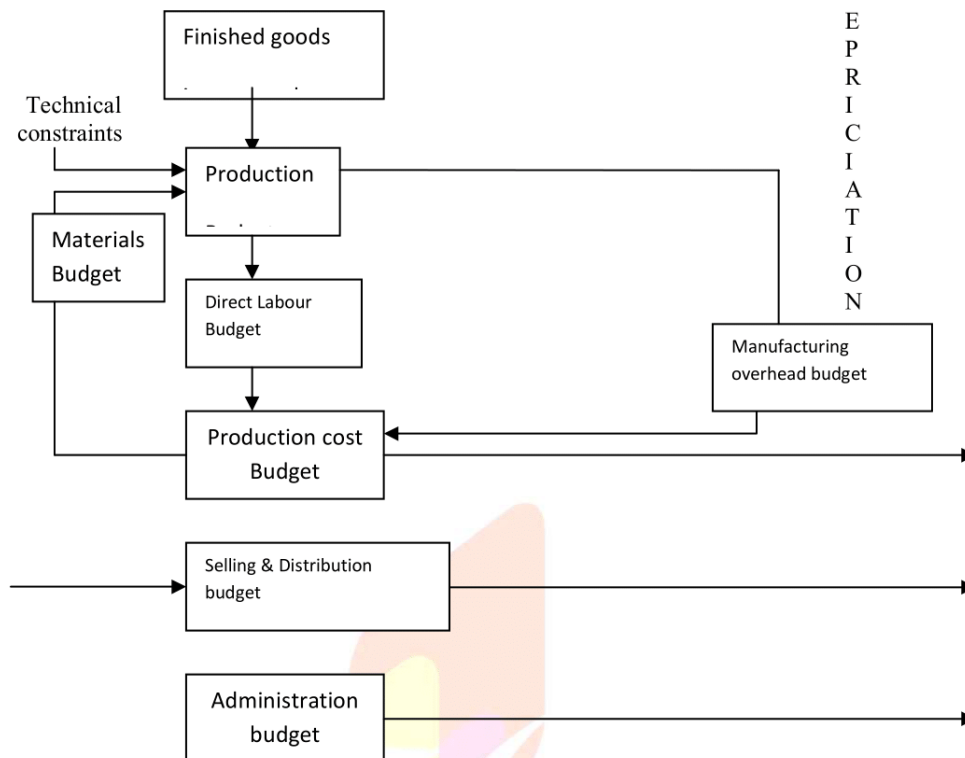
1. By giving allowance in accordance with the level of activity attained, the variances due to volume, efficiency and spending can be analyzed and appropriate action taken.
2. The management is able to assess the effect of their decisions. The deviation from budget arising from a decision to vary the output can be studied.
3. It is useful for planning changes in the level of output.

Functional Budgets:

The master budget in a manufacturing company covers various types of budgets, which are further supported by additional budget schedules. The following is an illustrative listed budget that will together make up the Master budget:

- 
- (i) Sales Budget
 (ij) Production Budget
 (iii) Plant utilization budget
 (i v) Direct material usage budget
 (v) Direct material purchase budget
 (vi) Direct labour (personnel) budget
 (vii) Factory overhead budget
 (viii) Production cost budget
 (ix) Ending inventory budget
 (x) Cost of goods sold budget
 (xi) Selling and distribution cost budget
 (xii) Administration expenses budget
 (xiii) Research and Development cost budget
 (xiv) 'Capital expenses budget
 (xv) Budget summaries/Master budget - Budgeted income statement and Budgeted Balance Sheet.





Development of Master Budget

The master budget in a manufacturing company covers various types of budgets, which are further supported by additional budget schedules. The following is an illustrative listed budget that will together make up the Master budget:

- (i) Sales Budget
- (ij) Production Budget
- (iii) Plant utilization budget
- (i v) Direct material usage budget
- (v) Direct material purchase budget
- (vi) Direct labour (personnel) budget
- (vii) Factory overhead budget
- (viii) Production cost budget
- (ix) Ending inventory budget
- (x) Cost of goods sold budget
- (xi) Selling and distribution cost budget
- (xii) Administration expenses budget
- (xiii) Research and Development cost budget
- (xiv) Capital expenses budget
- (xv) Budget summaries/Master budget - Budgeted income statement and Budgeted Balance Sheet.

