

Cost and its type

Cost is the monetary value that a company has spent to produce something.

Cost denotes the amount of money that a company spends on the creation or production of goods or services.

It is an amount that is recorded as an expense in book-keeping records.

A cost might be an expense or might be an asset.

Costs are classified into following categories

Elementwise classification of cost	Classification based on behavior or Volume	Classification of costs by Inventory	Classification based on the ability to trace
1. Material	1. Fixed cost	1. product cost	1. Direct cost
2. Labor	2. Variable cost	2. period cost	2. Indirect cost
3. Expenses	3. semi-variable cost		

④ Elementwise classification of cost

The cost of production/manufacturing consists of various expenses incurred on the production of goods or services.

1. Material cost

To produce manufacturer a product material is required

for eg To Manufacture shirts, cloth is required

To produce flour, wheat is required

It is of two types \rightarrow Direct and Indirect material

2. Labor cost

for conversion of raw material into finished goods, human resource is required and such human resource is termed as labor

Labor cost is the main element in a product or service.

It is of two types \rightarrow Direct and Indirect labor

3. Expenses

All costs incurred in the production of goods or services except material and labor cost are termed as expenses

It is of two types \rightarrow Direct and Indirect expenses

Indirect expenses = Indirect material + Indirect labor + direct cost.

(CVP analysis) Break Even Analysis

{cost value profit analysis}

\rightarrow indicator of financial performance

\rightarrow fixed cost {rent, salaries, depreciation, repair and maintenance}

\rightarrow Variable costs {raw material, direct commission, labour}

④ Classification based on Behavior or Volume

1. fixed cost

The cost that don't vary with changing output. fixed cost might be cost of building a factory, insurance and legal bills

2. Variable cost

The cost which depend on the output produced. for eg if you produce more cars you have use more raw material

3. Semi-variable cost

Labor might be a semi-variable cost. for eg If you produce more cars you need to employ more workers, however if you don't produce any cars you still need workers to look after an empty factory.

Total cost = Fixed + Variable costs

④ Classification of costs by Inventory

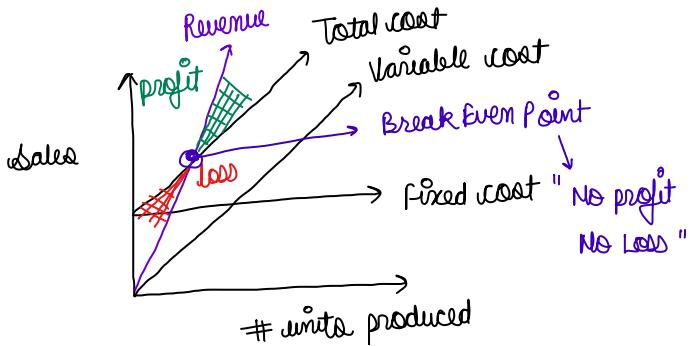
1. Product cost

The cost of manufacturing the product are called as product cost.

It includes direct material, direct labor

At Break Even point "Equilibrium"

$$\text{Total cost} = \text{Total Revenue}$$



direct expenses and manufacturing overheads

2. Period cost

The cost which cannot be allocated to the product, but belongs to a particular period is called period cost.

It includes all fixed, costs and total administration, selling and distribution costs

④ Classification based on the ability to trace

1. Direct costs

Direct costs are those in which costs are directly related to production or maintenance.

In the process of manufacturing a product material is purchased

wages are paid

other expenses are also incurred directly,

All these expenses are called as direct expenses

2. Indirect cost

Cost which are not directly related to manufacture or production.

e.g. oil and scrap material, depreciation etc

Break-even analysis

Break even analysis refers to the point in which total costs and total revenue are equal. In other words, it means the point at which you will have sold enough units to cover all of your costs.

