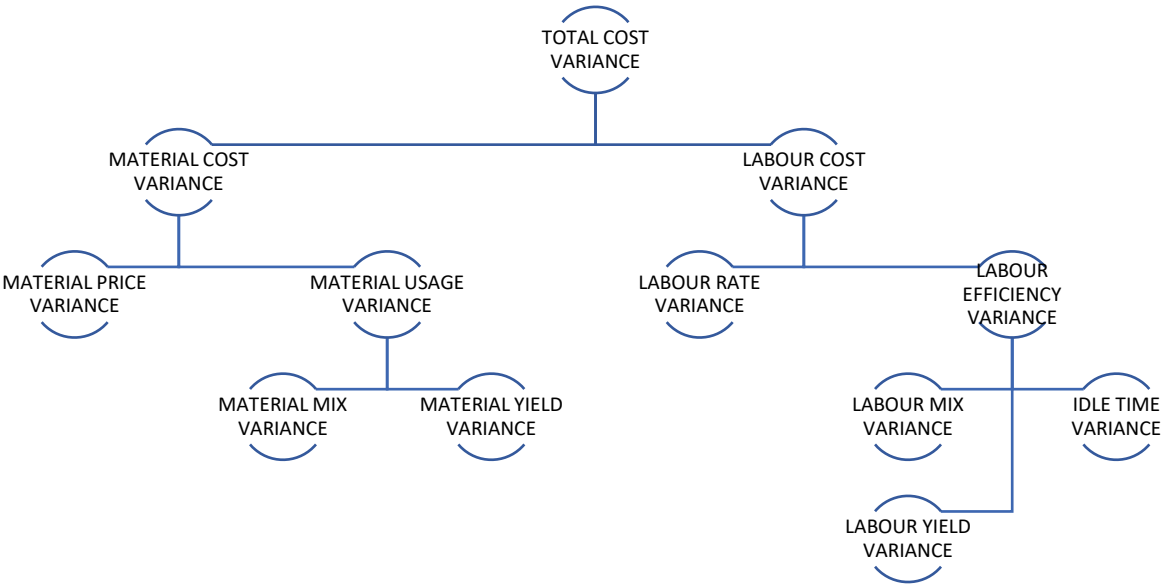
UNIT-4

- ## Standard Cost and Standard Costing:
  - ### Meaning
    - ✓ **Standard Costing:**
      - ➢ Standard Costing is a concept of accounting for determination of standard for each element of costs.
      - ➢ These predetermined costs are compared with actual costs to find out the deviations known as "Variances."
      - ➢ Preparation and use of standard costs, their comparison with actual costs and the analysis of variances to their causes and points of incidence.
    - ✓ **Standard Cost:**
      - ➢ Pre-determined Cost which determines what each product or service should cost under given circumstances.
      - ➢ Predetermined Cost based on technical estimate for materials, labour and overhead for a selected period and for a prescribed set of working conditions.
  - ### Advantage
    - ✓ It guides the management to evaluate the production performance.
    - ✓ It helps the management in fixing standards.
    - ✓ Standard costing is useful in formulating production planning and price policies.
    - ✓ It guides as a measuring rod for determination of variances.
    - ✓ It facilitates eliminating inefficiencies by taking corrective measures.
    - ✓ It acts as an effective tool of cost control.
    - ✓ It helps the management in taking important decisions.
    - ✓ It facilitates the principle of "Management by Exception."
    - ✓ Effective cost reporting system is possible.
  - ### Limitation
    - ✓ Standard costing is expensive, and a small concern may not meet the cost.
    - ✓ Due to lack of technical aspects, it is difficult to establish standards.
    - ✓ Standard costing cannot be applied in the case of a- concern where non-standardised products are produced.
    - ✓ Fixing of responsibility is difficult. Responsibility cannot be fixed in the case of uncontrollable variances.
    - ✓ Frequent revision is required while insufficient staff is incapable of operating this system.
    - ✓ Adverse psychological effects and frequent technological changes will not be suitable for standard costing system.
  - ### Application
    - ✓ The application of standard costing requires certain conditions to be fulfilled. These are:
      - A sufficient volume of standard products or components should be produced.
      - Methods, operations and processes should be capable of being standardized.
      - A sufficient number of costs should be capable of being controlled.
    - ✓ Industries producing standardized products which are repetitive in nature, i.e., industries using process costing method, fulfil all the above conditions and thus the system can be used to the best advantage in such industries. Examples are fertilizers, cement, steel and sugar.
    - ✓ In jobbing industries, it is not worthwhile to develop and employ a full system of standard costing. This is because in such industries each job undertaken may be different from another and setting standards for each job may prove difficult and expensive. In such industries, therefore, a partial system may be adopted in appropriate circumstances. For example, certain processes and operations performed may be of a repetitive nature and thus the principles of standard costing may be applied by setting standard for each such process or operation.