Production Budget: The marketing plan specifies the planned volume of each product (or group of similar products) by time period throughout the planning period. The next step in a manufacturing enterprise is to develop a production plan (budget) i.e. an estimate of the quantity of goods to be manufactured during the budget period. In developing the production budget, the first step is to establish policies relative to inventory levels. The next steps is to determine total quantity of each product that is to be manufactured during the budget period. The production budget may be represented by the equation:

$$\text{Sales Budget (Units)} \pm \text{Inventory Changes (Units)} = \text{Production Budget (Units)}$$

The third step is to schedule or prorate this production to interim periods. Interim production must be planned so as to (i) have sufficient goods to meet interim sales requirements, (ii) keep interim inventory levels within reasonable limits, and (iii) manufacture the goods as economically as possible. This is the responsibility of the manufacturing executives who will consider the following factors and bring them into optimum balance:

1. Plant capacity policies such as the limits of permissible departures from a stable production level throughout the year.
2. Adequacy of manufacturing facilities (expansion or contraction of plant capacity).
3. Availability of raw materials, purchased components and labour
4. The effect of the length of the processing time.
5. Economical lots or runs

Plant Utilization Budget: Plant utilization represents, in terms of working hours, weight or other convenient units of plant facilities required to carryout the programme laid down in the production budget. The main purposes of this budget are:

- (a) To determine the load on each process, cost or groups of machines for the budget period.
- (b) To indicate the processes or cost centres which are overloaded so that corrective action may be taken such as:
 - (i) Working overtime, (ii) sub-contracting, (iii) expansion of production facility etc
- (c) To detail the sales and production budgets where it is not possible to increase the capacity of any of the overloaded process
- (d) Where surplus capacity is available in any of the processes, to make effort to boost sales to utilize the surplus capacity.

Direct Materials Budget: (Material Usage and Purchases):

The budget specifies the planned quantities of each raw material required for planned production. Materials used in a factory are classified as direct and indirect. The direct material is an integral part of the finished product and can be directly traced to the cost of the finished products while indirect materials are used in the manufacturing process but not directly traceable to finished product and included in the manufacturing overhead budget. Steps involved in Direct Material Cost Budgets are as follows:

1. Material usage rates are applied to the production data (from the production budget) to develop the materials budget. Unit usage rates may be derived:
 - (a) during initial development of the product
 - (b) From engineering studies or
 - (c) From past consumption records and bills of materials.
2. Allowance for normal loss may be given on the basis of past performance, test runs, technical estimates etc.
3. Standard prices for each item of materials should be set after giving consideration to stock

and contracts entered into.

After freezing standards for quality, quantity and prices, the direct materials budget can be prepared by multiplying each item of material required for the production by the standard price.

Direct material purchase budget: Three steps are involved

1. Establishment of management policies with respect to raw material inventory levels.

Principal factors in setting inventory policies are:

- (i) Timing and quantity of needs by the factory
 - (i i) Economics in purchasing through quantity discounts
 - (i i i) Availability of raw materials
 - (i v) Perishability of raw materials
 - (v) Storage facilities involved
 - (vi) Capital requirements to finance inventory
 - (v i i) Costs of storage
 - (v i i i) Expected changes in the cost of raw materials
 - (i x) Protection against shortages
 - (x) Risks involved in inventories
 - (xi) Opportunity costs.
2. Determination of the number of units and the timing of each type of raw material to be purchased. When to purchase is defined as the reorder point i.e. when the inventory level is equal to quantity needed to sustain production for a period equal to the time to reorder and receive the replenishments.
 3. Estimating the unit cost of each type of material to be purchased. Unit material costs should be estimated in the light of cost accounting practices employed by the firm for recording actual costs. Purchase contracts in existence, historical costs as indicated by the cost records, fluctuating raw material unit prices during budget period etc. may provide a basis for estimating unit costs.