Break even analysis is a financial calculation used to determine a company break-even point so to mean that it has neither gained nor lost money

$$\text{Break even point} = \frac{\text{Fixed costs}}{\text{Sales price per unit} - \text{variable cost per unit}}$$

▷ PVR \rightarrow Profit Volume Ratio

$$\text{PVR} = \frac{\text{Sales} - \text{VC}}{\text{Sales}} \times 100$$

VC \rightarrow variable cost

$$\text{PVR} = \frac{\text{FC}}{\text{BEP}}$$

$$\text{PVR} = \frac{\text{P} + \text{FC}}{\text{Sales}} \times 100$$

P = Profit

FC = fixed cost

S = Sales

$$3) BEP = \frac{FC}{PVR}$$

$$BEP = \text{Sales} - MOS$$

MOS = Margin of safety

$$MOS = \frac{P}{PVR} \times 100$$

$$MOS = \text{Sales} - BEP$$

3) Benefit

$$P = \text{Sales} \times PVR - FC$$

$$4) Sales = \frac{P + FC}{PVR}$$

Q1 Find out BEP when FC = 10,000

Sales = 40,000, unit sold = 4000 and VC = 24000

$$PVR = \frac{S - VC}{S} \times 100$$

$$= \frac{40000 - 24000}{40000} \times 100 = 40\%$$

$$BEP = \frac{FC}{PVR} = \frac{10000}{240} \times \frac{5}{100}$$

$$= \frac{10000}{240} = 25000$$

$$BEP (\text{units}) = \frac{BEP}{SP} = \frac{25000}{10} = 2500$$

$$SP = \frac{\text{Sales}}{\text{Units sold}} = \frac{40000}{4000} = 10$$

Q2 Given $PC = 20000$ $VC = 2$ per unit
 $SP = 10$ per unit

$$\text{Total sales} = 50000$$

Calculate

$$1) BEP = \frac{PC}{PVR}$$

$$PVR = \frac{S - VC}{S} \times 100 = \frac{10 - 2}{10} \times 100 = 80\%$$

$$BEP = \frac{50000}{20000} \times \frac{5}{100} = 25000$$

$$BEP (\text{per unit}) = \frac{BEP}{SP} = \frac{25000}{10} = 2500 \text{ unit}$$

2) Profit when sales are £ 40,000

$$P = PVR \times \text{Sales} - FC$$

$$= 0.4 \times 40000 \times 80\% - 20000$$

$$= £12000$$

3) Sales to earn a profit of ₹ 16000

$$\begin{aligned}
 \text{Sales} &= P + FC \\
 &= \frac{P}{PVR} \\
 &= \frac{16000 + 10000}{40} \\
 &= \frac{26000}{40} \\
 &= 6500 \\
 &= 14000 - 8000 \\
 &= 56000 \\
 &= 56000 \times 105 \\
 &= 58400 \\
 &= 70000 \\
 &= 36000 \times 105 \\
 &= 36000 \\
 &= 45000
 \end{aligned}$$

Margin of Safety

It is a financial ratio that measures the amount of sales that have exceeded the break-even point.

$$MOS = \text{Sales} - \text{BEP}$$

Marginal cost (Variable cost)
The cost of one additional unit of output is called Marginal cost

Q) Find ~~unit~~ BEP when sales = 40000
 $VC = 24000$ $FC = 10000$ unit sold = 40000

$$\begin{aligned}
 PVR &= \frac{S - VC}{S} \times 100 \\
 &= \frac{40000 - 24000}{40000} \times 100 \\
 &= 40\%
 \end{aligned}$$

$$\begin{aligned}
 P &= \text{Sales} \times PVR - FC \\
 &= 40000 \times \frac{40}{100} - 10000 \\
 &= 16000 - 10000 = 6000
 \end{aligned}$$

$$\begin{aligned}
 \text{BEP} &= \frac{FC}{PVR} \\
 &= \frac{10000}{\frac{40}{100}} = 25000
 \end{aligned}$$

$$\begin{aligned}
 MOS &= \text{Sales} - \text{BEP} \\
 &= 40000 - 25000 = 15000
 \end{aligned}$$

Ratio Analysis

Types of Ratios \rightarrow assets/liabilities

- ① Liquidity Ratios {Current ratio, quick ratio}
- ② Solvency Ratios {Debt Equity Ratio, Total Assets to Debt Ratio, Proprietary Ratio, Interest coverage Ratio}
- ③ Turnover Ratios {ITR, TRTR, TPTR, WCTR}
- ④ Profitability Ratios {GPR, NPR, OPR, OR, ROI}

Ratio Analysis

Ratio analysis is an accounting method that uses financial statements like balance sheet and income statements to gain insights into a company's financial health.