- **Material Cost Variance & Labour Cost Variance**

Material Variances

I Direct Material Cost Variance (MCV)

It is the diff b/w standard cost of direct materials for the output achieved and the actual cost of direct materials used

MCV = Standard Cost of actual output (SC) − Actual cost (AC)

OR

= (Standard quantity for actual output × Standard Price) − (Actual Quantity × Actual Price)

SQ × SP − AQ × AP

(i) Material Price Variance (MPV)

That portion of MCV which is due to diff. b/w the standard price specified and actual price paid

MPV = (SP − AP) × AQ

Arises due to change in price of materials, not availing cash discounts as assumed by standards, change in delivery cost, change in tax, rush purchase etc.

(ii) Material Usage Variance (MUV)

That portion of material variance that arise due to diff. b/w the standard quantity specified and actual quantity used.

$$MUV = (SQ - AQ) \times SP$$

Arises due to defective materials, careless use of materials, defect in machinery, change in quality of material, poor workmanship etc.

$$MCV = MPV + MUV$$

(a) Materials Mix Variance (MMV)

That portion of ~~waste~~ MUV which is due to diff. b/w standard and actual composition of materials

$$MMV = \left(\begin{matrix}\text{Revised Standard Quantity} \\ RSQ\end{matrix} - \begin{matrix}\text{Actual Quantity} \\ AQ\end{matrix}\right) \times \begin{matrix}\text{Standard Price} \\ SP\end{matrix}$$

$$RSQ = \frac{\text{Standard Quantity of one material}}{\text{Total of standard quantities of all materials}} \times \text{Total of actual quantities of all materials}$$

Arises due usage of mixture of material for production which is diff. from predetermined mixture.

(b) Material Yield Variance (MYV)

That portion of the MUV which is due to the diff. b/w standard yield specified and actual yield obtained.

It is an output variance while others are input variances.

Arises in process industries where loss of materials in production is inevitable.

$$MYV = \left(\begin{matrix}\text{Actual Yield} \\ AY\end{matrix} - \begin{matrix}\text{Standard Yield} \\ SY\end{matrix}\right) \times \begin{matrix}\text{Standard Output Price} \\ SOP\end{matrix}$$

SOP is standard material cost per unit of output

Labour Variances

II Labour Cost Variance (LCV)

Diff. b/w the standard direct labour cost specified for the activity achieved and the actual direct labour cost incurred

$$LCV = \begin{matrix}\text{Standard labour Cost of actual Output (SC)} \\ \bullet\end{matrix} - \begin{matrix}\text{Actual labour Cost (AC} \\ \bullet\end{matrix}$$

OR

$$= \left(\begin{matrix}\text{Std. hrs for Actual Output} \\ SH \times SR\end{matrix} \times \begin{matrix}\text{Std. rate per hour}\end{matrix}\right) - \left(\begin{matrix}\text{Actual hours} \\ AH \times AR\end{matrix} \times \begin{matrix}\text{Actual rate per hour}\end{matrix}\right)$$

(i) Labour Rate Variance (LRV)

That portion of LCV which is due to diff. b/w the standard rate of labour specified and actual rate paid.

$$LRV = (SR - AR) \times AH$$

Arises due to change in basic wage rate, unscheduled overtime, using diff. method of wage payment etc.

(ii) Labour Efficiency Variance (LEV)

That portion of LCV which is due to diff. b/w labour hours specified for actual output and actual labour hours ~~expect~~ expended.

$$LEV = (SH - AH) \times SR$$

Arises due to poor working conditions, inefficient workers, defective tools and machinery, defective material, insufficient training of workers etc.

(a) Idle Time Variance (ITV)

That portion of LEV which is due to abnormal idle time.

Arises due to machine break-down, power failure, strike etc.

Unfavourable as they show time wasted

$$ITV = \text{Idle Hours} \times SR$$

(b) Labour Mix Variance (LMV)

Arises when more than one grade of workers employed which differs from specified composition of workers.

That portion of LEV which arises due to difference in specified composition and actual composition of workers.

$$LMV = \left(\begin{matrix}\text{Revised Standard} \\ \text{Hours} \\ RSH\end{matrix} - \begin{matrix}\text{Actual} \\ \text{Hours} \\ AH\end{matrix}\right) \times \begin{matrix}\text{Standard Rate} \\ SR\end{matrix}$$

$$RSH = \frac{\text{Std. hrs of the grade} \times \text{Total actual hours}}{\text{Total Std. hrs}}$$

(c) Labour Yield Variance (LYV)

Reveals the effect on labour cost of actual output or yield being more or less than the standard yield.

$$LYV = \left(\begin{matrix}\text{Actual} \\ \text{Yield}\end{matrix} - \begin{matrix}\text{Std. Yield from} \\ \text{actual input}\end{matrix}\right) \times \begin{matrix}\text{Std. labour cost} \\ \text{per unit of} \\ \text{output}\end{matrix}$$