Direct Labour (Personnel) budget: There are basically three approaches to the development of direct labour budget:

1. Estimate the standard direct labour hours required for each unit of each product. For commonly used approaches in planning standard labour. times are time and motion studies, data used while fixing standard costs, direct estimate by supervisors and statistical estimates by a staff group. Then estimate the average wage rates by department, cost centre or operation. Multiplication of the units of goods to be produced in the dept., cost centre or operation by the unit labour cost rate gives the total direct labour cost for each product.
2. Estimate direct ratios of labour cost of some measures of output that can be projected realistically.
3. Develop manning tables by enumerating manpower requirements for direct labour in each responsibility centre.

Labour is generally classified as direct and indirect. Direct labour cost consists of wages of the employees directly engaged in specific productive output while indirect labour costs cover salaries of the supervisors, helpers, tool maker, store keepers and repairmen who are not directly engaged in specific productive output. Generally, a separate direct labour budget is prepared and indirect labour expenses are included in the manufacturing overheads.

Manufacturing Overhead budget: The manufacturing overheads includes indirect material, indirect labour including salaries and all other miscellaneous manufacturing expenses such as rent, rates and taxes, depreciation, insurance, repairs and supplies. In all manufacturing situation there are two distinct types of responsibility centres namely production departments and service departments. The service departments provide service to production departments and to other service departments. Usually, the responsibility of each department is assigned to a single individual. Therefore, if the budget is to be used as an instrument of control, expenses should be classified, as controllable and non-controllable items should not be reported as the responsibility of the manager of responsibility centre. The costs not within the control of the department should not be allocated to it. However, if the purpose is to budget for the cost of goods manufactured for each product, it is necessary to allocate the indirect costs. The budget can have all manufacturing expenses classified as fixed and variable expenses. This classification helps in the proper budget allowance being given, depending upon the level of activity attained.

Production Cost budget: Production cost budget covers direct material cost, direct labour cost and manufacturing expenses.

Ending inventory budget: This budget shows the cost of closing stock of raw materials and finished stock etc. This is required to prepare cost of goods sold budget and budgeted financial statement e.g. Income Statement and Balance Sheet.

Cost of goods sold budget: The budget covers direct material costs, direct labour costs, manufacturing expenses: inventory of finished goods.

Selling and Distribution Cost Budget: Selling costs are defined as the cost of seeking to create and stimulate demand and of securing orders. These costs are therefore incurred to maintain and increase the level of sales. All expenses connected with advertising, sales promotion, sales offices, salesman, credit collection, market research, after sales service etc. are generally grouped together to form part of the responsibility of the sales manager while making a budget, selling expenses are divided into fixed and variable. The problems faced in the preparation of selling cost budgets are:

- (i) Heavy expenditure on selling and sales promotion may have to be incurred when the volume of sales is falling off. This will increase the percentage of such costs to total sales.
- (ii) Sometimes, intensive sales and promotion efforts are called for one year and the benefit of such efforts accrue in the subsequent years. This makes it difficult to establish a proportion of selling cost to sales.

In spite of these problems some relationship between selling cost and volume of sales has to be established. Using the past experience as a guide, consideration should be given to the future trend of sales, possible changes in competition etc. in pre-determination of selling costs. Some of the specific standards that may be used for control purposes are:

- (i) Number of calls per period per salesman
- (ii) Number of new customers to be obtained
- (iii) Rupees of selling expenses per salesman
- (iv) Average size of the order to be obtained
- (v) Number of orders to be achieved per calls made
- (vi) Rupee sales quota per salesman per period.