It is a tool to determine from outside that what is happening inside of a business because the financial statements required to perform ratio analysis are available to general public.

Ratio analysis help to determine various aspects of an organisation including profitability, liquidity, and market value.

Uses Ratio analysis are used to compare company's financial state with other or with own's financial history.

Types of Ratio Analysis

1) Profitability ratio.

The profitability ratio is the ratio of company's net income to its revenue.

$$\frac{\text{Net profit}}{\text{Net Sales}} \times 100 = \text{Net Profit Margin}$$

It shows that how well a company has turned its revenue into profit.

2) Liquidity ratio

It shows whether the company can pay off its current liabilities with its current assets.

$$\text{Current ratio} = \frac{\text{Current assets}}{\text{Current liabilities}}$$

3) Market Value ratio

It evaluates a business by its current share price to its earning per share.

$$\text{P/E ratio} = \frac{\text{Market value per share}}{\text{Earning per share}}$$

$$\text{P/E ratio} = \frac{\text{Profit}}{\text{Earning}} / \text{Ratio}$$

Advantages

- 1) Ratio analysis helps to compare and evaluate the financial position of firms.
- 2) Ratio analysis helps to identify the problem area and bring the attention of the management to such areas.
- 3) Ratio analysis helps the organization to better understand its fiscal position in the economy.
- 4) Ratio analysis helps in determining both liquidity and long-term solvency of the firms.
- 5) Ratio analysis helps in forecasting and planning by performing trend analysis.

Disadvantages

- 1) Financial statements seem to be complicated.
- 2) Ratio analysis ignores the price level changes due to inflation.
- 3) Ratio analysis ignores the qualitative aspects of the firm.
- 4) There are no standard definitions of ratios.
- 5) Ratios do not resolve any financial problems.

1) Current ratio $CR = \frac{CA}{CL}$

2) Liquid ratio $LR = \frac{LA}{CL}$

$LA = CA - Stock - Prepaid expenses$

3) $COGS = \frac{\text{Cost of goods sold}}{\text{Sales - Gross Profit}}$

$\text{Avg Stock} = \frac{\text{Op Stock} + \text{Cl Stock}}{2}$

4) Debtor turnover ratio (DTR)

$= \frac{\text{Avg Trade receivables}}{\text{Net credit sales / sales}} \times 100$

$\text{Avg Trade receivables} = \text{Debtors} + \text{Bills receivable}$

5) Avg collection Period (ACP)

$= \frac{\text{Avg Trade receivables} \times \text{no of working days}}{\text{Net credit sales}}$

6) Creditors turnover ratio (CTR)

$= \frac{\text{Avg Trade Payables}}{\text{Net credit purchase}} \times 100$

$\text{Avg Trade Payables} = \text{Creditors} + \text{Bills Payables}$

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DATE	PAGE	DATE	PAGE
	"Rough 'n' Fair"		"Rough 'n' Fair"
7. Average Payment Period		Inventory "STR" = $\frac{\text{cost of goods sold}}{\text{avg stock}}$	
$= \frac{\text{Avg Trade Payables}}{\text{Net Credit Payables}} \times 360 \text{ or } 365$			
8. COGS = Sales - Gross Profit			
9. Gross Profit ratio = $\frac{\text{gross profit}}{\text{net sales}} \times 100$		Calculate: CR - 2.5 : 1 DR - 1.6 : 1 GP to sales - 20% Stock Turnover - 4 times DTR - 9.4 times N.P to paid up capital - 10 : 1	
10. Net profit ratio = $\frac{\text{net profit}}{\text{net sales}} \times 100$			
11. Debt equity ratio = $\frac{\text{long term debt}}{\text{shareholders fund}} \times 100$			
<u>Q</u> Trading and P/L			
To off stock 15000	By Sales 75000		
To purchases 61000	By Cr. stock 155000		
To GP 150000		405000	
<u>905000</u>			
To Sundry exp 80000	By GP 150000		
To NP 70000		150000	
<u>150000</u>			

Budgeting

It is a short-term financial plan which acts as a guide to achieve pre-determined targets.