- **Target Costing**
  - In a traditional "cost- plus' price method, the selling price of a product is set on the basis of total cost plus desired profit.
  - But it musts be accepted that in a competitive market, a company has little influence over the selling price of its product.
  - This view is based on the ground that it is not for the customer to ensure a profit to the manufacturer.
  - The price of a product must be on the basis of what the market is willing to pay.
  - Target costing is a method of determining the cost of a product or service on the basis of competitive price prevailing in the market.
  - It is the market price that determines, the cost of a product and not the cost that determines the selling price.
  - Target costing is defined as 'a cost management tool for determining and realizing a total cost at which a proposed product with specified functionality must be produced to generate the desired profitability at its anticipated selling price in the future."
  - Thus:
    Target cost = Competitive market price - Required profit
  - **For example**, if a manufacturer has target a profit of 25,000 on a new product by producing and selling 50,000 units at a price of $4 per unit,

Sales 50,000 units @ $4	**$2,00,000**
Desired profit	**$25,000**
Target cost	**$1,75,000**

- **Life Cycle Costing**
  - There are several techniques which may be used for evaluating the economic performance of investment projects Life-cycle cost analysis is one such technique.
  - Under this technique, the total cost of ownership of competing alternative projects, like machinery and equipment, spanning the full anticipated life, is established.
  - As it encompasses the entire life span of the project and provides a long-term perspective, it is also called whole life costing.
  - In life-cycle cost analysis, all the relevant costs of the project, that occur throughout its life, not only the original expenditure, are considered i.e. includes the initial one time cost (non-recurring) and all recurring costs over the full life span of the equipment.
  - It is for this reason that life-cycle costs are called cradle to grave costs or womb to tomb costs.
  - Defined as accumulation of costs for activities that occur over the entire life-cycle of a product, from inception to abandonment by the manufacturer and the customer.
  - Thus life- cycle cost is the total cost of ownership of plant and machinery, which includes the cost of acquisition, operation, maintenance, spares, upgrading and/or decommission.
  - The objective of life-cycle cost analysis is to help the management in choosing the most cost-effective alternative, from a number of available options, so as to achieve the lowest long-term cost of ownership.
  - Value of money decreases with time, this means time value of money must also be given due consideration, i.e., all future costs must be adjusted to their present value.
  - This is called **discounting**, which is a technique used to compare costs and benefits that occur in different time periods.
  - Life-cycle costing considers the full cost of ownership, which extends over a numbers of years; it must discount the total cost being considered in the present value format.
- **Quality Costing**
  - Also known as cost of quality (COQ),
  - It is a management tool that helps organizations evaluate the cost associated with maintaining and improving the quality of their products or services.
  - It involves identifying and categorizing the various costs related to quality activities throughout the entire product or service life cycle.
  - The main idea behind quality costing is that investing in prevention and appraisal activities can reduce the cost of internal and external failures, ultimately leading to higher overall quality and lower total costs.
  - The cost of quality is typically divided into four categories:

    - **Prevention Costs:** These are the costs incurred to prevent defects and errors from occurring in the first place. Prevention costs include activities such as training employees, implementing quality management systems, conducting design reviews, and improving production processes.
    - **Appraisal Costs:** These costs are associated with evaluating and inspecting products or services to ensure that they meet the required quality standards. Appraisal costs include activities like inspection, testing, quality audits, and supplier evaluations.
    - **Internal Failure Costs:** These costs arise when defects or errors are detected before the product or service reaches the customer. Internal failure costs include rework, scrap, retesting, and downtime caused by quality issues.
    - **External Failure Costs:** These costs occur when defects or errors are identified after the product or service has been delivered to the customer. External failure costs can include warranty claims, customer returns, product recalls, and the cost of handling customer complaints.
  - The goal is to minimize internal and external failure costs by investing in prevention and appraisal activities, which ultimately leads to increased customer satisfaction and reduced overall costs in the long run.
  - Quality costing is a crucial aspect of Total Quality Management (TQM) and helps organizations continuously improve their products and services to meet customer expectations.

- **<u>Activity Based Costing</u>**
  - that costing in which costs begin with tracing of activities and then to producing the product.
  - It is the process of costing system which focuses on activities performed to produce products.
  - assumes that activities are responsible for incurrence of costs and products creates demand for activities
  - Costs are charged to products based on individual product's use of each activity
  - aims at identifying as many costs as possible to be subsequently accounted as direct cost of production.
  - Any cost that is traced to a particular product via its consumption of activity becomes direct of the product.
  - For instance, in conventional costing system, cost of setup and adjustment time is considered as factory overhead and subsequently assigned to different products on the basis of direct labour hours. But in Activity-Based Costing, setup and adjustment time is determined for each product and its costs are directly charged to each product.