A separate selling expenses budget should be developed for each responsibility centre in the sales function i.e. Head office and field submits, separately identifying controllable expenses and detailed by interim time period. They must also conform to the broad guidelines (planning premises) established by higher management, planned programme of work and their own judgment.

Distribution cost has been defined as the cost of sequences of operations which begins with making the packet product available for dispatch and ends with making the re-conditioned return empty package, if any, available for use. It includes transport costs, storage, warehousing costs etc. Many of them are engineered costs.

Preparation of the advertising cost budget is the responsibility of the sales manager or advertising manager. When preparing the advertisement cost budget consideration should be given to the following factors:

- (a) The best method of advertisement must be selected, costs, will vary according to the method selected
- (b) The maximum amount to be spent in a period, say one year has to be decided.
- (c) Advertising and sales should be coordinated. It means that money should be spent on advertisement only when sufficient quantities of the product advertised are readily available for sale.
- (d) An effective control over advertisement expenses should be exercised and the effectiveness of the advertisement should be measured.

The choice of the method of advertising a product is based on the effectiveness of the money spent on advertisement in increasing or maintaining sales. If the sales quantity increases, the promotion cost per unit will come down because of economies of scale.

The amount to be spent on advertisement each year, known as advertisement appropriation may be settled on the basis of following factors :

- (i) A percentage of the total sales value of the budget period or on the expected profits may be fixed on the basis of past experiences.
- (ii) A sum, which is expected to be incurred by the competitors, may be fixed to be spent during the period.
- (iii) A fixed sum per unit of output can be fixed and added to cost.
- (iv) An amount is fixed on the basis of ability of the company to spend on. advertising.
- (v) An advertisement plan is decided upon and the amount to be spent as per plans.
- (vi) Arbitrary appropriation.
- vii) The task method i.e. under this method certain practical objectives to be achieved by promotion and advertising are established and. then a programme consistent with these objectives is set up.

Depending upon the nature of the product and the effectiveness of the media of the advertising, the company prepares a schedule of various methods of advertisement to be. used for effective sales promotion. The no. of advertisement (insertion) are determined and the cost calculated as per the rates applicable to each of the media selected.

Administration expenses budget: Administration expenses are incurred for supervising and providing services to all the major functions of business. As most of these expenses are fixed in nature, there is a general feeling that they are uncontrollable. However, quite a large number of them are discretionary and influenced by managerial decisions and policies. Central administration in any company except the. very small ones, is carried on in a number of special responsibility centres, such as central administration, controllers department, treasurers department, personnel department, legal, public relations department. Each cost should be

identified with the related responsibility centre and the manager in charge should formulate the budget based on specific plans or programs of his department, past experience and anticipated changes in policies. Because of fixed nature of expenditure, the past data serves a useful purpose in budgeting administration expenses.

Research and Development budget: Research costs are required in order to develop and/or to improve products and methods. When research results in definite benefit to the company, development function begins. After development, formal production can commence on commercial scale and then production function starts. Since the areas of research and development cannot be precisely defined, the costs incurred are clubbed together as research and development costs.

Research may be either pure research or applied research. Pure research increase knowledge, where applied research aims at producing definite results like improved methods of production etc.

R & D should be controlled carefully and hence limit on spending is placed. The following are the methods of allocation of R & D expenses:

1. A percentage based on total sales value
2. A percentage based on net profit
3. A total sum is estimated based on past experience and future Rand D plans and policies.
4. A sum is fixed on the basis of each resource available with the company.
5. All factors that affect the importance of Rand D are considered e.g. Demand for existing products, competition, economic condition, etc. are considered and a sum set as R & D budget.

Capital Expenditure Budget Importance

- (i) It involves a large commitment of fund and its impact felt over a number of years.
- (ii) Once implemented cannot be easily abandoned.
- (iii) The need for capital expenditure arises due to the need to maintain growth and to meet customer demand and competition.
- (iv) Special attention is needed to prevent idle capacity as well as over investment,

The capital expenditure budget represent the planned outlay on fixed assets like land, building, plant and machinery etc. during the budget period, as part of appropriation of long period of years. The preparation of the budget is based on the following considerations:

- (i) Overhead on production facilities of certain department as indicated by the plant utilization budget.
- (i i) Future development plan to increase output by expansion of plant facilities.
- (iii) Replacement requests for the departments concerned.