A financial or quantitative statement prepared prior to a defined period of time of the policy to be pursued during the period for the purpose of attaining a given objective.

The use of budgets to control the firm's activities is known as budgetary control.

It is a system in which budgets are prepared & the actual results are compared with the forecasted one with the purpose of fixing up responsibility for the deviation.

Objectives

- 1) Planning: To ensure planning for future by setting up various budgets.
- 2) To co-ordinate the activities of different departments.

- 3) To operate various departments with efficiency and economy
- 4) Elimination of wastage and increase in profitability
- 5) To centralise the control system.
- 6) Fixation of responsibility of various individuals in the organisation
- 7) correction of deviation from the established standards.

Types of Budget

- Based on time

Short term Budget	1-2 yrs
current Budget	1 week / 1 month
Long term Budget	5-10 yrs

- Based on function

Financial Budget	cash, income statement, position statement
Operating Budget	product sales, production, labor
Master Budget	Integrate the budget

- based on flexibility

Fixed Budget
Flexible Budget

It remains the same
irrespective of
changed situation

It assumes that
conditions will remain
same

costs are not classified
acc. to their nature

forecasting of accurate
result cannot be done

It cannot be changed

Comparison b/w actual
and budgeted data cannot
be done correctly

Static in nature
Simple

It meant to suit
the changed situation
adjustments can be
made if situation demands

It is changed if level
of activities varies

costs are classified
acc. to the nature

forecasting of accurate
result can be done

It can be changed

done
correctly

Dynamic
Complex

Q1 The details of cost and sales of a firm at an
output level of 60000 units are as follows

Sales	156000
Raw Material	66000
Labor	33000
Semi variable overheads	11000
Fixed overheads	10000
Profit	60000

Semi variable include fixed cost of ₹ 12000
If the firm wants to maintain the profit at
a present level of ₹ 10000 when selling
price it should fix at the output level
of 110000 units.

Limits	60000	110000
Variable expenses:	Raw material	66000

$$\frac{30000 \times 60}{100} \\ 18000 \\ 12000$$

$$\frac{24000 \times 60}{100} \\ 14400 \\ 800$$

$$\frac{40000 \times 40}{100} \\ 16000 \\ \text{DATE: } \frac{16000}{100} \\ \text{PAGE: } \frac{16000}{100} \\ \text{*Rough 'n Fair*} \\ 16000 \\ 16000 \\ 24000$$

Flexible Budget

	60%	80%	100%
variable expenses 600 units			
Material @ 10 60000	80000	100000	
labour @ 40 24000	32000	40000	
expenses @ 10 60000	8000	10000	
total cost 90000	120000	150000	

Semi-variable

	16000	16000	16000
factory exp (40%)	16000	16000	16000
@ 40 (60%)	24000	32000	40000
Administration exp (60%)	16000	16000	16000
@ 20 (40%)	12000	16000	20000
Total cost	160000	202000	240000

$$\frac{800}{16000} \\ 16000 \\ 31600$$

$$\text{less per unit } 277.7$$

$$\frac{100}{600 \times 60} = 600 \\ 600 \times 100 = 6000$$

$$\frac{100}{600 \times 100} = 1000 \\ 600 \times 100 = 6000$$

	80%	100%	120%	140%
variable				
Material @ 15	6,00,000	7,20,000	8,40,000	9,60,000
labor @ 10	400000	500000	600000	700000
semi-variable				
factory (30%)	60,000	72,000	84,000	96,000
@ 35 (70%)	105000	126000	147000	168000
office (40%)	48000	57600	67200	76800
@ 16 (60%)	54000	64800	75600	86400
selling (50%)	40000	48000	57600	67200
@ 1 (50%)	30000	36000	43200	50400

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$$\frac{100}{20000 \times 60} \\ 2000000 \times 30 \\ 100 \\ = 60000$$

$$\frac{100}{12000 \times 40} \\ 1200000 \times 40 \\ 100 \\ = 48000$$

$$\frac{100}{8000 \times 50} \\ 800000 \times 50 \\ 100 \\ = 40000$$

$$\frac{100}{2025000} \\ 2025000 \\ 1556500$$

$$\frac{100}{1087000} \\ 1087000$$