While preparing the capital expenditure budget, considerations should also be given to factors like sales potential to absorb the increased output, possibility of price reductions, increased cost of advertising and sales promotion to absorb increased output etc.

The advantages of capital expenditure budget are the following:

1. It outlines the capital development programme and estimated capital expenditure during the budget period.
2. It enables the company to establish system of priorities. In case of shortage of funds, capital rationing becomes necessary.

3. It serves as a tool for controlling expenditure.
4. It provides the amount of expenditure to be incorporated to the future budget summaries for calculation of estimated return on capital employed.
5. Thus enables the cash budget to be completed. With other cash commitments capital expenditure commitment should also be considered for completion of the budget.
6. It facilitates the reduction programme, particularly when modernization and renovation is covered by this budget.

Zero-base Budgeting: Zero base as the name signifies, starts with the premise that the budget for the next period is "zero", unless the demand for a function, process, project or activity is justified for each rupee. The onus lies with each manager to justify the money spending vis-a-vis the effect, if the proposed activity is not carried out.

Why ZBB : In conventional budgeting, current years' budgets are worked out based on past figures plus some percentage to cover the inflation & expenses. There is no relationship between the expenditures made and the results obtained and there is no control over the inputs to the system and the outputs obtained. ZBB overcomes these limitations by starting with zero and then objectively determine the budget figures.

ZBB is not a new technique since every firm might have experienced this approach once in its life time e.g. at the time of formulating the first budget or when the reorganization of the firm calls for a budget revision.

ZBB approach originated in 1964 at the time of preparation of budget in the United States Department of Agriculture. It was however, an additional exercise on the top of the normal process. Later Peter A. Phyrr, a staff control manager at Texas Instruments Corporation, developed the technique and implemented for the first time during 1969-70 in Texas. Phyrr, wrote an article on "Zero-Base Budgeting" in Harvard Business Review (Nov-Dec. '70) and later wrote a book on it in 1973.

Application of ZBB: For application of ZBB there are two basic requirements:

- (i) there must be a budgeting system within the organization.
- (ii) Managers are required to develop quantitative measures for use in performance evaluation. ZBB process consists of identifying decision packages and then ranking them in order of importance through a cost-benefit analysis. Hence ZBB can be used on any activities, function or operations where a cost benefit relationship can be identified even if the evaluation is highly subjective.

(a) Industry - ZBB is more applicable to discretionary expense centres e.g. R&D, Administration and Support centres and Marketing centres

(b) Government - ZBB can be readily adapted to all Government activities since Government is a service organization.

Procedure for ZBB includes:

- (i) Identification of "decision units" i.e. the responsible centre.
- (ii) Analysis of decision units in terms of decision packages. A decision package is a document or form, which contains the following:
 - (a) A description of the function or activity
 - (b) The goal(s) or objective(s) of the function or activity
 - (c) Specific measures of performance.
 - (d) Benefits to be derived from financing the activity
 - (e) The consequences of its non-funding.
 - (f) The projected costs of the package.

(g) Alternative ways of performing the same activity.

Decision packages may be formulated in either of two ways:

- (a) Mutually exclusive packages: This represents identifying alternative means of performing the same function. The alternatives are ranked.
- (b) Incremental packages: This represents identifying sequential levels of effort and funding that may be expended on a specific function.
For mutually exclusive packages, there are several approaches to accomplishing. But within each of the several choices, incremental level of activities in achieving the ultimate objective of the function can be identified.

(iii) Evaluation and ranking of the decision packages to develop the appropriation requests.

The ranking establishes priorities among the incremental levels of each decision unit.

(iv) Preparation of the detailed operating budget reflecting the decision packages approved in the budget appropriation.

Since carrying out the process of ZBB for responsibility centre is a time consuming task, the ZBB review is usually conducted outside the regular annual budgeting process. However, once a zero-base review is conducted for a particular responsibility centre, its next annual budget will incorporate the recommendation flowing out of the zero: base review. The second zero-base review of this responsibility centre will come up in the next phase of review, which will begin once the zero base review has been conducted for all the discretionary expenses centres. The time period for the first zero base review may well be 4 to 5 years.

To summaries, ZBB aims at re-evaluating all activities to see if some of them should be eliminated, or funded at a reduced, increased or at the same level. The funding levels have to be decided keeping in view the priorities established by the top management and the availability of the total funding.



Standard Costing

An important element of Management Control System is setting up appropriate standards against which actual performance can be measured. In management control system the following types of standards can be used:

1. Historical Standards
2. External Standards and
3. Budgeting Standards.

Historical Standards are essentially records of past performance and are widely used in spite of their limitations. There are two principal problems with historical standards. First, the comparison may be invalid because of change in conditions between the period's e.g. Substantial changes in the competition, market prices, product mix, technology, and government policies. Secondly, if past performance becomes the bench mark for efficiency, past inefficiencies may remain hidden unless an attempt is made to know whether the performance was an acceptable standard e.g. if in a processing industry, the process loss is three percent during all months in the previous year, it will be difficult to conclude whether the production foreman has done a good job or not if there is no scientific way of estimating standard process loss.

External standards are generated from data of other similar organization or other similar departments in other divisions of the similar organizations e.g. the performance of one dairy plant can be compared with another dairy plant of the same capacity and having the same product mix. But the problem in using external standards is to find a comparable responsible centre operating under similar conditions and hence periodic comparison becomes difficult.

Budgetary standards, if drawn up properly, will motivate managers positively and achievement of targets will leave them with a feeling of satisfaction.

Setting of Standards: Standard is to be set by duly constituted authority. In small and medium sized companies, this authority would mean top management. In large companies, it is likely to be general manager of the division or a branch plant. It is seldom possible for busy top executives such as these to participate directly in the establishment of standards however.

The actual detailed work is properly delegated to members of the organization in direct possession of data needed. After tentative standards have been developed, top management will grant its final approval, either personally or through a standards committee, when satisfied that they are right. The design-engineering department will usually provide the **Standard quantities of materials**. After the design of the product has been finalized and blue prints have been approved for production, the engineers will compile a bill of materials or parts list, which will act as a guide to the purchasing department. Such list specifies in complete details the specification and quantity of material and purchased parts/components necessary to manufacture the product. With due adjustments for manufacturing scrap, it provides the best source of information for the establishment of material quantity standard.

Standard prices for materials and purchased parts can be established from the current records of the purchasing department. Taking into "account the cost of freight, the standard ordering quantity and whatever price differences may exist between alternative. Suppliers, standard prices can be set to reflect realistic current conditions. In case of new materials for which invoice information is not available, from price quotations from prospective suppliers. may be used.

Labour quantity standards are expressed as standard time per operation. The standards are useful when. they are the result of sound engineering studies. The industrial engineering

department studies the manufacturing operations, the equipment, tools and methods used; the machine rates of production and the productivity of the worker. When a time study is made of an operation, the industrial engineer considers the production by an average operator, working under normal conditions at a moderate pace, taking into account such factors as the length of the production run, machine set up time, breakdowns, delays due to waiting for material,

Interruption for personal needs and fatigue. Such analysis requires considerable skill and judgment on the part of the engineer.

Labour rate standards are more objectively established and quite readily available. If there is no union in the plant, management usually sets wage rates for the various operations and departments in accordance with prevailing rates in the local labour market and the industry. In a unionized plant, these rates are established by bargaining between union and company representatives, based largely on same factors. In either case, the prevailing wage rates are available in the payroll department, the personnel department or the plant superintendent's office.

The setting of standards for manufacturing overhead involves an analysis of expenses by various cost centres of the business. It is necessary that factory service department costs be carefully analyzed so that they may be allocated to production departments in a way that is both equitable and clerically feasible. It is also necessary to develop information as to the behaviour of each element of overhead with respect to change in the level of output i.e. fixed and variable components. Then one has to consider the output level i.e. capacity level. The average capacity, which allows both for unavoidable interruptions in a factory and for an average amount of idleness due to lack of sales orders, is normally considered. Capacity is measured in machine hours, or labour rupees as well as labour hours whichever is most relevant in a given instance. Therefore

$$\text{Standard manufacturing overhead per unit of volume} = \frac{\text{Estimated overhead for the year}}{\text{Estimated volume/capacity for the year}}$$

When a budget programme is used, the volume projections and overhead~ cost budgets should be used as the basis for computation of standard overhead rate since there is no logic in assuming that these estimates are more carefully analyzed when standard costs are being developed than when they be used in budgetary control systems.

It may be realized that, for purpose of budgeting, the cost amounts are listed by individual accounts according to expense categories by object. For product costing purposes, however, a detailed breakdown of the standard overhead rate by individual accounts is unnecessary.

Standard Overhead rate versus Flexible Budgeting:

The standard overhead rate combines fixed and variable costs into a single rate based on some index of activity, with the result it will treat all overhead as if it were variable: Flexible budgeting on the other hand, separates variable and fixed overhead factors, treating variable overhead as a rate and fixed overhead as an unchanging total amount over a range of volume.

PURPOSE OF VARIANCE ANALYSIS--

The primary purpose of various analyses is to facilitate management control. Therefore, reports should be made available just after the completion of actual performance otherwise the purpose is lost. Further, a routine may be established whereby monthly performance reports reach the individual who has to exercise control. Managers should be provided with variance reports

relevant to their area of controls. Such deviations if significant should be reported to the senior/top management using the concept of "Management by Exception", the purpose being to make the reports concise, selective and action-oriented. The variances are then, investigated to determine the underlying causes and once this has been done, the management can decide on the appropriate corrective actions.

The variances can be caused because of three major reasons:

1. Specific management decision taken to respond to some new developments not initially planned e.g. special advertising project not previously planned, decision to raise a salary to meet competitive efforts by another employees to attract a key employee. Such discretionary decisions will result in reported variances, variations of this type, must be identified, because once, identified, they need no further investigation.
2. Caused because of some uncontrollable factors due to exogenous variables e.g. changes in government policy for import of raw material. Such variances should be identified.
3. Due to controllable factors, which need to be carefully, investigated because it is in this area that corrective action is most needed.

The techniques of variance analysis, is a mathematical manipulation of two sets of data to gain some insights into the underlying causes of a variation. One amount is treated as the base, standard or reference point. Variance analysis, has wide applications and is frequently applied in the following situations:

1. Investigation of variations between actual results of the current period with the actual results of the prior period; the prior period is considered as the base.
2. Investigation of the variations between actual results and standards costs, the latter is treated as the base.
3. Investigation of the variations between actual results and budget goals, the latter is treated as the base.

Approaches to investigate variances : There are numerous ways to investigate variances, to determine the

underlying causes. Some of the primary approaches are:

- (a) Conferences with supervisors, foreman and sometimes other employees in the particular responsibility centres involved.
- (b) Analysis of the work situation including the flow of work, coordination of activities, effectiveness of the supervision and other prevailing circumstances.
- (c) Direct observation.
- (d) On the spot investigation by line officials.
- (e) Investigation by staff groups (specifically designated as to responsibilities)
- (f) Audits by internal audit staff. (g) Special studies.
- (h) Variance analysis.

Analysis of Material Variances:

Raw material variance are shown in two performance reports:

1. One that reports the performance of the purchasing manager and
 2. One (or more) that reports the performance of the manager(s) of the using department(s).
- Purchase manager is responsible for controlling:
1. The purchase price of raw materials and
 2. The timing and quantity of raw material purchases.

He is also responsible for developing the purchase budget that is incorporated in the annual profit plan. Thus the performance report of the purchasing department will show variance on account of quantity and price.

The manager of the using department is responsible for the quantity of raw materials used in producing a given quantity of output; however, he has no responsibility for the cost of the material, and hence the planned unit cost, of the raw material he uses. In case of multiple raw materials, the production manager may consume raw materials in a mix different from what was envisaged in the budget besides which the actual yield may differ from the budgeted yield. Therefore, the usage variance can be. Further analyzed in terms of a mix variance and a yield variance. .

Direct material cost variance is the difference between the standard cost of direct materials specified for the output achieved and the actual cost of direct materials used. Standard cost of direct materials allowed for the output achieved, is basically flexible budget totals and sometimes expressed as total standard costs allowed, and are computed as follows:

Units of Actual Output X Input allowed for Units of Output X Standard unit price of Input
=Total Standard Cost allowed

Units of output are measured of complete units of products or services generated by the activity or department. Since departments have an assortment of products, hours become a useful common denominator for measuring the total level of all production as Standard hours allowed for given quantity of output

Material Price Variance =(Actual unit Price-Standard Unit price) x Actual Inputs purchased

Material Usage Qty.) Variance =(Inputs actually used-inputs that should have been Used) x Std unit price of inputs

Material usage variance can be subdivided into two:

(i) Material Mix. Variance and (ii) Material Yield Variance

Material Mix. Variance =. (Actual total units of Material Inputs based as per Actual Mix - Actual totals units of materials inputs as for standard mix) x Standard unit price for each material type

Material Yield Variance = Diff. in yield i.e. (Standard yield (-) Actual Yield) X Std. Material Cost per unit of output Yield can be described as the amount of output derived from a certain amount of input.

Analysis of Direct Labour Variances : The variances for direct labour can be computed in the same manner as those for direct material. By applying the same schematic process to the labour data the following variances are developed - Rate variances and efficiency variances. Control of labour costs is somewhat different from that of material cost. First of all, the rates paid to the workers in the department are generally beyond the control of the superior since the basic rates are either set forth in the union agreement or those established by higher management. Further more, during periods of peak production, workers are provided on a temporary basis from other parts of the plant. The labour rate variance is likely to be of greater concern to the plant superintendent or the personnel department by way of appraising the effectiveness of deployment of workers throughout the plant.

The labour efficiency variance will generally be of direct concern to the superior since this is a gauge of the productivity of labour in the department. Sometimes managers are able to

modify the max of labour used to produce a product or servicing e.g. manufacturer may use less skilled labour for an assembly activities when standard call for skilled labour. Changes from the expected max. of labour resources may occur because of labour shortages, changes in production schedules, attempts to reduce costs, strikes and for other reasons. A higher proportion of skilled labour results in a favourable labour yield variance. The objective is to generate a large enough labour yield variance to more than offset unfavourable labour mix variances.

$$\frac{\text{Direct Labour Cost Variance}}{\text{for output achieved}} = \frac{\text{Standard Cost of Direct labour} - \text{Actual Cost of Direct labour}}$$

This is basically variance from flexible budget:

Labour Rate Variance = Difference in Rates x Actual hours for the output achieved

Labour Efficiency Variance = Difference in Hours x Standard Rate, for the output achieved

Labour Efficiency Variance can be subdivided into two:

(i) Labour Max. Variance and (ii) Labour Efficiency Variance

Labour Max. Variance = (Actual Total units of labour hours used as per Actual Mix - Actual total units of labour hours used as per. Standard Mix.) x Standard rate for each grade/type of labour

Labour Yield Variance = Diff. in yield (Standard yield - Actual yield in terms of output) x Standard labour cost per unit of output

Or, Alternatively =

Actual units of labour input used - Std. units of labour input allowed for actual outputs) x Std. Avg. price per unit of labour inputs)